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# PREVENTING ALCOHOL ABUSE AND ALCOHOL-RELATED PROBLEMS THROUGH COMMUNITY INTERVENTIONS: A REVIEW OF EVALUATION STUDIES

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In recent years community-based initiatives have emerged as the most widely heralded and promoted alcohol and drug abuse prevention strategy in the USA. In this paper we critically review those studies (n = 8) that have presented data designed to assess the effectiveness of community-based alcohol abuse prevention programs. The majority of these studies report minimal program effects, even over the immediate post-intervention period. Their principal limitations appear to be (1) a failure to generate community involvement in the design and implementation of program activities and (2) an inability to impact upon community-level processes. Three studies recently initiated in the USA are then discussed. These address more directly than previous efforts the issue of whether change in systems-level influences can be achieved through community-based interventions, while also attempting to broaden the target audience of intervention programs and encouraged greater community participation. Among the numerous challenges that remain in the area of alcohol abuse prevention research is to develop and implement community-based programs in "high risk" urban settings, where the markets for alcohol and other drugs tend to concentrate due to economic conditions.

KEY WORDS: Alcohol abuse, alcohol-related problems, community interventions.

Alcohol use and abuse result in considerable morbidity (both physical and psychiatric) and mortality in the United States (Secretary of Health for Human Services, 1990). Among the adult population, this takes the form of chronic conditions, notably liver disease and cirrhosis. In contrast, alcohol use by adolescents is hazardous in the short-term since it greatly increases involvement in other "risky" or "problem behaviors" such reckless driving, violent and self-destructive acts, and sexual intercourse (and hence risk of HIV infection and pregnancy) (US Department of Education, 1993). Despite recent reductions in the USA, automobile accidents remain the leading cause of death among youth (Hingson, Howland, and Levenson, 1988). Early initiation into alcohol use is also hazardous as it is associated with later progression to illicit

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substances such as marijuana and cocaine (Kandel, 1975; Kandel and Yamaguchi, 1993). Given the role that alcohol plays in adolescent morbidity and mortality, it is not surprising that among the objectives set for the year 2000 by the US Public Health Service is a reduction in the use of alcohol by young people (US Public Health Service, 1991.)[1]

Most efforts within the USA to prevent alcohol use and related problems among adolescents attempt to reduce *demand*. The strategy most frequently used in these efforts is the school-based program, organized around a set curriculum (Moskowitz, 1989). Developments in curricula over the past thirty years can be described in terms of three phases in which specific theoretical models have dominated research and practice (Botvin, 1990; Perry and Kelder, 1992). During the first phase (early-1960s to early 1970s), drug use was considered to be the result of ignorance on the part of adolescents, and *information-based* curricula were developed. These were concerned primarily with imparting factual information about the effects of drugs. Evaluations of these programs were, for the most part, concerned with assessing their impact on knowledge and attitudes rather than behavior, and showed that they were at best ineffective and at worst detrimental (Kinder, Pape and Walfish, 1980; Randall and Wong, 1976). During the second phase, (early-1970s to early-1980s), drug use among adolescents was considered to be the result of low self-esteem, poor decision-making skills and confused value systems, and *affective* curricula, most of which made no actual reference to drug use, were dominant. A series of reviews indicated that these programs had little influence on either drug use or hypothesized intervening variables such as self-esteem (Botvin, 1990; Moskowitz, 1989). The *social influence* model - of which there are two basic types (*resistance skills training* and *life skills training*) - has dominated the third phase of drug abuse prevention (early-1980s to present). Resistance skills training curricula (e.g., Ellickson and Bell, 1990) focus on teaching adolescents the skills considered necessary to identify and resist the social pressures to use drugs, which are thought to emanate primarily from the media and from peers. Life skills training curricula (e.g., Botvin, Baker, Dusenbury, Tortu and Botvin, 1990) teach resistance skills also, but include addition components that focus on more general social skills such as anxiety management and assertiveness. Proponents of these approaches argue that available research shows them to be effective in reducing alcohol, cigarette and illicit drug use among adolescents (e.g., Botvin, 1990; Perry and Kelder, 1992). More recently, however, critics have argued that the effectiveness of social influence programs has been overstated (Brown and Horowitz, 1993; Gerstein and Green, 1993; Gorman, 1992a, 1992b, 1994, in press; Lamarine, 1993). In addition, others have observed that prevention programs that are premised on "individual-only

[1]It should be noted that as far as adults are concerned, the issue of prevention is somewhat complex. For while there is considerable evidence showing that a high proportion of hospital admissions and primary care patients report alcohol-related problems (Coulehan, Zettler-Segal, Block, McClelland and Schulberg, 1987; Potamianos, Gorman, Duffy and Peters, 1988), case-control and cohort studies suggest that alcohol use may in fact reduce risk of some health problems such as coronary heart disease (Turner, Bennett and Hernandez, 1981). Both abstainers and heavy drinkers have higher rates of mortality and morbidity, suggesting that moderate drinking has a protective effect. However, the question remains as to how this U-shaped curve can be explained, and in particular the need to account for the prior health status of abstainers who may simply have "drifted" from heavy drinking to non-drinking due to accumulating health problems. Empirical evidence concerning this issue remains inconclusive (De Labry *et al.*, 1992; Jackson, Scragg and Beaglehole, 1991; Shaper, 1990; Tracy, Gorman and Leventhal, 1992).

models" are inherently limited, and therefore unlikely to lead to substantial long-term changes in substance use and abuse (Holder, 1992; Leventhal and Keeshan, 1993).

Within the field of alcohol abuse prevention research, those who employ strategies that attempt to move beyond influencing the behavior of individuals to influencing community or societal level factors tend to be more concerned with limiting the *supply* of alcohol to adolescents than with reducing *demand*. Policy changes that impact upon supply and accessibility, such as the increase in the legal drinking age that occurred in the United States in the 1980s, have been shown to have considerable impact on alcohol-related deaths and injuries among adolescents (Hingson *et al.*, 1988; Moskowitz, 1989). However, despite such broad changes limiting accessibility, other national trends (such as lower prices and greater outlet densities) have served to increase supply and availability (Holder, 1993a), and research shows that young people can obtain alcohol from retail outlets with relative ease (O'Malley, Gorman and Speer, 1994; Perry *et al.*, 1993; Preusser and Williams, 1992; Wagenaar and Wolfson, 1994). Thus, at both a national and a local level, much remains to be done to limit youth accessibility to alcohol.

In recent years, and perhaps in response to the acknowledged limitations of school-based efforts, community-based initiatives have emerged as the most widely heralded and promoted alcohol and drug abuse prevention strategy in the USA (Hyndman and Giesbrecht, 1993; Klitzner, 1993). In this review we discuss existing published accounts of community-based alcohol abuse prevention programs. In selecting studies, three inclusion criteria were established. First, only evaluations of projects concerned with alcohol abuse prevention were reviewed. Evaluations of programs concerned with the prevention of *both* alcohol abuse and illicit drug use were included, but those concerned just with the latter were excluded (e.g., Lurigio and Davis, 1992).

Second, only programs which included components designed to affect the knowledge, attitudes and/or behavior of the general populace of a community were reviewed. Interventions which focused exclusively on community agents or gatekeepers (such as health care and social work professionals, or elected officials), and in which outcome was not assessed in terms of their impact upon the broader community, were excluded (e.g., Gorman, Werner, Jacobs and Duffy, 1990; Manger, Hawkins, Haggerty, and Catalano, 1992). Third, only reports dealing with the *design*, *implementation* and *evaluation* of a specific prevention program were included. Overviews of more general privately and publicly funded prevention initiatives, such as the Robert Wood Johnson *Fighting Back* project (Klitzner, 1993) or the Center for Substance Abuse Prevention *Community Partnership Program* (Cook and Roehl, 1993), were excluded. Accounts concerned primarily with describing the level of existing prevention efforts within a community (e.g., Rootman and Moser, 1984) or those that provided detailed descriptions of the development of new program initiatives (e.g., Carlson, 1990; Wallack, 1984), but which did not involve a controlled evaluation or time-series analysis to access program effectiveness, were also excluded.

Using the above criteria, we identified eight published accounts detailing evaluations of community-based alcohol use/abuse prevention programs. These were as follows: (1) the California "Winners" program (Wallack and Barrows, 1982/1983); (2) the Midwestern Prevention Project (Pentz, 1986; 1993; Pentz, Cormack, Flay, Hansen, and Johnson, 1986; Pentz *et al.*, 1989a; 1989b; Johnson *et al.*, 1990); (3) the Community Action Project on Alcohol (Casswell and Gilmore, 1989; Casswell and Stewart, 1989; Casswell, Gilmore, Maguire, and Ransom, 1989; Casswell, Ranson and Gilmore 1990);

(4) the Vermont Self-regulation Training Program (Worden, Flynn, Merrill, Waller, and Haugh, 1989); (5) the Rhode Island Community Alcohol Abuse Injury Prevention Project (Harrington, Putnam, Waters and Colt, 1989; Putnam, 1990; Putnam, Rockett, and Campbell, 1993; Stout, 1992; Stout *et al.*, 1993); (6) the Tri-community Prevention Project (Giesbretcht and Douglas, 1990; Giesbretcht, Pranovi, and Wood, 1990; Giesbretcht and Pederson, 1992), (7) the Thunder Bay Project (Douglas, 1990; Gliksman, Douglas, Thomson, Moffatt, Smythe, and Caverson, 1990; Murray and Douglas, 1988), and (8) the Boys and Girls Club of America's Stay SMART Program (St. Pierre, Kaltreider, Mark, and Aikin, 1992).

In reviewing these studies, we employed a modified version of the format used by Shea and Basch (1990a; 1990b) in their discussion of five major community-based cardiovascular disease prevention programs. This entails assessing projects along the following dimensions: (1) rationale and design, (2) theoretical framework, (3) intervention strategies, (4) planning process, (5) evaluation methods, and (6) results.

Summaries of the eight studies reviewed are contained in Table 1. In addition to these eight detailed evaluations of community-based programs, published accounts are available describing three large-scale projects recently commenced in the USA - the Prevention Research Center Study (Holder, 1993b; Schatz, Schember, Parsons, Rodrigeuz, Young, and Holder, 1993), Project Northland (Perry *et al.*, 1993), and Communities Mobilizing for Change on Alcohol (Wagenaar and Wolfson, 1993). These accounts describe the rationale and design, theoretical framework, intervention strategies, planning process, and evaluation methods used in the projects, but not outcome data. These three projects are reviewed briefly.

## THE CALIFORNIA "WINNERS" ALCOHOL PROGRAM

### *(1) Rationale and Design*

The California "Winners" Alcohol Program (CWAP) was conducted in three communities in California over a 3-year period beginning in 1977. One community (the "experimental") received both a mass media and community program, a second received only the media program, and a third received no intervention (the "comparison"). Following the Stanford Heart Disease Prevention Program, the community component was designed to reinforce and increase the potency of the media program in the experimental site.

The stated goal of the CWAP was to prevent individuals from developing drinking behavior "... that is detrimental to their health, or causes family, social, or economic problems, or creates a financial burden upon the government..." (Wallack and Barrows, 1982/83, p. 309). To this end, the program sought to increase awareness of information regarding alcohol, change attitudes regarding alcohol use, alter behavior identified as leading to alcohol-related problems, and reduce alcohol-related problems such as liver cirrhosis, drunk-driving, and arrests for public intoxication. Such change was sought at both the individual and community level.

Changing awareness and attitudes were considered to be short-term objectives of the program. Changing behavior was initially considered a long-term objective, but was entirely abandoned as a program goal in the final year of the project.

**Table 1** Summary of Community-based Alcohol Use Prevention Programs

| *Study* | *Rationale and design* | *Principal theoretical framework* | *Intervention strategies* | *Planning process* | *Evaluation methods* |
|---|---|---|---|---|---|
| California "Winners" Project (Wallack & Barrows, 1982/83) | To assess the combined effects of a community program and mass media intervention on program awareness, knowledge, attitudes, and behavior | Social marketing, and values-behavior model | Mass media, community meetings and school curriculum | Little coordination of program components | Household surveys conducted in three communities (community intervention, mass media, comparison) at three points in time |
| Summary of Results. The intervention led to increased awareness of the program and some gain in knowlege, but had no effect on attitudes or behavior. | | | | | |
| Midwestern Prevention Project (Pentz et al., 1989a) | To reduce alcohol use through a school-based curriculum and supportive parent, media, community and policy components | Social learning theory | Skills-based school curriculum, mass media, parent program, community organization, and policy initiatives | 10-stage implementation process | Surveys conducted with students who received the program (intervention group) and those who did not (comparison group) |
| Summary of Results. A greater proportion of the comparison group reported alcohol use at one-year follow-up. However, this difference was not maintained at the three-year follow-up. | | | | | |
| Community Action Project (Casswell & Gilmore, 1989) | To reinforce moderate drinking and influence policies related to alcohol availability through community organizing and the mass media | Education for critical consciousness | Community organization and mass media | Coordination of the project through regular meetings of research team and community organizers | Random surveys conducted at two points in time in three communities (community organizing plus mass media, mass media only, and comparison) |
| Summary of Results. The interventions had limited impact, and operated primarily in inhibiting the trend toward greater liberalization of attitudes toward alcohol evident in the comparison community. | | | | | |

Cont.

| *Study* | *Rationale and design* | *Principal theoretical framework* | *Intervention strategies* | *Planning process* | *Evaluation methods* |
|---|---|---|---|---|---|
| Vermont Self-regulation Project (Worden *et al.*, 1989) | To reduce alcohol-impaired driving through self-regulation training (SRT) | Skill training with community support | Drink calculators distributed through licensed outlets | Recruiting all licensed outlets and training their staff | Pretest/posttest surveys of of drivers in three communities (SRT, PSAs, comparison) |
| Summary of Results. Drinking behavior remained the same in all three communities. Fewer subjects with BACs above the legal limit in the SRT community at posttest than in the other communities. | | | | | |
| Rhode Island Community Project (Putnam *et al.*, 1993) | To assess the effect of a program targeting knowledge, attitudes and behavior of liquor servers and police officers on a community's alcohol-related problems | Enabling theory | Server and police training, political support, and mass media | *Ad hoc* - intervention was to be based on needs assessment which was not conducted | Time-series data pertaining to arrest rates and emergency room injury rates collected in three communities (one intervention and two comparisons) |
| Summary of Results. Alcohol-related arrests increased while alcohol-related emergency room visits decreased. However, multiple rival hypotheses compete with claims that the program was responsible for these effects. | | | | | |
| Tri-community Prevention Project (Giesbrecht *et al.*, 1990) | Targeted heavy drinkers to reduce average consumption community-wide | Distribution of consumption model | Mass media, community forums, individual counseling and server training | Insufficient attention given to involving the community | Household surveys conducted at two points in time and eight years of time-series data pertaining to alcohol sales and hospital treatment collected from three communities (intervention and two comparisons) |
| Summary of Results. Individuals in the counseling program reduced their alcohol consumption, but no noticeable decline in drinking was found in the community. | | | | | |

**Cont.**

| *Study* | *Rationale and design* | *Principal theoretical framework* | *Intervention strategies* | *Planning process* | *Evaluation methods* |
|---|---|---|---|---|---|
| Thunder Bay Project (Gliksman et al., 1990) | To assess the effects of reducing alcohol availability | Distribution of consumption model and social marketing | Mass media and change in municipal policies | Project designed by researchers and city officials, with community involvement in the policy initiatives | Pretest/posttest household survey conducted in two communities (intervention and comparison) |
| Summary of Results. Awareness and behavioral intentions moved in the direction targeted by the program, but alcohol consumption was unchanged. | | | | | |
| Boys & Girls Clubs Stay SMART Program (St. Pierre et al., 1992) | To reduce drug use through a skills-based curriculum delivered in a youth club setting | Social learning theory | Life skills training curriculum and booster sessions | Recruited only clubs with organizational structure capable of sustaining the project | Pretest/posttest surveys of youth in three types of study conditions (program only, program plus booster sessions, and comparison) |
| Summary of Results. Small effects in changing alcohol-related behavior and small effects in perceived benefits of alcohol consumption. | | | | | |

*(2) Theoretical Framework*

The CWAP was not driven by a single, clearly articulated theoretical framework. The decision to incorporate a community component appears to have been guided principally by the model employed in the Stanford Five City Project, in which community organization was used to create an environment receptive to educational inputs from the mass media (Shea and Basch, 1990a).

As for mass media component, Wallack and Barrows state that it "was hard to get a concrete grasp of [its] theoretical underpinnings" (Wallack and Barrows, 1982/83, p. 312). They go on to note that it employed elements of social marketing, while also embracing a values-behavior model. The latter they define as an affectively oriented approach which conceptualizes "the problem of drug abuse as one of problematic communication between people" (Wallack and Barrows, 1982/83, p. 313).

*(3) Intervention Strategies*

The mass media component, which was implemented in both the experimental and media sites, was comprised of television commercials, radio spots, and billboard designs. In the first year, the target group was males aged 18–35 years. Other groups were targeted later – e.g., females aged 25–40 years and those of Spanish heritage in the second year of the project, and teenagers in the third year. It was anticipated that, during the first year, 90% of the target audience would be exposed to the media messages an average of 35 times. However, the California Wine Institute objected to one of the television commercials, and the Governor subsequently ordered that two be replaced and a third altered. The delay resulted in an established 40% reduction in exposure to the media component of the program.

The nature and role of the community component, which was delivered only in the experimental site, changed over the course of the project. Initially, it was conducted out of storefront-type facilities, and was primarily focussed on organizing a series of four two-hour educational meetings, each occurring in a different setting (e.g., school, church, youth club, and workplace). The objective of these meetings was "... to get participants to look at their own drinking behavior, to assess its potential harmfulness, and to provide the individual with the skills necessary to alter personal drinking practices" (Barrows and Wallack, 1982/83, p. 314). Prior to this series of meetings, a 30–40 minute introductory session was held, designed to recruit agencies to host the educational events. In the first year of the project, more than 8,000 people attended the introductory session while some 6,000 attended at least one of the 2-hour meetings.

A second strategy used in the community program was the development and implementation of a school-based curriculum, dealing with choice-making in risk-taking situations for grades 3,4,7 and 10. Over the first two years of the study, 152 teachers attended workshops to train in the use of the curriculum.

Both the community meetings and the school component were dropped in the final year of the project, and the program shifted to purely promotional and publicity activities (e.g., distributing booklets, balloons, and bumper stickers), and no attempt was made to alter drinking behavior. These activities were estimated to reached more than 190,000 people.

*(4) Planning Process*

As noted above there were two components to the CWAP intervention in the experimental site - mass media and community-education - with the latter designed to reinforce the former. However, contracts for each component were awarded to two different organizations, and became totally distinct in theoretical orientation (see above) and quite separate in function. As a result, there was very little connection between the two components, and Wallack and Barrows (1982/83) report that implementation of the program was a major problem.

*(5) Evaluation Methods*

Measurements were taken in each community at baseline, 6-month and 3-year follow-up. At each measurement point, a random sample was drawn of a different cross-section of approximately 500 adults (18–59 years) and 100 adolescents (12–17 years) from each of the three sites.

Household surveys (approximately 45–60 minutes long) were used to collect two main types of data. The first concerned the recognition, recall and comprehension of program themes. The second, concerned the impact of the program in terms of *knowledge* of social, physical, administrative and legal facts concerning alcohol use, *attitudes* such as tolerance of drunkenness, *concern* about drinking and alcohol-related problems in the community and about one's own drinking, *awareness* of alcohol-related messages in the environment from program, non-program and interpersonal sources, and *behavior* measured in terms of amount and pattern of alcohol consumption and the occurrence of alcohol-related problems.

The analyses presented by Wallack and Barrows (1982/83) were based mainly on data collected at baseline and final follow-up from the experimental community and the comparison community. The unit of analysis was the community and not the individual.

*(6) Results*

Overall, recognition, recall, and comprehension of the program messages increased substantially over the course of the study in the experimental site, while remaining essentially unchanged in the comparison site. For example, about 84% of adolescents and 70% of adults in the experimental community correctly interpreted the television commercials at final follow-up, compared with 14% and 10%, respectively, in the comparison community.

Changes in the outcome variables were more modest. Adults in the experimental community showed a significant increase from baseline to final follow-up in two of the knowledge categories and one of the attitude categories, while adolescents showed improvement on just one of the knowledge categories. Adults and adolescents in the comparison community showed no change in either knowledge or attitude scores over the course of the study. There was no change in the level of concern about drinking in the community among adults in the experimental site, while for adolescents there was a decline in the experimental site and an increase in the comparison site. There were no significant differences between communities in the amount of change over time in either the adult or adolescent sample in terms of concern about their own

drinking. The program had a positive effect on awareness of messages from program sources and mixed effects on awareness of messages from non-program and interpersonal sources. No changes were found in any of the measures of behavior.

Wallack and Barrows (1982/83) attribute the minimal impact of the CWAP to its foundation in unsubstantiated theoretical models of behavior change, its reliance on the mass media as the primary mode of intervention, its use of a working-definition of alcohol-related problems as individual-level phenomena, and the organizational difficulties that arose from the separation of the program components. They observe that their principal findings of increased awareness, some gain in knowledge, and no attitude or behavior change were "consistent with a myriad of other mass media programs and prevention efforts in general" (Wallack and Barrows, 1982/83, p. 331).

## THE MIDWESTERN PREVENTION PROJECT

### *(1) Rationale and Design*

Begun in 1984, the Midwest Prevention Project (MPP) was a 6 year study, the principle component of which was a skills training program targeted at youth in Kansas City. Specifically, the rationale for the project drew on research indicating that youth lack the social and communication skills necessary to resist the pervasive use of drugs in their environments. The principal component of the MPP through which resistance skills were taught was a school-based curriculum. Other program components targeted additional environmental influences within the family, media and community in an attempt to support the skills learned in the curriculum and establish a community norm of non-use of drugs (Pentz *et al.*, 1989a).

### *(2) Theoretical Framework*

The authors of the reports on the MPP make reference to several theoretical orientations. Most of the techniques employed in the school-based component of the intervention were derived from cognitive social learning theory (e.g., Bandura, 1977), and focused on individual-level or primary group processes such as modeling, attributions, self-efficacy, and expectancies (Johnson *et al*, 1990; Pentz, 1993). Reference is also made to gateway theories of substance abuse (e.g., Kandel, 1975; Kandel and Yamaguchi, 1993) which describe the process whereby use of substances such as marijuana and cocaine typically follow use of cigarettes and alcohol (Johnson *et al.*, 1990; Pentz *et al.*, 1989a; Pentz, 1993). Additionally, mention is made in the descriptions of the MPP of "systems" or "environmental" theories (e.g., Rogers, 1983; Rothman, Erlich, and Teresa, 1981), concerning factors such as community norms, organizational development, and information diffusion (Pentz, 1986; 1993).

### *(3) Intervention Strategies*

The MPP comprised five components, introduced sequentially in the intervention sites - a mass media component, a school-based resistance skills training curriculum, a parent program, community organization involving training of city leaders in the planning and implementation of prevention efforts, and a health policy change component designed to initiate change in local ordinances regulating the availability

of alcohol and tobacco products. Influences operating within the school (notably peer group pressure) were considered the most proximal in the sequence leading to drug use initiation (Pentz, 1986), and therefore the school-based curriculum and mass media component were introduced first in the intervention sites, followed by the other three components at 6- to 12-month intervals. The school, family, and media components were concerned essentially with *demand* reduction, while the community organizing and policy change components were considered *supply* reduction strategies (Pentz, 1993).

Although conceived as a comprehensive multicomponent intervention, only limited aspects of the MPP have been evaluated to date. Pentz *et al.* (1989a) report data pertaining to the school, family and media components. As implemented, the school-based component involved 10 classroom sessions taught in grade six or seven, with a 5-session booster program the following year. The training was dedicated to the development of drug-specific resistance skills, and addressed the psychosocial consequences of drug use, beliefs about drug use prevalence, recognition of adult, media and community influences supportive of drug use, peer and environmental pressures, assertiveness training and problem solving in difficult situations. Skills were taught through modeling, role-playing, Socratic discussion with feedback, and peer reinforcement. The parent component was orientated around six homework assignments which involved interviewing family members about techniques in avoiding alcohol and drug use and family methods used to counteract media and community influences. The mass media component included 16 television, 10 radio and 30 print media "events". However, this component of the program was not experimentally manipulated, in that the comparison communities also received the media messages. These interventions were delivered over a period of 17 months.

Reporting data on 3-year follow-up, Johnson *et al.* (1990) described two additional components - a parent organization program concerned with reviewing school prevention policy and training parents in communication skills, and initial training of community leaders in an attempt to establish a prevention task force. As with the media component, the community leader training was made available in both the intervention and comparison communities, and no details are given concerning the level of participation in the parent training.

### *(4) Planning Process*

The planning process was unique in its synthesis of participation, both in terms of resources and financial support, from the private business sector of the community, a non-profit foundation, and a federal agency. A key role in the initiation of the project was played by a wealthy philanthropist in the community, who utilized his business and his private foundation to support this effort (Pentz *et al.*, 1986).

Implementation of the program followed a detailed 10-stage model, involving identification of the target population, conceptualization of the community unit, recruitment and training of community leaders, the formation of a coordinating structure, and standardization of the intervention program (Pentz, 1986). Teachers involved in the school program were trained by project staff in the use of the skills-based techniques and, once underway, implementation was monitored by the research team and additional booster training sessions were provided to ensure continued interest in the program and fidelity to the curriculum (Pentz, 1986; 1993).

*(5) Evaluation Methods*

Baseline data were drawn from approximately one-third of sixth and seventh grade students in the 50 public middle/high schools operating in the Kansas City area at the outset of the study (1984/1985). The entire sixth and seventh grade cohorts in 16 schools were included, along with a 25% sample of sixth and seventh grade students from 34 other schools (sampled randomly by classroom).

By 1985/1986, when the intervention program commenced, six of the schools were no longer in operation and two failed to provide adequate baseline data. The remaining 42 schools formed the study sample. Only eight of these were randomly assigned to study conditions. In the case of the other 34, allocation was based on administrator flexibility, with 20 rescheduling their existing activities and being assigned to the intervention group and 14 not rescheduling and being assigned to the comparison group. The baseline sample comprised some 5,000 students, 30% of whom were tracked individually over the course of the study and 70% of whom were tracked by grade cohort (thus, including new intake students who may not have received the intervention). Of the 1,607 tracked individually, 84% were retested at the 3-year follow-up (Johnson *et al.*, 1990). A 133-item questionnaire, administered in the classroom, was used to assess demographic and psychosocial factors, and variables related to drug use.

*(6) Results*

Pentz *et al.* (1989a), reporting data at one-year follow-up, concluded that: "The increase in proportion of students reporting use was significantly higher in the control than in the program condition for all measures of drug use" (Pentz *et al.*, 1989a, p. 3264). The figures presented showed that at baseline about 7% of subjects in each group reported use of alcohol on two or more occasions during the preceding month, whereas by one-year follow-up 11% of the intervention group and just over 16 % of the comparison group reported such use. However, this initial difference between study conditions was not maintained at the 3-year follow-up. Data from the 30% of the sample tracked individually were reported at this point, and showed that one-third of subjects in each group reported having two or more drinks in the past month (Johnson *et al.*, 1990).

Pentz *et al.* (1989b) report that parents of children in the intervention group were significantly less likely to have used alcohol during the past week at one-year follow-up compared to those with children in the comparison group (odds ratio = 0.59, $P < 0.05$). However, these data were only collected at follow-up and not baseline, and so initial equivalence cannot be assumed. In addition, parental data were only available from an extremely small subsample of just over 300 parents (recall that the student sample was in excess of 5,000). This subsample represent only 49% of those approached to take part in the survey, and was over-representative of female and white respondents.

## THE COMMUNITY ACTION PROJECT ON ALCOHOL

*(1) Rationale and Design*

The Community Action Project (CAP), commenced in October of 1982, was conducted in six provincial cities in New Zealand, and ran for two-and-a-half years. The six cities

were matched in terms of demographic characteristics to form two groups of three. One city from each group was assigned (non-randomly) to one of the following study conditions: mass media plus community organization (the "intensive" condition), mass media, and no-intervention comparison.

The CAP was intended to achieve two objectives - first, to reinforce moderate drinking patterns by encouraging a shift to nonalcoholic beverages, and, second, to influence local policies concerning the availability and advertising of alcohol. Here the measurable objectives of the program were an increase in support of policies regulating availability, advertising and price in the target community.

*(2) Theoretical Framework*

The reports of the CAP give little indication of the theoretical model upon which it is based, although Casswell and Gilmore (1989) observe that it was driven more by a concern to initiate change at a policy-level than were previous community-based efforts in alcohol abuse prevention (such as the "Winners" program) or health promotion in general (such as the Stanford Five City Project). These, they argue, were essentially concerned with change at the level of individual behavior. Writings in the field of alcohol policy analysis which emphases the need to stimulate discussion of policy options are cited in connection with this aspect of the project (e.g., Room, 1984; Wallack, 1980). In discussing the community organization component of the CAP, Casswell and Stewart (1989) note that this drew upon the approach described by Freire (1973), whose "education for critical consciousness" strategy stresses the importance of impacting upon the causes of community problems and not simply alleviating the symptoms, and works through the building of coalitions rather than the establishment of a formal leadership structure.

*(3) Intervention Strategies*

The CAP intervention had two components, similar to those employed in the California "Winners" Alcohol Program (Wallack and Barrows, 1982/83). The first was a mass media program, implemented in both "experimental" conditions. This was designed to achieve essentially "individual-level" objectives, notably reinforcing moderate drinking among males. The campaign was "emotive" in orientation, rather than simply instructive, and modelling of a positive behavior (switching to non-alcoholic drinks) was incorporated in the material. A series of television, movie, and radio commercials were developed, and broadcast in "bursts". For example, the television commercials were aired roughly one week in three, with four exposures per week. These reached an estimated 60–80% of the target audience of 15–29 year-old males (Casswell and Gilmore, 1989). A secondary goal of the mass media component was to stimulate public discussion of policy issues. The agency charged with developing the media component was uncomfortable with this aspect of the program from the outset (Casswell *et al.*, 1989), and ultimately just three newspapers advertisements were published which directly addressed policy issues. A fourth was refused publication by most newspapers. The CAP project staff took advantage of the controversy surrounding this decision, along with that which arose when one of the television commercials was abruptly withdrawn, to further stimulate debate over policy issues related to alcohol use.

The second component of the CAP, the community action program, was implemented only in the intensive study condition, and was largely directed at policy issues regarding the availability and advertising of alcohol. A community organizer was recruited and based in an educational institute in each of the intensive intervention cities (Casswell *et al.*, 1989). His/her role was to generate discussion of alcohol policy issues in the local media and community in general. Casswell and colleagues reported that "the organizers met with variable success in relation to the media" (Casswell *et al.*, 1989, p. 521), with the relationship apparently deteriorating over the course of the project. In addition to their work with the media, the community organizers attempted to establish a local alcohol coordinating committee comprised of treatment and social service personnel, with a view to establishing "task-orientated groups" centered on specific issues of concern to the community (Casswell and Gilmore, 1989). For example, with regard to availability issues, objections were raised to plans to establish more outlets or extend the licensing hours of existing establishments. Finally, the community organizers were also involved in promoting the availability of nonalcoholic drinks, general awareness activities such as public presentations, and initiating server training (although the latter was abandoned due to lack of cooperation on the part of retail establishments).

*(4) Planning Process*

The CAP project team were aware of the problems with earlier community interventions such as the California "Winners" project, and report putting considerable effort into integrating the various components of the study. This was done principally through meetings involving the community organizers and project and research staff, which were designed to ensure that program activities were consistently directed toward the community-level objectives that were central to the project (Casswell and Gilmore, 1989; Casswell and Stewart, 1989). In addition, since the principal task of the community organizers was to initiate change at the community-level, and not at the level of the individual drinker, efforts were made to ensure that the administrative bases from which they operated were supportive of this objective. For this reason, a treatment setting was considered to be an inappropriate base, and instead organizers were established in community education settings (Casswell and Stewart, 1989).

*(5) Evaluation Methods*

A quasi-experimental design was used, with data collected from separate baseline and follow-up samples in each community. Approximately 600 randomly selected adults were interviewed in each site at each assessment point, resulting in a total sample of 6,372. An interview was developed to measure attitudes toward a range of alcohol control policies, as well as alcohol use in general.

*(6) Results*

Principal components analysis of the 58 items from the interview yielded four variables pertaining to policy issues. The first three were labeled "controls on advertising", "controls on sales", and "controls on price", and in each case analysis of variance showed a statistically significant effect of the intervention in both the media and the

intensive communities. The cities in these conditions exhibited no change over time, while those in the comparison condition showed a decline in support for restrictions in all three areas. The fourth variable was comprised of just two items (the sale of alcohol in supermarkets and legal drinking age), and analysis of variance showed there was a statistically significant increase in the score of the intensive communities over time, relative to the comparison communities (Casswell and Gilmore, 1989).

The principal components analysis also generated four other "project-relevant summary variables". These were labeled "personal controls on drinking" (e.g., counting drinks), "pro-intoxication", "alcohol as harmless", and "use of alcohol when entertaining". Significant differences between the study conditions, in terms of changes from baseline to follow-up, occurred in the case of the second, third and fourth of these summary variables. Respondents in the comparison communities became significantly more "pro-intoxication" while those in the communities that received either of the interventions remained unchanged. Respondents in the intensive cities came to view alcohol as less harmless and expressed less inclination to use a alcohol when entertaining, while those in the media and reference communities remained unchanged on both variables.

One major limitation of the CAP is that there was not initial equivalence between the study conditions. On three of the four policy-relevant variables, the media-only communities had significantly worse scores at baseline than those in the other communities (Casswell *et al.*, 1990). Casswell and her colleagues acknowledge that although the program effects reported were statistically significant, they were also modest in size and all were within the range of initial differences between the study conditions. Thus, overall, the CAP had limited impact, and operated primarily in inhibiting the trend evident in the comparison cities toward greater liberalization of attitudes towards alcohol. The community organization component added little to the media program, impacting on just two of the summary variables (both of which operated at the individual-level) that the latter did not.

## THE VERMONT SELF-REGULATION TRAINING PROGRAM

### *(1) Rationale and Design*

The Vermont Self-regulation Training (VSRT) Program (Worden, *et al.*,1989) was designed to reduce alcohol-impaired driving in one Vermont community with a target population of some 4,000 individuals of legal drinking and driving age. To this end, it sought to train drinkers to self-regulate their blood-alcohol levels through use of drink-calculators distributed at licensed premises. Public service announcements (PSAs) were also used to publicize the program. The intervention community was compared to one community that received no intervention and one that received only the PSAs.

### *(3) Theoretical Framework*

No explicit theoretical model is described by Worden *et al.* (1989), although the experience of direct skills training and the creation of social support within the community are cited as factors central to the demonstration component of the program.

*(3) Intervention Strategies*

The intervention program involved distributing and demonstrating the use of drink calculators in licensed retail liquor outlets in the target community. The calculators enabled drinkers to estimate in a simple manner the number of drinks at which impairment of their driving skills would commence. Approximately 6,000 calculators were distributed throughout the 6-month intervention period. Fifty-three retail personnel were trained in the use of devices, and they, in turn, trained other staff.

In addition to this direct training, use of the calculators was also demonstrated through one 60-second and two 30-second PSAs. These were broadcast, on average, 20 times per week over the 6-month intervention period.

*(4) Planning Process*

The program was initiated through a series of meetings with community leaders. All 25 licensed outlets in the target community participated in the project.

*(5) Evaluation Methods*

A quasi-experimental design was used in which the community in receipt of the intervention was compared with one that received only the PSA component and one that received no intervention. All three communities had high average annual automotive fatality rates.

Measurements were taken at baseline and immediately upon completion of the intervention (posttest). At baseline, data were collected from just over 1,300 individuals (100% of those asked) through roadside surveys conducted by police officers who stopped all drivers at designated locations. Drivers were questioned about their usual drinking habits, and asked to estimate the number of drinks per hour needed to reach a blood alcohol concentration (BAC) which exceeded the Vermont legal limit for driving. A more comprehensive roadside survey was conducted at posttest. Drivers were again stopped by police, but on this occasion surveys were conducted by a research team. A total of 927 drivers were interviewed (92% of those stopped), using a questionnaire similar to that administered at baseline. Of these individuals, 881 (95%) also agreed to have their BAC measured. In both surveys, participants were matched to study conditions by their community of residence, regardless of the location of the interview.

*(6) Results*

Reported drinking patterns were similar across the three study sites at baseline and at posttest (at the latter point, just over 20% in each community reported that they usually drank three or more drinks during a one hour period). Posttest assessment of BACs showed that 0.6% of drivers in the intervention community were above Vermont's legal limit for driving, compared with 4.7% in the PSA community, and 3.0% in the comparison community. Exposure to the drink-calculators was also greater in the intervention community than in the other two sites. "High risk" individuals in the intervention community (defined as young drivers and those who usually drank three or more drinks per occasion) reported greater exposure to the program than "low risk" individuals.

Worden *et al.* (1989) acknowledge that interpretation of the generally positive results of the study is limited by the posttest-only assessment of BACs, the limited duration of the project, and the modest size of the intervention community.

## THE RHODE ISLAND COMMUNITY ALCOHOL ABUSE/INJURY PREVENTION PROJECT

### *(1) Rationale and Design*

The Rhode Island Community Alcohol Abuse/Injury Prevention Project was described by its authors as "...an epidemiologic research project with a prevention component" (Putnam *et al.*, 1993, p. 31). It was designed to reduce the level of alcohol-related problems in the community by impacting on the behavior of two key "front line" occupational groups - servers in licensed premises and police officers. Three Rhode Island communities matched in terms of sociodemographic characteristics took part in the study. One was randomly allocated to receive an intervention program that involved training personnel of liquor establishments and police officers and mobilizing community support. The other two communities served as comparison sites.

### *(2) Theoretical Framework*

The Rhode Island Project applied "enabling theory" to the community level of analysis, that is, it was premised on the idea that community agents can act to facilitate and foster problem drinking in others much as family and friends are thought to do. Given this central premise, the program was designed to change the knowledge, attitudes and behavior of community gatekeepers. The two target gatekeeping groups selected were servers in licensed premises and law enforcement officers as members of both have a legally-defined responsibility to control intoxication, and therefore can be conceived of as key regulators of community drinking practices. It was hypothesized that a change in the behavior of these groups would lead to a reduction in the amount of drinking in high risk situations, which in turn would lead to a decrease in alcohol-related problems (most notably, alcohol-related injuries). The theory underlaying the program conceived of the community as a system of influence in which the police and servers were at the forefront of alcohol-related injury prevention (Putnam, 1990).

### *(3) Intervention Strategies*

The Rhode Island Project employed three intervention components "... consistent with the theoretical model of fostering 'disenabling' behaviors among community gatekeepers" (Harrington *et al.*, 1989, p. 461). The first of these was an alcoholic beverages licensee component. This entailed both eliciting a written statement from owners and managers of establishments endorsing the principles of responsible alcohol service set out in Rhode Island laws, and a 5-hour training program for the sales and service personnel of establishments designed to teach techniques for identifying and dealing appropriately with minors who tried to buy alcohol and patrons who were clearly intoxicated. Seventeen off-premise and 80 on-premise establishments were targeted for inclusion. All of the former and 79% of the latter had adopted the written policies for responsible alcohol service requested by the program staff by the end of the intervention period.

In addition, a total of 392 servers were trained (61% of the estimated 640 in the community).

The second component of the project was a training program for police officers, designed to increase the enforcement of DWI laws and laws regarding the sale of alcohol to minors or visibly intoxicated adults. Police officers were trained to recognize intoxicated behavior, measure levels of intoxication, accurately record alcohol involvement in the incidents with which they dealt, and informed of their legal liability in dealing with intoxicated individuals. The program also provided equipment and assistance which enabled increased radar patrols, sobriety checkpoints, and enforcement patrols designed to monitor the sales practices of establishments. All members of the police force in the intervention site received training. In addition, 47 radar patrols, 73 sobriety checkpoints, and 11 enforcement patrols occurred over the course of the intervention.

The third program component entailed the mobilization of civic and political leaders in support of the project and an attempt to elicit media coverage of program activities. The purpose of the latter "... was to gain credibility and support for the project, to encourage gatekeepers to participate in the project, and to educate the public in the dangers involved in drinking in high injury risk situations" (Harrington *et al.*, 1989, p. 461). A community coordinator was appointed and given responsibility for mobilizing community support, securing the cooperation of community leaders, servers and police officers, and helping to train gatekeepers to practice "disenabling" responses in dealing with intoxicated individuals.

Program components were phased in over time. Sobriety checkpoints, police training and technical assistance, and community mobilization commenced in September 1986, server training in March 1987, and police radar patrols in June 1987. The program was in place for 30 months, continuing into 1988.

### *(4) Planning Process*

Putnam (1990) makes a number of observations concerning the general planning and design of the Rhode Island Project. First, because the funding of the project made no provision for a planning phase there was always an impression within the community that it was behind schedule and *ad hoc* in nature. Second, although it was intended at the outset of the project that baseline findings be used to develop and target the interventions, time constraints meant that this did not generally occur. Third, premises for the community organizer were provided by the major's office, and although this had some benefits, it also increased the vulnerability of the organizer to co-optation by community interest groups and therefore limited the effectiveness of the program. Finally, data collection proved to be labor intensive, time consuming and expensive, and at times the perception within the community and among project staff was that evaluation was being emphasized at the expense of intervention.

### *(5) Evaluation Methods*

The project began in October 1984. Baseline data were collected over a period of 18 months, following which one of the three communities was selected at random to receive the intervention. Two types of surveillance data were collected continually over the study period - hospital emergency room statistics pertaining to alcohol-related

injuries and police records pertaining to arrests and accidents requiring a police presence.

### *(6) Results*

Arrest rates in the intervention community increased following the introduction of the program (with the exception of assault arrest rates, which were unchanged), but remained constant in the comparison communities (Putnam *et al.*, 1993; Stout, 1992). The overall increase was 9% (11% in the case of alcohol-related arrests, 4% for DWI, and as much as 27% in the case of alcohol-related assaults). In the intervention community, emergency room injury visits rates declined by 9% overall. There was a 21% decrease in the assault injury rate, a 10% decline in the motor vehicle crash injury rate, and a 24% drop in the head injury rate, compared with a 4% increase, 12% increase and 3% decrease, respectively, in the combined comparison communities.

Putnam *et al.* (1993) observed that the increase in arrest rates may be due to improved enforcement, and therefore represent a program effect. However, they note that this change might also result from improved reporting of events (police officers were trained as part of the intervention program to be more accurate in recording the role of alcohol in accidents), a greater propensity on the part of police to make arrests, and/or an increase in crime. As to the decreases in the emergency room injury rates, they conclude that these were probably genuine program effects, as they were specific to injury-related visits and were not evident in categories of emergency room visits not targeted by the program.

The authors of the various reports from the Rhode Island Project note a number of limitations of the time-series data used in the study. First, the small number of communities and data points (three and four, respectively) made statistical analyses very difficult (Putnam, 1990). Second, the number of events per year in some outcome categories (e.g., alcohol-related crashes involving severe or fatal injury) was so small that it was difficult to assess the significance of any change over time (Stout, 1992). Third, both data sets suffered from under-reporting of the role of alcohol in accidents, due to concerns over such issues as the protection of human subjects (Putnam, 1990; Putnam *et al.*, 1993; Stout, 1992). Fourth, difficulties arose in excluding non-residents of the communities from police and hospital statistics, thereby making it difficult to assess the impact of the program on the target audience (Putnam *et al.*, 1993). Finally, there were difficulties in distinguishing program effects from other naturally occurring events in the intervention community (Stout, 1992; Stout *et al.* 1993).

## THE TRI-COMMUNITY PREVENTION PROJECT

### *(1) Rationale and Design*

The Tri-community Prevention Project (TCPP) was conducted in three southern Ontario communities, with populations of between 8,000 and 12,000. One community received the intervention program, and two acted as comparisons. The goal of the project was to reduce overall average alcohol consumption within the intervention community by changing the drinking habits of the heaviest drinkers.

*(2) Theoretical Framework*

The TCPP intervention was designed to test the distribution of consumption model, originally developed by Ledermann (1956). This model is complex, and has been the subject of considerable debate within the field of alcohol research (see Duffy, 1986). For present purposes, it is sufficient to note that according to the distribution of consumption model there is a fixed relationship between a community's average level of alcohol consumption and the proportion of heavy drinkers within that community. According to Geisbrecht and Pederson (1992), this relationship suggests two complementary approaches to prevention - the first involving a decrease in aggregate consumption and hence a reduction in the proportion of heavy drinkers in the community, and the second involving altering the behavior of heavy drinkers and hence moving the entire community to the lower end of the consumption curve. Each approach suggests a distinct target audience and a distinct strategy - drinkers in general and a "mass" (or "universal") strategy in the case of the former, and heavy drinkers and a "high-risk" (or "targeted") strategy in the case of the latter. The TCPP employed the high-risk approach, attempting to impact on the overall level of alcohol consumption within the community through an intervention designed to reduce the proportion of heavy consumers.

*(3) Intervention Strategies*

The intervention was targeted primarily at the individual heavy drinker, but also contained "community-level" components. It was promoted through the media, door-to-door mailings, posters and presentations, and ran for a total of eighteen months. At the individual-level, an alcohol educational and counseling program for heavy drinkers was established. This comprised seven weekly one-on-one sessions of one-and-a-half hours each, and employed behavior modification techniques such as those described by G. Alan Marlatt (Marlatt and George, 1984). Over the course of the study, 52 clients took part in this program.

At the community-level, project staff joined local committees, attempted to influence local alcohol policies, and developed server intervention programs and training workshops. Those targeted for these activities included the mayor, a hospital administrator, the medical officer of health, the police chief, members of the media, and local professionals and clergy. Attempts at establishing a local advisory committee, comprised of such individuals proved unsuccessful.

*(4) Planning Process*

Giesbrecht and Pederson (1992) note that while the project was "community-based", it was not developed in consultation with the community and did not arise out of a concern articulated by the community. As a result, project staff experienced difficulties in gaining the support and commitment of community leaders. Indeed, community leaders appear not to have accepted the most basic goal of the program, in that they did not consider that alcohol was a problem for the community. Giesbrecht and colleagues observe that staff were unable to satisfactorily accommodate and respond to the community leaders' perceptions, as they were deficient in community organizational skills. They state that insufficient attention was paid to the community development and community mobilization aspects of the project. In addition, the

research requirements of the project also constrained the type of responses that staff could make to community leaders. For example, baseline data about levels of alcohol consumption, which might have been used to demonstrate that alcohol was indeed a problem, could not be fed back to community leaders due to the design requirements of the study.

### *(5) Evaluation Methods*

A quasi-experimental design was used, with one intervention community and two comparisons. To access the effectiveness of the program for heavy drinkers, data detailing the drinking habits of clients who took part in the program were collected over the period of their attendance. "Community-level" data concerning alcohol use were collected through two surveys using independent samples, one at baseline and one at 2-year follow-up. These data were collected only from males, in order to obtain a high proportion of heavy drinkers. About 1,500 respondents were interviewed in each site at each measurement point. In addition a time-series analysis, covering a period of eight years, was conducted using statistics detailing alcohol sales and hospital treatment of alcohol-related problems.

### *(6) Results*

Data collected from the education and counselling program clients showed that 54% were drinking more than 14 drinks per week before the program compared to 21% at the final assessment point. As for its impact at a community-level, the evaluators of the TCPP acknowledge that this was extremely limited (Giesbrecht and Douglas, 1990; Giesbrecht *et al.*, 1990). Self-reported alcohol consumption by males showed some reduction from baseline to follow-up in the intervention community and one of the comparison communities, with "somewhat greater change" in the former. The authors note, however, that even though this decline was "statistically significant, these results represent only modest changes in the overall average annual intake (two drinks per week)" (Giesbrecht *et al.*, 19990, p. 170). The time-series data revealed no noticeable decline in the intervention community's alcohol consumption or alcohol-related problems during the time that the project was in place, relative to either comparison community.

## THE THUNDER BAY PROJECT

### *(1) Rationale and Design*

The Thunder Bay Project was a local policy initiative implemented in 1980 by the Corporation of the City of Thunder Bay, Ontario, and was aimed at restricting the use of alcohol in city-owned parks and recreational facilities (Gliksman *et al.*, 1990). The project coupled stricter policies on alcohol availability with a social marketing campaign designed to enhance citizen compliance with these policies. Social marketing was seen as a key component of this program because the policy changes were unenforceable at the community level and required voluntary compliance to be effective. The result was a media campaign geared toward educating community members about the positive nature of the city's recreational facilities and the new alcohol policies at those facilities.

*(2) Theoretical Framework*

The Thunder Bay Project was premised on the idea that alcohol-related problems could be reduced through limiting access to alcohol, i.e., the single distribution model (see description of the Tri-community Prevention Project for details). Coupled with the strategy to reduce alcohol accessibility, techniques of social marketing aimed at identifying and meeting the needs of community residents were employed (Murray and Douglas, 1988). The social marketing strategy was designed with an educational thrust which focused on supporting legislative controls on alcohol availability rather than educating citizens about demand reduction generally.

*(3) Intervention Strategies*

The intervention targeted the local level rather than a regional or national level because large-scale interventions can be politically damaging to supporters who may be perceived as dictating or imposing standards or values from above on local communities. A local level intervention was expected to have a greater chance of success, through social marketing, because citizens could be persuaded to accept such a change from local officials rather than regional or national officers.

The new policy limited the use of alcohol at city-owned recreational facilities. Specifically, alcohol was not permitted at some facilities (e.g., parks), limited to special occasions requiring a permit at other facilities (e.g., municipally owned community centers), and available generally at a limited number of locations (e.g., the clubroom of the Curling Club). To promote these restrictions, a one year media campaign was initiated in May of 1983. The campaign focused primarily on the positive features of recreational facilities and secondarily on alcohol regulation at the facilities. It was anticipated that repeated exposure the these positive messages, which were designed to appeal to citizens' sense of community, would have the effect of increasing voluntary compliance with the policies (Gliksman *et al.*, 1990). The media campaign took the form of six 30-second PSAs aired on a random basis on all local radio stations over a 2-month period. In addition, the campaign was initiated by a press conference, and interviews were given to members of the print and broadcast media by city personnel to explain the new policy.

*(4) Planning Process*

The planning process was operated primarily by program planners from a local research foundation and staff members of the city's department of parks and recreation. The actual alcohol policy was developed by an *ad hoc* committee of city council members, community organization members and citizens at large (Douglas, 1990).

*(5) Evaluation Methods*

The research design was quasi-experimental, with data collected from 1,191 individuals. The focus of the evaluation was on the ability of the media campaign to reach residents and affect their behavior. A pre- and post-intervention survey was distributed to a random sample of residents in both the intervention and comparison communities. Study participants were selected based on a four-stage probability sample designed to

adequately represent all socioeconomic strata in the community and a random sample of households and persons within those households. Despite the stringent sampling method, some difficulties were found in application such that random selection of persons within households was not always achieved.

The survey instrument measured a number of attitudinal variables, including attitudes toward legal control of alcohol, alcohol use in recreational facilities, and underage drinking. Behavioral intentions for future use of recreational facilities were also assessed, along with attendance at non-alcoholic functions, compliance with the new law, and personal consumption patterns.

### *(6) Results*

Forty-six percent of subjects in the intervention community reported at follow-up that they were aware of the campaign. In addition, statistically significant impacts between baseline and follow-up were found for several variables-notably, attitudes toward control of alcohol, attitudes toward underage drinking and attitudes toward alcohol use in recreational facilities. These findings suggest that social marketing strategies were effective for these variables. Furthermore, the proportion of community respondents reporting utilization of city recreational facilities increased in the intervention community while remaining stable in the control community for several recreational facilities. For example, park usage increased 10% among intervention community respondents (from 59% of respondents at baseline to 69% of respondents at follow-up) while decreasing 0.7% in the control community (from 59.4% to 58.7%). Differences were not found between sites for behavioral intentions to use facilities or attend facilities that would not be serving alcohol. However, the intervention community increased their behavioral intention to comply with alcohol laws between baseline and follow-up at a significantly higher rate than the control community. The intervention had no impact on alcohol consumption levels, but this was not considered a primary objective of the policy or the media campaign (Gliksman *et al.*, 1990).

## THE BOYS AND GIRLS CLUBS OF AMERICA'S STAY SMART PROGRAM

### *(1) Rationale and Design*

The Stay SMART Project (St. Pierre *et al.*, 1992) was designed to assess the effectiveness of a social influence program delivered, with and without booster sessions, to 13 year-olds in a youth club setting. Boys and Girls Clubs in five communities received the program, those in five other communities received the program and the booster sessions, and four additional clubs served as no-intervention comparisons. One community in each group was rural, and all the others were urban.

### *(2) Theoretical Framework*

The Stay SMART program was designed in accordance with the Life Skills Training Program developed by Botvin (1990). This is based on the social influence model of prevention, which has its origins in social learning theory (Bandura, 1977) and problem behavior theory (Jessor and Jessor, 1977). From this perspective, drug use initiation is considered to be a behavior learned principally through modeling and reinforcement,

and the objective of prevention programs is to impart a range of skills (both specific to resisting drug use and more generic in nature) that enable young people to avoid or substantially delay their first use of drugs (Botvin, 1990).

*(3) Intervention Strategies*

The Stay SMART Only group received a 9-session intervention program delivered in a small group format, and based directly on the Life Skills Training (LST) curriculum developed by Botvin (1990) (three additional sessions designed to prevent sexual activity were also included in the intervention). The Stay SMART Plus Booster group received exactly the same LST program in the first year of the intervention, along with five small group sessions the next year and three sessions in the final year of the project. These boosters were designed to reinforce and build upon the skills taught in the initial 9-session program. Those who attended the booster sessions were also encouraged to participate in other prevention activities taking place at the club, such as assisting in delivering programs for younger members.

*(4) Planning Process*

Organizational structure was the key factor determining selection of research sites for the study. The 10 intervention clubs were selected from a pool of about 150 because they were considered to have the organizational structure necessary to implement the program and to successfully track and test subjects. The latter criterion was also used to select clubs in the comparison condition.

*(5) Evaluation Methods*

A pretest-posttest, quasi-experimental design was used to assess the intervention programs. As noted above, allocation to the three study conditions was not random. However, clubs in each condition were similar in terms of demographic and socioeconomic conditions, and were all located in economically disadvantaged areas with high rates of crime and drug use.

Clubs in the two intervention conditions invited all 13 year-old members to take part in the program, until they obtained about 24 acceptances. Participants were considered to have received the intervention if they attended nine of the 12 Stay SMART sessions, and, in the case of the booster session group, four of the five additional sessions in year one and all three of those in year two.

Assessment of subjects took place at 3-, 15-, and 27-month follow-up. In the program plus booster sites, the first booster sessions occurred between the 3-month and 15-month follow-up, and the second between the 15-month and 27-month follow-up. Subjects in all three study conditions were included in the data analyses if they were present at all follow-up points. A total of 52 participants met the inclusion criteria in the five program-only sites, 54 in the program plus booster session sites, and 55 in the four comparison sites. More than 75% of subjects in each group were male.

Data concerning drug-related knowledge, attitudes and behavior among subjects were collected using self-report questionnaires administered by youth club staff. Alcohol attitudes were assessed using a 5-point Likert-type scale ranging from "strongly disagree" to "strongly agree". The items included in the scale focussed on

the perceived social benefits of using alcohol (a low score indicating few perceived benefits). An alcohol behavior scale was constructed and comprised four items related to frequency of use, intention to use in the future, amount usually consumed per drinking occasion, and frequency of drinking to intoxication.

*(6) Results*

St. Pierre *et al.* (1992) reported that the intervention programs was "marginally" effective in influencing alcohol-related behavior. Relative to subjects in the comparison group clubs, those in the Stay SMART Only and Stay SMART Plus Booster groups reported less alcohol-related behavior combined across all three follow-up points. However, the size of the differences between the three groups in their mean score on the 4-point alcohol behavior scale were small (1.89 - program only, 1.87 - program plus booster, and 2.04 - comparison), and did not reach significance at the conventional level of $p < 0.05$. In addition, these mean follow-up scores were barely in excess of each group's baseline score (1.73 - program only, 1.72 - program plus booster, and 1.95 - comparison). Thus, with or without the program, there was little change over the course of the study in the alcohol-related behavior of subjects.

Subjects in the Stay SMART Plus Booster group came to perceive fewer benefits from drinking alcohol over the course of the program, whereas those in the comparison group perceived greater social benefits from alcohol use over time. In this case, although the differences between groups at follow-up were statistically significant ($p < 0.05$ at 15 months and $p < 0.01$ at 27 months), the actual magnitude of these differences was once again small. For example, at 27-month follow-up the mean score of the Stay SMART Plus Booster group on the five-point attitude scale was about 1.4, while that of the comparison group was about 1.8.

These minimal differences between study conditions at follow-up must be considered in the context of the design limitations of the study. First, the sample was extremely small and highly selective - subjects for whom data analyses were performed represented 43% of the baseline sample. Although subjects were recruited from "high risk environments", the authors report that their overall use of alcohol and other drugs was modest, suggesting that it was "low risk individuals" who selected into the programs. In line with this, it was found that those who dropped out of the program perceived greater social benefits from using alcohol at baseline than those who remained throughout the duration of the study. Second, the program sites were not randomly selected, but rather chosen due to their having an organizational capacity capable of implementing the program. This raises the possibility that such "well-organized" clubs might be atypical of clubs in general, and, indeed, it was found that subjects from clubs in the comparison condition reported more alcohol-related behavior at baseline than those from clubs in the two intervention conditions.

## OVERVIEW OF STUDIES: CONCEPTUAL AND ORGANIZATIONAL ISSUES

The majority of the studies reviewed report minimal program effects even over the immediate post-intervention period. Included here are the California "Winners" Program (Wallack and Barrows, 1982/1983), the Community Action Project (Casswell and Gilmore, 1989), the Tri-community Prevention Project (Giesbrecht and Douglas,

1990), and the Stay SMART program (St. Pierre *et al.*, 1992). The Midwestern Prevention Project reported positive program effects at one-year follow-up (Pentz *et al.*, 1989a), but these were not sustained at three years (Johnson *et al.*, 1990). The programs reporting most success were those with very specific and circumscribed objectives - driving while intoxicated in the case of the Vermont Project (Worden *et al.*, 1989) and the Rhode Island Project (Putnam *et al.*, 1993; Stout, 1992), and limiting use of alcohol in city-owned parks and recreational facilities in the case of the Thunder Bay Project (Gliksman *et al.*, 1990). The authors of the report on the latter project observe that social control policies are generally more successful when implemented locally and targeted at a clearly defined segment of the general population (Murray and Douglas, 1988; Gliksman *et al.*, 1990).

The authors of the various reports suggest a number of reasons for their limited impact. Here we focus on two that are of fundamental importance - (1) difficulties in generating community involvement in the programs and (2) developing interventions that truly impact upon community-level processes. We discuss these within the broader framework of recent developments within community psychology, in an effort to present possible solutions to these problems. Community psychology developed in the 1960s as psychology's response to the social problems of the day. Involvement in real world settings conceptualized through an ecological framework was the hallmark of its approach to social problems (Heller, 1984; Vincent and Trickett, 1983). Whereas the traditional psychological focus on individual and intrapsychic variables in understanding and altering human behavior undermines the situational and contextual influences in which all behavior is embedded, ecological perspectives add balance to psychology's person-specific orientation. The ecological orientation within community psychology places an emphasis on the interactive effects and mutual influence between individuals and their environments. Conceptually, community psychology incorporates a preventive orientation (rather than a treatment-orientated approach) toward social problems (Heller, 1984; Levine and Perkins, 1987). In addition, it has developed the concept of "empowerment" as a guiding theoretical framework for the field so as to avoid the detrimental impacts associated with many preventive interventions.

### *Generating Community Involvement*

A number of the authors of the studies reviewed report that projects were poorly organized, with timetables that allowed an insufficient period for planning and implementation and little coordination of program components (Putnam, 1990; Wallack and Barrows, 1982/83). Where programs were poorly organized, this frequently resulted in a failure to engage members of the target communities in the design and implementation of the project. Some projects were only minimally concerned with involving community residents in developing intervention programs (e.g., the Vermont Project). However, for others, this was an integral part of the implementation process and community involvement was essential if the program was to succeed (e.g., the Community Action Project and the Thunder Bay Project). Unfortunately, as Hyndman and Giesbrecht (1993) observe, even when projects are premised on the idea of enabling residents to identify and articulate the problems in their communities and to develop and implement the proposed interventions, what frequently emerges is a "top down" venture in which project staff and local politicians and professionals dominate the decision-making process. In the Rhode Island Project,

for example, the point of entry into the community was through "key stakeholders", such as the mayor, police chief, city councilors, liquor licensees, and senior hospital staff and administrators, as it was thought that in order to mobilize local support and commitment such individuals had first to be recruited as project allies. This, along with the fact that the project was designed primarily as a research study, meant that more general community ownership was difficult to foster (Putnam, 1990). The authors of the reports on the Tri-community Prevention Project also draw attention to the problems that arose as a result of the intervention failing to articulate concerns raised by the community (Giesbrecht and Pederson, 1992). In this case, not even the "community leaders" shared the project staff's view that alcohol was a problem for the community.

The "top down" approach to alcohol abuse prevention is indicative of the broader philosophical orientation evident in many social policy initiatives which assume that social ills can be prevented by helping, educating, socializing, and skill-building activities. This assumption is steeped in a tradition of experts "fixing" dependent individuals. One result of this orientation has been a professional and cultural conceptualization of individuals experiencing social problems as inadequate, dependent persons - what Rappaport (1981) has termed the "needs model". Effects of this model on "needy" persons have often been overlooked, particularly iatrogenic effects stemming from dependency roles. To solve social problems, the needs model has been used by the state and its associated structures to design programs and treatments on behalf of dependent persons. Functionally, the needs model has resulted in a role relationship where professionals are perceived as knowing how to prevent, help or fix social problems better than the persons affected by these problems.

An alternative conceptualization to the needs model incorporated in traditional preventive interventions is an orientation based on "rights". This orientation views individuals experiencing social problems as having the right to deny "helping" interventions on their behalf. The "rights" orientation to social problems emphasizes freedom, individuality and responsibility while ignoring environmental circumstances which limit these ideals. This philosophy came to dominate public policy in the 1980s, when social programs were considered the cause rather than the cure of many of society's ills. Indeed, the recent focus on "community" within the prevention field is due in part to the conservative *zeitgeist* of the 1980's which shifted responsibility away from government and onto individuals and the local citizenry (Linney, 1990) thus giving a distinct "blame the victim" tenor to some community efforts (Ryan, 1971).

Rappaport (1981;1987) has argued that the debate between the advocates of the "rights" and "needs" approaches fails to recognize that social problems are by their very nature paradoxical - although humans have both rights and needs, solutions to these issues are often contradictory. Attachment to one or the other of these orientations is, therefore, one-sided. In attempting to resolve this issue, Rappaport (1981;1987) suggests that "empowerment" replace prevention as the theoretical framework for community interventions. The foundation of the empowerment orientation is a value in individuals and a belief in their inherent competencies and capabilities. The empowerment model acknowledges the skills, potentials and humanness in all people; it posits poor functioning of social systems as the basis for social problems. As such, the empowerment framework addresses a bias in the social sciences which reduces system level problems to individual inadequacies, thus blaming the victim for his or her own victimization (Ryan, 1971).

Empowerment methods focus on individuals enhancing control over their lives. Because individuals are unique, enpowerment represents an approach which allows diverse solutions to social problems. In contrast, the "needs" and "rights" perspectives, historically driven by professionals, experts and paternalistic governmental entities, ignore individuality and inherent capacities (Rappaport, 1981). Underpinning the empowerment perspective, therefore, is the idea that competencies exist in all individuals. Social problems, in turn, are viewed as the result of social structures which limit access to resources and thus inhibit the expression of competencies. Empowerment, it follows, views local control rather than centralized decision-making as essential to the development and implementation of community interventions. From this perspective, the specific components and contents of a program are designed and implemented to a considerable extent by local citizens. As will be discussed in the next section, more recent prevention projects have attempted to involve community residents more fully in the development of intervention initiatives.

*Community-level Interventions*

Commentators on community programs, both within the field of alcohol studies and beyond, have raised questions as to the extent to which these truly attempt to impact upon *community-level influences* rather than simply using a community setting to implement interventions designed only to change individual behavior (Holder and Giesbrecht, 1990; Leventhal, Safer, Cleary and Gutman, 1980). As noted in the introduction, individual-level interventions focus almost exclusively upon limiting demand for alcohol, whereas community-level interventions focus greater attention upon restricting the availability or supply of the drug. One of the main reasons why individual-level interventions are presented as impacting upon community-level factors is that few programs are driven by a clearly articulated conceptual model describing what "communities" are and how they function (Duigan, Caswell, and Stewart, 1993; Holder and Giesbrecht, 1990). Leventhal *et al.* (1980) distinguish between three potential targets of prevention programs - individuals, groups, and communities - each of which has a specific set of behavioral objectives attached to it. An example of an individual-level objective is an increase in resistance skills, an example of a group-level objective is a positive change in a professions' beliefs and behavior, and an example of a community-level objective is the implementation of a change in policy.

Along similar lines, Rappaport (1977;1987) proposes four levels of analysis at which interventions can operate - the individual, the interpersonal, the organizational, and the institutional/community. These exist hierarchically, such that the most complex level of analysis (the institutional/community) is inclusionary of intervention techniques included in the simpler analytic levels that precede it. Individual methods assume that social problems stem from the inadequacies of persons or subcultures in their adaption to society. The values of society's institutions are perceived as benign; the goal of intervention being to help as many people as possible adapt to their environments. Individual methods utilize traditional psychological services such as mental health therapies, crisis intervention, training and education. At the interpersonal level, social problems are conceived of as symptomatic of difficulties between individuals and their primary groups (family, workplace, peer group). These conceptualizations of social problems draw principally from ideas developed within the traditions of social psychology and clinical psychology. The goal of intervention is to assist groups with

communication and skill deficits so as to help group members and the social institutions responsible for instilling social values. Typically, interpersonal interventions target small groups dynamics and interpersonal interactions via family therapy, communication skills training or group therapy. At the level of organizational interventions, social problems are conceived of as the result of organizations which poorly or inefficiently implement societal goals and values. This perspective draws on public health and organizational psychology in conceptualizing social problems. The goal of intervention is to improve the efficiency with which organizations socialize individuals to fit into society. Organizational solutions are applied via systems-centered consultation aimed at altering organizational structure, leadership, communication and benefits through the organization. Lastly, at the institutional and community level of analysis, social problems are attributed to institutions rather than organizations, groups or individuals. In this approach, social change stems from altering the institutional values, goals and ideology which, in turn, influences the relationship within and between organizations, groups and individuals in society. From this perspective, intervention strategies need to be sensitive to the diversity that exists within communities and to the need for persons to have adequate access to resources. Institutional and community methods of intervention draw upon the techniques of community organization and social advocacy.

The conceptual frameworks suggested by Leventhal *et al.* (1980) and Rappaport (1977;1987) can be used to understand the studies reviewed above. The Rhode Island Project (Putnam, 1990), for example, was a clear attempt to influence group-level factors, namely the knowledge, attitudes and behavior of two occupational groups considered to be regulators of community drinking practices. For many of the projects reviewed, community functioning was conceptualized as an aggregate of individual behaviors rather than as an ecology of organizations and institutions in which indiviudals reside. For example, in four of the eight programs the mass media was a central component of the "community" intervention (Wallack and Burrows, 1982/83; Pentz *et al*, 1989a; Casswell *et al.*, 1990; Gliksman *et al.*, 1990). However, media messages, although applied community-wide, simply reach an aggregate of individuals rather than altering community functioning or the relationships between organizations and institutions within a community.

Of most interest is the fact that some programs made little or no attempt to impact upon anything other than individual-level or interpersonal processes. This emphasis on individuals and primary groups stems from the theoretical orientation of the projects: at a conceptual level, it is not community processes such as local policies that are conceived of as influencing alcohol use, but essentially interpersonal factors such as peer pressure. The most obvious example of this is the Stay SMART Program (St. Pierre *et al.*, 1992) which simply takes a school-based life skills training curriculum and delivers it in a youth club setting. In addition, one might also question the extent to which the Midwestern Prevention Project (Pentz *et al.*, 1989a) is a true community-based intervention. As Gerstein and Green (1993) have recently observed, of the five program modalities described by its authors, only three appear to be in effect, and for two of these - the parental and mass media components - there is only sparse data available from which to judge the extent to which they have reached their target audiences. In addition, two of the components - the mass media program and the community organization efforts - were implemented in both the comparison and intervention communities, and so their contribution to any changes in alcohol use over time cannot be assessed (Johnson *et al.*, 1990). The failure to experimentally

manipulate the media and community organization components of the MPP and the absence of data indicating that parents were successfully engaged by the program, effectively reduces this "multicomponent" intervention to a school-based resistance skills training program.

A number of the authors of the reports reviewed acknowledge the conceptual limitations of their programs and the fact that they made little attempt to change anything beyond individual behavior. Wallack and Barrows (1982/83), for example, attribute the failure of the California "Winners" Alcohol Program in large part to it being premised on theoretical models which define alcohol-related problems as essentially individual-level phenomenon (thereby ignoring the broader social, economic and political context in which alcohol use occurs). They argue that mass media and individual-orientated programs continue to be used in prevention programming as they represent a safe option that in no way challenges powerful vested interest groups within a community. Along similar lines, Giesbrecht and colleagues acknowledge in their discussions of the Tri-community Prevention Project that the type of "persuasion/ education" intervention that they employed was chosen primarily as it was considered to be "the only reasonable option" available given the circumstances under which the project was implemented (Giesbrecht *et al.*, 1990, page 179). Both the demands of the research design and prevailing views about alcohol use within the community placed considerable constraints on the program, such that its potential for reducing the overall distribution of consumption was substantially limited. Giesbrecht *et al.* (1990) contend that the minimal requirements for an intervention that would effect change in consumption levels throughout a community are: first, a high degree of local concern about alcohol consumption and alcohol-related problems; second, the introduction of innovative modifications in regulatory measures; and, third, strong community mobilization at both the lay and professional level. Such measures, they argue, would impact upon the alcohol-related culture of the community, and, in turn, influence levels of consumption. Both Wallack and Barrows (1982/83) and Giesbrecht *et al.* (1990) accept that individual - and interpersonal-level initiatives such as education and mass media campaigns can be used to promote regulatory changes and community mobilization, but insist that these are insufficient in themselves to bring about substantial long-term change in alcohol use and abuse within a community.

## RECENT DEVELOPMENTS

The need to attend to community-level processes and to engage the target community in the design and implementation of intervention programs are more evident in three projects recently commenced. Project Northland is designed to reduce the incidence and prevalance of alcohol use among a cohort of sixth grade adolescents from fourteen communities in Minnesota (Perry *et al.*, 1993). The broad theoretical framework of the project is problem behavior theory, in which adolescent alcohol use is explained in terms of the interaction between the social environment, personality, and behavior (Jessor and Jessor, 1977). This model suggests the need to attend to demand reduction in the community and home, as well as to supply reduction through traditional school-based skills training programs.

The intervention has three components - a parent program, a peer-led school-based skills-training program, and a community program. The parent program is implemented

during the sixth grade, and orientated around four activity books which students work on at home with their parents/guardians over a period of four weeks. The exercises included in the books focus on facts and myths about adolescent alcohol use, consequences of alcohol use, advertising, peer pressure, adult role models, and establishing family guidelines about alcohol. At the end of the program, a family fun night is held at the school. The school program is comprised of two curricula for seventh and eight h grade students each of which is peer-led and comprised of eight 45-minute sessions. The seventh grade curriculum is focussed on skills training to remain a non-drinker, and the eighth grade curriculum on skills specific to preventing drinking and driving. In addition to these curricula, peer-leaders are trained to organize social clubs which provide an arena for alcohol-free gatherings. The most innovative aspect of the project is the community component, the objective of which is to "... empower citizens... to build their own capacity for prevention based on building networks of support and encouraging broad-based participation" (Perry *et al.*, 1993, p. 133). It is built around task forces comprised of representatives from various community organizations, and intended to develop strategies that will reduce the access of adolescents to alcohol. These strategies fall into four broad areas: education of alcohol merchants; enforcement of existing laws concerning alcohol sales; development of new local ordinances regulating sales; and development of school policies concerning alcohol use. Community organizers are responsible for the formation of the task force in each community.

The program is being assessed using a sample of sixth grade students in 24 public school districts located in six counties in northeastern Minnesota. Fourteen school districts have been randomly allocated to the intervention condition and 10 to the control condition. The intervention will be assessed through surveys of participating students, parents, community leaders (e.g., the mayor, the police chief), and merchants from local liquor outlets. In addition, a trial of purchase attempts by young women from more than 100 local liquor outlets will be undertaken to assess the ease of access to alcohol without age identification before and after the intervention.

The Minnesota group is conducting a second project which places even greater emphasis on initiating change at the community level (Wagenaar and Wolfson, 1993). The Communities Mobilizing for Change on Alcohol (CMCA) Project is an 18 community trial designed to assess the effectiveness of a *community mobilization* strategy in reducing the availability of alcohol to those under 21 years of age and the level of alcohol use and alcohol-related health and social problems among this age group. The program is designed to accomplish these goals through change in community policies and practices concerning alcohol use, as opposed to simply changing "the behavior of an aggregate of individuals in the community" (Wagenaar and Wolfson, 1993, p. 119). For example, the CMCA intervention will aim to reduce the number of outlets willing to sell to minors and diminish tolerance of this practice within the community, but make no attempt to teach minors the skills thought necessary to resist buying and using alcohol.

Perhaps the most distinctive feature of the CMCA Project is that it does not involve a set of specific program components developed and designed by the research team prior to the recruitment and engagement of the participating communities. Rather, the intervention itself involves a process of community activation and mobilization, with communities free to implement whichever strategies and approaches they consider most appropriate in dealing with the problems they face. The research team does not

provide a ready-made "program", but rather offers guidance through the presentation of information and material detailing the nature and extent of underage drinking in the community and the relative effectiveness of various prevention strategies. Standardization of the intervention across communities is present in terms of the approach being used to mobilize communities. This is done through the formation of a task force in each community, the education of the members of this group, and the use of community organizers to help formulate and implement a specific plan of action.

Nine communities have been randomly assigned to receive the community organization intervention, with nine others acting as a comparison group. Surveys and time-series analysis will be used to assess the impact of the intervention on youth accessibility to alcohol and the level of alcohol-related behaviors and problems.

Finally, the Prevention Research Center (PRC) Project, described by Holder and colleagues (Holder, 1993b; Schatz *et al.*, 1993), entails a more formal intervention program than the CMCA Project, but is similar in its emphasis upon community-level processes. The intervention, being implemented in two communities in California and one in South Carolina (each with a matched comparison site), is intended to reduce the number of accidents and fatalities resulting from alcohol use. It is designed in accordance with a clearly articulated conceptual model, in which the community is conceived of as a "system" involving the interaction of the individual and the environment. Alcohol-related accidents and fatalities are considered "outputs" of this system. The key factors operating within a community to produce these outputs are the level and pattern of alcohol consumption, the level of alcohol sales, the availability and marketing of alcohol, access to alcohol, community norms governing use, the enforcement of laws, community education, the level of risk-related activities (e.g., driving or using heavy machinery), and general background influences (e.g., the level of use of private automobiles versus public transport).

As Holder (1993b) observes, the system perspective suggests the need for intervention programs that impact upon the social, economic, and physical environment of a community, in addition to the individuals within it. The PRC intervention has five components, which will be implemented over a 5-year period, and which target specific community-level alcohol-related problems (i.e., alcohol-related injuries). The five components of the intervention are (1) community mobilization through the development of organizations and coalitions and increased public awareness, (2) training bar staff and management in responsible service practices, (3) community, parent, and retailer education aimed at reducing underage drinking, (4) increased effectiveness of DWI enforcement (both actual, and as perceived by community residents), and (5) improved implementaiton of local ordinances governing the youth accessibility to alcohol.

In each intervention community, the program is being implemented through a "lead agency" (e.g., the city council), and the project timetable includes a pretest planning period designed to allow maximum community involvement in the sequencing of the intervention components and the development of specific implementation strategies. The PRC program is also structured to ensure that an ongoing process of information sharing is established between the project staff and community representatives. At the outset of the study it was made clear to the project staff that schools felt "curriculumed out", and therefore a decision was made to use non-school channels to implement program components (Schatz *et al.*, 1993). A range of measures are being used to assess the intervention, including surveys, monitoring DWI arrest and media accounts, and analysis of outlet densities and changes in policies.

## CONCLUSION

Most attempts at preventing alcohol use and abuse rely upon individual-level interventions designed to reduce demand. This is true of school-based programs and, as has been shown from this review, most community-based efforts. Interventions which attempt only to reduce demand at the individual-level are inherently limited, and have not been shown to lead to substantial, long-term change in alcohol use and abuse (Gerstein and Green, 1993; Gorman, 1992b; in press). As Holder (1992) has recently observed, it is simply not possible to "inoculate" a community against alcohol-related problems through education and skills-based training.

In terms of design and implementation, most prevention efforts take the form of standardized programs devised by outside experts, with minimal citizen participation in their development and little attention to the unique systems-level factors that generate alcohol-related problems within the target community. It has proved difficult to generate community involvement in such programs, and it is imperative that we move beyond the simplistic assumption that a common set of casual factors can explain alcohol abuse across diverse cultural, economic, and political settings (Gorman, 1992b).

Three projects which have recently begun in the USA address more directly than most previous efforts the issue of whether change in systems-level influences such as liquor outlet densities can be achieved through community-based interventions (Holder, 1993b; Perry *et al.*, 1993; Wagenaar and Wolfson, 1993). At a conceptual level, these projects draw upon social science traditions which emphasize social and environmental determinants of behavior (e.g., social ecology, public health, and sociology), rather than the individual and intrapsychic traditions dominant in psychology. They have also sought to broaden the target audience of intervention programs, and encouraged greater community participation in the design and implementation process. The process and outcome data that these studies will produce, should greatly increase the knowledge base in this area of research.

Among the numerous challenges that remain is to develop and implement community-based programs in "high risk" urban settings, where the markets for alcohol and other drugs tend to concentrate due to economic conditions (Gorman, 1993). A number of specific systems-level factors operate within cities to greatly increase the risk of involvement in both the licit and illicit drug market for those who live there. Notable in the case of alcohol is the intense marketing of inexpensive high potency beverages, such as malt liquor (Gifford, 1993; Marriot, 1993). Interestingly, in many parts of the country, inner city residents have began to develop initiatives designed, not to "inoculate" local youth against such pressures, but rather to limit the availability of alcohol within their communities and regulate the marketing and sales practices of local merchants (Gifford, 1993; Sims, 1992). Prevention research in high risk environments should build upon such efforts, and move away from the use of standardized programs and curricula towards a meaningful involvement of local citizens in the design and implementation of community interventions. As Holder (1993a) rightly observes, the likelihood that research will have some real impact upon reducing the level of alcohol-related problems within a community is greatly enhanced when coupled with the efforts of such "grass roots" movements.

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