Multilevel Prevention Trial of Alcohol Use Among American Indian and White High School Students in the Cherokee Nation

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Objectives. To evaluate the effectiveness of a multilevel intervention designed to prevent underage alcohol use among youths living in the Cherokee Nation.

Methods. We randomly assigned 6 communities to a control, Communities Mobilizing for Change on Alcohol (CMCA); a community-organizing intervention targeting alcohol access only, CONNECT (a school-based universal screening and brief intervention) only, or a combined condition. We collected quarterly surveys 2012-2015 from students starting in 9th and 10th grades and ending in 11th and 12th grades. Response rates ranged from 89% to 90%; 46% of students were American Indian (of which 80% were Cherokee) and 48% were White only.

Results. Students exposed to CMCA, CONNECT, and both showed a significant reduction in the probability over time of 30-day alcohol use (25% 22% and 12% reduction, respectively) and a heavy episodic drinking (24%, 19%, and 13% reduction) compared with students in the control condition, with variation in magnitude of effects over the 2.5-year intervention period.


American Indians (AI) suffer from significant health disparities related to alcohol. Early prevention is critical, because early exposure is a risk factor for problematic alcohol use in adulthood,4 and AIs have a higher rate of early onset than do other groups.5 In addition, rural youth and rural youths who are a racial minority in their community are at increased risk for alcohol use and getting drunk.6 Despite increased risk, rural communities and AIs populations have been underserved in clinical and community trial research.7

To address this gap, we designed a trial with the Cherokee Nation that involved rural and racially diverse communities in northeastern Oklahoma in the 14-county jurisdictional service area of the Cherokee Nation, the second largest AI tribe in the United States. The location is not a reservation; rather it is the area of Indian Territory to which the Cherokees were forcibly relocated in 1838-1839. Following the Dawes Act of 1887, the commonly held tribal land was divided, and a family allotment was provided to individual AIs registered on the Dawes Rolls Presently, 40% of the 333,094 members of the Cherokee Nation live in this jurisdictional service area, and Cherokee citizens constitute a significant proportion of the population.

The trial was initiated through a partnership between university-based prevention scientists and Cherokee Nation Behavioral Health psychologists. Together, we implemented a rigorous trial to evaluate the effectiveness of 2 distinct strategies to reduce underage drinking and associated consequences among youths living in rural, racially diverse communities within the Cherokee Nation. We selected 2 evidence-based strategies that are adaptable to local culture. Communities Mobilizing for Change on Alcohol (CMCA) is a community-organizing intervention designed to reduce alcohol access, use, and consequences among underage youth.8-10 Community organizing has been used effectively in multiple other health interventions11-13 and appears to be an optimal strategy to engage diverse citizens in these multiracial communities. The second strategy, called CONNECT, was an individually delivered screening and brief intervention (SBI) in schools; it was supported by findings of a recent systematic review.14 We implemented SBI universally among all students along with motivational interviewing because it is responsive to individual student needs and readiness to change.

METHODS

We conducted a factorial experiment with examine the effectiveness of the 2 preventive interventions implemented alone or in combination. The trial was initiated through a partnership between university-based prevention scientists and Cherokee Nation Behavioral Health psychologists. Together, we implemented a rigorous trial to evaluate the effectiveness of 2 distinct strategies to reduce underage drinking and associated consequences among youths living in rural, racially diverse communities within the Cherokee Nation. We selected 2 evidence-based strategies that are adaptable to local culture. Communities Mobilizing for Change on Alcohol (CMCA) is a community-organizing intervention designed to reduce alcohol access, use, and consequences among underage youth. Community organization has been used effectively in multiple other health interventions and appears to be an optimal strategy to engage diverse citizens in these multiracial communities. The second strategy, called CONNECT, was an individually delivered screening and brief intervention (SBI) in schools; it was supported by findings of a recent systematic review. We implemented SBI universally among all students along with motivational interviewing because it is responsive to individual student needs and readiness to change.

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I have no conflicts of interest.

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Project Summary

- Partnership between Cherokee Nation Behavioral Health and prevention scientists
- Prevent and reduce alcohol use and related problems among high school students
- Implement and evaluate two evidence-based interventions
- Rural communities in NE Oklahoma within boundaries of Cherokee Nation
Research Design

- Selection of towns/high schools within Cherokee Nation
- Random assignment of towns/high schools to study condition
  - Brief intervention within high schools: CONNECT
  - Community intervention: CMCA
  - Both
    - Delayed program
- Controlled intensive longitudinal design
  - Quarterly surveys of high school students
  - Monthly alcohol purchase attempts
Health Disparities

- Rural youth populations
  - Rural youth who are racial/ethnic minorities
  - Under resourced
  - Underrepresented in clinical and community trials

- American Indian population in U.S.
  - Higher substance use disorders among youth
  - Early onset
  - 550% more likely to die from alcoholism
  - 150% more likely to die from unintentional injuries
  - 100% more likely to die from homicide
  - 70% more likely to die from suicide

Source: Wu, Woody et al., 2011. Arch Gen Psychiatry, 68(11), 1176-1185; Agency for Healthcare Research and Quality, 2013; Espey et al., 2014; Chartier et al., 2010; Swain et al., 2011
Cohort Demographics

- 1,623 high school students
- 50% male
- Average age 15 at baseline
- 46% Native American (80% Cherokee)
  - 22% Native American only
- 46% White only
- 53% free or reduced price lunch
Proximal and Primary Outcomes

Environmental Intervention
- Availability
- Formal Social Controls

Proximal Outcomes
- Access
- Enforcement Perception
- Drinking Norms

Primary Outcomes
- Behaviors
- Alcohol-related Consequences

SBI Intervention
- SBI + MI
- Positive Social Interactions

Proximal Outcomes
- Alcohol Cognitions
- Social Support
- Drinking Norms
CONNECT

School-based Screening & Brief Intervention Implemented within the Cherokee Nation
Universal Screening & Brief Intervention

Goals
- In-school support
- Increase motivation to not use or reduce use
- Shift alcohol cognitions and norms
- Ultimately, reduce youth alcohol consumption and related problems

Strategies
- CONNECT Coach
- School-based SBI with motivational interviewing
- CONNECT media campaign
When it comes to checking in with the teens in your life...

...don't check out!

Teens need adults to support them by staying connected and setting limits. Connect with the teens in your life and help them learn to be independent—and safe.

You might think that as your teen gets older, they need less supervision, but really, they need more! Teens need adults to set limits and know where they are and who they’re with. Here is a checklist of things you can do that will help your teen learn to be independent—and safe.

Ideas That Have Helped Some Families:
- Know your teen’s friends and their parents or caregivers and their phone numbers.
- Be sure parties and gatherings are supervised.
- Make rules about transportation:
  - No texting & driving.
  - No riding with an unsafe driver.
  - Know who they’re riding with.
  - No alcoholdrugs & driving or riding.
  - Always wear a seatbelt.
  - No passengers in the back of the truck.
- Set limits about curfews and where your teen may or may not go.
- Consistently enforce the rules you make with your teen.
- Don’t just punish broken rules; show your appreciation and approval for the things your teen does right, too.

Keep checking in with your teen.

This message is brought to you by the Connect program.
CMCA

Communities Mobilizing for Change on Alcohol Implementation within the Cherokee Nation
Community Organizing Intervention

**Goals**

- Reduce alcohol sales to youth
- Reduce social sources of alcohol
- Reduce community tolerance of underage drinking and adult provision of alcohol to youth
- Ultimately, reduce youth alcohol consumption and related problems

**Strategies**

- Community organizing
- Evidence-based strategies
  - Commercial sources
  - Social sources
  - Enforcement
Implementation

What did we do?

- Media strategies
  - Letters to the editor, Op-eds, social media

- Law enforcement strategies
  - Reporting parties, asking follow-up questions
  - Increased hot-spot policing
  - Compliance checks

- Ordinances & Policies
  - Social Host enforcement, compliance checks, county-wide response plan

- Vendor training
  - RBS, How to spot a fake ID
Alcohol Purchase Attempts

- Direct assessment of how strictly proof-of-age is adhered to in stores that sell alcohol
- Buyers judged by a panel to be under 20 years old
- Standardized protocol
- Off-sale alcohol outlets assessed monthly
- Mean number of outlets per town is 21
Baseline Alcohol Purchase Attempts

- 23% resulted in an alcohol sale without age identification
- 76% of outlets sold at least once
Figure 2. CMCA Effects: Alcohol Purchases

- Control
- CMCA (z = -2.32, p = 0.0202)

Total Effect: 17 percentage-point reduction

Implementation →
- Action Team Formed
- One-on-Ones

Data Collection Wave (~monthly)
Student Survey

- Primary outcomes
  - Past month alcohol use
  - Past month heavy use
  - Other drug use

- 12 survey waves
  - Over 3 years of high school
  - 9th/10th grade through 11th/12th grade
  - Response rates: 83%-90%
Effects on Alcohol and Drug Use

- **CMCA**
  - 25% reduction in 30-day alcohol use
  - 24% reduction in 30-day heavy episodic drinking
  - 35% reduction in chewing tobacco
  - 39% reduction in marijuana use
  - 48% reduction in prescription drug misuses

- **CONNECT**
  - 22% reduction in 30-day alcohol use
  - 19% reduction in 30-day heavy episodic drinking
  - 26% reduction in marijuana use
  - 31% reduction in prescription drug misuse
Past Month Non-Alcohol Drug Use by Study Condition
Successful Approach

- Demonstrated success in *reducing* alcohol use among AI and white rural high school students
- True tribal-community-university collaboration
- Relevant and responsive community action research

Dissemination

- National Registry of Evidence-based Programs and Practices (NREPP)
- Community Anti-Drug Coalitions of America (CADCA)
- Youth Leadership Institute (yli.org)