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ABSTRACT

An alcohol and drug use education program was developed by teachers and administrators in Mora, a small, isolated Hispanic community in northern New Mexico, in cooperation with the town's public health nurses and a University of New Mexico research team. Pre- and posttests were given to 150 students in grades 7-9 in the Mora Public Schools to assess: behavioral intent for accompanying drinking drivers and experimenting with pills, knowledge of alcoholic content of beverages, perceived impairment of driving ability from marijuana smoking, frequency of drinking to excess, and frequency of accompanying drinking drivers. Teachers kept logs of drug/alcohol related incidents. Treatment exercises were given to students after teachers received inservice training in their use. Health promoting outcomes included favorable changes in behavioral intent for riding with impaired drivers. Interviews with teachers and officials suggested that health behavior variables such as peer pressure were not sufficiently impacted by treatment exercises. Previous attempts by health educators had failed in this close-knit, culturally isolated town; but, this program was accepted because the research team observed cultural strictures, was introduced by an accepted individual, and prompted community responsibility for resolving the problem. Appended tables include pre- and posttest results, sample reporting forms, and teacher reports of substance misuse incidents. (LFL)

Health Promotion Efforts In An Isolated Hispanic Community : The Mora Substance Abuse Prevention Project

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Health Promotion Efforts in an Isolated Hispanic Community

Introduction

For many years the field of Health Education has posited as an integral priority the engagement of minority populations* in health promotion efforts (1-3). Various investigators have made seminal and contributory advances in this important area (4-6). When the literature is reviewed, however, there emerges a considerable lack of studies which plan and actually execute longitudinal assessments of initial research. Moreover there is a definitive lack of reports which present and interpret outcomes via the perceptual world of the persons receiving the program (7-8).

The field continues to conduct important health-enhancing research that aims to improve either directly or indirectly, the health of minority groups. In evaluating the impact of such efforts health behavior investigators also continue to employ statistical significance tests (9-11). While such tests have been shown to be visually and verbally impressive they fail miserably in helping non-researchers understand what actually occurred (12-13). Too few studies have grounded their evaluations upon the phenomenological perspective of the persons for whom the investigation was originally intended.

The program described herein was developed in concert with a constellation of entities, all of whom had a vital interest in the project outcome(s). These entities included seven teachers from the target school, the school's assistant superintendent and principal, the towns public health nurses and the research team from a major university. Throughout the entire planning period each of these groups worked together to insure that the selected educational units were understandable and applicable to students at the various levels.

*Women and the geriatric population are generally to be conceptualized in a public health education framework as minorities.

Subjects and Setting

Subjects for the study consisted of 150 students from grades 7-9 at the Mora Public Schools. Mora, New Mexico (pop. 1,200) is in the northern portion of the state and is almost exclusively Hispanic individuals who claim their ancestery directly from the Conquistadores of Spain. Students generally come from lower-middle class social economic strata and are heavily Catholic. The only main street through the town is one-half mile long yet it possesses nine different establishments serving and selling alcohol. The town experiences an extreme winter climate with roads becoming snowy and icy from December to March. The community is 23 miles from the nearest major town and is extremely close-knit and protective in nature.

Methods

In the Spring of 1985 a group of researchers from the University of New Mexico travelled to the town of Mora, New Mexico (pop 1,200) to meet with Mora school officials and teachers. The intent of the meeting was to see if a prevention-based alcohol and drug intervention could be developed for Mora students.* There was consensus that a program could be jointly built that would meet the needs of the students, school officials and ultimately the community.

Needs Assessment. A 36-item needs assessment was conducted two-months after the final planning meeting and two in-service training workshops for participating teachers. The survey was anonymous, self-report, sealed questionnaire format with cognitive, perceptual, behavioral intent, affective, demographic and conative variables. Results of this baseline assessment are reported elsewhere (14, 15).

*This gathering was a result of an initial meeting between the state Health and Environment Accident Prevention Director, Mr. Jeff Pine and Mora Public School officials.

In essence, the survey indicated that alcohol and to a lesser extent marijuana, were the health behaviors of primary importance. The high rates of usage in these areas were compounded by the finding that students frequently used these substances while driving or accompanying drivers who were. The findings suggested that the point of onset for misuse of these drugs was the eighth or ninth grade. With this basis the program was designated to be run in grades seven through nine only.

Teacher logs were also distributed and assessed during this period (See Appendix A). Teachers were asked to report the number and type of "drug and alcohol" related incidents they themselves had experienced at the school during the past school year. An incidents rate was derived from these data.

Program Units. As a direct result of findings from the needs assessment, teacher input and consultation with a comparable sample of students at a separate school, an array of treatment exercises were designed. These exercises were produced conjointly between all of the parties involved. Appendix B gives a complete listing and brief explanation of these programs. Teachers were given in-service training to allow them practice using the exercises. The various units were implemented during certain health and science periods throughout the following twelve-months.

Measurement

Student responses at baseline and posttest were coded and stored on computer disk. Since the project is to be evaluated periodically for an indefinite duration storage of data in an easy access and secure locale was of prime importance.

Data were analyzed using Chi-square and t-test analyses. Two and three-way analysis of variance was also conducted but are not presented in this report.

Contingency coefficients and other relationship measures (tau) were calculated with the Chi-square statistic but in the interest of clarity are not included in these tables.

The Chi-square statistic was employed because the research data are in the form of frequency counts that were placed into categories.* The t-test was utilized because it accounts for different sample sizes and because differences between pre-and posttest group means for different variables was to be analyzed. Regardless of whether or not Chi-square or t-tests were calculated statistical significance outcomes were identicle ($p < .05$ standard cutoff level). Only Chi-square analyses are given in this report.

Measurement of program results were also assessed qualitatively by interviewing school officials and teachers, and by archival records retrieval (dwi rates from state traffic bureau). Moreover teacher logs from both pre-and posttest data points are presented descriptively. (See Appendix C).

Temporal Dimension

Due to the fact that the project initiated in the Spring - mid way through the academic school year, students were by necessity seventh-graders at present (baseline) but eighth-graders at posttest (year-end). This temporal abnormality must be kept in mind when interpreting results because of the numerous potential "nuisance variables" it spawns (16).

Findings

Survey. Due to the magnitude of variables, grades and data generated during the first year only selected outcomes will be reported. Table 1 gives the vignettes used to assess behavioral intent for the variables of accompanying drivers "under the influence" and pill experimentation. The lower the mean

*See Borg & Gall, Educational Research, Third Edition, 1979 - New York: Longman, for a detailed review of both theChi-square and t-test assumptions.

INSERT TABLE I HERE

score for these items the more "health-promoting" the response.

Table 2 presents the Chi-square assessment for the variable of intent to ride with a drinking driver for eighth and ninth-grades. Note that at pretest, eighth graders were actually in the seventh-grade and ninth graders were actually in the eighth grade.

INSERT TABLE II HERE

For both grades at posttest reported intention to ride with a drinking driver was significantly more favorable (i.e., definitely/probably no responses collapsed). The percent reporting "health risky" intentions at posttest decreased for both grade levels. ($P < .0001$).

Table 3 gives the results for the variable of friends intent to try pills. For both grades at pretest the percent reporting "health risky" intentions for friends was 62% and 55%, respectively. At year end these figures decreased to 16 and 20 percent, respectively. This finding was statistically favorable for both grades. ($P < .001$).

INSERT TABLE III HERE

One cognitive variable concerning alcoholic content of various beverages is assessed in Table 4 for eighth graders. The percent reporting "all equal" (appropriate knowledge) at year end (50%) was much larger than at baseline (12%) and was statistically significant ($p < .0001$)

INSERT TABLE IV HERE

N t all variables resulted in substantial differences. Table 5 presents the outcomes for perceived impairment of driving ability from marijuana smoking. At pretest 58% were correct in perceiving impairment while at post-test, 52% perceived impairment of driving skill from marijuana.

INSERT TABLE V HERE

Table 6 presents the results from one of the behavioral items dealing with frequency of drinking to excess for tenth-graders. The proportion responding "sometimes" or "always" to this item reflects an alarming yet not unexpected finding.

INSERT TABLE VI HERE

Frequency of accompanying drinking drivers for ninth-graders is given in Table 7. There were statistically significant findings on this variable ($p < .01$) with students at the year-end survey reporting fewer episodes of riding with drivers under the influence of alcohol.

An array of other outcomes were analyzed in the year-end evaluation but are not presented or interpreted in this report.

INSERT TABLE VII HERE

Discussion

The outcomes for the first-year of this minority-focussed project were quite promising. Initial meetings with teachers at the beginning of the program reflected a climate of considerable pessimism and caution. Teachers forecasts about a relative absence of positive outcomes from the first years efforts were fortunately erroneous. All groups responsible for the design

and implementation of the project concurred that for favorable changes to emerge a two or three-year latency period may well have to pass. Fortunately, this was not the case and health-promoting outcomes were evident after the first year.

Researchers have proposed that a person's behavioral intention (BI) toward a specified behavior is a relatively sound proxy measure for what the person's actual behavior would constitute (17, 18). While not as empirically precise as some BI measurements of past investigations the vignettes employed in this program consistently produced favorable changes, across grades, gender and behavioral focus (19). If indeed the BI of these students toward riding with impaired drivers is a good indicator of their later in vivo actions, then one could cautiously predict that actual behavior in such situations will be similarly affected at some future date. Only the passage of time and periodic follow-up analyses can offer additional evidence on this hypothesis.

While BI results were consistently favorable there were less encouraging outcomes for other variables of interest. The frequency of riding with marijuana-smoking drivers actually increased for eighth-graders at posttest (P .267) and there was no statistical difference pre- to posttest for tenth-graders' frequency of drinking "too much" (P .660), even though percentage-wise (27% - 21%), there was a relative reduction (Table VI).

Explanations for such apparently contradictory findings await additional psychometric assessments and diagnostic interviewing. Preliminary perceptions of school and community officials suggest that various components of older student's health behavior (i.e., peer affilliation need) were not sufficiently impacted by the treatment modalities.

One of the most crucial implications from this study for the field of Health Education concerns entrance and acceptance into the community itself. Northern New Mexico is comprised of literally hundreds of small, isolated, tightly-knit towns with old world Spanish ancestory. Each of these towns have the same kind of health behavior scenario (i.e., drinking and driving) portrayed in Mora. Each of these towns are protective and cautious in nature where outsiders are concerned.

For many years various health educators had tried unsuccessfully to engage the public schools in Mora. The reason the current team was accepted into the community was because cultural strictures and unwritten rules were observed (20). The research team was introduced to the "gatekeepers" of the school by an already affilliated and accepted individual (i.e., a homophile) from the State Department of Health (p .321). In sharp contrast to previous attempts the research team did not propose that they would solve the communitie's problem. As Dr. Marshall Kreuter of the Centers for Disease Control and others have stated the efficient health educator is one who is successful in getting a community to perceive a problem as their own and take responsibility (action) for its resolution (21, 22).

While this research does not yet establish a generalized prototype for other small school systems in Northern New Mexico, it does contribute some valuable guideposts for other investigators and school officials to examine. Because of the high level of caring, dedication and attachment the community has for its youth the program has been given an indefinite time period in which to periodically revise, implement and assess it's impact upon the health status of the town.

TABLE 1

V-30: BEHAVIORAL INTENT: ACCOMPANYING DRINKING DRIVERS

You are in Las Vegas watching a movie with your friends. Your friends have driven you there. While watching the movie, your friends start drinking beer. After the movie they find their car and start home. Would you go with them?

Definitely Yes	Probably Yes	Not Sure	Probably No	Definitely No
_____	_____	_____	_____	_____

V-31: BEHAVIORAL INTENT: ACCOMPANYING MARIJUANA SMOKING DRIVERS

In the previous story suppose instead of drinking your friends had been smoking marijuana during the movie. Would you go with them?

Definitely Yes	Probably Yes	Not Sure	Probably No	Definitely No
_____	_____	_____	_____	_____

V-32: PROJECTED INTENT OF FRIENDS TO TRY PILLS

Suppose you were at a party with your friends and everyone was drinking and smoking marijuana. Suppose at the party someone was offering your friends some pills. Do you think your friends would try the pills?

Definitely Yes	Probably Yes	Not Sure	Probably No	Definitely No
_____	_____	_____	_____	_____

From: Duryea, E.J. - The Mora Risk Project, Summary Report to the Scientific Advisory Council, DISCUS, April 1986.

TABLE 2

BEHAVIORAL INTENT TO RIDE WITH A DRINKING DRIVER

8th Grade:	"Health Promoting" Definitely/Probably No	Not Sure	"Health Risky" Definitely/Probably Yes
PRETEST (N=50)	7/50 14%	(15/50)	27/50 54%
POSTTEST (N=64)	31/64 48%	(20/64)	13/64 20%

$X^2 = 32.96, p < .0001, df = 5$

9th Grade:			
PRETEST (N=51)	17/51 33%	(15/51)	19/51 37%
POSTTEST (N=65)	30/65 46%	(19/65)	16/65 25%

$X^2 = 17.58, p < .003, df = 5$

TABLE 3

WOULD YOUR FRIENDS TRY PILLS AT A PARTY?

[illegible]	"Health Promoting" Definitely/Probably No	Not Sure	"Health Risky" Definitely/Probably Yes
[illegible]	5/50 10%	(11/50)	31/50 62%
[illegible]	27/64 42%	(26/64)	10/64 16%

$\chi^2 = 19.78$, $p < .000$, $df = 2$

With Grades

[illegible]	7/51 14%	(16/51)	28/51 55%
[illegible]	28/65 43%	(21/65)	14/65 20%

$\chi^2 = 21.22$, $p < .000$, $df = 2$

TABLE 4 WHICH OF THE FOLLOWING HAS THE MOST ALCOHOL?

8th grade:	PRETEST (N=41)	POSTTEST (N=64)
Beer	1	1
Liquor	35	30
Wine	0	1
All Equal	5 (12%)	32 (50%)

$X^2 = 28.80$
df= 4
p = .0001

TABLE 5 DO YOU THINK MARIJUANA HURTS YOUR ABILITY TO DRIVE?

9th grade:	PRETEST (N=50)	POSTTEST (N=65)
No, Not at All	8	7
Probably a Little	13	24
Yes	29 (58%)	34 (52%)

$X^2 = 3.08$
df= 3
p = .378

TABLE 6 HOW OFTEN DO YOU DRINK "TOO MUCH"?

10th grade:	PRETEST (N=51)	POSTTEST (N=65)
Never	13	18
Sometimes	14	13
Always	--	1
Don't Drink	24	33

$X^2 = 1.59$
df = 3
p - .660

TABLE 7 NUMBER OF TIMES IN THE PAST MONTH YOU HAVE RIDDEN WITH A DRINKING DRIVER

9th grade:	PRETEST (N=50)	POSTTEST (N=62)
0	39	34
1-2	7	22
3-6	1	6
7-10	--	1
> 10	3	1

$X^2 = 12.14$
df = 4
p - .01

APPENDIX A

THE MORA PROJECT

Dear Mora Teacher-Coach:

A preventive alcohol and drug project is currently being planned for Mora students. With your help it will eventually reduce damaging alcohol and drug behavior in Mora students. We need to ask your help in getting an estimate of "where we are" with the problem(s) right now. Please fill out the following items and return to Mr. Aragon before the school year ends.

Thank you for your help!

Number of alcohol or drug-related incidents you've encountered over the past school year in your classes: _____

Grade-level of student(s) involved in these incidents:

_____

Type of drug (count alcohol as a drug) involved:

_____

Description of the incident(s) (use back of form if needed)

_____

_____

_____

_____

_____

_____

Other observations you have had

_____

_____

APPENDIX B

1. Facts and Myths About Alcohol

2. Responding to Dares Exercises

   a) Staying Out Late on a Date
   b) Stealing
   c) Drinking Wild Turkey Whiskey
   d) New Kid on the Block
   e) A Self Dare
   f) A Letter of Challenge

3. Choice Dilemma Exercises

   a) Chris and Michael - marijuana
   b) Jim - new job
   c) Marie - driving while intoxicated
   d) Mike - graduation
   e) Mark and Carla - marriage
   f) Eddie - drinking to excess
   g) Jennie - pedestrian death
   h) Benjie and Juan - parties

4. Summary

5. Role Play Vignettes

6. Nebraska Prevention Center - Videotapes (5) on Resisting Peer Pressures To Misuse Alcohol

7. The Group and You - Videotape on Peer Group Dynamics - Sunburst Corporation

8. Virginia Sanchez, Mora Public Health Nurse - How To Make Better Alcohol and Health Decisions

APPENDIX C

TEACHER LOG RESULTS-BASELINE

of teachers responding: 24

# of teachers reporting alcohol and/or drug-related incidents: 11

# of total incidents reported: 34

Grade distribution of the incidents:

grade (#)	type of substance
12th (6)	alcohol & marijuana
11th (15)	alcohol & marijuana
10th (12)	alcohol & marijuana
9th (1)	alcohol & marijuana

Rate of incidents detected per school week:

$$\frac{34 \text{ incidents total}}{36 \text{ school weeks}} = .94 \text{ incidents/week/school year}$$

Most common observations of teachers:

(1) disruptive or nonresponsive student in class
(2) odor of marijuana and/or alcohol on student
(3) red eyes of student(s) observed after lunch
(4) smoking behind the school gymnasium

APPENDIX C

TEACHER LOG RESULTS - YEARS END

of teachers responding: 16

# of teachers reporting alcohol and/or drug-related incidents: 5

# of total incidents reported: 13

Grade distribution of the incidents:

grade (#)	type of substance
12th (7)	Alcohol & marijuana
11th (4)	Alcohol & marijuana
10th (0)	- - -
9th (1)	Alcohol
8th (1)	Alcohol
7th (0)	- - -

Rate of incidents detected per school week:

$$\frac{\text{13 incidents total}}{\text{36 school weeks}} = .36 \text{ incidents/week/school year}$$

Most common observations of teachers:

(1) student's glassy eyed in class
(2) student's excusing themselves to the restroom
(3) student's appearing nauseous
(4) student's smelling of liquor

APPENDIX D

STATE OF NEW MEXICO

Transportation Department

TRAFFIC SAFETY BUREAU

P. O. BOX 1028
SANTA FE, NEW MEXICO 87504-1028
505-827-4776

March 24, 1986

Dr. Eli Duryea
Health Promotion Division
College of Education
University of New Mexico
Albuquerque, New Mexico 87131

Dear Dr. Duryea:

Enclosed are copies of a computer printout depicting citation data for Mora County. The information is not available for Mora City, but the location where the citations were issued is available.

The 602 is the code for State Police, district 2. I have also included the date of the citation, age, and sex of driver.

If you have any questions or need further information, contact Mr. Carm Martinez of this office at 825-4567.

Sincerely,

Carm Martinez

for John D. Fenner, Chief
Traffic Safety Bureau

JDF:CM:cm

cc: Grant 2-TR-86-01-01-02

A1 03/24/86 08:58 VM/SP CONVERSATIONAL MONITOR SYSTEM

NEW MEXICO TRANSPORTATION DEPARTMENT
TRANSPORTATION STATISTICS BUREAU ***** PLANNING/DEVELOPMENT DIVISION
NUMBER OF DWI CITATIONS ISSUED IN THE COUNTY OF MORA
DURING THE TIME FRAME JULY 1984 THROUGH MARCH 1986

ISSUAGY	VIODATE	LOC1	DRVAGE	SEX	TALLY
395	850107	WAGON MND SCH	63	M	1
ISSUAGY TOTAL					
602	851012	I25	37	M	
602	851115	I25	56	M	
602	851213	*	26	M	
602	850328	SR 3	17	M	
602	850424	SR 3	29	M	
602	850209	SR 3	53	M	
602	850414	I25	18	M	
602	850608	I25	40	M	
602	850127	SR 3	24	M	
602	850210	SR 3	18	M	
602	850402	SR 38	16	M	
602	850421	SR 3	20	M	
602	841212	SR 3	60	M	
602	841220	SR 3	24	M	
602	841227	SR 3	20	M	
602	841228	SR 3	27	M	
602	841020	SR 3	20	M	
602	841023	SR 3	34	M	
602	841111	SR 3	38	M	
602	841124	SR 3	25	M	
602	850104	SR 21	34	M	
602	850116	SR 3	33	M	
602	841003	SR 94	21	M	
602	841010	SR 21	19	M	
602	841222	SR 3	25	M	
602	841229	SR 3	33	M	
602	841229	SR 3	27	M	
602	850101	SR 3	28	M	
602	840922	SR 3	27	M	
602	840928	SR 3	23	M	
602	841102	SR 3	25	M	
602	841216	SR 3	51	M	
602	850216	I-25	26	M	
602	850216	I-25	31	M	
602	851129	*	77	M	
602	841013	*	39	M	
602	841001	I25	58	M	
602	841203	I25	65	M	
602	841218	I25	54	M	
602	850127	SR 3	24	M	
602	851227	*	58	M	
602	860228	*	27	M	
602	860301	*	55	M	
602	851224	*	49	M	
602	860216	*	62	M	
602	851224	*	26	M	
602	860103	*	26	M	

A1 03/24/86 08:50 VM/SP CONVERSATIONAL MONITOR SYSTEM

TRANSPORTATION STATISTICS BUREAU ***** PLANNING/DEVELOPMENT DIVISION
NUMBER OF DWI CITATIONS ISSUED IN THE COUNTY OF MORA
DURING THE TIME FRAME JULY 1984 THROUGH MARCH 1986

ISSUAGY	VIODATE	LOC1	DRVAGE	SEX	TALLY
602	860106	*	32	M	
602	860205	*	42	M	
602	851230	*	35	M	
602	851204	SR 3	79	M	
602	860113	*	19	M	
602	851208	SR 3	40	M	
602	851103	SR 3	23	M	
602	851124	SR 3	25	M	
602	851214	*	44	M	
602	851222	*	42	M	
602	851028	SR 21	20	M	
602	851113	SR 3	57	M	
602	850927	SR 3	24	M	
602	850928	SR 3	31	M	
602	850830	SR 3	71	M	
602	850902	SR 3	61	M	
602	850925	SR 38	28	M	
602	850929	SR 3	19	M	
602	850802	SR 3	43	M	
602	850804	SR 3	28	M	
602	850804	SR 3	32	M	
602	850816	SP 3	47	M	
602	850612	SR 94	43	M	
602	850618	SR 3	36	M	
602	850713	SR 21	42	M	
602	850727	SR 3	27	M	
602	850919	SR 38	62	M	
602	850920	SR 3	39	M	
602	850502	SR 3	18	M	
602	850519	SR 3	44	M	
602	850501	SR 3	27	F	
602	850525	SR 3	23	M	
602	850705	SR 3	32	M	
602	850719	SR 3	21	M	
ISSUAGY TOTAL					81
FINAL TOTALS					82

TOTALED RECORDS
1