DRUG PREVENTION: AN OUTCOME EVALUATION OF THE OKLAHOMA COMMUNITY YOUTH EFFORT

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CHAPTER I

THE RESEARCH PROBLEM

Introduction

Nationally, a goal of the Cooperative Extension System was to expand prevention and intervention programs to more youth, particularly those who were most vulnerable because of poverty, lack of parental support and negative peer pressure. At Oklahoma State University, state 4-H youth specialists committed to extending the youth outreach mission and resources of the total land-grant university system developed the Oklahoma Community Youth Effort (OCYE) curriculum to meet the needs of "youth at risk." This comprehensive prevention program was designed to address multiple issues such as: adolescent suicide, school drop-outs, social pressure and drug use.

Like many prevention programs, currently reviewed in the literature, the OCYE was directed toward increasing knowledge, cultivating healthy attitudes, improving decision making abilities and self-esteem, developing resistance skills, and reducing drug use among teens. In addition, the program format relied heavily on youth involvement and community interaction.

Previous drug prevention evaluation played a major role in the construction of contemporary educational programs, such as the OCYE. Early prevention programs, frequently taught by law enforcement officials and former addicts, focused on drug knowledge and attitudes. When evaluated, these information models increased knowledge, but failed to change attitudes or reduce drug use (Goodstadt, 1974; Kearney & Hines,

1980; Swisher, 1974; Zoller & Weiss, 1981). In some studies, drug use appeared to have increased (Goodstadt, 1974; Kearney & Hines, 1980; Moskowitz, Malvin, Schaffer & Schaps, 1984). Knowledge and attitude approaches continued in drug prevention due to the requests of youth for "accurate, relevant, trustworthy drug information" (Kearney & Hines, 1980, p. 128). According to Bell (1980), young people wanted "straight" information.

Prevention programs, popular in the 70's, sought to enhance youngsters' sense of self-worth, improve their decision making skills, and clarify the relationship between values and actual decisions. Evaluations of value-decision making skill programs showed ambiguous results (Ellickson & Robyn, 1987; Goodstadt, 1989; Schaps, DiBartolo, Moskowitz, Palley, & Churgin, 1981; Schaps, Moskowitz, Condon, & Malvin, 1982; Tobler, 1986; Zoller & Maymon, 1986; Zoller & Weiss, 1981).

Recently, programs based on the social influence approach yielded limited but encouraging results in preventing cigarette use (Botvin, 1986; DeJong, 1987; Ellickson & Robyn, 1987). Social competency strategies were quickly adopted into other drug prevention programs to help boys and girls recognize and resist pressures to use drugs. Evaluation indicated that effective use of refusal skills in the "real world" was still a problem (Goldstein, 1989; Hansen et al., 1988).

Since, historically, prevention evaluation had not documented effectiveness, the need for continued evaluation was well established (Bangert-Drowns, 1988; Domino, 1982; Goodstadt, 1989; Milgram, 1987). As Royse, Keller & Swartz (1982, p. 189) indicated: "advances in drug education can only come about by the type of evaluation which provides solid empirical evidence of effectiveness."

Providing empirical evidence was difficult, and for many agencies evaluation remained a low priority (Royse et al., 1982). Most drug education programs either had not been evaluated or their results had not been published (Goodstadt, 1989). Few studies evaluated the program process (Iverson & Roberts, 1980), and fewer still reported the lack

of positive results such as "implementation failure" (Schaps et al., 1982). The impact or long-term effects of prevention education were generally not assessed. The impact studies which were reported showed significantly diminishing effects in delaying or reducing drug use (Kim, Mc Leod, & Palmgren, 1989; Kim, 1988).

Most of the published studies focused on outcome evaluation or the short-term results, and in some, behavioral measures were included (DeJong, 1987; Rhodes & Jason, 1987; Zoller & Maymon, 1986). According to Hansen et al. (1988), short-term outcomes needed to be examined in order to interpret later behavioral impact properly. They stated:

> For example, if we are to have confidence that effective skills training is the factor that accounts for subsequent reductions in substance use, we should be able to show that immediately after receiving the program, students demonstrate greater skill at resisting pressure and greater self-efficacy than do students who did not receive the program or who received some alternative program. (p. 144)

Statement of the Problem

Was the Oklahoma Community Youth Effort (OCYE) an effective drug prevention program? To help answer this question a study was designed to determine the outcome or short-term effects of the program in selected OCYE communities, using the identified issues of tobacco, alcohol, and other drugs. The results of this study were needed to augment information obtained from other evaluations at the process and impact levels. Linkage of evaluations from all three levels provided for: enhancement of the existing program, development of a more useful program, and assessment of the prevention strategies. This comprehensive evaluation was also necessary to provide data to funding sources since the prevention program was developed, in part, with grant monies.

Purpose and Objectives

The purpose of this study was to determine if the OCYE was successfully affecting change in the drug knowledge, drug attitudes, drug resistance skills, and drug use patterns

of the youthful participants. One objective was to determine if there were differences in drug knowledge, attitudes, refusal skills and drug use between the male and female, younger teen and older teen, rural farm and rural non-farm OCYE youth. Another objective was to determine if there were differences in the pretest, posttest, or retrospective pretest drug use scores. The retrospective pretest, described in Chapter III, was believed to provide more accurate self-report data than the traditional pretest (Howard, Schmeck, & Bray, 1979; Pohl, 1982; Rhoads & Jason, 1987). A third objective was to obtain supplemental information for process evaluation which might identify change needs in program format or delivery.

Hypotheses

Boys and girls completing the OCYE program were expected to: demonstrate more accurate factual information about drugs and drug issues; express less accepting attitudes regarding their use; use refusal strategies and to reject drug offers more often; and report significantly less frequent use of tobacco, alcohol, and other drugs than at pretest. The following hypotheses guided the development of the study. They were:

1. There will be no significant differences between pretest and posttest drug knowledge scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.

2. There will be no significant differences between pretest and posttest drug attitude scores; and no significant score differences between male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.

3. There will be no significant differences between pretest and posttest drug refusal skill scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.

4. There will be no significant differences in the pretest, posttest, or retrospective pretest drug use scores; and no significant score differences between the male and female, younger teen (age 14 and

under and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.

Assumptions

It was assumed that the information provided by the respondents was truthful. However, the drug use reported by some youth may not have been truthful due to a desire to appear to conform to legal standards regulating drug use or to exaggerate independence from these standards. The validity of self-reported drug use data had been questioned (Casswell, 1982; DeJong, 1987; Rhoads & Jason, 1987) and some studies surveyed the use of bogus drugs such as "thanatos" (DeJong, 1987) and "phenotrophines" (Kim, 1988) in an effort to control reliability. In this study the respondents were assured of confidentiality and no "trick" coding procedures, imaginary drugs, or "bogus pipeline" procedures (fake physiological measures) were used. It was believed that the use of deception complicated the evaluation of prevention programs that depended on trust between educators and participants (Rhoads & Jason, 1987).

It was assumed that the respondents had the necessary reading skills to enable them to follow directions and to answer the questions. To aid the young people, the vocabulary and the structure of the instrument was kept at a low readability level. It was assumed that the OCYE youth had enough drug education or experience to make pretest responses.

Limitations and Scope

This study dealt with only the identified issues of tobacco, alcohol, and other drugs. The scope was reduced to measuring the short-term effects or outcome of the OCYE drug prevention module.

The results of this study were limited to the OCYE participants in selected communities of Northeastern Oklahoma. No control group was used.

Definitions

The need to agree on the various drug-related terms was well documented (Zoller & Maymon, 1986). They attributed the difficulty in comparing effectiveness among the many different drug courses and projects to:

> The lack of common definitions of various (tobacco, alcohol and drug) behaviors (who should be considered a 'smoker,' for example) and appropriate criteria of what is meant by 'success' in a prevention program. (p. 3)

Therefore the following terms were defined for the study.

Attitude

Kilty (1975, p. 327) defined attitude as a "sociopsychological construct" and a "multifaceted phenomen, often considered multidimensional with three independent components: affect (evaluation), cognition (belief), and behavioral intentions." This study considered feelings, thoughts, perceptions, views, and opinions synonymous with youthful attitudes toward drugs and drug use. During the attitude survey, the youth were instructed that there were no "right or wrong answers."

Drug

In this study, the term drug referred to any substance that affected the mind or behavior. Tobacco, alcohol, and all legal or illegal substances were included. When appropriate, specific drugs were identified to clarify the discussion.

Drug Use

The youth in this research project were asked to identify their personal drug use at one of seven different levels. The youth who marked the selections (1) never used or (2) no longer use were considered non-users. The youth who marked (3) use once or twice a

year or any level above three were considered current users. Boys and girls indicating drug use at level (4) use once or twice a month or above four were considered frequent users.

Evaluation

Evaluation was defined as a process of making value judgments about the quality (effectiveness) of a product, process or program. The purpose of program evaluation was to determine the operations and effects of a specific program relative to the objectives that it set out to reach—in order to contribute to the decision making surrounding the program (Van Maanen, 1979).

Impact Evaluation

Kim (1982) defined impact evaluation as:

> Long-term results where the primary interest lies with the attitudinal and behavioral changes on the part of program participants as well as those who have not received the program. (p. 314)

Outcome Evaluation

According to Kim (1982), outcome evaluation was generally a short-term evaluation where the largest concern was with the attitudinal (and sometimes with behavioral) changes on the part of the program participants only.

Process Evaluation

The purpose of process evaluation was to determine the appropriateness and usefulness of the program design, content, training, teaching strategies, presentation, and support materials.

Prevention

Lofquist (1983, p. 2) referred to prevention as an "active, assertive process of creating conditions and/or personal attributes that promoted the well-being of people." He emphasized the creating of conditions which precluded the symptoms one wished to avoid or changing the conditions under which the behaviors to be prevented were most likely to occur.

Hawkins and Nederhood (1987) defined the mission of prevention services in altering the experimental conditions that contributed to substance use. They stated:

> Preventive services seek to decrease the likelihood that individuals will abuse drugs by addressing and reducing the factors thought to increase the risks of abuse or by enhancing and promoting factors that are thought to 'inoculate' people against drug abuse. (p. 1)

Simply put, drug prevention programs sought to head off drug use problems before they occurred.

Primary Prevention

A primary prevention program was defined as "a systematic effort through which infrequent, irregular, or curiosity-oriented drug experimenters were kept from becoming regular or more than regular drug users or addicts" (Kim, 1981b, p. 360).

Rural Farm and Non-Farm

All of the boys and girls in this study were considered to be rural youth. They were asked to identify their residence as: a city or town with 25,000 people or more, a rural area or a farm or ranch with less than 10 acres, or a farm or ranch with 10 acres or more. The boys and girls who identified a farm or ranch home with 10 acres or more were considered rural farm. All others were considered rural non-farm as none of the participants lived in a city or town with 25,000 people or more.

Retrospective Pretest

In retrospective studies, the respondents were asked to answer questions in reference to how they perceived themselves to have been just before the intervention began. The most common use of the retrospective pretest occurred in research which yielded posttest information but had no pretest data for comparison.

In this study, the traditional pretest, posttest, and the retrospective pretest were used to collect drug use information. Casswell (1982) and Rhoads and Jason (1987) suggested that one consequence of most drug education programs appeared to be the tendency for the participants to become more familiar with the instructor and to report drug use more honestly on the posttest as compared to the pretest. Given that traditional pretest/posttest results frequently disagreed with retrospective pretest/posttest findings (Howard, 1982), this study compared all three measures.

Summary

In response to the state and national focus of Cooperative Extension on prevention programming for at risk youth, state 4-H specialists developed the Oklahoma Community Youth Effort (OCYE). Evaluation of this comprehensive prevention program was necessary for enhancement of the existing program, development of a more useful program and assessment of the prevention strategies.

While other evaluations were being conducted at the process and impact levels, this study targeted the outcome or short term effects of the program in selected OCYE communities. The identified issues of tobacco, alcohol, and other drugs were studied by the participants. Supporting issues of decision making and peer pressure were emphasized.

The purpose of this evaluation research project was to determine if the OCYE was successfully affecting change in the drug knowledge, drug attitudes, drug resistance skills,

and drug use patterns of the youthful participants. Researchers, educators, parents, law enforcement officials, and adolescents all had a stake in discovering what works.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

It was commonly accepted that a serious drug problem existed among the nation's school-age population. Recent studies (Bangert-Drowns, 1988) indicated:

> Twenty-seven percent of high school seniors surveyed in 1986 said they were using drugs other than alcohol and 17 percent reported already trying cocaine. Ten percent of the class of 1984 reported using alcohol by the sixth grade and nearly 20 percent had tried marijuana by eighth grade. Before entering high school, 3 percent had used cocaine, and 3 percent had tried LSD. (p. 243)

In response to the adolescent substance abuse problem, a proliferation of drug prevention programs were created. These tobacco, alcohol, and other drug prevention programs were based upon either the knowledge-attitude, value-decision-making, or social competency approach, or any kind of combination of the above. Evaluation of their effectiveness constituted a major problem (Goodstadt, 1989; Milgram, 1987; Schaps et al., 1982; Tobler, 1986; Zoller & Maymon, 1986) and was a matter of considerable concern for researchers and educators.

This review examined a variety of prevention programs and specific evaluation outcomes related to drug issue knowledge, drug attitudes, drug resistance skills and drug use. An attempt was made to identify program features which were possibly related to program effectiveness and to report implications for future prevention programming. Evaluation in prevention education was also reviewed.

Evaluation

Evaluation History

Program evaluation was frequently viewed as a recent phenomenon having emerged from the Great Society of the sixties. However; Rossi, Freeman and Wright (1979) and Madaus, Stufflebeam and Scriven (1983) traced systematic program evaluation back to a period before the turn of the twentieth century. These early evaluation efforts sought to provide literacy and occupational training by the most effective and economical means, and to reduce the mortality and morbidity from infectious disease.

According to Madaus, et al. (1983), evaluators needed to be aware of both contemporary and historical aspects of the profession including its philosophy and conceptual orientations. They indicated that without this background, evaluators were doomed to repeat past mistakes and were quite likely to fail at sustaining and building on past successes. The authors described six periods in the life of program evaluation: (1) Age of Reform 1800-1900, (2) Age of Efficiency and Testing 1900-1930, (3) The Tylerian Age 1930-1945, (4) Age of Innocence 1946-1957, (5) Age of Expansion 1958-1972, and (6) Age of Professionalism 1973-Present.

Rossi et al. (1979) highlighted the continued cries for "knowledge of results." They discussed Lewin's field studies and the Western Electric, Hawthorne Effect, study in the 1930's. In the 1940's there were large resource expenditures to remedy problems and needs in urban development, housing, technological or cultural education, occupational training, and preventative health activities. This was also a period of major commitments to international programs for family planning, health and nutrition, and rural community development.

By the 1950's evaluations of delinquency prevention programs, penal-rehabilitation projects, psychotherapeutic and psychopharmacological treatments, public housing programs and community organization activities were conducted. Knowledge of the

the methods of social research, including the art of the social survey, and the technology of computer-assisted statistical analysis grew to be widespread (Rossi et al., 1979). Evaluation became a "growth industry" in the 1960's.

Brewer (1983) indicated that evaluation originated in the various social science disciplines of psychology, education and economics but rapidly evolved into a separate specialization. In the 70's a number of textbooks and anthologies appeared. Journals devoted to program evaluation were developed and the Evaluation Research Society was founded.

Evaluation Research

In recent history, controversies developed around issues such as the proper role of evaluation in political decision making, the most appropriate research methods, and the organization of evaluation efforts. Brewer (1983) discussed a number of evaluation controversies which she concluded were reflective of fundamental differences and diverse origins within the field. It appeared that evaluation research was experiencing evaluation.

Suchman (1967) defined evaluation research as the application of social research techniques to the study of large-scale human service programs. For Rossi et al. (1979) evaluation research was more than the application of methods. They defined evaluation research as "a political and managerial activity, an input into the complex mosaic from which emerge policy decisions and allocations for the planning, design, implementation, and continuance of programs to better the human condition" (Rossi et al., 1979, p. 27).

Nacken (1981) wrote that the purpose of evaluation research was to contribute to scientific problem-solving in practice. She indicated that evaluation was not a goal-free activity and was not an end in itself. Evaluation was viewed as part of a political decision-making process within the framework of social institutions. According to Nacken (1981) the definition of research objectives should be mutually determined by the program participants, organizers, decision makers and evaluators. Rossi et al. (1979) wrote:

> Whatever the social values, the program goals, and objectives of those in powerful positions, information on program efficiency, efficacy, and accountability are persuasive inputs to the elusive influence and decision making processes that surround policy development and implementation. These are the products of evaluation research, and it is their political worth that has encouraged its remarkable growth. (p. 28)

Evaluation Models

House (1983) indicated that one way to understand evaluation was to compare the numerous evaluation models with one another. Morris and Fitz-Gibbon (1978) indicated that evaluation models served mainly to conceptualize the field and to draw the boundaries of the evaluator's role. Evaluation models also provided a vocabulary so that people who described evaluation issues were able to speak from a common basis. Morris and Fitz-Gibbon (1978) presented six sample models, the emphasis of each, and selected references. The models they described were: (1) Goal-Oriented Evaluation, (2) Decision-Oriented Evaluation, (3) Transactional Evaluation, (4) Evaluation Research, (5) Goal-Free Evaluation, and (6) Adversary Evaluation. Each model was viewed as appropriate to a particular set of circumstances. The authors' own model, CES (Center for the Study of Evaluation) was flexible and focused primarily on when to evaluate.

House (1983) described models similar to Morris and Fitz-Gibbon (1978), adding: (1) Systems Analysis, (2) Art Criticism, and (3) Accreditation. Goal Oriented was identified as Behavioral Objectives. Evaluation Research was not identified as a specific model. Patton (1980) judged five of the eight models identified by House (1983) to be incompatible with a comprehensive qualitative methods strategy:

> This standardized approach to assessing the effects of educational programs (Behavioral Objectives Model) is incompatible with the assumption in qualitative research that student performance can only be understood in a specific context in relation to the particular meanings an individual student attaches to the outcomes of his or her personal school experience. (p. 51)

Patton (1980) found these three models compatible with qualitative evaluation methods: (1) Transactional, (2) Goal-Free and (3) Decision-Making.

Lofquist (1983) identified this as a useful statement about evaluation:

> The purpose of program evaluation is: to determine the operations and effects of a specified program—relative to the objectives it set out to reach—in order to contribute to the decision-making surrounding the program. (Van Maanen, 1979, p. 30)

The evaluation framework he presented combined the Goal/Objective and Decision-Oriented models. Morris and Fitz-Gibbon (1978) indicated that Goal-Oriented evaluation should assess student progress and the effectiveness of educational innovations. House (1986) labeled the outcome: productivity and accountability. Decision-Oriented evaluation facilitated intelligent judgments by decision makers (Morris and Fitz-Gibbon, 1978). Outcome effectiveness and quality control were identified by House (1986).

Lofquist (1983) distinguished among five levels of evaluation and noted that each level built upon the preceding one. Monitoring (level 1) consisted of the collection of data relevant to the activities of the program. It focused upon the questions, "How much?" and "How Many?". Process Description (level 2) focused upon a description of the strategies and methods used in an effort to bring about the desired change. The basic questions at this level were: "How does what when?", "Under what circumstance?", and "For what Reasons?". At this level evaluation provided a record of everything being done to achieve the desired results.

Outcome Enumeration (level 3) focused upon what happened in relation to the relevant indicators in the move from Condition A to Condition B. It was emphasized that "while work at this level, if done well, indicated what had happened after a certain time, it could not be specified what relation the program described at level two had to the outcome, if any" (Lofquist, 1983, p. 116). Lofquist (1983) urged close attention to this level of evaluation. He indicated that the development of outcome measures for any kind of prevention initiative helped keep key allies clearly focused upon the results in which they were interested.

Measurement of Effectiveness (level 4) answered the difficult question: What would have happened in the area of the program's operation had the program not been available? System Impact (level 5) determined the impact upon systems conditions within which the program target was imbedded. Two additional levels considered were societal impact and new knowledge. The ultimate purpose of research evaluation was identified as the advancement of new knowledge.

According to Hawkins and Nederhood (1987), the first step in successful evaluation was building ownership among all those who were involved in the process. They presented the Staff/Team Evaluation of Prevention Programs (STEPP) model. Their design focused on the "the three E's": effort, effectiveness, and efficiency. "The three E's" were related to resources, program services, immediate results and long-term results.

Kim (1982) proposed a Uniform Progress and Evaluation Reporting System (UPERS) which was capable of rendering comparative judgments across various agency performances. The purpose of UPERS was "to provide a systematic approach toward a remedy of the current stagnation in program monitoring and program evaluation, particularly in the field of drug abuse prevention and intervention" (Kim, 1982, p. 309). Two examples were used, a community-based primary prevention program and school-based primary prevention program, to complete the UPERS form. Items for completion on the form were:

> 1.) program title, 2.) period covered, 3.) program objectives, 4.) theoretical framework, 5.) program description, 6.) target population and clients reached: a process evaluation, 7.) evaluation instrument used, 8.) data collection method, 9.) data analysis or reduction procedure, 10.) outcome and impact evaluation results, and 11.) recommendations. (Kim, 1982, p. 311)

Detailed instructions, as well as the examples, were included.

Prevention Evaluation

Prevention research had been described in various ways. Leukefeld and Bukoski (1991) noted that some authors described drug abuse prevention and the consequent evaluation research as scientific endeavors focused on etiology, human development, and vulnerability. Others indicated that drug abuse prevention research was "lightning rod research, influenced by personalities, which had repeatedly attracted negative findings" (Leukefeld and Bukoski, 1991, p. 193).

According to Battjes (1985), drug abuse prevention research was still in its infancy. Dembo (1979) wrote that the "state-of-the-art" in prevention evaluation was uncertain. A review of the literature indicated that both the fields of drug abuse prevention and the research into substance use had become increasingly sophisticated in recent years (Bry, 1978; Dembo, 1979; Leukefeld and Bukoshi, 1991).

Bry (1978) implied that early prevention programs were developed for the purpose of research. She analyzed the design features of significant studies, made recommendations regarding the design of future studies, and explained the rationale behind her recommendations. These recommendations were summarized:

1. A follow-up period longer than two years.
2. A population including absentees and drop outs.
3. Personnel trained for long-term service rather than research.
4. Random assignment of subjects.
5. Interviews and unobtrusive measures of the correlates of drug abuse. (Bry, 1978, p. 1163)

Dembo (1979) called for building bridges between research and prevention activities. He indicated that drug prevention work needed to be increasingly grounded theoretically, related to specific needs of target groups, and involved in close collaboration with research in program development and evaluation. Schaps et al. (1980) and Schaps et al. (1981) indicated that outcomes must be better linked to actual program events. In their review of 127 program outcome studies, they found that none of the studies of community-

based programs used an equivalent group design. They also recommended greater use of multiple measurement techniques such as interviews, observations and reports or records.

Sullivan, Guglielmo, and Lilly (1986) stated:

> It is a matter of concern that, in spite of the radical differences in practice and theory among drug and alcohol prevention and rehabilitation efforts, the research community remains convinced that all of these efforts are sufficiently alike to permit a ready, generic sort of evaluation of all this work. (p. 91)

They argued for two modifications in the standardly applied research/evaluation paradigm (process-outcome research). They proposed that indicators of change be sought within the prevention/intervention sessions. According to Sullivan et al. (1986), in-session observation and analysis of occurrences had a central, not peripheral role in the evaluation process. The second proposal was that the interpretation of the prevention/intervention events by the subject had primary research/evaluation significance principally because the experience of change was available completely to the participant alone.

Future Evaluation

Predicting the future was always hazardous. However, Freeman and Soloman (1981) indicated an end to the true/quasi-experimental design debate. The major reason for a shift in method measurement was that neither the true nor quasi-experiment was applicable, in many cases, to the evaluation of on-going programs. They also predicted changes in efficacy versus efficiency program focus. For example, the cost of preventing cavities was higher than the cost of filling decayed teeth. An increase in evaluation to improve managerial effectiveness was discussed along with an increased emphasis on monitoring. Evaluability assessments or exploratory evaluations were viewed as the beginning of on-going monitoring and impact evaluation efforts rather than "quick and dirty" or process evaluations.

Smith (1983) anticipated an expanding array of alternative approaches to evaluation but indicated no replacement of the current dominant approaches. He also claimed that evaluation would continue to become more interdisciplinary.

Worthen and Sanders (1973) summarized three needs of educational evaluation. They stated that evaluation must be researched, evaluation practices must be improved, and that the training of evaluators must be improved. Smith (1983) presented this list of evaluation issues which must be dealt with the in the future:

1. Improving the relevance and utility of evaluation studies;
2. Increasing the role of evaluations in providing equal educational opportunity;
3. Improving the cost-efficiency of evaluation efforts;
4. Expanding the role of stakeholders in evaluative activities;
5. Integrating evaluation effectively within legislative, judicial, and administrative functions;
6. Making major advances in the 'assessing value' side of evaluation;
7. Strengthening the evaluator's ability to deal with moral and ethical problems; and
8. Creating a professional identity or identities to guide the future of evaluation. (p. 385)

Freeman and Solomon (1981) compared evaluation research to Star Wars and concluded that:

> In both, it is still not entirely clear who are the heroes and the villains, whether future products will be better, exactly how long a life the enterprises will lead, whether or not there is a lasting social good from either of them, and how well they do when exported outside of the United States. (p. 25)

It appeared that only careful observation of the future allowed the answers.

Drug Issue Knowledge

Goodstadt (1989, 1986) summarized that drug knowledge was easily influenced. He concluded adequate knowledge was a necessary, but not sufficient, ingredient of effective prevention programs. Milgram (1987) agreed and indicated changes in knowledge were: the easiest changes to measure, the results preferred by programs and

communities, and the changes most often found in evaluations of drug education. He cited three studies as evidence.

Bangert-Drowns (1988) used study effect meta-analysis to review thirty-three reports. Study effect meta-analysis required a reviewer to: 1.) use explicit procedures to locate studies of a given issue, 2.) describe study outcomes on a common metric (the effect size), 3.) code studies for salient features, and 4.) find relations between study features and study outcomes by using statistical methods. Effect sizes were treated as independent data points and the t-test and analysis of variance were used. Twenty-six evaluations measured students' knowledge after treatment. He determined that drug education successfully increased drug-related knowledge, but found no reliable relations between study features and achievement on measures of knowledge.

Drug Factual Surveys were used by Kearney and Hines (1980) to measure the effectiveness of the Cooperative Education Service Agency Number Eight (CESA #8) in achieving changes in drug information. The researchers concluded that participation in CESA #8 resulted in significantly greater knowledge gain scores in the experimental than in the control group at each grade level.

Sarvela and McClendon (1987) and Schaps et al. (1982) reported mixed findings. Schaps et al. (1982) found the course they evaluated produced increased knowledge effects for grade seven females but not for grade seven males or for grade eight males or females. As a result of a comprehensive process evaluation, they concluded: "the course as implemented was a less than adequate representation of the course as conceived" (Schaps et al., 1982, p. 363). Observers reported the course was not well tailored to the age group and it was not effectively delivered. Students felt the course was of little use or interest. The authors indicated that the lack of positive results in previous studies was attributable, at least in part, to similar implementation failures.

Sarvela and McClendon (1987) compared the effects of a mixed affective-cognitive strategy to the typical informational approach. Study data suggested that for the rural

northern Michigan and Wisconsin youth, a mixed affective-cognitive drug education curriculum was not superior to the traditional (cognitive/informational) drug education approach. The researchers stated:

> It may be that factual information concerning drugs is more influential than affective-cognitive strategies in rural midwest early adolescent populations. (p. 228).

Several studies found no change in drug knowledge. Hansen et al. (1988) examined three different alcohol curricula and determined, with one exception, that students' pretest-posttest changes in knowledge about the consequences of drinking alcohol failed to differ across curricula. Rhoads and Jason (1987) and DeJong (1987) found that between the pre and posttest periods, there were no significant increases in either the experimental or the control groups' drug knowledge.

Kim (1988) used the Alcohol Knowledge Scale to measure the extent of cognitive knowledge students had about the subject of alcohol and alcoholism. The subjects were participants in Here's Looking at You (HLAY), one of the most widely known alcohol education or prevention programs in the nation. Kim identified a knowledge gain about alcohol and alcoholism on the part of the HLAY recipients between pre and posttest of the instrument. However, the gain in the HLAY group was less than the knowledge gain observed among the control group students. He suggested: "the knowledge gain among the control group students between pre and posttest may well have resulted from the testing itself" (Kim, 1988, p. 240).

In a juvenile intervention program, Iverson and Roberts (1980) noted that the juveniles' drug knowledge levels showed no significant improvement. They indicated that the non-significant finding regarding drug knowledge increases was not unexpected given the central role that drug use played in the participants' lives. The researchers further indicated:

> The level of drug knowledge was assessed via the participants' perception of his/her drug knowledge rather than a battery of cognitive-type questions. (p. 293)

While most studies sought to measure drug knowledge, few indicated what specific knowledge was measured. What did adolescents know about specific drugs and drug issues? For the most part, this question was unanswered.

Zoller and Weiss (1981) used an ordinary twenty multiple choice items test to measure cognitive gain. They concluded that the students gained much knowledge and understanding of the various aspects involved in the drug issue because nineteen percent of the students answered all of the questions correctly on the posttest. The curricular unit title, Hashsish and Marijuana, suggested the drug issue studied by the students. However, like most of the published articles, the content of the drug knowledge survey was not reported.

In New Zealand; Casswell, Mortimer, and Gilroy (1982), found a relatively long-lasting increase in knowledge. They questioned students to ascertain their knowledge about factors related to acute drug effects and habitual drug use. Three of six factors presented as having an effect on acute drug effects were: the situation of use, the expectations of the user, and the combined use of different drugs. Casswell et al. (1982) stated:

> In all three cases the teaching programme increased the proportion of students saying that these factors were quite and very important and reduced the proportion saying either they did not know or that the factor was not important. (p. 350)

The Wisconsin Clearinghouse material, used in one program evaluated by Sarvela and McClendon (1987), consisted of fact sheets concerning several different types of drugs. The pharmacology, history of different drugs, hazards, and legal issues were included in the mixed affective-cognitive program design. The informational program emphasized drug effects and drug laws. The actual drug knowledge of the subjects was not indicated.

Drug knowledge was tested by Rhoads and Jason (1987) using a fourteen-item multiple choice measure. Five of the questions assessed general knowledge about drugs, two assessed tobacco knowledge, three assessed alcohol knowledge, and four assessed

marijuana knowledge. Student knowledge was not reported for either pre or posttest assessments.

Kim et al. (1985) measured drug knowledge by counting the number of correct answers provided by the respondents. A 22-item questionnaire was included in the article report. Although it was easily determined what knowledge was surveyed, it was not possible to determine the student responses, since they were not reported. Kim et al. (1985) found differences between current and non-current drug users. He claimed empirical evidence to support his position that called for:

> A continued dissemination of information for all types of drugs to those who may be considered as current users and a limited availability of drug information (i.e., perhaps limited to alcohol and cigarettes to those who may be designated as non-current users. (p. 100)

Bell (1980) interviewed teens to determine what young people wanted to know. The respondents reported curiosity about drugs and a lack of knowledge about drugs and drug abuse. They wanted "straight" information, presented in an imaginative, interesting fashion. The teens mentioned how they became disillusioned when they discovered they had been fed "propaganda" about some of the milder drugs, and how that disillusionment led them to turn indiscriminately to harder drugs, or more frequent use of drugs. The youth in this study recommended that the effects of drug use and abuse be included in prevention programs. They were particularly interested in the social, physical, and psychological consequences resulting from drug use.

Most prevention programs contained a drug knowledge component and most evaluation studies surveyed drug knowledge. Apparently, educators and researchers assumed young people lacked specific knowledge about drugs and their effects. Adolescents, in fact, requested accurate information.

Few studies reported the categories of knowledge surveyed and fewer still reported what knowledge the youth were found to lack. The value of determining and reporting drug knowledge prior to developing prevention programs was overlooked.

It was generally agreed that most treatments produced increases in knowledge, although a variety of studies clearly reported no results. Due to the growing number of prevention efforts, it was possible that the adolescents of the 1980's had more pretest drug knowledge than adolescents of previous decades. Some studies combined knowledge and attitude surveys, making little distinction between the two.

Drug Attitudes

Attitude change was another key element used to evaluate drug education/prevention programs. According to Johnston, Bachman and O'Malley (1980), the causal links among beliefs, attitudes, and actual behaviors were very complex. Goodstadt (1986) indicated that attitudes were difficult to influence in a predictable fashion and did not possess a one-to-one relationship with behavior, or behavior change. On the basis of cognitive dissonance research, Bangert-Drowns (1988) suggested:

> Programs that highlight or produce incongruities among a student's attitudes or between a student's attitudes and behavior may also successfully produce behavioral and attitudinal changes. (p. 244)

Some studies were successful in identifying attitude change, but most were not. Milgram (1987) discussed several reasons which possibly accounted for the lack of attitude change results found. He noted: (1) inadequate programs; (2) problems obtaining and measuring attitude change; (3) short program duration; (4) lack of teacher/leader training; (5) use of outside experts; and (6) lack of intensive subanalysis.

This review summarized the following attitudes which frequently appeared in the literature. They were: (1) harmfulness of drug use; (2) personal disapproval of drug use; (3) legality of drug use; (4) friends' drug use; and (5) prevention of drug use. Trends were noted when possible.

Harmfulness of Drug Use

Johnston et al. (1980) reported the trends in perceived harmfulness of drugs from 1975 to 1977. They found that the proportion of students attaching "great risk" to the use of any of the illicit drugs had declined. The greatest decline in perceived risk involved "regular" use of marijuana (from 43 to 36 percent) followed by "initial" cocaine use (from 43 to 36 percent) and experimental LSD use. In contrast, they found the number who thought smoking cigarettes involved great risk had increased (from 51 to 58 percent).

Pascale, Trucksis, and Sylvester (1985) compared regional trends to national trends. They found a progressive increase in the harmfulness perceived for thirteen categories of drugs (except aspirin) from 1977 to 1983. Females perceived a higher health risk than males in using various drugs. The perceived risk for marijuana use increased from 35.8 percent to 74.9 (boys) and from 47 to 81.7 (girls). For cocaine the perceived risk increased from 61.4 to 81.9 (boys) and from 67.7 to 86.4 (girls). A similar increase was shown for the hallucinogens. The perceived risk for cigarette use increased from 60.4 to 76.7 percent for boys and from 56.3 to 79.2 percent for girls.

Updating the trends in perceived harmfulness of drugs, Johnston, O'Malley and Bachman (1989) reported that a substantial majority of 1988 high school seniors perceived regular use of any of the illicit drugs as currently entailing "great risk" of harm for the user. The decline in the perceived harmfulness of regular marijuana use, reported in the 1970's, ended in 1979 and in 1988 77 percent of the sample judged regular use of marijuana to involve great risk. The perceived risk of initial cocaine use ceased to decline in 1980 and 51 percent of the class of 1988 indicated it was dangerous to experiment with cocaine. The belief in the harmfulness of regular cigarette use continued to increase. Sixty-eight percent of the approximately 16,000 students surveyed judged regular cigarette use to be harmful.

Sarvela and McClendon (1987) asked students to rate the daily use of alcohol, cigarettes, marijuana, and cocaine on a 5 point scale which ranged from very bad to very

good. At pretest time no significant differences were found between the experimental group and the control group. Most students thought daily use of all of the drugs was bad or very bad. The control (comparison) group students ranked cocaine very bad less frequently. Following the prevention treatment, the posttest results were not what was expected. More members of the comparison group believed that alcohol, cigarettes, marijuana and cocaine were very bad for one's health than did those in the treatment group. At pretest time marijuana was considered the worst drug, but at posttest the experimental group ranked cocaine as the worst. The researchers considered this a positive finding.

Personal Disapproval of Drug Use

Johnston et al. (1980) reported that despite the decline in perceived harmfulness of most drugs from 1975 to 1977, there had been little change in disapproval during the same period. They found that the small minority who disapproved of trying alcohol once or twice (22 percent in 1975) had grown smaller (16 percent in 1977). Another important finding was a steady decrease in the proportion of seniors who disapproved of Marijuana use at any level of frequency.

A reversal in these trends was noted when Johnson et al. (1989) reported the results of an 1988 survey of high school seniors. The percentage of students who disapproved of trying alcohol once or twice had returned to the 1975 level. Although 23 percent disapproved of experimenting with alcohol, only six percent believed it was harmful. Disapproval of marijuana use had increased at all levels. Sixty-one percent disapproved of trying marijuana once of twice, 74 percent disapproved of occasional use and 89 percent disapproved of regular use.

Zoller and Maymon (1981) measured attitudinal change within the context of a marijuana drug education program. They reported a decline in the acceptance of drug users and in the desire to try drugs. In an elementary school setting, Kearney and Hines (1980), found significant attitude changes in primary students but not in intermediate students.

Kim (1981a) evaluated a community based Ombudsman prevention program and concluded that:

> Strict factual information about drugs does produce positive attitudinal improvements with regard to students' attitudes toward drugs. (p. 35)

The drug attitude inventory (DAT) used in this study measured the extent to which a child held an affective disposition which was favorable toward or tolerant of drug use in general. In another study of attitudes toward drinking and people who drank alcohol, Kim (1988) found positive attitudinal gain in Here's Looking at You (HLAY) students. While there was a change in student approval of alcohol use, there was no program impact on the perceived risks or rewards associated with alcohol use.

Legality of Drug Use

In 1977, (Johnston et al., 1980), a stunning 43 percent believed that cigarette smoking in public places should be prohibited by law—almost as many as those who thought getting drunk in such places should be prohibited (49 percent). For all drugs, substantially fewer students believed use in private should be illegal than believed that public use should be illegal. Thirty-four percent though marijuana use should be entirely legal.

In 1979, a steady decline in the proportion of high school students who favored legal prohibition of public or private use of any of the illicit drugs was reported (Johnston et al., 1980). The proposition opposing the legalized sale of marijuana dropped and the proportion favoring legalized sales to adults jumped to 52 percent.

In their 1988 survey, Johnston et al. (1989) reported that 48 percent of the students favored prohibiting cigarette smoking in public places and 54 percent agreed that getting drunk in public places should be prohibited. Since 1977, the proportion of students favoring outright legalization of marijuana dropped by more than half (from 34 percent in 1977 to 15 percent in 1988). There was also a corresponding doubling in the proportion

saying marijuana use should be a crime (from 22 percent in 1977 to 49 percent in 1988). Sixty-nine percent of the youth in this survey indicated that they would not use marijuana, even if it were legal and available.

The effectiveness of alcohol and other drug legislation was considered by Goodstadt (1989) as neither encouraging nor consistent. He drew the following conclusions:

> (1) There are many laws and regulations that limit the use of alcohol, tobacco, medications and illicit drugs; (2) changes in these laws could increase availability and, through the educational role of the law, implicitly endorse drug use; (3) research evidence strongly indicates that laws and regulations play a significant role in controlling alcohol use and abuse; (4) legislative control over medications can have significant effect on their use and abuse; (5) the use of the law in directly controlling individual alcohol and drug use is of limited effectiveness—drinking-driving legislation, for example, is only effective while the perceived likelihood of detection and the perceived severity of the punishment are high; and (6) there is evidence that anti-cannabis legislation in particular is ineffective as a deterrent and, on the other hand, liberalization of cannabis laws has not (in the United States) resulted in a significant increase in use of this drug. (p. 205)

Friends' Drug Use

Schultz and Wilson (1973) showed that having friends using drugs was the single best predictor of drug use. Researchers believed that much of drug use at the high school level was initiated through a process of peer social learning. For these reasons, several studies examined perceived friends' use of drugs.

Pascale, et al. (1985) compared students in a regional study to those in a national study. They found a remarkably smaller number of friends perceived as using alcohol most or all of the time. They had difficulty in interpreting these results since significant differences in drug use were not indicated. Blount and Dembo (1984) identified and surveyed non-users, users of alcohol, and users of both alcohol and marijuana who lived in the same neighborhoods. Non-users declared few, if any, friends who used alcohol and/or marijuana; alcohol users declared significantly more using friends, and users of both

substances declared significantly more using friends than either of the other two groups. However, the pattern changed when youth were questioned about their friends' use of 'hard drugs.' The authors noted that their finding appeared to run counter to the existing literature.

Hansen et al. (1988) studied the effects of Normative Education. They indicated that those who believed that substance use was prevalent and acceptable were more likely to experiment with drugs since they assumed that use was the norm. The Normative Education program clarified actual normative practices and beliefs. Activities were designed which elucidated a conservative norm by allowing subjects to discuss personal values openly. Information about the prevalence of drug use was provided. Peer opinion leaders acted as advocates for conservative use. The posttest results showed that students believed fewer of their peers had used marijuana, fewer adults drank alcohol daily, and fewer of their friends valued drinking or getting drunk.

Schaps et al. (1982) found no changes in perceived peer attitudes except for seventh grade girls. A decreased perception of favorable peer attitudes toward soft drug use was noted.

Pruitt, Kingery, Mirazaee, Heuberger, and Hurley (1991) studied peer influence and drug use among adolescents in rural areas. They found the frequency of illegal drug use was significantly related to the degree to which friends were perceived to use illegal drugs ($r = .59$). They also noted that their discriminant analysis accurately classified 69 percent of drug users as such, and accurately classified 81 percent of non-users as such.

Prevention of Drug Use

Pascale et al. (1985) asked students if drug education was needed and in which grade it was best taught. About half of the high school students indicated a preference for grades four to six for teaching about drugs. A larger proportion of females than males perceived drug problems in the elementary grades. A higher proportion of females than

males perceived a need for drug education. The researchers also noted that a higher proportion of girls perceived drug use as harmful.

In a study by Blount and Dembo (1984), students identified the most believable sources of information on drugs. They ranked doctors, drug education teachers, and drug program staff highest. Friends and family members were ranked lower. In contrast, when asked to identify persons appropriate for drug programs, they identified parents before doctors. They also felt drug education teachers and students needed to be included.

Parents and school personnel were identified as appropriate targets for educational programs by students in Bell's (1980) study. It was noted that parents were described as quite ignorant: "they can't tell dope from water" (Bell, 1980, p. 175). He also indicated that programs which depended on parents and teachers needed careful design as many youth viewed parents, teachers, and all forms of authority with distrust.

Bangert-Drowns (1988) concluded that when peers were the primary sources of instruction, larger attitude changes were likely to take place. There was also evidence to suggest that peer-led programs had more positive effects on drug use as well. Klepp, Halper, and Perry (1986) found factors that contributed to effective peer leadership varied with the type of program. They noted there was substantial conceptualization and implementation variation between programs that had used peer leaders. Generally, the role of the peer leader was to serve as a positive role model and to provide social information rather than merely providing facts. Activities that peer leaders were responsible for in health promotion programs included: "leading small group discussions, reading and giving directions, compiling and reporting students' responses to particular, relevant questions, organizing role plays, and leading brainstorming sessions" (Klepp et al., 1986, p. 408). They summarized that no firm conclusion could be made about the efficacy of peer leadership. Further research with peer leaders was suggested by Perry, Knut-Inge Klepp, Halper, Hawkins, and Murray (1986) as a way to strengthen on-going adolescent health promotion efforts.

In addition to these reported here, a wide variety of attitudes were reviewed including the perceived influences of the media (advertising) and peer pressure (Casswell et al., 1982; DeJong, 1987; Pascale et al., 1985; Blount & Dembo, 1984; Goodstadt, 1988). Goodstadt (1988) noted that in statistical terms peer pressure failed to explain enough of the variance. Many of the youth surveyed reported no pressure from people around them to use drugs. They indicated little influence by peers on their decision making. Studies which measured attitudes toward the media showed few changes in direction and for some youth advertising was not considered a factor impacting their resistance skills.

Measures of adolescent drug attitudes have produced inconsistent, confusing findings. Tobler (1986) presented a meta-analysis of 143 drug prevention programs in an attempt to identify the most effective program modalities for reducing teenage drug use. In programs where single outcome measures were used, attitudes showed the lowest effect size ($\overline{ES}$ = .18) compared to other single outcome measures for knowledge ($\overline{ES}$ =.52), behavior ($\overline{ES}$ = .27), skills ($\overline{ES}$ = .26), and use ($\overline{ES}$ = .24). In prevention programs which combined outcome measures for knowledge, attitudes, and use, attitudes also showed the lowest effect sizes.

Alone, few prevention programs demonstrated an impact on youthful drug attitudes. However, the research of the National Institute on Drug Abuse (Johnston et al., 1980 and Johnston et al., 1989) clearly indicated that something was happening. Adolescent attitudes toward drugs were changing over time.

Drug Resistance Skills

Decision making and resistance skills were closely related. Ellickson and Robyn (1987) questioned whether children made the connection between broad skills in decision making and their actions in specific drug pressure situations. They explained the ambiguous results from general skill prevention programs:

> In their desire to avoid the propaganda image that undermined early drug education efforts, educators frequently avoided any mention of drugs in the classroom, thus failing to make the connection apparent. (p. 2)

Marco Systems, Inc. (1986) noted in a literature review on alcohol and youth that some researchers currently were suggesting that decision making skills should not be taught as part of an alcohol/drug curriculum. It was believed that many youth perceived a double message of "don't use alcohol or other drugs but make a decision about your (drug) use" (Marco Systems, Inc., 1986, p. 16).

Rickett and Shepard (1988) described the basic premise underlying general skill programs:

> If we can teach our children how to make good decisions, they will make good decision about drugs. While this requires a leap of faith, we continue to try and accomplish this. (p. 109)

They studied the attitudes that different ages of young people held with regards to the process of decision making in order to better develop decision making programs for them. They found that there were differences in perceptions of decision making depending upon the ages of the children. Older children believed that it was hard to make decisions, and that it was worth the time it took to make decisions carefully. The researchers concluded that there was much work needed in the area of linking the decision making process to the real decisions that young people have to make, especially the decisions concerning drug use.

An educational program evaluated by Duryea, Mohr, Newman, Martin and Egwaoje (1984) prepared ninth grade students to resist various pressures to drink irresponsibly, drink and drive, and ride with drinking drivers. The students were also taught to refute or resist other pressures to become involved in risky alcohol related situations. The researchers found that initial program effects were still evident six months after the program termination. Cautiously, they noted that there was little in the alcohol education literature to suggest the actual validity of tests to measure skill building or behavioral outcomes.

According to Goodstadt (1986), the specification of realistic objectives was the greatest challenge facing planners and educators. More realistic objectives included the more immediate domain of skill development and enhancement. Recent prevention education answered this challenge with the development of an interpersonal skill training approach for enhancing refusal strategies. Pellow and Jengelski (1991) surveyed current research on drug education programs in America. They noted a pattern of encouraging results favoring prevention programs focused on resistance training.

Goldstein (1989, p. 282) stated: "Youth can and will say 'no,' but how to learn to do so effectively is no simple matter." He described Skillstreaming and presented its training procedures, specific skills content, and methods for application to real world refusal relevant situations. Goldstein (1989) noted that Skillstreaming had been targeted to low-income and/or minority youth.

Skillstreaming used modeling, role playing, and performance feedback. Other procedures which contributed to the effective real world use of refusal skills were: overlearning (repeated successful role plays), stimulus variability (real life protagonists), identical elements (people, props and setting), and self-management (evaluation, rewarding, building). Goldstein (1989) noted:

> We have found in our research that both secondary and elementary level youngsters generally have little difficulty learning each skill, but have considerable difficulty in transferring their effective performance to contexts involving real peers, or others using real pressure or threats, at the potential cost of such real life consequences as peer group ostracism, embarrassment rejection, anxiety, and related outcomes. (p. 282)

Hammes and Peterson (1986) employed three methods for resisting persuasion in a study to determine whether sixth grade students could learn resistance skills. The methods were recruiting an ally, avoidance, and idiosyncratic credit. Idiosyncratic credit was defined as a quality or asset which could be used to neutralize another person's unreasonable demands. The results of this study suggested that children had very little

difficulty in grasping these skills and that self-concept and social status were not determinants in learning resistance to persuasion skills.

Kearney and Hines (1980) assessed the decision making abilities of young children in the CESA #8 project. They found a significant posttest difference between the experimental and the control group indicating that children were able to learn and apply decision making skills, at least in the test situations.

Hansen et al. (1988) compared the results of Resistance Training to two other drug prevention programs. The results supported the hypothesis that the students receiving the Resistance Training had greater knowledge of social sources of pressure to use alcohol, and greater knowledge of methods for resisting pressures. However, as Hansen et al. (1988, p. 151) noted: "these students showed no changes in their confidence in being able to say 'no' or how hard they thought it would be to do so." The researchers further concluded:

> It appears, then, that what students learned was how to increase their repertoire of effective ways to avoid offers. This learning does not seem to have lessened their perceptions of the difficulty they might encounter when they must go against a peer, and indeed, resisting their peers in any way will most likely continue to be a difficult action to take. (p. 151)

The Drug Abuse Resistance Education (DARE) program taught resistance skills and decision making skills. DeJong (1987) found that the students in the DARE group, when compared to the control group, refused imagined offers more often and more often used refusal strategies that removed them from the immediate temptation.

The social influence approach had been recently adopted into drug prevention programming. Success had been reported in reducing and delaying smoking (Ellickson & Robyn, 1987; Goodstadt, 1989; Lohrmann & Fors, 1986; Goldstein, 1989). Rigorous evaluations of effectiveness had not yet been conducted on other drugs. Lohrmann and Fors (1986) indicated:

> It is not surprising that recently developed educational programs designed to prevent cigarette smoking have achieved notable positive results. They are being conducted in a social environment (smoke free) which promotes and reinforces their goals. (p. 335)

Lohrman and Fors (1986) also suggested that the trend toward lower use of cigarettes and marijuana and the persistent high level of alcohol use were likely explained as an increase in conforming behavior. They urged:

> Concurrent efforts must be undertaken to convince parents and others to make attitudinal and behavioral changes consistent with the goals of drug education. (p. 337)

Drug Use

Measures of drug use to assess behavioral change were considered vital in prevention evaluation research. Yet, some studies opted for intentions to use or prediction measures. Milgram (1987) cited the difficulties of finding school systems comfortable enough to allow drug use surveys or communities aware enough to accept the measures and their implications.

According to Goodstadt (1986) behaviors were notoriously difficult to change and were associated with problematic effects. Some studies reported no change in behavior and others found an increase in drug use.

Researchers had traditionally claimed that drug use was not a problem in small towns and rural communities. Sarvela and McClendon (1987) reported that recent research demonstrated there was a substance abuse problem in rural American and in some cases, rural drug use rates exceeded rates of urban regions.

Williams, Guyton, Marty, McDermott and Young (1986) surveyed students in 13 rural Arkansas high schools. Results indicated that 34.5 percent of males and 2.5 percent of females used smokeless tobacco on a regular basis. The factor contributing most to the initiation of this practice was the influence of a parent who used smokeless tobacco products. These findings contrasted greatly with earlier urban studies which supported a

"peer influence model" for initial smokeless tobacco use. The researchers suggested that it was possible a real difference existed between urban youth and their rural counterparts.

Project 4-Health targeted both cigarette smoking and smokeless tobacco use among California 4-H members. A computer-assisted telephone interview was used to collect baseline data from 2,023 youth between the ages of 10 to 14 in the fall of 1987. Use of tobacco was reported at only about one-half the rate of reported use in the fall of 1986 when data was collected through group administrations at 4-H club meetings. After follow-up group discussions, the researchers (D'Onofrio, Moskowitz, Braverman and Ingram, 1989) concluded that the respondents were concerned that their parents would hear their answers to questions about substance use. They suggested that the informed consent procedures contributed to this fear as both parents and youth were advised by letter about the nature of the telephone interview.

Johnston et al. (1980) focused on frequent drug use rather than reporting the proportions of students who had used various drugs. In 1977, 61.6 percent of seniors reported illicit drug use at some time in their lives. Marijuana was used daily by 9.1 percent. The reported daily use for alcohol was 6.1 percent and for cigarettes 29 percent. Use of all three drugs had increased since 1975 and continued to increase, except for cigarettes. More boys than girls were involved in drug use, especially heavy drug use. While overall smoking appeared to level off, the rate of cigarette use for girls had increased, eliminating the previous sex difference.

Johnston et al. (1989) distinguished three levels of population density for analytical purposes. They noted that the differences in use of most illicit drugs across the different sizes of community were small and reflected how widely illicit drug use had diffused through the population. In their 1988 survey, 54 percent of all seniors reported illicit drug use at some time in their lives. This represented a decrease from the 1977 figure of 62 percent. Marijuana was the most widely used illicit drug with 18 percent of the youth reporting some use within the past month.

Daily use of alcohol was reported by 6.2 percent of the males and 2.3 percent of the females in the Johnston et al. (1989) study. Ninety-two percent indicated some use of alcohol in their lifetimes. Previously, the researchers had noted a modest sex difference in smoking rates with more females smoking. In 1988, the difference narrowed with males showing an increase and females a decrease. Sixty-six percent of the sample reported smoking in their lifetimes. Eleven percent of males and 10 percent of females reported smoking more than one-half a pack per day.

In the regional study by Pascale et al. (1985), marijuana, PCP, and cocaine use declined for both males and females. These declines approximated the national trends. Females reported significantly higher use of aspirin, cigarettes, and amphetamines than males. Alcohol remained the drug with the highest reported use from 1977 to 1983. Health authorities linked female amphetamine use to weight reduction and anorexia.

Several studies measured drug use and determined behavioral change (DeJong, 1987; Rhoads & Jason, 1987; Zoller & Maymon, 1986). Iverson and Roberts (1980) sought to explain the success of the intervention program evaluated. They indicated that the program was based on sound principles of family involvement and peer influence. They also cited adult and youth role models, separate administration and counseling components, and the willingness to make program modifications based on evaluation. Dembo (1979) found ethnicity was not related directly to the youths' drug involvement, but interacted with other variables to predict drug use. He suggested community drug prevention programs for youth using marijuana and other drugs. For non-users, he recommended school-based drug information and values clarification.

A few studies measured drug use and determined no behavioral change. Sarvela and McClendon (1987) found that alcohol use began at an earlier age in rural Upper Great Lakes communities than it did in the United States as a whole. They recommended that drug education begin before sixth grade. They also found that posttest alcohol use was higher in the experimental treatment group.

Zoller and Weiss (1981) found their subjects to be non-smokers at pretest and at posttest. They concluded that the prevention program caused no increase in hashish smoking. The program evaluated by Domino (1982) had no measurable effect. He concluded that the actual effect, however, was one of boredom. Many of the youths in the study clearly indicated the fact in written comments and classroom discussion.

Kim (1988) researched intentions about future alcohol use and the actual drinking behavior. The previously mentioned HLAY program produced no positive changes in either. Casswell et al. (1982) evaluated the effects of a drug educational program and found no significant changes in self-reported drug use or anticipated future use. Schaps et al. (1982) and Kim et al. (1985) reported no change in intentions to use. In addition, Schaps' study found no changes in current use and lifetime use of various substances.

Kim et al. (1989) measured the impact of the I'm Special Program (ISP). They found significantly lower substance use among the ISP students in grades five through seven. However, the impact of the ISP (targeted for fourth grade students) seemed to diminish significantly in and around ninth grade. At the senior high level, in some drug categories it appeared that the ISP students were trying to catch up with what they missed out on during earlier grade levels. For example, in grade 12, 5.9 percent of the control group used chewing tobacco compared to 8.9 of the ISP group. Kim et al. (1989) recommended a comprehensive substance abuse program at all grade levels.

A few reports examined why youth used drugs. Friedman and Santo (1984) compared parents to three different groups of high school students: males, females, and court referred male delinquents. The parents in this study thought youth drank out of curiosity and a desire to get away from things (responsibility). In general, the female high school students perceived reasons for drug use more similarly to their parents than did the two male groups. However, all three student groups ranked first the reason, "Want to get high."

Johnston and O'Malley (1986) examined reasons that high school students gave for use of licit and illicit substances cross-sectionally and over time. Among the most common reasons mentioned for substance use were experimentation, social/recreational reasons, and relaxation. A comparison of males and females showed far more similarities than differences. Females were somewhat less inclined to be using drugs for social/recreational reasons, and at higher frequency levels of use, somewhat more likely to mention reasons related to coping with negative affect of self-medication. Across time, the major change noted by the researchers had to do with amphetamines. They identified a shift away from social-recreational reasons for use and a shift toward more instrumental reasons ("to lose weight," "to stay awake") and coping reasons ("to get through the day," "to get more energy").

The students in the Johnston and O'Malley (1986) study ranked the three most important reasons to use drugs as: (1) to have a good time with my friends (65 percent), (2) to experiment, see what it is like (54 percent), and (3) to feel good, or get high (49 percent). "To fit into a group I like," was mentioned by only 13 percent. This may suggest that yielding to peer pressure was not an important reason for use or, in the authors' opinions, that peer pressure was something students were unwilling to admit.

Lohrman and Fors (1986) reviewed several theories related to the causes of drug use and abuse. They summarized 21 factors. Those with highest research support were: (1) high peer approval of problem behavior, (2) low parental support and control, (3) low parental influence, (4) low value and expectation for school achievement, and (5) greater tolerance for deviance. Pascale et al. (1985) indicated that at the mean age of first experimentation (age 13), peer pressure was the single most important variable in predicting drug use or non-use. At earlier ages, such as ten or eleven, family influence was presented as the most important factor.

Why youth used drugs was complex. Evaluation of programs designed to prevent or reduce drug use was also complex. Goodstadt (1989) indicated that inconsistencies in the impact of drug education programs were to be expected.

Rosenthal and Rubin (1980) compared dissertation and nondissertation literature and found that dissertations showed smaller effect sizes. In examining the findings of 12 meta-analyses, Smith (1980) determined a 33 percent bias favoring a positive effect size for published journals compared to dissertation literature. While Tobler (1986) found a significantly higher mean effect size for dissertation literature, she concluded that the result was related to the small sample size. Of 21 identified drug prevention evaluation dissertations, over half were unretrievable through inter-library loan and dissertations constituted only five percent of the programs in the outcome results meta-analysis.

Bangert-Drowns (1988) found encouraging results in his meta-analysis of prevention evaluations. The year of publication was positively related to the effects of substance abuse education on behavior. The average effect size for evaluations conducted after 1979 was 0.30 standard deviations. Effect sizes for earlier evaluations averaged –0.12.

There were several possible explanations for the Bangert-Drowns (1988) finding. They were: chance result, publication bias, or possibly drug prevention programs were improving over time.

Summary

This review examined a variety of prevention programs and specific evaluation outcomes related to drug issue knowledge, drug attitudes, drug resistance skills and drug use among adolescents. Program features were identified which likely related to program effectiveness and suggestions for future program implementation and evaluation were presented.

While it appeared that evaluation research of drug prevention programs was still in its infancy, researchers and educators were committed to the improvement of evaluation practices. Drug knowledge was easily influenced by most programs. Drug attitudes and drug use behavior were more difficult to impact. Evaluations of single program efforts yielded little or no results. However, studies of trends over time indicated young people were more disapproving of drugs and were using drugs less frequently than in the past. More research was needed to determine the success of refusal skill components within drug prevention curricula.

CHAPTER III

METHOD AND PROCEDURE

Introduction

The purpose of this study was to determine if the Oklahoma Community Youth Effort (OCYE) was successfully affecting change in the drug knowledge, drug attitudes, drug resistance skills, and drug use patterns of the youthful participants. One of the objectives was to determine if there were differences in drug knowledge, drug attitudes, drug refusal skills and drug use between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth. Another objective was to determine if there were differences in the pretest, posttest, or retrospective pretest drug use scores. A third objective was to obtain supplemental information for on-going process evaluation which might suggest needed changes in program format or delivery.

In order to achieve the purpose and objectives, these steps were followed: (1) selection of the research method; (2) selection of the population and sample; (3) selection and administration of the research instrument; and (4) analysis of the data. In response to the recommendation of Schaps et al. (1980) and Schaps et al. (1981), a description of the OCYE program was included for the reader to understand the generalizability and the import of the findings.

Description of the OCYE Program

The OCYE was based on the idea that teens learned more about themselves and gained a greater degree of personal maturity and responsibility when they applied newly learned skills and knowledge to real life situations. The objectives of the OCYE included helping teens to: develop leadership skills; provide service to others and the community; believe in themselves and make the most of their potential; value a healthy mind and body; become self-sufficient, productive members of society; understand the problems facing them and their communities; encourage one another to make positive choices; and develop solutions to problems that affect daily lives.

The OCYE training manual, Free to face the future, contained information on identifying community issues, group problem solving, and planning for action. Issue overviews, curriculum support materials, and suggested activities were included for the following topics: decision making, peer pressure, stress, depression, suicide, school drop-outs, and being human/relationships (Forbes, Weber & Gilliland, 1987). Three new drug use curricular units had recently been added and additonal topics were in the process of development. A Table of Contents for the OCYE curriculum appears as Appendix A.

It was suggested that groups of teens along with adult advisor/sponsors select one or more issue topics for conducting community projects. Regardless of the issues chosen, the OCYE encouraged youth to follow seven basic steps in organization: (1) determine needs; (2) choose a project; (3) get approval; (4) get approval; (5) develop a plan; (6) implement the plan; and (7) evaluate.

Prevention evaluation was a central focus of the OCYE. While several methods were used to determine the effectiveness of the OCYE, this particular study targeted the outcome or short term effects of the drug prevention portion of the program. The purpose of the evaluation was to determine the extent to which the educational objectives of the drug prevention program or curriculum were actually being obtained. Was the OCYE

successfully affecting change in drug knowledge, drug attitudes, drug resistance skills and personal drug use patterns of the youthful participants? The evaluation process utilized was similar to that proposed by Tyler (Worthen and Sanders, 1987). His approach to evaluation followed these steps:

1. Establish broad goals or objectives.
2. Classify the goals or objectives.
3. Define objectives in behavioral terms.
4. Find situations in which achievement of objectives can be shown.
5. Develop or select measurement techniques.
6. Collect performance data.
7. Compare performance data with behaviorally stated objectives. (p. 63)

In January of 1990, a one-day training session was conducted for teams of potential OCYE group leaders or sponsors from the 21 counties comprising the Oklahoma State University Cooperative Extension Service Northeast District. The teams generally consisted of two adults, two teens and one County Extension Agent. One purpose of the training was to introduce the three new issue topics: tobacco, alcohol, and other drugs; and two support topics: decision making and peer pressure. Another purpose was to recruit OCYE groups to participate in an intensive evaluation research project.

The criteria for selecting OCYE groups to participate in the research project were discussed during the training. They were: (1) sponsoring team had attended the training; (2) team submitted a written project proposal; (3) team demonstrated ability to implement the OCYE program in a local community prior to school dismissal in May; (4) participants obtained parental consent to participate in a survey of personal drug use; and (5) the age range of the participating youth was 12 to 19.

Method of Research

Researchers had difficulty measuring behavioral change resulting from prevention program participation (Bangert-Drowns, 1988; Goodstadt, 1989; Goodstadt, 1986; Milgram, 1987; Schaps et al., 1980). Evaluations of the effects of drug education indicated

that the research rigor involved was negatively correlated with positive outcomes (Schaps et al., 1980). Self-report validity was questioned (Casswell, 1982; Goodstadt, 1989; Schaps et al., 1980). Response shift, a change in the internalized standard by which a subject rated him/herself, confounded pre- and posttest ratings (Howard, Schmeck, & Bray, 1979; Pohl, 1982; Rhoads and Jason, 1987).

This study used survey research and for the reasons stated above a retrospective pretest was added to the traditional pretest and posttest in the one-group repeated trials design. This was a modification of design 18.2 which "approximated much commonsense observation and thinking" (Kerlinger, 1986, p. 331).

The usefulness of gathering retrospective pretest data in an educational setting was demonstrated by Howard et al. (1979) and Pohl (1982). They suggested that self-report retrospective pre-ratings were more accurate than actual pre-ratings for estimating behavioral pretest scores and for calculating change scores. Rhoads and Jason (1987) compared the retrospective pretest/posttest and the traditional pretest/posttest techniques within the context of a drug prevention program. The retrospective pretest/posttest technique demonstrated no significant changes in drug usage, while a traditional pretest/posttest indicated significant increases in tobacco usage. The researchers suggested that both the traditional and the retrospective pretests to be administered in future studies.

The retrospective technique introduced in this study involved asking the participants to answer the questions on self-reported drug use three times. First, they indicated their drug use patterns prior to the OCYE program (pretest). Second, they responded in reference to their current drug use after participation in the OCYE program (posttest). Within one week after responding in this manner, the participants were asked to answer the same questions again. At that time, the youth were asked to answer the questions in the manner they would have or should have answered them prior to the intervention (retrospective pretest).

The retrospective technique was used to measure changes in self-reported drug use only. The traditional pretest/posttest was used to measure the effects of the OCYE program on the dependent variables drug knowledge, drug attitudes, and resistance skills.

In this descriptive research project, a restricted or closed-form questionnaire was used to determine drug knowledge, drug attitudes, and drug use. Open-ended questions were used to determine the refusal strategies employed by the youth. The restricted questionnaire was easy for the adolescents to read and fill out. It took little time and kept the respondents on the subject. In addition, the closed-form instrument was relatively easy to tabulate and analyze. The open-ended questions were more difficult to tally. However, they provided information needed to accurately determine the youths' ability to use refusal skills.

Population

The site of the study was northeastern Oklahoma, surrounding the central and basic trade area of Tulsa. The current unemployment rate for the state was 6.2 percent compared to the national rate of 5.0 percent. The average annual income for the 21 counties in the District was $15,012.90 (Dikeman & Earley, 1988).

The total population between the ages of 18 and 64 was 1,138,012 with 738,243 considered urban and 399,769 considered rural. The number of youth between the ages of 5 and 17 was 235,086 with 187,683 White, 19,667 Black, 24,901 Native American, and 2,835 Other (Dikeman & Earley, 1988).

At the time of the study, school records indicated public school enrollment in grades 9–12 was 73,526 and private school enrollment was 3,289. The number of school drop-outs in 1987–1988 was 1,846 males compared to 1,509 females.

The population in this study consisted of all of the youth in northeastern Oklahoma who participated in the OCYE prevention programs. Complete records were not available and the exact number of participants in the 21 northeastern counties was not determined.

Following the one-day training for potential OCYE leaders and sponsors in January of 1990, four of the 13 county teams present expressed an interest in implementing the OCYE programs in their local communities. These four county teams also submitted written proposals (Appendix B) to participate in the evaluation research project in the spring. As all of the four teams had submitted written proposals and all of the teams' members had attended the training, the proposals were reviewed and evaluated on the basis of the remaining criteria of program implementation and completion by May, parental consent to survey participants' personal drug use and participant age range from 12 to 19.

Originally, seven OCYE groups were proposed by the four county teams. Four of the seven proposed groups were dropped from the evaluation study for the following reasons. In one county, the extension paraprofessional and the adult volunteer leaders sponsoring a proposed group of pre-teens (age 12 and under) obtained the necessary parental consent but failed to obtain administrative permission for the group to meet during part of the last school period and after school. In addition, it was determined that the OCYE material was not designed for youth in grades four or five.

These same sponsors obtained administrative permission for a group of older teens to meet once a week, after school, but failed to successfully distribute and collect parental consent forms, thus eliminating the group from the study but not the program.

In another county, a group of urban youth living in a city of approximately 40,000 residents withdrew their proposal. "Time" was cited as the mitigating circumstance.

In a third county, the group or groups proposed were sponsored by the Extension Homemakers and the Students Against Drunk Driving organizations. They had volunteered to serve as a control group and to complete the survey instrument in the spring but planned to conduct the OCYE program the following fall. The adult and teen sponsors believed that they could obtain parental and school administrative support for the program. They were successful in obtaining permission to conduct the program during school "study hall" periods, but they were unable to obtain the school administrator's permission to

survey the students in order to evaluate the effectiveness of the prevention program. The administrator indicated that it was not appropriate for the students to be involved in any research related to a dissertation or an advanced degree program.

Sample

The sample for this study consisted of 59 boys and girls enrolled in grades seven through 12, who completed the OCYE pilot program in the spring of 1990. There were 21 younger teens (age 14 and under), and 38 older teens (age 15 and older). Forty-five of the adolescents were female and 14 were male. There were 20 rural farm youth and 39 rural non-farm youth.

These 59 boys and girls were participants in three of the proposed OCYE groups, in two counties, which met the established criteria for the research project. This use of intact groups, a form of cluster sampling, was frequently found in education research due to the ease of administering the instrument. Two of the groups met at school during school hours and one met at school after classes dismissed. One group was sponsored by the Future Homemakers of America and the other two were supported by professional Extension staff and 4-H volunteer teacher leaders. No comparisons were made between the groups in the study.

The criteria for selecting OCYE groups to participate in the research project were: (1) the sponsoring team of county youth and adults had attended the initial training session; (2) the team had submitted a written project proposal; (3) the team implemented and completed the OCYE program in the spring of 1990; (4) the participating youth obtained parental consent to answer questions about their personal drug use; and (5) the youth in the group were no younger than 12 and no older than 19. There was an additional requirement for individual participation in the research project. As the instrument was administered three times, the youth had to complete the pretest, posttest and the retrospective pretest to be included in the study.

Participation in the research project was optional and some of the youth who attended the OCYE group meetings were not included in the study. Nineteen were not included in the research project because they failed to return the parental consent forms, or they were absent on the day of the pretest, or their surveys were considerably incomplete. Twenty-seven were not included in the evaluation research because they were absent for either the posttest or the retrospective pretest, or because they chose to remain in the OCYE program but chose not to continue in the study.

Instrumentation

The instrument used in this study, included as Appendix C, was developed by the researcher utilizing ideas from previous research reported in the literature. The OCYE program objectives and the curriculum content were also considered as the survey was designed. The instrument was reviewed by youth professionals for readability appropriate to the age group surveyed.

The instrument was divided into five parts. The first part asked questions about the respondent such as the month, day, and year of birth. This code was used to match responses on the pretest, posttest and retrospective pretest. The other four parts corresponded to the variables drug knowledge, drug attitudes, resistance skills, and drug use. These four variables were directly related to the OCYE program content and the program objectives of increasing knowledge, changing attitudes, developing resistance skills and reducing or preventing drug use.

A cover sheet explained the purpose of the research and provided brief instructions. Prior to the beginning of the program, the boys and girls had been given parental consent forms (Appendix D) which also explained the purpose of the program and the evaluation research. The parental consent forms were required by the Oklahoma State University Institutional Review Board members who approved the survey. There was concern about the impropriety of questioning minors with regard to their personal use of illegal

substances. The parental consent forms were collected and placed in an envelope before the youth began to answer the questions. Pencils were provided, as needed.

The drug knowledge questionnaire consisted of 15 true/false statements and was based on the OCYE curriculum for alcohol, tobacco, and other drugs. This section of the instrument was first used in the initial training session to assess the drug knowledge of the leaders/sponsors. In this context, the pretest information assisted the instructors in adjusting the program content and the posttest information contributed to the evaluation of teaching strategy effectiveness.

The drug attitude section of the questionnaire provided multiple choice responses for 10 items. These items were similar to attitudes surveyed in the literature and by the National Institute on Drug Abuse (Johnston et al., 1989).

The drug use instrument combined a check sheet and a Likert-type scale. Thirteen categories of drugs were listed and the youth were asked to choose one of the following: (1) never used, (2) no longer use, (3) use once or twice a year, (4) use once or twice a month, (5) use once or twice a week, (6) use once or twice a day, and (7) use often each day. This portion of the instrument was designed by the researcher utilizing ideas from the literature.

Refusal skills were assessed from student responses to imagined situations with offers to use drugs or statements legitimizing drug use. Similar techniques were used by DeJong (1987) and Duryea, Mohr, Newman, Martin and Egwaoje (1984). Goldstein (1989) also used hypothetical pressure-to-use scenarios in teaching.

Collection of Data

The researcher administered the instrument at all three OCYE meeting sites. Each group received the same instructions which were also printed on the survey and the same assurance of confidentiality. Following the initial data-collecting session with the first group, the instrument was not revised. It was noted during this first session that boys and

girls in the seventh and eighth grades had difficulty with the concept of rank order. It was determined that verbal instructions needed to be more precise and that illustrative examples for some of the drug attitude questions needed to be provided.

The pretest was given prior to the first session of each group meeting. The posttest was given five or six weeks later when the lesson materials had been covered. The retrospective pretest was administered the following week when the youth met to plan for future issue exploration or community activities.

The importance of honesty was stressed. Response to the survey was voluntary. After all of the questionnaires were collected from the three groups, the data were coded by the researcher and analyzed by the Oklahoma State University Computer Center. Two independent judges familiar with the instruction of refusal skills collaborated in coding that portion of the instrument responses.

Analysis of Data

The 42 item questionnaire used in this research project was precoded by the researcher for the computer analysis. The SAUSER (SAS) System was used to test for significance and to provide descriptive statistics.

A repeated measures analysis of variance (ANOVA) and a 2 x 2 x 2 ANOVA design were used for the analysis of the pretest and posttest drug knowledge scores. The means of the drug knowledge difference scores were also presented.

Three different statistical tests were used for the analysis of the surveyed drug attitudes. A t-test analyzed the pretest and posttest drug education experiences. A Chi-square test (X^2) of pretest and posttest responses was used for the remaining drug attitude items except those requiring analysis of rank order. Friedman's Test of Concordance, a rank test for agreement between and within two groups, was used for evaluating the most likely reasons young people use drugs, the perceived harmfulness of different drugs and the best teachers of drug information. The Friedman's Test, discussed by

Ebneshahrashoob (1978), was recommended for analysis of multiple sets of incomplete rankings. In addition, a Chi-square with matching was used in exploring the relationship between friends' use of drugs and the personal drug use of the respondents.

A Chi-square analysis was used for the pretest and posttest responses to one of the four resistance skills items. The others were analyzed with the McNemar Test for Significance of Changes. A modification of the sign test, the McNemar Test was described by Conover (1980) as useful in comparing the condition (or state of the subject before the experiment and the condition of the same subject after the experiment. For example, if a subject said "no" to offers to use alcohol on the pretest, his/her posttest response was identified for comparison.

Huck and McLean (1975) suggested that for most repeated measures designs, the analysis of covariance was preferred. Howard et al. (1979) utilized the models developed by Huck and McLean and demonstrated that when response shift bias occurred, the only method (including covariance and/or regression analysis) that led to an unbiased estimate of the treatment effects was the comparison of mean posttest-retrospective pretest difference scores. Individual subjects' scores were changed to z scores. Rhoads and Jason (1987) used a series of univariate analyses (unspecified) to determine the difference between the traditional pretest/posttest and retrospective pretest/posttest time periods.

To analyze the personal drug use scores of the respondents, this study used a repeated measures analysis of variance and the univariate tests of hypotheses for between and within subjects effects. In order to reduce or eliminate positive bias, the Greenhouse-Geisser Correction was used to evaluate the within subjects effects. As described by Keppel (1982), this statistical solution evaluated observed F ratios against a corrected critical value that assumed heterogeneity of variance.

The pretest, posttest, and retrospective pretest drug use difference means were also analyzed. The drug use difference means were evaluated with a t-test.

Post Hoc Comparison

Following the initial data collection, it was determined that a comparison of the sample group (59 boys and girls) and the "drop-out" group (27 boys and girls) would be of value to the study. The hypotheses were:

5. There will be no significant demographic differences between the OCYE youth in the sample group and the "drop-out" group.
6. There will be no significant pretest drug use score differences between the youth in the sample group and the "drop-out" group.

The 27 boys and girls who were in the designated "drop-out" group had previously been dropped from the research project but not necessarily from the OCYE program. They were identified as "drop-outs" since they had completed the pretest but had not completed either the posttest or the retrospective pretest.

During the pre-coding of the survey responses for computer analysis, it appeared that the percentage of males in the "drop-out" group was higher than the percentage in the sample group. It also appeared that the "drop-out" group used a greater variety of drugs and used them more frequently than the sample group. A Chi-square analysis of the demographic and pretest drug use data was used.

An Analysis of Data Summary, developed to assist the reader, appears as Table 1. The original hypotheses and the hypotheses from the post hoc comparison were included.

Summary

A 43 item questionnaire was used to determine the pretest and posttest drug knowledge, drug attitudes, drug refusal skills, and drug use of the OCYE youth. A retrospective pretest of drug use was also included in the analysis.

The instrument was administered to 59 boys and girls in three OCYE groups in two northeastern Oklahoma counties. Statistical tests of the data included Chi-square, t-test,

TABLE 1

ANALYSIS OF DATA SUMMARY

Hypotheses	Data Sources (Instrument, Appendix C)	Analysis Techniques
1. There will be no significant differences between pretest and posttest drug knowledge scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.	Drug knowledge Section 2 Fifteen true/false statements	Repeated measures analysis of variance (ANOVA) 2 X 2 X 2 analysis of variance (ANOVA) Means of the drug knowledge difference scores
2. There will be no significant differences between pretest and posttest drug attitude scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.	Drug attitudes Section 3 Ten item opinion-naire	t-test Chi-square Friedman's Test of Concordance Chi-square with matching
3. There will be no significant differences between pretest and posttest drug refusal skill scores; and no significant score differences between the male and female; younger teen (age 14 and under), and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.	Drug refusal skills Section 4 Four open end questions	McNemar's Test for Significance of Changes Chi-square
4. There will be no significant differences between pretest, posttest, or retrospective pretest drug use scores; and no significant score differences between the male and female, younger teen (age 14 and under), and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.	Drug use Section 5 Thirteen item scale	Repeated measures analysis of variance (ANOVA) Means of the drug use difference scores t-test

TABLE 1 (Continued)

Hypotheses	Data Sources (Instrument, Appendix C)	Analysis Techniques
5. There will be no significant demographic differences between the OCYE youth in the sample group and the "drop-out" group.	Demographic differences Section 1	Chi-square
6. There will be no significant pretest drug use score differences between the youth in the sample group and the "drop-out" group.	Drug Use Section 5 Pretest	Chi-square

Friedman's Test of Concordance, McNemar's Test for Significance of Changes, and analysis of variance (ANOVA). Comparisons were made between the sexes, the age groups and the rural farm/rural non-farm youth. A post hoc comparison examined the demographic and pretest drug use score differences between the 59 boys and girls in the sample group and the 27 boys and girls who discontinued participation in the research project after the pretest.

CHAPTER IV

ANALYSIS OF THE DATA

Introduction

The purpose of this study was to determine if the Oklahoma Community Youth Effort (OCYE) was successfully affecting change in the drug knowledge, drug attitudes, drug resistance skills, and drug use patterns of the youthful participants. A 42 item questionnaire was administered to adolescents in three OCYE groups in two counties of northeastern Oklahoma. The instrument contained both closed-end and open-end questions.

Description of Subjects

Fifty-nine junior high and senior high school age students participated in the OCYE evaluation research project in the spring of 1990. A detailed description of the subjects is presented in Tables 2 and 3.

The respondents were enrolled in grades 7 through 12, and ranged in age from 12 to 19. In this study, the youth were classified into two age groups. Thirty-six percent were age 14 or under and 64 percent were age 15 or older.

Male and female subjects were studied. Twenty-four percent were boys and 76 percent were girls.

All of the youth in this study resided in a rural area. Thirty-four percent reported living on a farm or ranch of more than 10 acres. For analysis of the data, the remaining 66 percent were considered rural non-farm.

TABLE 2

SUMMARY OF CHARACTERISTICS
OF THE SUBJECTS
(N=59)

Variables	Classification	No.	%
Age	14 and Under	21	35.6
	15 and Older	38	64.4
Gender	Male	14	23.7
	Female	45	76.3
Identified Residence	Farm or Ranch 10 Acres or More	20	33.9
	Rural Non-Farm	39	66.1

TABLE 3

CHARACTERISTICS OF THE SUBJECTS
BY LEVELS OF THE VARIABLES
(N=59)

Description			No.	%
Age	Gender	Residence		
14 or under	Female	Farm or Ranch	6	10.2
14 or under	Female	Non-Farm	9	15.3
14 or under	Male	Farm or Ranch	3	05.1
14 or under	Male	Non-Farm	3	05.1
15 or older	Female	Farm or Ranch	8	13.6
15 or older	Female	Non-Farm	22	37.3
15 or older	Male	Farm or Ranch	3	05.1
15 or older	Male	Non-Farm	5	08.5

The majority of the respondents in this research project were girls, age 15 and older (51 percent). Girls, age 15 and older, living in a rural non-farm area were the second largest identified group (37 percent). One possible explanation for this was the sponsorship of one of the OCYE groups by the Future Homemakers of America organization.

Examination of Hypotheses

Hypothesis 1. There are no significant differences between pretest and posttest drug knowledge scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.

A 15-item true/false instrument was used to determine if there were differences in drug knowledge. A 2 x 2 x 2 analysis of variance (ANOVA) indicated no significant differences between the pretest and posttest drug knowledge responses of the sample group, $F(7,51) = .88$, $p > .05$, $F(7,51)$ critical = 2.20. The pretest drug knowledge mean of the sample group was 5.78 compared to the posttest mean of 5.14. The knowledge scores difference mean (pretest minus posttest) for all of the youth was .64.

The results of a repeated measures analysis of variance (ANOVA) demonstrated there were no significant differences between the male and female, younger teen and older teen, rural farm and rural non-farm youth on either pretest drug knowledge, $F(7,51) = .93$, $p > .05$, or posttest drug knowledge $F(7,51) = .99$, $p > .05$, $F(7,51)$ critical = 2.20.

Table 4 illustrates the pretest and posttest drug knowledge means of the variable groups as well as the drug knowledge score difference means. Among the variable groups, only rural non-farm males, age 15 or older, scored higher on the posttest than they scored on the pretest as indicated by a knowledge difference mean of –.80.

TABLE 4

COMPARISON OF THE RESPONDENTS' DRUG KNOWLEDGE* SCORE MEANS (N=59)

Variable Group			No.	Pretest Mean	Posttest Mean	Pre Minus Post Knowledge Difference Mean
14 or Under	Female	Farm or Ranch	6	5.00	4.83	0.17
14 or Under	Female	Rural Non-Farm	9	6.78	5.11	1.67
14 or Under	Male	Farm or Ranch	3	6.33	4.33	2.00
14 or Under	Male	Rural Non-Farm	3	6.67	6.67	0.00
15 or Older	Female	Farm or Ranch	8	5.25	5.00	0.25
15 or Older	Female	Rural Non-Farm	22	5.72	4.95	0.77
15 or Older	Male	Farm or Ranch	3	4.33	4.00	0.33
15 or Older	Male	Rural Non-Farm	5	6.00	6.80	-0.80
Sample (Total)			59	5.78	5.14	0.64

Note. The instrument consisted of 15 true/false items.
*Analysis of variance (ANOVA) statistical tests of hypotheses determined no significant differences between the pretest/posttest responses of the sample group, $F(7,51) = .88$, $p > .05$ or between the pretest responses of the variable groups $F(7,51) = .93$, $p > .05$, or the posttest responses $F(7,51) = .99$, $p > .05$, $F(7,51)$ critical = 2.20.

All of the analyses determined that drug knowledge was not increased by participation in the OCYE program and the decision was fail to reject the hypothesis. None of the youth in the sample group answered more than 10 of the 15 items correctly on either the pretest or the posttest. Table 5 provides frequency and percentage data on the specific test items.

Tobacco Knowledge

There were four true/false statements related to knowledge of tobacco products. On the pretest, 84 percent of the youth acknowledged that chewing tobacco and snuff were not safer than cigarettes compared to 90 percent of the youth on the posttest. The pretest and posttest responses to nicotine as a poisonous, mind-altering, addictive drug were identical (78 percent). One-hundred percent of the boys and girls identified chewing tobacco and snuff as cancer causing on the pretest, compared to a posttest response of 97 percent. Sixty-nine percent said that tobacco was physically addictive on the pretest and 83 percent agreed on the posttest.

Alcohol Knowledge

There were also four true/false statements related to knowledge of alcohol. On the pretest, 97 percent correctly indicated that a person could die from drinking too much alcohol. Ninety-eight percent responded correctly on the posttest. On the pretest, 63 percent said that a cold shower and coffee would not sober up a drunk compared to 83 percent on the posttest. The correct pretest response to "blackouts" as an alcoholic symptom was 61 percent and the posttest dropped to 53 percent. Sixty-six percent correctly identified beer, wine, and whiskey as having similar alcoholic content on the pretest and 78 percent agreed on the posttest.

TABLE 5

FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS' CORRECT DRUG KNOWLEDGE RESPONSES (N=59)

Classification/Response	Pretest No.	Pretest %	Posttest No.	Posttest %
Tobacco				
Chewing tobacco and snuff are safer than cigarettes because they have less nicotine.	49	83.1	53	89.8
Nicotine is a poisonous, mind altering, addictive drug.	46	78.0	46	78.0
Chewing tobacco and snuff cause cancer in the mouth.	59	100.0	57	96.6
Tobacco is not physically addictive; smoking, chewing, and dipping are just habits people get into.	41	69.5	49	83.1
Alcohol				
A person cannot die from drinking too much alcohol.	57	96.6	58	98.3
A cold shower and coffee will sober up a drunk.	37	62.7	49	83.1
Everyone who drinks a lot has "blackouts" or amnesia (loss of memory).	36	61.0	31	52.5
A 12 oz. can of beer has less alcohol than a 5 oz. glass of wine and a lot less alcohol than a mixed drink with 1.5 ounces of liquor.	39	66.1	46	78.0
Other Drugs				
In treatment, inhalant dependents have the highest rate of recovery.	41	69.5	42	71.2
Alcohol and barbiturates are stimulants ("uppers").	24	40.7	31	52.5

TABLE 5 (Continued)

Classification/Response	Pretest No.	Pretest %	Posttest No.	Posttest %
Other Drugs (Continued)				
Marijuana has more cancer causing agents than tobacco.	26	44.1	25	42.4
Anabolic steriods increase muscle and bone growth.	6	10.2	19	32.2
The Oklahoma Law				
Persons age 17 or younger, convicted on a first drug or alcohol offense will have their drivers' license suspended for one (1) year or until age eighteen, whichever is longer.	14	23.7	8	13.6
In Oklahoma, it is legal for young people to smoke at age 16.	48	81.6	50	84.8
A first violation for possession of LSD (a misdemeanor) is punishable by confinement for not more than one (1) year.	21	35.6	18	30.5

Other Drug Knowledge

On the first of four items related to "other drugs," 69 percent correctly indicated on the pretest that inhalant dependents have a low rate of recovery. Seventy-one percent responded correctly on the posttest. Forty-one percent identified alcohol and barbituates as depressants on the pretest compared to 53 percent on the posttest. Forty-four percent responded correctly to marijuana having more cancer causing agents than tobacco on the pretest compared to 42 percent on the posttest. On the pretest, 10 percent responded correctly to anabolic steroids as growth stimulants for muscles but not bones. The correct posttest responses increased to 32 percent.

Oklahoma Statutes Knowledge

Three test items determined the youths' knowledge of Oklahoma drug statutes. On the pretest, 24 percent answered the driver's license suspension item correctly compared to 14 percent on the posttest. Eighty-one percent correctly acknowledged that it was not legal to smoke at age 16 on the pretest and 85 percent agreed on the posttest. On the pretest, 36 percent correctly answered that possession of lysergic acid (LSD) was a felony and not a misdemeanor compared to 31 percent on the posttest.

Hypothesis 2. There are no significant differences between pretest and posttest drug attitude scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.

The portion of the instrument used to determine if there were differences in drug attitudes contained 10 response items. The first item which inquired about previous drug education experiences was evaluated with a t-test. Friedman's Test of Concordance, a test of agreement within and between groups, was used to evaluate three of the survey items

which requested that the youth rank order their responses. Five items were evaluated with a chi-square. A chi-square with matching was used to examine the relationship of self-reported drug use and the perceived use of drugs by friends.

Drug Education Experiences

The youth in this study were asked to identify which of nine different drug education modes they had experienced in the last three years. The purpose of this question was to determine what experiences, other than the OCYE program, had impacted their drug knowledge, attitudes, resistance skills and drug use.

The t-test (two tailed, non-directional) determined no significant differences between the pretest and posttest drug education experiences of the sample group, $t(115.8) = -0.17$, $p > .05$, $t(120)$ critical $= \pm 1.98$. The pretest mean was 5.61 and the posttest mean was 5.68. Additional t-test analyses indicated that there were no significant differences in drug education experiences by levels of the variables age, gender, and residence. Table 6 summarizes these results. With an unequal number of subjects in each comparison group (unequal n) and unequal variances, Satterthwaite's approximation was used to compute the degrees of freedom (SAS Institute, Inc., 1979).

A frequency and percentage distribution of drug education experiences in which the respondents participated is presented in Table 7. Films, videos, and television were reported more often than other educational methods. On the pretest, 51 youth of 86 percent of the sample recalled viewing a film or video about drugs during the last three years. On the posttest, 48 youth or 81 percent reported watching a film or video. Eighty-three percent reported on the pretest that they had seen a television program abut drugs, compared to 86 percent who reported television viewing on the posttest.

The drug education experience mentioned least often was a neighborhood or community drug education course. Nineteen percent recalled a neighborhood or

TABLE 6

T-TEST ANALYSES OF RESPONDENTS' DRUG EDUCATION EXPERIENCES[a] (N-59)

Variable	No.	Pretest Mean	Pretest df[b]	Pretest T	Pretest T crit	Posttest Mean	Posttest df[b]	Posttest T	Posttest T crit
Age									
14 and Under	21	5.18	46.0	–1.22	2.02	5.48	42.8	–0.53	2.02
15 and Older	38	5.86				5.79			
Gender									
Male	14	5.79	20.4	0.34	2.09	5.86	22.1	0.35	2.09
Female	45	5.55				5.62			
Residence									
Rural Non-Farm	39	5.61	34.5	–00.0	2.04	5.56	37.2	–0.55	2.04
Farm or Ranch	20	5.61				5.90			

[a]Respondents indicated which of nine different education modes they had experienced.
[b]Satterthwaite's approximation was used to compute the degrees of freedom due to unequal n and unequal variances (SAS Institute, Inc., 1979, p. 425)

TABLE 7

FREQUENCY AND PERCENTAGE DISTRIBUTION OF RESPONDENTS' DRUG EDUCATION EXPERIENCES
(N=59)

Description	Pretest No.	Pretest %	Pretest Rank	Posttest No.	Posttest %	Posttest Rank
A neighborhood or community drug education course	11	18.6	9	14	23.7	9
A special course at school on drugs	35	59.3	6	47	79.7	3
Classes or "rap sessions" at church	25	42.4	8	23	39.0	8
Watched a television show about drugs	49	83.1	2	51	86.4	1
Read a book or magazine article on drugs	44	74.6	3	46	78.0	4
Saw a film or video on drugs	51	86.4	1	48	81.4	2
Read feature articles in the newspaper	41	69.5	5	40	67.8	5
Talked with parents or others in family about drugs	32	54.2	7	27	45.7	7
Talked to friends about drugs	43	72.8	4	39	66.1	6

community drug education program at the time of the pretest. It appeared that the youth in this study failed to recognize the OCYE program as a community drug education course as the posttest response increased only slightly from 19 to 24 percent. The increase from pretest to posttest was somewhat larger for identifying a special drug course at school (59 percent to 80 percent). It was possible that the youth considered the OCYE to be school related since the groups met in school buildings.

Drug Education Effect

Eighty-one percent of the respondents (48) reported on the pretest that the drug information that they had received in school or other programs had made them less interested in trying drugs. Seventy-one percent of the youth reported less interest on the posttest. The percentage of youth who reported that drug education information had no effect on their drug interest was 14 percent (8) on the pretest and 25 percent (15) on the posttest. On the pretest, one subject said that drug education information had made him/her more interested in trying drugs. On the posttest, two of the subjects reported increased interest. A chi-square test determined no significant differences between the pretest and posttest responses, $X^2(2) = 4.86$, $p > .05$. The chi-square critical value at the .05 level of significance was 5.99.

Drinking, Drugging, and Driving

The youth in this study had similar attitudes about the dangers of drinking, drugging, and driving. On the pretest, 93 percent indicated that it was dangerous to drink or use other drugs when driving. Only one of the subjects reported the belief that drugs had no effect on driving ability and none of the youth reported a belief in improved ability to drive. On the posttest, 88 percent indicated drinking, drugging and driving was dangerous and seven percent noted no effect. Two of the subjects reported the belief that drugs improved the ability to drive. The chi-square test determined no significant

differences between the pretest and posttest responses, $X^2(2) = 4.88$, $p > .05$, $X^2(2)$ critical = 5.99. All of the farm youth and all of the youth age 14 and under reported that it was dangerous to use drugs when driving.

Drug Legalization

The legalization of marijuana use was not approved by the OCYE youth. On the pretest, 90 percent indicated that use of marijuana should be illegal regardless of age. Only one of the respondents expressed the opinion that marijuana use should be legal for everyone. On the posttest, 81 percent indicated that marijuana use should not be legal. Five of the subjects responded that marijuana should be legal. A chi-square test determined no significant differences between the pretest and posttest responses, $X^2(3) = 5.25$, $p > .05$. The chi-square critical value at the .05 level of significance was 7.81. On the pretest and on the posttest the variable groups indicating the strongest support for illegality of marijuana were males, farm youth, and subjects age 15 or older.

Advertising Influence

The youth in this study had diverse opinions about the influence of advertising on drug use. On the pretest, 32 of the subjects or 54 percent of the sample reported that advertising made drug use more attractive to them. On the posttest, 53 percent reported that advertising made drug use attractive. The largest difference between the pretest and posttest responses occurred in the "no effect" category. On the pretest, 24 percent of the youth reported that advertising had no effect on their personal drug use, while on the posttest, 32 percent indicated that advertising had no effect. The chi-square test determined no significant differences between the pretest and posttest responses, $X^2(2) = 2.00$, $p > .05$, $X^2(2)$ critical = 5.99. On the pretest and on the posttest the variable groups with the strongest support for the attractive influence of advertising were males, farm youth and subjects age 14 and under.

Continued Drug Education

The responses of the subjects indicated that the OCYE youth wanted to know more about drugs and how drugs affected the mind and body. At pretest, 78 percent of the sample noted that they wanted to learn more about drugs and how drugs affected the mind and body. At posttest, 69 percent responded "yes" to continuing drug education. The largest difference between the pretest and posttest responses was found in the "no, I already know a lot about drugs" category. On the pretest, seven percent responded "no" and indicated that they knew a lot about drugs. On the posttest, 19 percent noted no further need for drug education because they already knew a lot about drugs. The chi-square test determined no significant differences between the pretest and posttest responses, $X^2(3) = 4.11$, $p > .05$, $X^2(3)$ critical = 7.81. A frequency and percentage distribution of the respondents' attitudes toward continued drug education by levels of the variables is presented in Table 8.

Drug Use Rationale

The OCYE youth were asked to choose the five most likely reasons that young people used drugs and to rank them from one to five. Rank one was coded the most likely reason and ranks two through five were coded less likely reasons. The sums of ranks indicated that the youth chose: (1) pressure from friends, (2) escape from problems, (3) curiosity, (4) everyone does it, and (5) rebel against authority. Friedman's Test of Concordance determined no statistically significant differences between the pretest and posttest responses of the subjects, $L^* = 44.17$. The Standard Normal Table was used to evaluate L^* and Z observed $1.57 < Z$ critical 1.64, $p > .05$. On the pretest, "to relax" was ranked as the fifth most likely reason young people used drugs. "To relax" was not among the five most likely reasons reported on the posttest nor was relaxation among the overall

TABLE 8

FREQUENCY AND PERCENTAGE DISTRIBUTION
OF RESPONDENTS' ATTITUDES TOWARD
CONTINUED DRUG EDUCATION
(N=59)

Description	Variable					
	Age		Gender		Residence	
	14/Under	15/Older	Male	Female	Non-Farm	Farm
No, Don't Need						
Pretest						
No.	3	5	5	3	5	3
%	13.6	13.2	35.7	06.8	12.5	15.0
Posttest						
No.	1	5	1	5	4	2
%	04.8	13.2	07.1	11.4	10.5	10.0
No, Already Know						
Pretest						
No.	3	1	1	3	2	2
%	13.6	02.8	07.1	06.8	05.0	10.0
Posttest						
No.	6	5	4	7	8	3
%	28.6	13.2	28.6	15.9	21.1	15.0
Yes, Need						
Pretest						
No.	10	15	2	23	16	9
%	45.5	41.7	14.3	52.3	40.0	45.0
Posttest						
No.	7	13	4	16	13	7
%	33.3	35.1	28.6	36.4	34.2	35.0
Yes, Already Know						
Pretest						
No.	6	15	6	15	17	4
%	27.3	41.7	42.9	34.1	42.5	22.2
Posttest						
No.	7	14	5	16	13	8
%	33.3	37.8	35.7	36.4	34.2	40.0

(pre x post) rankings of the five most likely reasons Table 9 presents the sums of ranks for the sample group.

Table 10 presents the sums of ranks for the most likely reasons to use drugs by levels of the variables age, gender, and residence. In general, concordance or agreement was high among the subjects. The OCYE youth had strong opinions about reasons for drug use and there was little change in their opinions from pretest to posttest. Youth in the 14 and under age group ranked "curiosity" higher and "escape" lower than the youth in the 15 and older age group. Males ranked "curiosity" higher and "escape" lower than females. Farm youth also ranked "curiosity" higher and "escape" lower than rural non-farm youth.

Drug Harmfulness

When requested to select and rank the five most harmful drugs, the OCYE youth chose: (1) cocaine, (2) phencyclidine (PCP), (3) lysergic acid diethylamide (LSD), (4) opiates, and (5) marijuana. The Friedman's Test of Concordance determined no significant differences between the pretest and posttest responses of the sample group, $L^* = 32.6$. When evaluated with the Standard Normal Table, the Z observed $0.94 < Z$ critical 1.64, $p > .05$. Table 11 presents the sum of ranks comparisons for the sample. Table 12 illustrates the sums of ranks by the levels of the variables age, gender and place of residence. Compared to females, males ranked hallucinogens (LSD) more harmful than PCP. Males also ranked marijuana more harmful than opiates.

Drug Educators

The best groups of people to teach information about drugs were identified by the OCYE youth as: (1) ex-drug addicts, (2) drug counselors, (3) doctors and nurses, (4) police officers and lawyers, and (5) parents. The Friedman's Test for Concordance determined no significant differences between the pretest and posttest responses of the sample group, $L^* = 19.5$ (Z obs. 09.51 < critical 1.64, $p > .05$). On the posttest,

TABLE 9

FRIEDMAN'S TEST — SUMS OF RANKS FOR RESPONDENTS' ATTITUDES TOWARD DRUG USE

Description	Pretest		Posttest		Pre x Post	
	Sum	Rank	Sum	Rank	Sum	Rank
Reasons Young People Use Drugs						
Pressure From Friends	212	1	182	1	38584	1
Escape From Problems	121	2	124	3	15004	2
Curiosity	109	3	125	2	13625	3
Everyone Does It	80	4	65	4	5200	4
Rebel Against Authority	52	6	50	5	2600	5
To Have Fun	39	7	38	7	1482	6
To Relax	53	5	27	9	1431	7
Loneliness	17	9.5	41	6	697	8
Act Like an Adult	17	9.5	25	10	425	9
Boredom	12	12	33	8	396	10
Want to Get High	20	8	16	12	320	11
To Control Feelings	14	11	18	11	252	12
To Express Feelings	4	13	12	14	48	13
Spiritual	2	14	5	15	10	14
Help Get Into Things	0	15	13	13	0	15

Note. For the sample group, $L^* = 44.17$, $Z_{obt}\ 1.57 < Z_{crit}\ 1.64$, $p > .05$.

TABLE 10

FRIEDMAN'S TEST — SUM OF RANKS FOR RESPONDENTS' ATTITUDES TOWARD DRUG USE BY LEVELS OF THE VARIABLES

Description	Rank	Variable Rank Sums							
Reasons Young People Use Drugs		Age							
		14 and Under (N=21)				15 and Older (N=38)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Pressure From Friends	1	96	77	7392	1	116	102	11832	1
To Escape From Problems	2	39	41	1599	3	82	83	6806	2
Curiosity	3	44	46	2024	2	65	79	5135	3
Everyone Does It	4	38	28	1064	4	42	38	1596	4
Rebel	5	18	17	306	5	33	33	1089	5
Reasons Young People Use Drugs		Gender							
		Male (N=14)				Female (N=45)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Pressure From Friends	1	52	37	1924	1	160	145	23200	1
To Escape From Problems	2	19	25	475	3	102	204	20808	2
Curiosity	3	26	20	520	2	83	143	11869	3
Everyone Does It	4	23	19	437	4	57	46	2522	4
Rebel	5	13	7	91	5	39	43	1677	5

TABLE 10 (Continued)

Description	Rank	Variable Rank Sums							
Reasons Young People Use Drugs		Residence							
		Rural Non-Farm (N=39)				Farm (N=20)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Pressure From Friends	1	143	108	15444	1	69	70	4830	1
To Escape From Problems	2	85	84	7140	2	36	40	1440	3
Curiosity	3	62	72	4464	3	47	53	2491	2
Everyone Does It	4	56	41	2296	4	24	24	576	4
Rebel	5	38	36	1368	5	14	14	196	5

Note. For the sample group, L* = 44.17, Z obt 1.57 < Z crit 1.64, p > .05.

TABLE 11

FRIEDMAN'S TEST — SUMS OF RANKS FOR RESPONDENTS' ATTITUDES TOWARD DRUG HARMFULNESS

Description	Pretest		Posttest		Pre x Post	
	Sum	Rank	Sum	Rank	Sum	Rank
Cocaine	184	1	170	1	31280	1
PCP	150	2	146	2	21900	2
Hallucinogens	137	3	116	3	15892	3
Opiates	68	4	76	4	5168	4
Marijuana	65	5	73	5	4745	5
Amphetamines	52	6	49	7	2548	6
Alcohol	44	7	51	6	2244	7
Tranquilizers	21	9	40	9	840	8
Inhalants	20	10	41	8	820	9
Smokeless Tobacco	25	8	22	11.5	550	10
Barbiturates	15	11.5	26	10	390	11
Cigarettes	15	11.5	22	11.5	330	12

Note. For the sample group, $L^* = 32.6$, Z obt $0.94 <$ Z crit 1.64, $p > .05$.

TABLE 12

FRIEDMAN'S TEST — SUM OF RANKS FOR RESPONDENTS' ATTITUDES TOWARD DRUG HARMFULNESS BY LEVELS OF THE VARIABLES

Description	Rank	Variable Rank Sums							
Drugs		Age							
		14 and Under (N=21)				15 and Older (N=38)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Cocaine	1	74	70	5180	1	110	100	11000	1
PCP	2	65	50	3250	2	85	96	8160	2
Hallucinogens	3	45	37	1665	3	92	70	7268	3
Opiates	4	12	18	216	5	56	58	3248	4
Marijuana	5	31	32	992	4	34	38	1292	5
		Gender							
		Male (N=14)				Female (N=45)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Cocaine	1	39	39	1521	1	145	131	18995	1
PCP	2	28	22	616	3	122	124	15128	2
Hallucinogens	3	27	24	648	2	110	92	10120	3
Opiates	4	6	14	84	5	62	102	6324	4
Marijuana	5	17	21	357	4	48	52	2496	5

TABLE 12 (Continued)

Description	Rank	Variable Rank Sums							
Drugs		Residence							
		Rural Non-Farm (N=39)				Farm (N=20)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Cocaine	1	120	103	12360	1	64	67	4288	1
PCP	2	100	108	10800	2	50	38	1900	2
Hallucinogens	3	92	81	7452	3	34	35	1190	3
Opiates	4	47	40	1880	4	21	36	756	4
Marijuana	5	37	47	1739	5	28	26	728	5

Note. For the sample group, L* = 32.6, Z obt 0.94 < Z crit 1.64, p > .05.

"friends" were ranked in fifth place among the best groups of people to teach drug information. "Friends" were not among the highest ranking on the pretest nor were "friends" among the overall (pre x post) rankings of the five best groups. Community youth leaders (Scouts, 4-H) ranked eighth on the pretest and ninth on the posttest. Table 13 presents the sums of ranks for the sample group.

Table 14 illustrates the sums of ranks by the levels of the variables. Differences were indicated between the age groups. The youth in the 14 and under age group ranked doctors and nurses third, parents fourth, and police officers and lawyers fifth. In the 15 and older age group, police officers and lawyers were ranked third, doctors and nurses fourth, and parents fifth.

Differences in preference for drug teachers were also noted between the sexes. Males ranked the five best groups as: (1) parents, (2) ex-drug addicts, (3) doctors and nurses, (4) drug counselors and (5) friends. Females ranked the best groups of teachers as: (1) ex-drug addicts, (2) drug counselors, (3) police officers and lawyers, (4) doctors and nurses, and (5) parents.

The differences in preference for drug teachers between the rural non-farm youth and the farm youth were not as strong as those noted between the sexes. The rural non-farm youth ranked doctors and nurses third, police officers and lawyers fourth, and parents fifth. The farm youth ranked parents third, doctors and nurses fourth, and police officers and lawyers fifth.

Friends' Drug Use

The OCYE youth were requested to indicate what drugs they perceived that their friends used. The chi-square analyses determined no significant differences between the pretest and posttest responses for any of the five response selections. Nineteen percent of the sample group reported on the pre and post tests that none of their friends used drugs, $X^2(1) = 0.00$, $p > .05$, $X^2(1)$ critical = 3.84.

TABLE 13

FRIEDMAN'S TEST — SUMS OF RANKS FOR RESPONDENTS' ATTITUDES TOWARD DRUG EDUCATORS

Description	Pretest		Posttest		Pre x Post	
	Sum	Rank	Sum	Rank	Sum	Rank
Best Groups of People to Teach Drug Information						
Ex-Drug Addicts	189	1	174	1	32886	1
Drug Counselors	143	2	134	2	19162	2
Doctors/Nurses	88	3	95	3	8360	3
Police Officers/Lawyers	87	4	80	6	6960	4
Parents	69	5	87	4	6003	5
Friends	53	6	82	5	4346	6
Young People	49	7	56	7	2744	7
School Teachers	34	9	42	8	1428	8
Community Youth Leaders (Scouts, 4-H)	41	8	34	9	1394	9
Religious Leaders	22	10	27	11	594	10
Brothers/Sisters	17	11	26	10	442	11

Note. For the sample group, $L^* = 19.5$, Z obt $0.51 < Z$ crit 1.64, $p > .05$.

TABLE 14

FRIEDMAN'S TEST — SUM OF RANKS FOR RESPONDENTS' ATTITUDES TOWARD DRUG EDUCATORS BY LEVELS OF THE VARIABLES

Description	Rank	Variable Rank Sums							
Best Groups of People to Teach Drug Information		Age							
		14 and Under (N=21)				15 and Older (N=39)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Ex-Drug Addicts	1	75	62	4650	1	114	112	12768	1
Drug Counselors	2	66	58	3828	2	77	76	5852	2
Doctors/Nurses	3	32	38	1216	3	56	47	2632	4
Police Officers/Lawyers	4	29	19	551	5	58	61	3538	3
Parents	5	36	30	1080	4	33	57	1881	5
		Gender							
		Male (N=14)				Female (N=45)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Ex-Drug Addicts	1	27	27	729	2	162	147	23814	1
Drug Counselors	2	28	18	504	4	115	116	13340	2
Doctors/Nurses	3	27	24	648	3	61	71	4331	4
Police Officers/Lawyers	4	20	13	260	6	67	67	4489	3
Parents	5	23	42	966	1	42	45	1890	5

TABLE 14 (Continued)

Description	Rank	Variable Rank Sums							
Best Groups of People to Teach Drug Information		Residence							
		Rural Non-Farm (N=39)				Farm (N=20)			
		Pre	Post	Pre x Post	R	Pre	Post	Pre x Post	R
Ex-Drug Addicts	1	119	108	12852	1	70	66	4620	1
Drug Counselors	2	85	77	6545	2	58	57	3306	2
Doctors/Nurses	3	60	76	4560	3	28	19	532	4
Police Officers/Lawyers	4	62	63	3906	4	25	17	425	5
Parents	5	50	55	2750	5	19	32	608	3

Note. For the sample group, L* = 19.5, Z obt 0.51 < Z crit 1.64, p > .05.

On the pretest, 70 percent of the subjects noted that their friends used tobacco products as compared to 71 percent who reported friends' use of tobacco on the posttest, $X^2(1) = 0.04$, $p > .05$. The percentage of the subjects who reported that their friends used alcohol was the same (68) on both the pre and post tests, $X^2(1) = 0.00$, $p > .05$. Friends' use of marijuana was reported on the pretest by 22 percent of the youth compared to 24 percent who reported on the posttest that their friends used marijuana, $X^2(1) = 0.04$, $p > .05$. Few of the youth reported that their friends used a lot of drugs like cocaine and amphetamines, and 50 percent of the cells in the chi-square analysis had expected counts less than five. On the pretest, seven percent of the group reported frequent use of hard drugs by their friends. On the posttest, three percent indicated frequent use of hard drugs by friends, $X^2(1) = 0.70$, $p > .05$, $X^2(1)$ critical = 3.84.

A chi-square with matching was used to examine the relationship of self-reported drug use and the perceived use of drugs by friends. It was anticipated that the youth who reported that their friends used drugs would also report self-use of drugs. Friends' use and self-use was not analyzed by levels of the variables age, gender, and residence due to the sample size.

Table 15 summarizes the pretest and posttest results of the chi-square with matching for friends' use of drugs and self-use. Statistical significance was determined for self-reported use of cigarettes matched with friends' use of tobacco products; pretest $X^2(1) = 4.71$, $p < .05$, posttest $X^2(1) = 4.57$, $p < .05$, $X^2(1)$ critical = 3.84. Significance was also determined for self-reported use of marijuana matched with perceived use of marijuana by friends; pretest $X^2(1) = 14.61$, $p < .01$, $X^2(1)$ critical = 6.64, posttest $X^2(1) = 6.23$, $p < .05$. No significance was determined for use of smokeless tobacco, alcohol or amphetamines and cocaine when self-reported use was matched with perceived use by friends. Lack of significance for use of smokeless tobacco was likely due to the differences between male and female use of chewing tobacco and snuff. None of the youth

TABLE 15

CHI-SQUARE ANALYSES FOR SELF-REPORTED DRUG USE
MATCHED WITH FRIENDS' DRUG USE
(N=59)

Description	Test Responses								X^2
	Pretest								
	No Self/ No Friends		Yes Self/ No Friends		No Self/ Yes Friends		Yes Self/ Yes Friends		
	No.	%	No.	%	No.	%	No.	%	
Some Friends Use Tobacco/ Self Use Smokeless Tobacco[a]	17	28.8	1	01.7	39	66.1	2	03.4	0.01
Some Friends Use Tobacco/ Self Use Cigarettes	15	25.4	3	05.1	22	37.3	19	32.2	4.71*
Some Friends Use Alcohol/ Self Use Alcohol	13	22.0	6	10.2	18	30.5	22	37.3	2.83
Some Friends Use Marijuana/ Self Use Marijuana[a]	45	76.3	1	01.7	8	13.6	5	08.5	14.6**
Some Friends Use Lots of Drugs/ Self Use Amphetamines[b]	53	89.9	2	03.4	3	05.1	1	01.7	3.53

TABLE 15 (Continued)

Description	Test Responses								X^2
	Posttest								
	No Self/ No Friends		Yes Self/ No Friends		No Self/ Yes Friends		Yes Self/ Yes Friends		
	No.	%	No.	%	No.	%	No.	%	
Some Friends Use Tobacco/ Self Use Smokeless Tobacco[a]	15	25.4	2	03.4	40	67.8	2	03.4	0.94
Some Friends Use Tobacco/ Self Use Cigarettes	14	23.7	3	05.9	22	37.3	20	33.9	4.58*
Some Friends Use Alcohol/ Self Use Alcohol	12	20.3	7	11.9	16	27.1	24	40.7	2.77
Some Friends Use Marijuana/ Self Use Marijuana[a]	44	74.6	1	01.7	11	18.6	3	05.1	6.23**
Some Friends Use Lots of Drugs/ Self Use Amphetamines[b]	52	88.1	5	08.5	2	03.4	0	00.0	0.19

[a]50% of the cells have expected counts less than 5. [b]75% of the cells have expected counts less than 5.
* $p < .05$ $X^2(1) = 3.84$. ** $p < .01$ $X^2(1) = 6.64$.

reported self-use of cocaine although four the subjects indicated that their friends used cocaine.

Hypothesis Decision

The decision was fail to reject hypothesis number 2. The statistical analyses determined no significant differences between the pretest and posttest responses of the sample group for any of the 10 drug attitude responses items, except friends' drug use matched with self-use. This finding was inconclusive as significance was determined for cigarettes and marijuana only. Statistically significant differences by levels of the variables age, gender, and place of residence were not evaluated due to the sample size. Where variable level differences were noted they were appropriately reported in the text using frequencies, percentages, and/or sums of ranks.

Hypothesis 3. There are no significant differences between pretest and posttest drug refusal skill scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.

Four response items were used to determine the differences between the pretest and posttest drug refusal skills. A chi-square (X^2) test was used to analyze the first closed-end question which inquired about the youths' past experiences with drug use offers.

Three of the refusal skill items were open-end questions which required the respondents to write their own reactions to simulated offers to use drugs. Two of these imaginary offers to use drugs, adapted from the DARE program (DeJong, 1987), were presented in cartoon form. McNemar's Test for Significance of Changes, a modified sign test, was used to analyze the pretest and posttest responses. On the posttest, the subjects were expected to demonstrate the use of four different refusal skills which were presented in the OCYE curriculum materials. These four skills were: (1) say no or say no and give a

reason; (2) call on a friend or ally for assistance; (3) bargain or barter; and (4) leave the difficult situation.

Drug Offer Responses

In response to the question, "How do you react when others offer you drugs?," only one subject reported: "I like using drugs, so I always say yes." On both the pretest and the posttest, 42 percent of the sample (25 boys and girls) indicated that no one had ever offered them drugs. Twenty-seven percent (16 boys and girls) replied that it was easy for them to say "no" to all offers to use drugs. Approximately 29 percent of the sample perceived some difficulty in saying "no" to offers to use drugs. The chi-square analysis indicated no significant differences between the pretest and posttest responses of the total group, $X^2(5) = 8.74$, $p > .05$. The X^2 critical value was 11.07. Table 16 presents these findings.

The frequency and percentage distribution of the subject responses by levels of the variables age, gender, and residence are presented in Table 17. Approximately 37 percent of the youth age 14 and under reported that they had never been offered drugs. On both the pre and post tests, 47 percent of the youth age 15 and older reported that they had never been offered drugs.

On the pretest, 31 percent of the males reported that they had never been offered drugs and 54 percent said that it was easy to say no to all drug offers. On the posttest, 14 percent of the males said that they had never been offered drugs and 43 percent said that it was easy to say no to offers to use drugs. Forty-seven percent of the females reported on the pretest that they had never been offered drugs. Their posttest response was 51 percent. On the pretest, 20 percent of the females indicated that it was easy for them to say no to all drug offers and on the posttest 22 percent indicated that it was easy for them to say no to all drug offers. In general, it appeared that females had experienced fewer offers to use drugs than males and that they perceived more difficulty in saying no to drug offers than males.

TABLE 16

FREQUENCY AND PERCENTAGE DISTRIBUTION OF SUBJECTS' PRETEST AND POSTTEST RESPONSES TO DRUG USE OFFERS (N=59)

Description	Pretest		Posttest	
	No.	%	No.	%
Reactions to Drug Use Offers				
Like using drugs, always say yes	1	01.7	1	01.7
Never offered drugs	25	42.4	25	42.4
Easy to say "no" to all drugs	16	27.1	16	27.1
Easy to say "no" to hard drugs but difficult to refuse alcohol and tobacco	13	22.0	11	18.6
Easy to say "no" to alcohol and tobacco but difficult to refuse marijuana, cocaine, and other drugs	3	05.1	0	00.0
Hard to say "no" to all drugs	1	01.7	6	10.2

Note. $X^2(5) = 8.74$, $p > .05$; 57% of the cells have expected counts less than 5.

TABLE 17

FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRETEST AND POSTTEST RESPONSES TO DRUG USE OFFERS BY VARIABLE LEVEL
(N=59)

Variable	Yes		No Offer		Easy All		Hard T&A[a]		Hard M&C[b]		Hard All	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Pretest												
Age												
14 and Under	0	0.00	8	36.4	8	36.4	4	18.2	1	1.72	1	1.72
15 and Older	1	2.63	17	47.2	8	22.2	9	25.90	2	5.56	0	0.00
Gender												
Male	1	7.14	4	30.7	7	53.9	2	15.4	0	0.00	0	0.00
Female	0	0.00	21	46.7	9	20.0	11	24.4	3	6.67	1	2.22
Residence												
Rural Non-Farm	1	2.56	17	42.5	11	27.5	9	22.5	3	7.50	0	0.00
Farm or Ranch	0	0.00	8	44.4	5	27.8	4	22.2	0	0.00	1	5.56
Posttest												
Age												
14 and Under	0	0.00	8	38.1	6	28.6	5	23.8	0	0.00	2	9.50
15 and Older	1	2.63	17	47.2	10	26.3	6	15.8	0	0.00	4	10.50
Gender												
Male	1	7.14	2	14.3	6	42.9	1	07.1	0	0.00	4	28.60
Female	0	0.00	23	51.1	10	22.2	10	22.2	0	0.00	2	04.40
Residence												
Rural Non-Farm	1	2.56	17	42.5	8	20.5	9	22.5	0	0.00	4	10.30
Farm or Ranch	0	0.00	8	40.0	8	40.0	2	10.0	0	0.00	2	10.00

[a]Tobacco and Alcohol [b]Marijuana and Cocaine

Little difference was noted between rural non-farm and the rural farm youth. The responses of the youth to this test item No. 30 and test item No. 23, friends' drug use, suggested that the respondents in this study were not consistent in their identification or perception of tobacco products and alcohol as drugs.

Amphetamines

In response to the simulated offers to use diet pills (amphetamines), tobacco, and alcohol, none of the youth used the strategies of calling on a buddy for help or bargaining their way out of a difficult situation. More of the subjects used the strategy of saying no or saying no and giving a reason than used the strategy of leaving.

On the pretest, 76 percent of the sample said "no" to the imagined offer to use diet pills as compared to the posttest response of 75 percent. The McNemar's Test indicated no significant difference between the pretest and posttest responses of the subject, $X^2(1) = 0.00$, $p > .05$, $X^2(1)$ critical = 3.84. Of the 14 subjects who did not say "no" on the pretest, five changed their responses to "no" on the posttest. Of the 15 people who did not say "no" on the posttest, 12 had previously said "no" on the pretest.

On the pretest, 14 percent of the subjects responded to offers to use diet pills by leaving the scene. On the posttest, 12 percent used the strategy of leaving. The McNemar's Test determined no significance, $X^2(1) = 0.00$, $p > .05$, $X^2(1)$ critical = 3.84. Of the 51 subjects who did not use the strategy of leaving the scene on the pretest, three changed their responses and used leaving the scene on the posttest. Of the 52 who did not choose to leave the scene on the posttest survey, four had previously used leaving the scene on the pretest.

Table 18 summarizes the diet pill refusal data by level of the variables. Boys and girls, age 15 and older, used the refusal skill of "no" more frequently than the younger teens, age 14 and under. Females used the "no" strategy more frequently than males. Rural non-farm youth used "no" more often when refusing diet pills than the farm youth.

TABLE 18

FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRETEST AND POSTTEST DIET PILLS REFUSAL SKILLS BY LEVEL OF THE VARIABLE (N=59)

Description	Pretest		Posttest		X^2
	No.	%	No.	%	
Say "No"					0.00 p > .05
Age					
14 and Under	16	72.7	15	71.4	
15 and Older	29	76.3	29	76.3	
Gender					
Male	9	64.3	10	71.4	
Female	36	80.0	34	75.6	
Residence					
Rural Non-Farm	32	82.1	32	82.1	
Farm or Ranch	13	65.0	12	60.0	
Leave					0.00 p > .05
Age					
14 and Under	2	09.1	3	14.3	
15 and Older	6	16.2	4	10.5	
Gender					
Male	0	00.0	1	07.1	
Female	8	17.8	6	13.3	
Residence					
Rural Non-Farm	4	09.8	5	12.8	
Farm or Ranch	4	22.2	2	10.0	

On the pretest, nine percent of the youth under age 14 used the "leave" strategy to refuse diet pills. On the posttest, there was a slight increase with 14 percent using the "leave" strategy. Of the older teens, 16 percent used the "leave" strategy on the pretest as compared to 11 percent on the posttest. Females used the refusal skill "leave" more frequently than the males on both tests. Farm or ranch youth used "leave" more frequently on the pretest (22 percent) than the rural non-farm youth (10 percent). However, there was little difference on the posttest with 13 percent of the non-farm youth reporting use of the "leave" strategy compared to 10 percent of the farm youth.

Tobacco

On the pretest, 86 percent of the sample group used the say "no" strategy to refuse the simulated offer to use tobacco. On the posttest, the percentage of the respondents using "no" to refuse tobacco decreased to 73 percent. The McNemar's Test determined no significant differences between the pretest and posttest responses of the subjects, $X^2(1) = 3.06$, $p > .05$. Had there been significant change, it would not have been in the direction anticipated. The critical value for this one degree of freedom test was 3.84.

Of the eight subjects who did not say "no" on the pretest, four changed their response to "no" on the posttest. Of the subjects who did not say "no" on the posttest, 12 had previously said "no" on the pretest.

On the pretest, eight percent of the 16 subjects used the refusal skill of leaving a difficult situation in response to the simulated offer to use tobacco. At posttest, the percentage of youth using the "leave" strategy decreased to two percent. The McNemar's Test determined no significant differences in the pretest and posttest responses, $X^2(1) = 1.50$, $p > .05$, $X^2(1)$ critical = 3.84. Of the 54 subjects who did not choose to use "leave" on the pretest, one changed his/her response to "leave" on the posttest. Of the 58 people who did not choose "leave" on the posttest, five had previously chosen to use the "leave" strategy on the pretest.

Table 19 summarizes the tobacco refusal data by level of the variables. From pretest to posttest, the use of "no" decreased across all levels of the variables. The older teens used the "no" strategy more frequently than the younger teens. On the pretest, 89 percent of the teens age 15 and older said no to offers to use tobacco. Their posttest response was 73.7 percent. Of the youth age 14 and under, 82 percent used "no" on the pretest compared to 71 percent on the posttest.

Females used the "no" strategy to refuse offers to use tobacco more frequently than males. On the pretest, 79 percent of the male subjects said "no" to tobacco compared to 71 percent on the posttest. Eighty-nine percent of the female subjects used "no" on the pretest compared to 73 percent on the posttest.

Rural non-farm youth used "no" as a tobacco refusal skill more frequently than rural farm or ranch youth. On the pretest, 85 percent of the non-farm used "no" compared to 72 percent who used "no" on the posttest. Eighty percent of the farm and ranch youth used "no" on the pretest compared to 75 percent on the posttest.

Few of the youth used the refusal skill of leaving the scene to respond to tobacco use offers. On the pretest, 11 percent of the older teens used "leave" to refuse imaginary offers to use tobacco. None of the youth age 15 and older used this refusal skill on the posttest. Only one of the younger teens used the "leave" strategy on the pre and post tests.

None of the males used "leave" as a refusal strategy for tobacco offers. On the pretest, 11 percent of the female subjects used "leave" compared to two percent on the posttest.

Five of the rural non-farm youth, or 12 percent, used the "leave" strategy on the pretest. None of the non-farm youth reported use of "leave" on the posttest. None of the farm youth used "leave" on the pretest. One used "leave" on the posttest.

TABLE 19

FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRETEST AND POSTTEST TOBACCO REFUSAL SKILLS BY LEVEL OF THE VARIABLE (N=59)

Description	Pretest		Posttest		X^2
	No.	%	No.	%	
Say "No"					3.06 p > .05
Age					
14 and Under	18	81.8	15	71.4	
15 and Older	33	89.2	28	73.7	
Gender					
Male	11	78.6	10	71.4	
Female	40	88.9	33	73.3	
Residence					
Rural Non-Farm	35	85.4	28	71.8	
Farm or Ranch	16	80.0	15	75.0	
Leave					1.50 p > .05
Age					
14 and Under	1	04.8	1	04.8	
15 and Older	4	10.8	0	00.0	
Gender					
Male	0	00.0	0	00.0	
Female	5	11.1	1	02.2	
Residence					
Rural Non-Farm	5	12.2	0	00.0	
Farm or Ranch	0	00.0	1	05.0	

Alcohol

On the pretest, 73 percent of the sample group used the say "no" strategy to refuse the simulated offer to use alcohol. On the posttest, the percentage of the respondents using "no" to refuse alcohol decreased to 59 percent. The McNemar's Test determined no significant change differences between the pretest and posttest responses of the subjects, $X^2(1) = 2.72$, $p > .05$, $X^2(1)$ critical = 3.84. Of the 16 subjects who did not say "no" to offers to use alcohol on the pretest, five changed their response to "no" on the posttest. Of the 24 people who did not say "no" on the posttest, 13 had previously said "no" on the pretest.

On the pretest, three percent of the subjects used the refusal skill of leaving a difficult situation as a response to the simulated offer to use alcohol. On the posttest, the percentage of youth using the "leave" strategy decreased to less than two percent. The McNemar's Test determined no significant differences between the pretest and posttest responses, $X^2(1) = 0.00$, $p > .05$, $X^2(1) = 3.84$. Of the 57 subjects who did not choose "leave" as a pretest response, only one changed his/her response to "leave" on the posttest. Of the 58 subjects who did not respond with "leave" on the posttest, two had previously responded with "leave" on the pretest.

Table 20 summarizes the alcohol refusal data by level of the variables. From pretest to posttest, the younger teens slightly increased the use of "no" as a refusal response to offers to use drugs. The older teens used "no" less frequently on the posttest than on the pretest. On the pretest, 59 percent of the youth aged 14 and under said "no" to alcohol as compared to 67 percent who said "no" on the posttest. Eighty-one percent of the youth 15 and older used the "no" response to alcohol on the pretest as compared to 55 percent who used the "no" response on the posttest.

Use of the "no" response decreased for males and females from the pretest survey to the posttest survey. On the pretest, 57 percent of the males used "no" as a response to

TABLE 20

FREQUENCY AND PERCENTAGE DISTRIBUTION OF PRETEST AND POSTTEST ALCOHOL REFUSAL SKILLS BY LEVEL OF THE VARIABLE (N=59)

Description	Pretest		Posttest		X^2
	No.	%	No.	%	
Say "No"					2.72 p > .05
Age					
14 and Under	13	59.1	14	66.7	
15 and Older	30	81.1	21	55.3	
Gender					
Male	8	57.1	7	50.0	
Female	35	77.8	28	62.2	
Residence					
Rural Non-Farm	32	78.1	23	58.9	
Farm or Ranch	11	55.0	12	60.0	
Leave					0.00 p > .05
Age					
14 and Under	0	00.0	1	04.8	
15 and Older	2	05.4	0	00.0	
Gender					
Male	0	00.0	0	00.0	
Female	2	04.4	1	02.2	
Residence					
Rural Non-Farm	2	04.8	0	00.0	
Farm or Ranch	0	00.0	1	05.0	

alcohol offers as compared to 50 percent on the posttest. Seventy-eight percent of the females said "no" to alcohol on the pretest as compared to 62 percent on the posttest.

Use of the "no" response to alcohol decreased from the pretest to the posttest among the rural non-farm youth. The use of the "no" response increased slightly among the farm youth. On the pretest, 78 percent of the non-farm youth said "no" to alcohol as compared to 59 percent on the posttest. Fifty-five percent of the farm or ranch youth used the "no" response on the pretest as compared to 60 percent on the posttest. Fewer youth used the leave a difficult situation refusal skill for a response to offers to use alcohol than for the offers to use diet pills or tobacco. None of the younger teens used the "leave" response on the pretest. One subject used "leave" on the posttest. Of the youth age 15 and over, five percent used "leave" on the pretest but none of the older teens used this response on the posttest.

Males failed to use the "leave" strategy for refusing offers of alcohol on either the pretest or the posttest. On the pretest, two females used leave a difficult situation as a strategy to refuse alcohol. One female used "leave" on the posttest.

Two of the non-farm youth used the "leave" response on the pretest. None of the non-farm youth used "leave" on the posttest. None of the farm youth used "leave" on the pretest. One of the farm or ranch subjects used "leave" as a posttest response to the simulated offer to use alcohol.

Hypothesis Decision

The decision was fail to reject the hypothesis. The statistical analyses determined no significant differences in drug refusal skills. Two of the drug refusal skills presented in the OCYE curriculum materials were not adopted by the youth in this study. Participation in the OCYE program produced no change in the difficulty of refusing drugs as perceived by the youth. At posttest, the sample group refused simulated offers to use drugs less frequently than at pretest.

Hypothesis 4. There are no significant differences in the pretest, posttest, or retrospective pretest drug use scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.

A rating scale which listed 13 different categories of drugs was used to determine the differences between pretest, posttest, and retrospective pretest drug use. A repeated measures analysis of variance (ANOVA) was used to analyze the personal drug use scores of the respondents. Univariate tests of hypotheses for within subjects effects and univariate tests of hypotheses for between subjects effects were reported when significant. In addition, a t-test and the means of the drug use difference scores were used to analyze the data for the more frequently used drugs.

The means of the drug use difference scores were presented on tables to illustrate the differences between pretest, posttest, and retrospective pretest drug use. It was anticipated that the respondents would score lower on the posttest and higher on the retrospective pretest than on the traditional pretest, resulting in a positive mean value for the pretest mean minus the posttest mean (labeled Test 1), a negative mean value for the posttest mean minus the retrospective pretest mean (labeled Test 2) and a negative mean value for the pretest minus the retrospective pretest (labeled Test 3). For example, it was expected that the youth would report less use of alcohol on the posttest than on the pretest (+ value), and that the youth would report less alcohol use on the posttest than on the retrospective pretest (– value). It was also expected that the respondents would report a higher level of alcohol use on the retrospective pretest than on the pretest (– value).

A general examination of the drug use data revealed three or fewer respondents experimenting with drugs in each of the following categories: barbiturates, inhalants, tranquilizers, cocaine, opiate–narcotics, hallucinogens, and phencyclidine (PCP). Table 21 presents a frequency and percentage distribution for the use of these drugs. No further

TABLE 21

FREQUENCY AND PERCENTAGE DISTRIBUTION
OF INFREQUENTLY USED DRUGS
(N=59)

Description	Under 14 (N=21)		Over 15 (N=38)		Boys (N=14)		Girls (N=45)		Rural Non-Farm (N=39)		Farm or Ranch (N=20)	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Inhalants	3	0.14	0	0.00	2	0.14	1	0.02	3	0.08	0	0.00
Barbiturates	1	0.04	1	0.03	1	0.07	1	0.02	2	0.05	0	0.00
Tranquilizers	2	0.10	1	0.03	2	0.14	1	0.02	3	0.08	0	0.00
Cocaine	3	0.14	0	0.00	3	0.21	0	0.00	3	0.08	0	0.00
Opiate - Narcotics	1	0.04	0	0.00	1	0.07	0	0.00	1	0.03	0	0.00
Hallucinogens	1	0.04	0	0.00	1	0.07	0	0.00	1	0.03	0	0.00
PCP	1	0.04	0	0.00	1	0.07	0	0.00	1	0.03	0	0.00

statistical analyses for these infrequently used drugs was reported in this study. None of the farm youth identified use of these drugs. The report of one of the subjects was considered suspect since daily use of all drugs was noted on the posttest but not on the pretest or the retrospective pretest.

Alcohol Use

Alcohol was "the drug of choice" for the youth in this research project. Thirty-seven of the subjects or 63 percent reported current use of alcohol.

The repeated measures analysis of variance (ANOVA) for pretest alcohol use showed no significant differences between the younger teen (age 14 and under) and older teen (age 15 and older), male and female, rural farm and rural non-farm youth, $F(7,51) = 1.48$, $p > .05$. Analysis on the posttest data of alcohol use, $F(7,51) = 1.18$, $p > .05$, and the retrospective pretest data, $F(7,51) = 1.16$, $p > .05$, yielded the same results, F(7,51) critical = 2.20. Table 22 summarizes these findings.

The univariate tests of hypotheses for within subjects effects and the univariate tests of hypotheses for between subjects effects found no significant differences for age, gender, or place of residence, across all three tests.

Alcohol use on the pretest yielded a mean of 2.37 as compared to the posttest mean of 2.61 and the retrospective pretest mean of 2.62 for the sample group. Table 23 presents the means by levels of the variables.

The means of the alcohol use difference scores are illustrated in Table 24. All of the youth reported higher alcohol use on the retrospective pretest than they reported on the pretest. However, the t-test revealed no statistical significance for any of the comparisons.

The decision was fail to reject this portion of the hypothesis. There were no significant differences in alcohol consumption in this study.

TABLE 22

ANALYSIS OF VARIANCE COMPARISON PRETEST, POSTTEST AND RETROSPECTIVE PRETEST ALCOHOL USE (N=59)

Variable					
Pretest Alcohol Use	Source	SS	df	MS	F
	Model	20.22	7	2.89	1.48 p > .05
	Error	99.57	51	1.95	
	Total	119.80	58		
Posttest Alcohol Use	Source	SS	df	MS	F
	Model	16.98	7	2.43	1.18 p > .05
	Error	105.05	51	2.06	
	Total	122.03	58		
Retrospective Pretest Alcohol Use	Source	SS	df	MS	F
	Model	18.86	7	2.69	1.16 p > .05
	Error	118.94	51	2.33	
	Total	137.80	58		

Note. F(7,51) critical = 2.20

TABLE 23

ALCOHOL USE MEANS BY AGE, GENDER, AND RESIDENCE
(N=59)

Variable	No.	Pretest		Posttest		Retrospective	
		Mean	SD	Mean	SD	Mean	SD
Age							
14 and Under	21	2.10	1.37	2.43	1.36	2.57	1.72
15 and Older	38	2.53	1.47	2.71	1.51	2.66	1.46
Gender							
Male	14	1.86	1.29	2.29	1.49	2.72	2.02
Female	45	2.53	1.46	2.71	1.44	2.60	1.39
Residence							
Rural Non-Farm	39	2.51	1.50	2.69	1.54	2.74	1.61
Farm or Ranch	20	2.10	1.29	2.45	1.28	2.40	1.39

Note. Pretest sample mean 2.37; Posttest sample mean 2.61; Retrospective pretest sample mean 2.62.

TABLE 24

MEANS OF THE ALCOHOL USE DIFFERENCE SCORES[a]
BY AGE, GENDER AND RESIDENCE
(N=59)

Variable	No.	Test 1 Pretest minus Posttest	Test 2 Posttest minus Retrospective	Test 3 Pretest minus Retrospective
Age				
14 and Under	21	–0.33	–0.14	–0.48
15 and Older	38	–0.18	+0.05	–0.13
Gender				
Male	14	–0.07	–0.42	–0.85
Female	45	–0.17	+0.11	–0.06
Residence				
Rural Non-Farm	39	–0.18	–0.05	–0.23
Farm or Ranch	20	–0.35	+0.05	–0.30

Note. It was anticipated that the respondents would score lower on the posttest and higher on the retrospective pretest than on the pretest, resulting in a positive score value for Test 1 and a negative score value for Test 2 and Test 3.

[a]A negative mean value indicated increased alcohol use reported between the compared tests.

Cigarette Use

Twenty-six of the respondents, or 44 percent, reported cigarette use during the survey. The reported measures analysis of variance (ANOVA) for pretest cigarette use showed no significant difference between the younger teen (age 14 and under) and older teen (age 15 and over), male and female, rural farm and rural non-farm youth, $F(7,50) = .90$, $p > .05$. Analysis of the posttest cigarette use, $F(7,50) = 1.26$, $p > .05$, and the retrospective pretest cigarette use, $F(7,50) = 2.15$, $p > .05$ indicated similar findings, $F(7,50)$ critical = 2.20. Table 25 illustrates these results.

The univariate tests of hypotheses for within subjects effects indicated significant F values for age, gender, and place of residence. The Greenhouse-Geisser Correction which assumes the presence of maximal heterogeneity of variance also noted the same significant F values. The univariate tests of hypotheses for between subjects effects revealed no significant differences for age, gender, or place of residence.

The pretest cigarette use mean, for the sample group, was 2.45 as compared to the posttest mean of 2.52 and the retrospective pretest mean of 2.57. Table 26 presents the means by levels of the variables.

The means of the cigarette use difference scores are shown in Table 27. The t-test noted no significance for any of the comparisons and none of the variable groups followed the anticipated pattern of scoring lower on the posttest, and higher on the retrospective pretest than on the pretest.

The decision was fail to reject the hypothesis. Use of cigarettes was not impacted by participation in the OCYE program.

Marijuana Use

Nine of the subjects, or 15 percent, responded that they used marijuana. The repeated measures analysis of variance (ANOVA) for the pretest, posttest, and retrospective

TABLE 25

ANALYSIS OF VARIANCE COMPARISON PRETEST, POSTTEST AND RETROSPECTIVE PRETEST CIGARETTE USE (N=58)[a]

Variable					
Pretest Cigarette Use	Source	SS	df	MS	F
	Model	24.16	7	3.45	0.90 p > .05
	Error	192.18	50	3.84	
	Total	216.34	57		
Posttest Cigarette Use	Source	SS	df	MS	F
	Model	31.20	7	4.46	1.26 p > .05
	Error	177.28	50	3.54	
	Total	208.48	57		
Retrospective Pretest Cigarette Use	Source	SS	df	MS	F
	Model	50.48	7	7.21	2.15 p > .05
	Error	167.75	50	3.35	
	Total	218.22	57		

Note. F(7,50) critical = 2.20

[a]Observations with missing values were not included in this analysis.

TABLE 26

CIGARETTE USE MEANS BY AGE, GENDER, AND RESIDENCE
(N=58)[a]

Variable	No.	Pretest		Posttest		Retrospective	
		Mean	SD	Mean	SD	Mean	SD
Age							
14 and Under	21	2.29	1.55	2.38	1.60	2.76	1.90
15 and Older	37	2.54	2.16	2.60	2.08	2.45	2.00
Gender							
Male	14	1.86	1.51	2.07	1.98	2.57	2.34
Female	44	2.64	2.05	2.65	1.89	2.57	1.88
Residence							
Rural Non-Farm	38	2.79	2.09	2.78	1.99	2.89	2.09
Farm or Ranch	20	1.80	1.47	2.00	1.69	1.95	1.54

[a]Observations with missing values were not included in this analysis.

TABLE 27

MEANS OF THE CIGARETTE USE DIFFERENCE SCORES[a]
BY AGE, GENDER AND RESIDENCE
(N=58)[b]

Variable	No.	Test 1 Pretest minus Posttest	Test 2 Posttest minus Retrospective	Test 3 Pretest minus Retrospective
Age				
14 and Under	21	–0.10	–0.38	–0.48
15 and Older	38	–0.05	+0.14	+0.08
Gender				
Male	14	–0.21	–0.50	–0.71
Female	44	–0.02	+0.09	+0.06
Residence				
Rural Non-Farm	39	0.00	–0.11	–0.10
Farm or Ranch	20	–0.20	+0.05	–0.15

Note. It was anticipated that the respondents would score lower on the posttest and higher on the retrospective pretest than on the pretest, resulting in a positive score value for Test 1 and a negative score value for Test 2 and Test 3.

[a]A negative mean value indicated increased alcohol use reported between the compared tests.

[b]Observations with missing values were not included in this analysis.

pretest marijuana use data indicated no significant differences between the younger teen (age 14 and under) and older teen (age 15 and older), male and female, rural farm and rural non-farm OCYE youth. The pretest analysis was $F(7,51) = 0.44$, $p > .05$. The posttest analysis was $F(7,51) = 0.92$, $p > .05$ and the retrospective pretest was $F(7,51) = 1.16$, $p > .05$. Table 28 presents these F values for comparison, $F(7,51)$ critical = 2.20.

The univariate tests of hypotheses for within subject effects noted significance for the variables age and residence. The Greenhouse–Geisser Correction for heterogeneity of variance was also significant. Across all three tests, the univariate tests of hypotheses for between subjects effects revealed no significant differences in marijuana use.

The pretest marijuana use mean was 1.25 as compared to the posttest mean of 1.30 and the retrospective pretest mean of 1.34. Table 29 presents the means by levels of the variables.

The means of the marijuana use difference scores are shown in Table 30. The t-test noted no statistical significance.

The decision was fail to reject the hypothesis. No significant differences in marijuana use were found between the identified variable groups studied.

Smokeless Tobacco Use

Eight of the respondents, or 14 percent of the total group, reported use of chewing tobacco and snuff. In general, their smokeless tobacco use responses were not consistent across the three tests. Two of the youths reported frequent daily use.

The repeated measures analysis of variance (ANOVA) for the pretest, posttest, and retrospective pretest smokeless tobacco use data indicated significant differences between the identified variable groups. The pretest analysis was $F(7,51) = 3.97$, $p < .01$. The posttest analysis was $F(7,51) = 2.58$, $p < .05$, and the retrospective pretest analysis was 5.65, $p < .01$, $F(7,51)$ critical at the .05 level of significance = 2.20, at the .01 level $F(7,51)$ critical = 3.02.

TABLE 28

ANALYSIS OF VARIANCE COMPARISON PRETEST, POSTTEST AND RETROSPECTIVE PRETEST MARIJUANA USE (N=59)

Variable					
Pretest Marijuana Use	Source	SS	df	MS	F
	Model	1.90	7	0.27	0.44 p > .05
	Error	31.29	51	0.61	
	Total	33.19	58		
Posttest Marijuana Use	Source	SS	df	MS	F
	Model	5.19	7	0.74	0.92 p > .05
	Error	41.32	51	0.81	
	Total	46.51	58		
Retrospective Pretest Marijuana Use	Source	SS	df	MS	F
	Model	8.15	7	1.16	1.16 p > .05
	Error	51.07	51	1.00	
	Total	59.22	58		

Note. F(7,51) critical = 2.20

TABLE 29

MARIJUANA USE MEANS BY AGE, GENDER, AND RESIDENCE
(N=59)

Variable	No.	Pretest		Posttest		Retrospective	
		Mean	SD	Mean	SD	Mean	SD
Age							
14 and Under	21	1.28	0.72	1.42	0.87	1.57	1.36
15 and Older	38	1.24	0.79	1.24	0.91	1.21	0.74
Gender							
Male	14	1.29	0.73	1.29	0.82	1.42	1.34
Female	45	1.25	0.77	1.31	0.92	1.31	0.90
Residence							
Rural Non-Farm	39	1.28	0.82	1.41	1.04	1.48	1.21
Farm or Ranch	20	1.20	0.61	1.10	0.44	1.05	0.22

Note. Pretest sample mean = 1.25; posttest sample mean = 1.30; retrospective sample mean = 1.34.

TABLE 30

MEANS OF THE MARIJUANA USE DIFFERENCE SCORES[a]
BY AGE, GENDER AND RESIDENCE
(N=59)

Variable	No.	Test 1 Pretest minus Posttest	Test 2 Posttest minus Retrospective	Test 3 Pretest minus Retrospective
Age				
14 and Under	21	–0.14	–0.14	–0.29
15 and Older	38	0.00	+0.03	+0.03
Gender				
Male	14	0.00	–0.14	–0.14
Female	45	–0.07	0.00	–0.07
Residence				
Rural Non-Farm	39	–0.13	–0.08	–0.21
Farm or Ranch	20	+0.10	+0.05	+0.15

Note. It was anticipated that the respondents would score lower on the posttest and higher on the retrospective pretest than on the pretest, resulting in a positive score value for Test 1 and a negative score value for Test 2 and Test 3.

[a]A negative mean value indicated increased marijuana use reported between the compared tests.

Analysis of the pretest use of smokeless tobacco noted an interaction between gender and residence, $F(1,51) = 6.53$, $p < .01$, and a significant difference between the male and female subjects in the use of chewing tobacco and snuff, $F(1,51) = 13.59$, $p < .01$. Analysis of the posttest use determined a difference between males and females only, $F(1,51) = 11.94$, $p < .01$. The retrospective pretest analysis noted a difference across all three levels of the variables age, gender, and residence; $F(1,51) = 4.27$, $p < .01$. A difference was also indicated for the variables gender and place of residence $F(1,51) = 6.73$, $p < .01$ and gender alone $F(1,51) = 20.50$, $p < .01$ $F(1,51)$ critical at the .05 level of significance = 4.03, at the .01 level $F(1,51)$ critical = 7.17. Table 31 summarizes these differences.

The univariate tests of hypotheses for within subjects effects indicated significant F values for all levels of the variables except gender, $F(2,102) = 1.51$, $p > .05$, $F(2,102)$ critical = 3.09. The Greenhouse–Geisser Correction for heterogeneity of variance indicated significant differences within all levels of the variables with the same exception of gender. The univariate tests of hypotheses for between subjects effects noted the following significant differences across all three tests: Gender/Residence $F(1,51) = 4.60$, $p < .01$; Residence $F(1.51) = 4.87$, $p < .01$; and Gender $F(1,51) = 15.60$, $p < .01$. $F(1.51)$ critical at the .05 level of significance = 4.03, at the .01 level $F(1,51)$ critical at 7.17. Table 32 illustrates these differences.

The pretest smokeless tobacco use mean was 1.33 as compared to the posttest mean of 1.44 and the retrospective pretest mean of 1.34. Table 33 presents the pretest, posttest and retrospective pretest means across all levels of the variables. Non-farm males, age 15 and older, reported the highest use of smokeless tobacco with a pretest mean of 3.40, a posttest mean of 3.20 and a retrospective pretest mean of 2.20. Non-farm males, age 14 and under, composed the next most frequent user group with the following means: pretest 2.00, posttest 1.33, and retrospective pretest 4.33.

TABLE 31

ANALYSIS OF VARIANCE COMPARISON OF PRETEST, POSTTEST AND RETROSPECTIVE PRETEST SMOKELESS TOBACCO USE SCORES (N=59)

Variable	Pretest F value	Posttest F value	Retrospective Pretest F value
Age	0.59	1.15	1.24
Gender	13.59**	11.94**	20.50**
Age/Gender	1.45	1.84	2.14
Residence	3.25	0.02	2.89
Age/Residence	0.77	0.18	1.77
Gender/Residence	6.53**	0.46	6.73**
Age/Gender/Residence	1.63	2.45	4.27*

*$p < .05$, $F(1,51)$ critical = 4.03 **$p < .01$ $F(1,51)$ critical = 7.17

TABLE 32

COMPARISON OF WITHIN AND BETWEEN SUBJECTS EFFECTS FOR SMOKELESS TOBACCO (N=59)

Source	SS	df	MS	F	Adjusted G – G pr
Within Subjects Effects					
Tests	0.98	2	0.49	1.16	0.30
Tests/Age	5.36	2	2.68	6.39**	0.00
Tests/Gender	1.27	2	0.64	1.51	0.23
Tests/Age/Gender	3.76	2	1.88	4.48*	0.02
Tests/Residence	3.54	2	1.77	4.21*	0.03
Tests/Age/Residence	6.95	2	3.48	8.28**	0.00
Test/Gender/Residence	2.81	2	1.41	3.35*	0.06
Tests/Age/Gender/Residence	7.92	2	3.96	9.43**	0.00
Between Subjects Effects					
Age	0.63	1	0.63	0.29	
Gender	33.92	1	33.92	15.60**	
Age/Gender	0.05	1	0.05	0.02	
Residence	10.58	1	10.58	4.87*	
Age/Residence	0.20	1	0.20	0.10	
Gender/Residence	10.00	1	10.00	4.60*	
Age/Gender/Residence	0.32	1	0.32	0.15	

*p < .05 **p < .01

TABLE 33

SMOKELESS TOBACCO USE MEANS BY AGE, GENDER, AND RESIDENCE
(N=59)

Age	Variable Gender	Residence	No.	Level of Test Pretest Mean	Pretest SD	Posttest Mean	Posttest SD	Retrospective Mean	Retrospective SD
14 and Under	Male	Non-Farm	3	2.00	1.00	1.33	0.57	4.33	2.52
14 and Under	Male	Farm	3	1.33	0.57	2.00	1.73	1.33	0.57
14 and Under	Female	Non-Farm	9	1.00	0.00	1.11	0.33	1.00	0.00
14 and Under	Female	Farm	6	1.00	0.00	1.00	0.00	1.00	0.00
15 and Older	Male	Non-Farm	5	3.40	3.28	3.20	3.03	2.20	2.68
15 and Older	Male	Farm	3	1.00	0.00	2.00	1.00	1.66	1.15
15 and Older	Female	Non-Farm	22	1.14	0.35	1.18	0.50	1.04	0.21
15 and Older	Female	Farm	8	1.00	0.00	1.38	1.06	1.00	0.00

Note. Pretest Sample Mean 1.33; Posttest Sample Mean 1.44; Retrospective Pretest Sample Mean 1.34.

An analysis of the smokeless tobacco drug use difference scores by level of the variables is presented in Table 34. The t-test found several of the measures to be close to statistical significance (not in the anticipated direction). However, nothing even close to significance was indicated for the Pretest minus the Retrospective Pretest measure. Again, none of the variable groups followed the anticipated pattern of scoring lower on the posttest and higher on the retrospective pretest than on the pretest.

All of these analyses determined no significant differences between the younger teen, age 14 and under, and the older teen, age 15 and older, in relationship to their smokeless tobacco use. The decision for this portion of the hypothesis was fail to reject. There were significant differences according to gender noted within the pretest, posttest, and retrospective pretest analyses and also across all three tests. Males were more often users of chewing tobacco and snuff than females. The decision for this portion of the hypothesis was to reject. There were also some significant differences noted for identified place of residence but the evidence was not as conclusive. It appeared that more non-farm youth used smokeless tobacco than farm youth.

Amphetamine Use

Seven of the subjects, or 12 percent of the sample group, reported amphetamine use. The repeated measures analysis of variance (ANOVA) for the pretest, posttest, and retrospective pretest amphetamine use data indicated no significant differences between the younger teen (age 14 and under) and the older teen (age 15 and older), male and female, rural non-farm and rural farm OCYE youth. The pretest analysis was $F(7,51) = 0.26$, $p > .05$. The posttest value was $F(7,51) = 1.42$, $p > .05$, and the retrospective pretest value was $F(7,51) = 1.71$, $p > .05$, $F(7,51$ critical $= 2.20$. Table 35 illustrates these comparisons.

The univariate tests of hypotheses for within and between subjects effects noted no significant differences across the three tests. The pretest amphetamine use mean was 1.19

TABLE 34

MEANS OF THE SMOKELESS TOBACCO USE DIFFERENCE SCORES[a] BY AGE, GENDER, AND RESIDENCE

(N=59)

Variable	No.	Pretest minus Posttest	Posttest minus Retrospective	Pretest minus Retrospective
Age				
14 and Under	21	–0.05	–0.28	–0.33
14 and Under	38	–0.16	+0.32 p = .0566	+0.15
Gender				
Male	14	–0.14	–0.07	–0.21
Female	45	–0.11	+0.15 p = .0702	+0.04
Residence				
Rural Non-Farm	39	–0.40 p = .0569	+0.30	–0.10
Farm or Ranch	20	+0.02	0.00	+0.03

Note. It was anticipated that the respondents would score lower on the posttest and higher on the retrospective pretest than on the prestest, resulting in a positive score value for Test 1 and a negative score value for Test 2 andTest 3. Had there been statistical significance for the indicated p values, it would not have been in the anticipated direction.

[a]A negative mean value indicated increased smokeless tobacco use reported between the compared tests.

TABLE 35

ANALYSIS OF VARIANCE COMPARISON PRETEST, POSTTEST AND RETROSPECTIVE PRETEST AMPHETAMINE USE (N=59)

Variable					
Pretest Amphetamine Use	Source	SS	df	MS	F
	Model	0.77	7	0.11	0.26 p > .05
	Error	22.17	51	0.43	
	Total	22.95	58		
Posttest Amphetamine Use	Source	SS	df	MS	F
	Model	3.53	7	0.55	0.35 p > .05
	Error	18.09	51	0.35	
	Total	21.62	58		
Retrospective Pretest Amphetamine Use	Source	SS	df	MS	F
	Model	8.21	7	1.17	1.71 p > .05
	Error	34.98	51	0.69	
	Total	43.19	58		

Note. F(7,51) critical = 2.20

as compared to the posttest mean of 1.15 and the retrospective pretest mean of 1.25. Table 36 presents these means by level of the variable.

The means of the amphetamine use difference scores are presented in Table 37. The t-test determined no statistical differences.

The decision was fail to reject the hypothesis. No significant differences in amphetamine use were found between the identified variable groups.

Post Hoc Comparison

Following the initial data collection, it was determined that a comparison of the sample group (59 boys and girls) and the "drop-out" group (27 boys and girls) would be of value to the study. The 27 boys and girls who were in the designated "drop-out" group had previously been dropped from the research project but not necessarily from the OCYE program. They were identified as "drop-outs" since they had completed the pretest but had not completed either the posttest or the retrospective pretest. A chi-square was used to evaluate the hypotheses.

Hypothesis 5. There are no significant demographic differences between the OCYE youth in the sample group and the drop-out group.

Table 38 summarizes the demographic data for the sample group and the designated "drop-out" group. The youth were classified into two age groups. In the sample group, 21 subjects of 36 percent of the sample were age 14 and under. Thirty-eight or 64 percent of the sample were age 15 or older. In the "drop-out" group, 11 of the youth or 41 percent were age 14 and under. Sixteen or 59 percent were age 15 and older. The chi-square analysis indicated there were no significant age differences between the OCYE youth in the sample group and the "drop-out" group, $X^2(1) = 0.09$, $p > .05$, $X^2(1)$ critical = 3.84.

In this study, the responses of male and female subjects were analyzed. Fourteen or 24 percent of the sample group were male. Forty-five or 76 percent were female. Of the

TABLE 36

AMPHETAMINE USE MEANS BY AGE, GENDER, AND RESIDENCE
(N=59)

Variable	No.	Pretest		Posttest		Retrospective	
		Mean	SD	Mean	SD	Mean	SD
Age							
14 and Under	21	1.14	0.48	1.29	0.90	1.57	1.32
15 and Older	38	1.21	0.70	1.08	0.35	1.07	0.35
Gender							
Male	14	1.07	0.26	1.21	0.80	1.36	1.33
Female	45	1.22	0.70	1.13	0.55	1.22	0.67
Residence							
Rural Non-Farm	39	1.15	0.53	1.15	0.59	1.31	0.95
Farm or Ranch	20	1.24	0.78	1.15	0.67	1.15	0.67

Note. Pretest sample mean = 1.17; posttest sample mean = 1.15; retrospective sample mean = 1.15.

TABLE 37

MEANS OF THE AMPHETAMINE USE DIFFERENCE SCORES[a]
BY AGE, GENDER AND RESIDENCE
(N=59)

Variable	No.	Test 1 Pretest minus Posttest	Test 2 Posttest minus Retrospective	Test 3 Pretest minus Retrospective
Age				
14 and Under	21	–0.14	–0.29	–0.42
15 and Older	38	+0.13	0.00	+0.13
Gender				
Male	14	–0.14	–0.14	–0.28
Female	45	+0.08	–0.08	0.00
Residence				
Rural Non-Farm	39	0.00	–0.15	–0.15
Farm or Ranch	20	+0.10	0.00	+0.10

Note. It was anticipated that the respondents would score lower on the posttest and higher on the retrospective pretest than on the pretest, resulting in a positive score value for Text 1 and a negative score value for Test 2 and Test 3.

[a]A negative mean value indicated increased amphetamine use reported between the compared tests.

TABLE 38

DEMOGRAPHIC COMPARISON OF THE SAMPLE GROUP AND THE "DROP-OUT" GROUP

Variables	Classification	Sample (N=59) No.	%	"Drop-out" (N=27) No.	%	X^2
Age						0.9
	14 and Under	21	35.6	11	40.7	
	15 and Older	38	64.4	16	59.3	
Gender						5.17*
	Male	14	23.7	11	40.7	
	Female	45	76.3	16	59.3	
Residence						0.86
	Rural Non-Farm	39	66.1	16	59.3	
	Farm or Ranch	20	33.9	11	40.7	

Note. $X^2(1)$ critical = 3.84
*$p < .05$

youth on the "drop-out" group, 11 or 41 percent were male and 16 or 59 percent were female. The chi-square analysis determined there were significant gender differences between the OCYE youth in the sample group and those in the "drop-out" group, $X^2(1) = 5.17$, $p < .05$ (X^2 critical value = 3.84). The percentage of males in the "drop-out" group was significantly higher than in the sample group.

The respondents identified their place of residence as either a farm or ranch home with 10 acres or more, or a rural non-farm home. In the sample group, 20 or 34 percent lived on a farm or ranch. Thirty-nine or 66 percent lived in a rural area but not on a farm or ranch. In the "drop-out" group, 11 of the youth or 41 percent lived on a farm or ranch. Sixteen or 59 percent lived in a rural area but not on a farm or ranch. The chi-square analysis indicated there were no significant residence differences between the OCYE youth in the sample group and the "drop-out" group, $X^2(1) = .86$, $p > .05$, $X^2(1)$ critical = 3.84.

The decision was to reject the hypothesis for significant gender differences between the sample group and the "drop-out" group. The percentage of males who remained in the study was lower than the percentage who discontinued the research project. There were no significant age or residence differences determined.

Hypothesis 6. There are no significant pretest drug use score differences between the OCYE youth in the sample group and in the "drop-out" group.

The chi-square analyses indicated no significant pretest drug use score differences between the sample group and the "drop-out" group for the following drugs: cigarettes, alcohol, inhalants, marijuana, barbiturates, tranquilizers, cocaine and PCP. Significant drug use score differences between the two groups were determined for: smokeless tobacco, amphetamines, opiate-narcotics, and hallucinogens. Table 39 summarizes these results.

TABLE 39

COMPARISON OF PRETEST DRUG USE BETWEEN THE SAMPLE GROUP AND THE "DROP-OUT" GROUP

Description	Sample (N=59) No.	%	"Drop-out" (N=27) No.	%	X^2
Drugs					
Smokeless Tobacco[a]	3	05.1	6	22.2	6.17*
Cigarettes	22	37.3	7	26.0	0.86
Alcohol	28	47.5	15	55.6	0.49
Inhalants[b]	0	00.0	1	03.7	2.21
Marijuana[a]	6	10.2	2	07.4	0.17
Barbiturates[b]	1	01.7	2	07.4	1.80
Tranquilizers[b]	1	01.7	1	03.7	0.36
Amphetamines[a]	3	05.1	5	18.5	4.24*
Cocaine[b]	0	00.0	1	03.7	2.21
Opiate-Narcotics[b]	0	00.0	2	07.4	4.65*
Hallucinogens[b]	0	00.0	2	07.4	4.65*
PCP[b]	0	00.0	1	03.7	2.21

Note. $X^2(1)$ critical = 3.84

[a]25% of the cells have expected counts less than 5.

[b]50% of the cells have expected counts less than 5.

*$p < .05$

In the sample group, three youth or five percent reported frequent use of smokeless tobacco as compared to six youth or 23 percent in the "drop-out" group. The chi-square test value was $X^2(1) = 6.17$, $p < .05$, $X^2(1)$ critical = 3.84. This result was likely related to gender differences in the use of smokeless tobacco and the gender differences found between the sample group and the "drop-out" group.

Frequent use of amphetamines was reported by three subjects or five percent of the sample group as compared to five youth or 19 percent of the "drop-out" group, $X^2(1) = 4.24$, $p < .05$. None of the youth in the sample group reported frequent use of opiate-narcotics as compared to two youth or seven percent of the "drop-out" group, $X^2(1) = 4.65$, $p > .05$. Similar results were found for hallucinogenic use. None of the sample group reported frequent use as compared to two or seven percent of the "drop-out" group, $X^2(1) = 4.47$, $p < .05$, $X^2(1)$ critical= 3.84.

The decision was to reject the hypothesis for smokeless tobacco, amphetamines, opiate-narcotics and hallucinogens. There were significant pretest drug use score differences between the OCYE youth in the sample group and in the "drop-out" group.

Summary

Fifty-nine junior high and senior high school age students participated in the OCYE evaluation research project in the spring of 1990. The purpose of the study was to determine if the OCYE prevention program was successfully affecting change in the drug knowledge, drug attitudes, drug resistance skills, and drug use patterns of the youthful participants.

A 43 item questionnaire was used to collect the data which were analyzed with the following statistical tests: chi-square, t-test, Friedman's Test of Concordance, McNemar's Test for Significance of Changes, and analysis of variance (ANOVA). Differences between the pretest, posttest and retrospective pretest responses of the sample group were reported.

Four hypotheses were examined and comparisons were made between younger teens and older teens, male and female respondents, and rural farm and rural non-farm youth. A post hoc comparison examined the demographic and pretest drug use score differences between the 59 boys and girls in the sample group and an additional 27 boys and girls who discontinued participation in the research project following the collection of pretest data. Tables 2 through 39 provide detailed descriptions of the statistical results.

Drug knowledge was not increased through participation in the OCYE program. The youth in this study had well defined attitudes toward drugs and drug use and there was little change indicated in their drug attitudes from pretest to posttest. No significant differences were determined between the pretest and posttest use of drug refusal skills.

The drugs identified as most frequently used by the respondents were: alcohol, cigarettes, marijuana, smokeless tobacco, and amphetamines. No differences were determined between the pretest, posttest, and retrospective pretest self-reported use of these drugs.

No significant differences in drug knowledge, drug attitudes and drug refusal skills were found between the sexes. Except for smokeless tobacco, no gender differences were determined for drug use. No significant differences between the younger teen and older teen, rural farm and rural non-farm youth were determined for the variables drug knowledge, drug attitudes, drug refusal skills, and drug use.

The post hoc comparison indicated a significantly higher percentage of males in the "drop-out" group than in the sample group. The youth in the "drop-out" group used some drugs such as smokeless tobacco, amphetamines, opiate-narcotics, and hallucinogens more frequently than the youth in the sample group as determined by a comparison of pretest drug use scores.

CHAPTER V

SUMMARY AND DISCUSSION

Introduction

The Oklahoma Community Youth Effort (OCYE) was developed by 4-H youth specialists at Oklahoma State University in response to state and national initiatives to expand prevention and intervention programs to more youth. Evaluation was an integral part of this comprehensive program designed to address multiple issues such as: adolescent suicide, school dropouts, social pressure, and drug use.

This study targeted the outcome or short term effects of the OCYE program as implemented in three Northeastern Oklahoma communities. Based on the program objectives, the purpose of this evaluation research project was to determine if the OCYE was successfully affecting change in the drug knowledge, drug attitudes, drug resistance skills, and drug use patterns of the youthful participants.

Researchers and educators tended to agree that to be effective drug prevention education must be a coordinated effort of family, school, church, law-enforcement, and the community (Pellow and Jengelski, 1991). Yet, as noted in the literature, community-based prevention programs were seldom evaluated nor were the findings published (Goodstadt, 1989).

Fifty-nine boys and girls enrolled in grades seven through 12 participated in a repeated measures (pretest, posttest, retrospective pretest) drug survey during the spring of 1990. The rural farm and rural non-farm respondents ranged in age from 12 to 19.

A 42 item closed-end or restricted questionnaire was administered three times by the researcher during the OCYE community meetings. The instrument contained four open-end questions for the youths' personal responses to hypothetical offers to use drugs. The data were collected, from the students, by the investigator, and analyzed by the Oklahoma State University Computer Center.

The results of the statistical tests (chi-square, t-test, Friedman's Test of Concordance, McNemar's Test for Significance of Changes, and analysis of variance (ANOVA) were reported on tables and four hypotheses were examined and discussed. A post hoc comparison presented the demographic and pretest drug use score differences between the 59 boys and girls in the sample group and an additional 27 boys and girls who discontinued participation in the research project after the pretest.

Evaluations of single drug prevention program efforts, reviewed in the literature, often yielded little or no results (Tobler, 1986). Comparisons of dissertation and nondissertation literature (Rosenthal and Rubin, 1980; Smith, 1980) determined that dissertations showed smaller effect sizes.

Analysis of the data, collected in this study, established little in the way of statistical significance. To better understand and interpret these results, the investigator surveyed the instructors of the three OCYE groups regarding their presentations of the curriculum materials. The responses to this survey (Appendix E) and some of the researcher's observations during the data collecting sessions were included in the discussion of major findings, conclusions and recommendations.

Major Findings

Drug Knowledge

It was anticipated that boys and girls completing the OCYE program would demonstrate more accurate factual information about drugs and drug issues than on the

pretest. It was generally agreed that most treatments produced increases in knowledge (Bangert-Drowns, 1988; Goodstadt, 1989, 1986; Milgram, 1987), although a variety of studies (DeJong, 1987; Hansen et al., 1988; Rhoads and Jason, 1987; Schaps et al., 1982) clearly reported no results.

In this study, the analysis of variance indicated no significant differences between the pretest and posttest drug knowledge scores of the sample group, $F(7,51) = .88$, $p > .05$, $F(7,51)$ critical = 2.20. The drug knowledge pretest mean for the 15 item questionnaire was 5.78 and the posttest mean was 5.14. No significant differences were found between the male and female, younger teen and older teen, rural farm and rural non-farm youth on either pretest or posttest drug knowledge.

The OCYE youth appeared to be more knowledgeable of the tobacco test items than they were of the items relating to alcohol, other drugs, and Oklahoma statutes. For example, on the pretest, 100 percent of the respondents correctly identified chewing tobacco and snuff as cancer-causing agents. On the posttest, more than 75 percent of the youth answered all four tobacco items correctly.

Three of the questionnaire items about alcohol were correctly answered by 75 percent or more of the students. On the posttest, 53 percent identified "blackouts" or amnesia as a symptom of alcoholism indicating a possible need for more focused information on alcoholism as an addiction and a disease.

On the pretest, 10 percent of the youth exhibited factual information about steroids which may inhibit bone development in adolescents. While the correct response rose to 32 percent on the posttest, a need for more reinforcement of this subject was clear. The fact that Oklahoma schools were currently testing students for steroid use gave further support for drug prevention programs to emphasize the dangers of steroid use.

In general, the youths' knowledge of drugs other than tobacco and alcohol was low. Although the OCYE curriculum focused on public policies as they affected youth, the

respondents in this study lacked both pretest and posttest knowledge of Oklahoma statutes related to drug use.

The relatively high level of knowledge about tobacco and tobacco products was more likely attributed to other factors than to participation in the OCYE program. It was possible that the OCYE instructors knew more about tobacco than other drugs and felt more comfortable with familiar subject matter. However, other contributors probably were: various intense media campaigns, product warning labels, restricted tobacco use in public places, and reduction in tobacco use among the adult population. Lohrman and Fors (1986) suggested environmental factors promoted and reinforced prevention goals.

A survey of the OCYE instructors revealed that they perceived themselves as less knowledgeable of the "hard drugs" than the students. As a result, they tended to avoid teaching the curriculum as written. One instructor was observed using drug information materials from the Boy Scouts of America.

Drug Attitudes

The OCYE youth in this study had well developed attitudes toward drugs and drug use which were not changed over time. The statistical tests (t-test, chi-square, Friedman's) determined no significant differences between the pretest and posttest responses of the sample group for any of the 10 attitude test items. A chi-square analysis of friends' drug use matched with self-reported drug use proved inconclusive. Statistical tests for significant differences between the age groups, the sexes, and the rural farm and rural non-farm youth were not conducted for two reasons. First, there was a high level of agreement or concordance among the subjects. For example, on the pretest, 93 percent of the students indicated that it was dangerous to drink alcohol or to use other drugs when driving. Second, the sample size was smaller than anticipated and the chi-square analyses cell count was small for the multiple response items. Frequencies and percentages, and/or sums of ranks were reported and differences were noted in the test results, when appropriate. As an

illustration, girls ranked parents as their fifth choice among the best teachers of drug information. Boys ranked parents as their first choice.

In this study, the youth expressed less accepting attitudes toward drugs and drug use than was expected, even at pretest. Ninety percent of the sample group expressed the opinion that marijuana use should be illegal regardless of age. In comparison, 49 percent of the high school seniors in a national survey (Johnston et al., 1989) said marijuana use should be a crime.

It was evident, from the survey results, that the OCYE youth had previously participated in a variety of drug prevention experiences and the majority (97 percent) of the respondents said that these previous drug education experiences made them less interested in trying drugs. Still, on completion of the OCYE, 69 percent of the sample group wanted to know more about drugs and how they affected the mind and body.

The drug education experience mentioned least often (of 9 possible choices) was a neighborhood or community drug education course and community youth leaders were ranked ninth out of 13 as best teachers of drug information. The youth failed to recognize the OCYE as a community drug prevention program (at posttest, only 24 percent reported having taken part in a neighborhood or community drug education course) and their opinion of volunteer youth leaders as drug educators was not improved by participation in the OCYE.

Parents were ranked among the top five best teachers of drug information, although less than half of the youth (46 percent) indicated that they had talked about drugs with parents or other adult family members in the last three years. In addition, it was noted that the youth in all three groups were less than enthusiastic about the OCYE curriculum parental involvement activities (Appendix F). After all the data were collected and reviewed, the investigator questioned the youth about these findings. Their responses were unanimous. They wanted to discuss drugs and drug issues with their parents or caregivers but any mention of drugs in the home instantly brought "more grief than it was worth."

While Schultz and Wilson (1973), Johnston et al. (1989), and Pruitt et al. (1991) found friends' use of drugs to be highly correlated to personal drug use, the results of this study were not so clear. A chi-square with matching determined statistical significance for self-reported use of cigarettes matched with friends' use of tobacco products, $X^2(1) = 4.71$, $p < .05$, posttest $X^2(1) = 4.57$, $p < .05$, $X^2(1)$ critical = 3.84. Significance was also determined for self-reported use of marijuana matched with perceived use of marijuana by friends; pretest $X^2(1) = 14.61$, $p < .01$, $X^2(1)$ critical = 6.64; posttest $X^2(1) = 6.23$, $p < .05$. Significance was not determined for smokeless tobacco (likely due to gender differences in use), alcohol, amphetamines, cocaine or any of the other drugs surveyed.

Drug Refusal Skills

Three of the four drug refusal skill items on the questionnaire were open-end. On the posttest, the subjects were expected to demonstrate the use of four different refusal skills which appeared throughout the OCYE drug use curriculum materials. Two of these refusal skills, (1) say no or say no and give a reason and (2) leave the difficult situation, were used by the subjects in making pretest responses.

The McNemar's Test for Significance of Changes determined no significant differences between the pretest and posttest responses of the subjects for any of the three hypothetical offers to use drugs test items. The refusal skill strategies of (3) bargain or barter and (4) call on a friend or ally for assistance were not adopted by the OCYE youth. No significant differences were indicated for the levels of the variables age, gender, or residence.

The investigator used a follow-up phone call to the OCYE instructors to inquire about the use of refusal skill practice activities such as role plays. Although role playing activities were emphasized in the OCYE materials, they were apparently not performed during any of the meetings of the three groups participating in the research project.

In response to the question, "How do you react when others offer you drugs?," 42 percent of the sample (pre and posttest) indicated that no one had ever offered them drugs. The "no one has ever offered drugs to me" response choice appeared before alcohol and cigarettes were identified as drugs among the other response choices. It was possible that the respondents perceived "drugs" not to include alcohol and tobacco products. Twenty-nine percent of the sample acknowledged some difficulty in saying "no" to offers to use drugs and the chi-square analysis determined no significant differences between the pretest and posttest responses of the total group, $X^2(5) = 8.74$, $p > .05$, $X^2(5)$ critical = 11.07. This was a predictable finding since the youth apparently had no experience in responding to either hypothetical or "real life" offers to use drugs during the time of the research project.

Drug Use

As noted in the literature, outcome of short term effect studies seldom produced evidence of change in adolescent drug use. Nevertheless, it was hoped that the youth in this study would report less frequent use of alcohol, tobacco, and other drugs following the completion of the OCYE program.

A rating scale which listed 13 different categories of drugs was used to determine the differences between pretest, posttest, and retrospective pretest drug use. The retrospective pretest involved asking the subjects (after the intervention) to respond as they could have, would have, or should have prior to the intervention. Several researchers (Howard, 1982; Howard et al., 1979; Pohl, 1982; Rhoads & Jason, 1987) suggested that the use of a retrospective pretest minimized response shift bias and yielded more accurate self-report data than the traditional pretest. A repeated measures analysis of variance was used to analyze the personal drug use scores of the respondents. Means of the drug use difference scores were reported for the more frequently used drugs. The youth, in this

study, used drugs in eight of the 13 categories so infrequently that statistical analysis was impractical. This was considered a positive finding.

Not surprisingly, alcohol was "the drug of choice" for the OCYE youth in this research project. Thirty-seven of the subjects or 63 percent reported current use (once or twice a year or more often) of alcohol. Fifty-three percent reported frequent use (once or twice a month or more often) of alcohol. Frequent use of alcohol was reported by 64 percent of the high school seniors in a national study (Johnston et al., 1989).

The repeated measures analyses of variance for pretest, $F(7,51) = 1.48$, $p > .05$; posttest, $F(7,51) = 1.18$, $p > .05$; and retrospective pretest, $F(7,51) = 1.16$, $p > .05$, $F(7,51)$ critical = 2.20, alcohol use determined no significant differences between the younger teen (age 14 and under) and older teen (age 15 and older), male and female, rural farm and rural non-farm youth. All of the youth reported higher alcohol use on the retrospective pretest than they reported on the pretest. However, the t-test for mean difference scores revealed no statistical differences for any of the variables.

Twenty-six of the respondents or 44 percent reported current use of cigarettes and 40 percent indicated frequent use. In comparison, 29 percent of high school seniors in a national survey (Johnston, et al., 1989) reported using cigarettes during the month prior to the survey.

The repeated measures analyses of variance for pretest, $F(7,50) = .90$, $p > .05$; posttest, $F(7,50) = 1.26$, $p > .05$; and retrospective pretest, $F(7,50) = 2.15$, $p > .05$, $F(7,50)$ critical = 2.20, cigarette use determined no significant differences between the younger teen and older teen, male and female, rural farm and rural non-farm youth. The t-test of mean difference scores determined no significance for any of the variable comparisons and none of the variable groups followed the anticipated pattern of scoring lower on the posttest, and higher on the retrospective pretest than on the pretest.

Current use of marijuana was reported by nine of the subjects or 15 percent of the sample. Ten percent reported frequent use. In a study by Johnston et al. (1989), 18

percent of the high school seniors used marijuana frequently. Pruitt et al. (1991) found 21 percent of a rural Central/East Texas sample had tried marijuana. Of the eighth and tenth grade students surveyed by Pruitt et al. (1991), seven percent were identified as heavy marijuana users.

The pretest, posttest, and retrospective pretest analyses of variance determined no significant differences between the identified variable groups. The pretest analysis result was $F(7,51) = .44$, $p > .05$. The posttest analysis result was $F(7,51) = .92$, $p > .05$ and the retrospective pretest result was $F(7,51) = 1.16$, $p > .05$, $F(7,51)$ critical = 2.20. The t-test of mean difference scores determined no statistical significance.

Eight of the subjects or 14 percent of the OCYE youth reported current use of chewing tobacco or snuff. One-half or seven percent reported frequent use. Williams et al. (1986) found that 35 percent of the male and three percent of the female rural youth in 13 Arkansas high schools used smokeless tobacco on a regular basis. In general, reported use of smokeless tobacco was erratic across all three tests and the only consistent result was the difference in use between male and female subjects. The pretest, posttest, and retrospective pretest results were: $F(1,51) = 13.59$, $p < .01$; $F(1,51) = 11.94$, $p < .01$; $F(1,51) = 20.50$, $p < .01$, $F(1,51)$ critical = 7.17, respectively.

The t-test for smokeless tobacco use difference scores determined several of the variable comparisons to be close to statistical significance (not in the anticipated direction) but nothing close to significance was determined for the pretest minus the retrospective pretest measure.

Current amphetamine use was reported by seven of the subjects or 12 percent of the group. Frequent use was reported by five percent. Johnston et al. (1989) noted that 4.6 percent of high schools seniors used non-prescription amphetamines frequently. Pascale et al. (1985), Johnston et al. (1988) and others determined females used amphetamines more frequently than males. In this study, no significant differences in amphetamine use were found between the identified variable groups.

The youth in this study appeared to be using drugs somewhat less frequently than youth in other research projects (Johnston et al., 1988; Pascale et al., 1985; Williams et al., 1986). However, the discovery that there was no significant difference in drug use between the younger teens (age 12 to 14) and the older teens (age 15 to 19) was a disturbing finding.

Post Hoc Comparison

Bry (1978) and Johnston et al. (1989) noted the need to obtain data from absentees and "drop-outs." A chi-square was used to determine if there were demographic and pretest drug use score differences between the 59 boys and girls in the sample group and the 27 boys and girls who discontinued participation in the research project following the pretest. It was suspected that the percentage of males who remained in the study was significantly lower than the percentage of males who "dropped out" and that the percentage of the youth who used drugs was higher in the "drop-out" group than in the sample group.

The results of the post hoc comparison determined no significant age or residence differences between the OCYE youth in the sample group and the "drop-out" group. The percentage of males in the "drop-out group" was significantly higher than in the sample group, $X^2(1) = 5.17$, $p < .05$, $X^2(1)$ critical = 3.84.

The chi-square analyses determined no significant pretest drug use score differences between the sample group and the drop-out group for the following drugs: alcohol, cigarettes, inhalants, marijuana, barbiturates, tranquilizers, cocaine, and PCP. Significant differences in drug use were determined for smokeless tobacco, amphetamines, opiate-narcotics and hallucinogens. The noted gender differences between the two groups likely accounted for the higher percentage of smokeless tobacco use among the youth in the "drop-out group." The higher percentage of amphetamine, opiate-narcotic and hallucinogen use was more difficult to interpret, particularly since there were no differences noted in the drugs used most frequently by both groups. Possibly, the youth who

research project held more responsible attitudes toward report accuracy. An analysis of the data and decision summary appears as Table 40. Both the original hypotheses and the post hoc comparisons were included.

Conclusions and Recommendations

Based on the major findings, several conclusions were drawn. Recommendations were made for changes in the instrument design, the method of research and the OCYE program format and delivery.

Instrument Design

Continued evaluation of ongoing OCYE groups was recommended. The instrument used in this study was designed so that it could be divided into four separate parts for use in future evaluation. Following the completion of this research project, it was suggested by the investigator that the instrument be divided into five parts and that some survey items be revised. The five recommended divisions were: drug knowledge, drug attitudes, drug harmfulness, drug refusal skills, and drug use. It was further recommended that OCYE groups be allowed to choose one of these target areas for evaluation and that the results be forwarded to the state 4-H office. While continued evaluation of OCYE groups was important, it was concluded that not every group needed to participate in a comprehensive evaluation research project.

No changes were suggested for the drug knowledge section of the instrument. It was noted that if an OCYE group was not planning a pretest/posttest evaluation of drug knowledge that the pretest data alone could assist the instructors in planning what drug information needed the most emphasis.

TABLE 40

ANALYSIS OF DATA AND DECISION SUMMARY

Hypotheses	Data Sources (Instrument, Appendix C)	Analysis Techniques	Decision
1. There are no significant differences between pretest and posttest drug knowledge scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.	Drug Knowledge Section 2 Fifteen true/false statements	Repeated measures analysis of variance (ANOVA) 2 x 2 x 2 analysis of variance (ANOVA) Means of the drug knowledge difference scores	Fail to reject
2. There are no significant differences between pretest and posttest drug attitude scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.	Drug Attitudes Section 3 Ten item opinion-naire	t-test Chi-square Friedman's Test of Concordance Chi-square with matching	Fail to reject Results of friends' drug use matched with self-use inconclusive
3. There are no significant differences between pretest and posttest drug refusal skill scores; and no significant score differences between the male and female, younger teen (age 14 and under) and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.	Drug refusal skills Section 4 Four open-end questions	McNemar's Test for Significance of Changes	Fail to reject

TABLE 40 (Continued)

Hypotheses	Data Sources (Instrument, Appendix C)	Analysis Techniques	Decision
4. There are no significant differences between pretest, posttest, or retrospective pretest drug use scores; and no significant score differences between the male and female, younger teen (age 14 and under), and older teen (age 15 and over), rural farm and rural non-farm OCYE youth.	Drug Use Section 5 Thirteen item scale	Repeated measures analysis of variance (ANOVA) Means of the drug use difference scores t-test	Fail to reject for all drugs except smokeless tobacco, where gender differences were determined
5. There are no significant demographic differences between the OCYE youth in the sample group and the "drop-out" group.	Demographic differences Section 1	Chi-square	Reject for gender differences
6. There are no significant pretest drug use score differences between the youth in the sample group and the "drop-out" group.	Drug Use Section 5 Pretest	Chi-square	Reject for differences in smokeless tobacco, ampheta-mines, opiate-narcotics, and halluci-nogens

Several improvements were identified for the drug attitude instrument. First, it was suggested that question No. 24 be removed and redesigned to measure change in the perceived harmfulness of drugs over time. This new instrument was needed to demonstrate altered attitudes toward all drugs and the so called "gateway" drugs (tobacco, alcohol and marijuana) in particular. A Likert type scale was recommended.

The two remaining rank order questions in the drug attitude instrument needed simplification as younger boys and girls had difficulty with the concept of rank order. It was suggested that questions No. 22 and No. 29 be revised to allow ranking all items listed or simply marking three, or possibly five choices, with an "X."

From test responses and follow-up group discussions, it was concluded that tobacco products and alcohol were not perceived as drugs by many of the OCYE youth. Question No. 23 on the attitude instrument and question No. 30 on the drug refusal skill instrument needed rewording to clarify the perception of alcohol and tobacco as drugs.

No changes were suggested for the drug use portion of the instrument. A notation was made in the OCYE curriculum materials that use of the drug survey required approval of the Oklahoma State University Institutional Review Board and parental consent. A sample parental consent form, which could be adapted to include the names of local sponsors was included. The consent form used in this study was judged to be lengthy and confusing for some of the parents with low levels of reading skills. However, all of the information on the consent form was required by the Review Board and no recommendations were made for revision.

Method of Research

The retrospective pretest used to survey self-reported drug use determined no drug use responses which were statistically different from the traditional pretest or the posttest. The youth in this study may not have tended to under-report drug use on the pretest for two

reasons. First, both the youth and their parents were assured of the anonymity of the responses. Second, the youth were familiar with some of the adult and teen leader/sponsors and were likely comfortable in making accurate pretest responses. From a practical perspective, continued use of the retrospective technique in future OCYE evaluations was not recommended. Some of the youth in this study expressed resentment toward the "third test."

It was suggested that future evaluation research projects include a control group. It was also recommended that participation in a research project receive greater emphasis so that volunteer leaders and sponsors recognized the need for control.

Program Format and Delivery

The OCYE prevention program needed more promotion to Extension staff and volunteers. Efforts needed to be made to expand the program units to urban youth and to multi-cultural youth. It was suggested that appeal of the program to males be examined.

It was concluded that the training of leaders and sponsors had been inadequate. They clearly needed more in-depth information on drugs. For this research project, a community drug counselor volunteered to serve as a resource assistant at all three OCYE sites but the leader/sponsors declined this offer. It was recommended by the investigator that the instructors receive more intensive training and that "back-up" assistance not be refused. It was further concluded that peer leaders should be "drug free." Peer leaders who were admittedly "hung over" from a pre-graduation party added little to the environmental support of the prevention goals.

The youth in this study indicated that ex-addicts should be used as instructors. They also expressed the opinion that parents were learning resources. There was a definite need for non-threatening parental involvement and evaluation at the process level was recommended.

were not. "Pressure from friends" was ranked as the number one reason for drug use. This finding lent support for inclusion of refusal skill strategies in future prevention programs, and particularly the OCYE. It was recommended that the support unit "Peer Pressure" continue to be offered with the drug issues studies.

Lastly, it was concluded that obtaining additional data from program study "drop-outs" as well as "drop-ins" would be beneficial to both future evaluation and future programming. Methods of reducing attrition needed to be explored.

Summary

Drug knowledge, drug attitudes, drug refusal skills, and drug use were not impacted by the OCYE prevention program as implemented in this research project. The retrospective pretest responses were not significantly different from the traditional pretest or the posttest responses. With the exception of gender differences in the use of smokeless tobacco, no significant differences between the male and female, younger teen and older teen, rural farm and rural non-farm youth were determined for the variables drug knowledge, drug attitudes, drug refusal skills or drug use.

The results of this study demonstrated that although the majority of the adolescents participating in the evaluation had taken part in a variety of drug education experiences, they still wanted to know more about drugs and how they affected the mind and body. The results also demonstrated that the youth lacked specific knowledge about drugs and drug issues as well as the necessary skills to refuse drugs. The investigator recommended that the results of this outcome or short term effects evaluation be linked to evaluation results at the process and impact levels for: enhancement of the existing program, development of a more useful program, and continued assessment of the prevention strategies.

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APPENDIXES

APPENDIX A

OCYE PROGRAM TABLE OF CONTENTS

INDEX

APPENDIX B

OCYE PROJECT PROPOSAL

Return to Ora Lee Kirk
Northeast District Office
No later than March 1 or
one week prior to first
OCYE meeting, whichever
is earlier.

County _____

OCYE Contact _____ Name

_____ Address

_____

_____ Phone(s)

Date of first meeting _____ 1st week

Date of last Issue completion _____ 5th week

Date of last meeting _____ 6th week

Location of meeting _____

_____

_____

_____

Number of youth expected to participate _____

Time frame for meetings _____

Comments _____

_____

_____

_____

APPENDIX C

INSTRUMENT

OKLAHOMA COMMUNITY YOUTH EFFORT

Evaluation Survey

Hello! Welcome to the Oklahoma Community Youth Effort (OCYE). During the next few weeks you will be studying the issues: tobacco, alcohol, other drugs, peer pressure and decision making. You are among the first Oklahoma youth to have fun using these new program materials -- and your opinion about OCYE is very important.

If you choose to, you may also take part in an investigation called "Drug Prevention: An Evaluation of the Oklahoma Community Youth Effort." This study is part of an evaluation research project designed to determine if there are any changes in your drug knowledge, drug attitudes, drug resistance skills and drug use as a result of the OCYE.

You will be surveyed three times during the program. Twice you will be asked about your drug knowledge, drug attitudes, and drug resistance skills. You will be asked about your personal drug use three times. There will also be questions about the drugs used by your friends.

Your answers to the questions will be CONFIDENTIAL. No one will know what you answered. No adults or youth in this community will see the responses. Parental consent to participate in the research is needed because: the use of some drugs is illegal (against the law) and you are considered a "minor". Do you have the signed consent forms from your parents or guardians?

Although your parents have given their consent, you may choose not to be a part of the research project. Look over the attached questionnaire. These are the questions you will be asked. If you decide not to be part of the investigation, you may still enjoy the OCYE program. Being a part of this study is voluntary and you may withdraw at any time. In a few minutes, I will ask you for your verbal consent. (Pause). Do you want to complete this survey?

If you answered yes, please read the directions and begin answering the questions. If you answered no, your program sponsors have another activity planned for you.

Directions

This questionnaire is divided into sections.

You will not be timed on any section or group of questions. However, please do not skip around. Start with question one (1.) and go through all of the questionnaire.

Please read and carefully follow all directions for each question.

For most questions, you are to indicate your answer(s) by marking X's or filling in a number. For a small number of questions, you are to write a few sentences.

Some questions have one answer, others have more than one. Completely erase any answer you wish to change.

The blanks at the far left of the page are for computer coding. Please do not write in them.

When you have completed the questionnaire, put it in the envelope that has been given to you and seal the envelope.

Examples

Numbers and blanks in this section are for coding. Do not write in this space.

The questions in this section are examples of how you are to answer questions throughout the leaflet.

Example 1

How old were you when your first brother or sister was born? (Please X one blank or fill in the correct number.)

_____ 1 _____Years old
2 _____I have no younger brothers and sisters.

Example 2

What do you plan to do after you finish high school? (Mark an X on one blank line.)

_____ 1 _____Go to college or university
2 _____Go to vocational or technical school
3 _____Get a full time job
4 _____Probably will not graduate from high school

Section No. 1
The questions in this section ask you to identify yourself, not by name, but by age, sex, etc. Mark an X by your best answer to each question or write in the correct word or number.

Numbers and blanks in this section are for coding. Do not write in this space.

_____ 1

1. What is your date of birth?_____
Month Day Year

2. What is your age?

_____ 2
1 _____12 or under
2 _____13 or older

3. Are you:

_____ 3
1 _____Male?
2 _____Female?

_____ 4

4. Where do you live?
1 _____Live in a city or town with 25,000 people or more
2 _____Live in a rural area or live on a farm or ranch with less than 10 acres.
3 _____Live on a farm or ranch with 10 acres or more.

Section 2 Drug Knowledge

Fifteen statements about drugs are listed below. Circle "T" if you think the statement is true. Circle "F" if you think the statement is false.

_____ 5 1 2 T F 5. Chewing tobacco and snuff are safer than cigarettes because they have less nicotine.

_____ 6 1 2 T F 6. A person cannot die from drinking too much alcohol.

_____ 7 1 2 T F 7. A cold shower and coffee will sober up a drunk.

_____ 8 1 2 T F 8. In treatment, inhalant dependents have the highest rate of recovery.

_____ 9 1 2 T F 9. Alcohol and barbituates are stimulants ("uppers").

_____10 1 2 T F 10. Marijuana has more cancer causing agents than tobacco.

_____11 1 2 T F 11. Nicotine is a poisonous, mind-altering, addictive drug.

_____12 1 2 T F 12. Everyone who drinks a lot has "blackouts" or amnesia (loss of memory).

_____13 1 2 T F 13. Anabolic steroids increase muscle and bone growth.

_____14 1 2 T F 14. Chewing tobacco and snuff cause cancer in the mouth.

_____15 1 2 T F 15. Persons age 17 or younger, convicted on a first drug or alcohol offense will have their driver's license suspended for one (1) year or until age eighteen, whichever is longer.

_____16 1 2 T F 16. Tobacco is not physically addictive; smoking, chewing and dipping are just habits people get into.

_____17 1 2 T F 17. In Oklahoma, it is legal for young people to smoke at age 16.

_____18 1 2 T F 18. A 12 ounce can of beer has less alcohol than a 5 ounce glass of wine and a lot less alcohol than a mixed drink with 1.5 ounces of liquor.

_____19 1 2 T F 19. A first violation for possession of LSD (a misdemeanor) is punishable by confinement for not more than one (1) year.

THANK YOU! Go on to the next section.

Section 3 Drug Attitudes

This section asks questions about what you think of drugs and drug use. Please mark an X or a number on the lines to the left for your answer(s).

20. How many of the following nine drug education experiences have you had in the last three years? Mark all that apply.

_____20 1 _____ A neighborhood or community drug education course
_____21 2 _____ A special course at school on drugs
_____22 3 _____ Classes or "rap sessions" at church
_____23 4 _____ Watched a television show about drugs
_____24 5 _____ Read a book or magazine article on drugs
_____25 6 _____ Saw a film or video on drugs
_____26 7 _____ Read feature articles in the newspaper

_____27	8	_____ Talked with parents or others in family about drugs
_____28	9	_____ Talked to friends about drugs

21. Would you say that the drug information you received in school or in other programs has...

_____29	1	_____ Made you less interested in trying drugs.
	2	_____ Not changed your interest in trying drugs.
		_____ Made you more interested in trying drugs.

22. The following is a list of reasons young people give for using drugs. Rank the <u>five</u> you think are most likely. Use No. 1 for the most likely and 2-5 for less likely.

_____30	1	_____ Pressure from friends to use drugs
_____31	2	_____ Curiosity, to see what it is like
_____32	3	_____ To escape or get away from problems
_____33	4	_____ Everyone does it
_____34	5	_____ Want to get high
	6	_____ To have some fun
	7	_____ To help get into things like music or dancing
	8	_____ To feel less nervous or tense, to relax
	9	_____ To help express feelings
	10	_____ Boredom
	11	_____ Loneliness
	12	_____ To control anger or other feelings
	13	_____ To act like an adult
	14	_____ Spiritual insight
	15	_____ To rebel against authority -- parents, the law

23. What drugs do your friends use? Mark <u>all</u> that apply.

_____35	1	_____ None of my friends use drugs
_____36	2	_____ Some of my friends use tobacco products
_____37	3	_____ Some of my friends use alcohol
_____38	4	_____ Some of my friends use marijuana
_____39	5	_____ My friends use a lot of drugs like cocaine and amphetamines

24. Here is a list of drugs people use. Rank the five you think are most harmful. Use No. 1 for the most harmful and 2-5 for less harmful.

_____40	1	_____ Chewing tobacco or snuff
_____41	2	_____ Cigarettes
_____42	3	_____ Alcohol (beer, wine, liquor)
_____43	4	_____ Inhalants (glue, aerosol sprays, nitrous oxide)
_____44	5	_____ Marijuana
	6	_____ Barbituates (phenobarbital)
	7	_____ Tranquilizers (Valium, Librium)
	8	_____ Amphetamines (Crank, diet pills)
	9	_____ Cocaine (Crack, Rocks)
	10	_____ Opiate - Narcotics (Codeine, heroin)
	11	_____ Hallucinogens (LSD, Mescaline)
	12	_____ PCP (Angel dust)

25. Which one of the following statements best describes how you feel about drinking or drugging and driving?

_____45	1	_____ Drinking alcohol or taking drugs can improve your driving ability
	2	_____ Alcohol and drugs have no effect on driving
	3	_____ It is really dangerous to drink or take drugs when driving

26. Which one of the following statements best describes how you feel about the legality of marijuana use?

_____46	1	_____ It should be legal for everyone to use marijuana
	2	_____ Marijuana use should be legal at age 16
	3	_____ Marijuana use should be legal at age 18
	4	_____ Marijuana use should be legal at age 21
	5	_____ Marijuana use should not be legal for anyone

27. How much influence do you think advertising has on drug use?

_____47	1	_____ Advertising makes young people want to use alcohol and tobacco.
	2	_____ Advertisements make no difference one way or the other.
	3	_____ Advertising has a negative ("turn off") effect on decisions to use alcohol and tobacco.

28. Would you like to learn more about drugs and how they affect the mind and body?

_____48	1	_____ No, I don't need or want to know about drugs
	2	_____ No, I already know a lot about drugs
	3	_____ Yes, I need and want to know about drugs
	4	_____ Yes, but I already know a lot about drugs

29. Rank the five best groups of people to teach information about drugs. Use No. 1 for the best and 2-5 for others.

_____49	1	_____ Parents
_____50	2	_____ Brothers and sisters
_____51	3	_____ Friends
_____52	4	_____ Young people
_____53	5	_____ Doctors and nurses
	6	_____ Police officers and lawyers
	7	_____ School teachers
	8	_____ Religious leaders (ministers or teachers)
	9	_____ Drug Counselors
	10	_____ Ex-drug addicts
	11	_____ Community youth leaders (Scouts, 4-H)

Section 4
RESISTANCE SKILLS

This section is about how you react to offers to use alcohol, tobacco and other drugs. The first question asks for you to mark an "X" by your answer. The next three items ask for your written response to peer pressure situations. Write your answers in the space provided.

30. How do you react when others offer you drugs?

_____54	1	_____ I like using drugs, so I always say yes.
	2	_____ No one has ever offered drugs to me.
	3	_____ It is easy for me to say "no" to all drug offers.
	4	_____ I can say "no" to offers to use cocaine or amphetamines but it is hard to say "no" to offers to use tobacco or alcohol.
	5	_____ I can say "no" to offers to use tobacco or alcohol but it is hard to say "no" to offers to use marijuana, cocaine or other drugs.
	6	_____ It is hard for me to say "no" to offers to use drugs, even when I don't want to use them.

31. You are definitely overweight. You have tried to cut down on your eating but you just can't. A friend offers you some pills which will keep you from being hungry. He says they will help you study too.

What will you say? What will you do?

_____55 1 _____

_____56 2 _____

_____57 3 _____

_____58 4 _____

32. READ the cartoon

Pretend that YOU are the kid in the DARK sweatshirt and that the other two kids are your friends from school.

Imagine that what is shown in the cartoon really happened.

Now, in the space below, WRITE DOWN WHAT YOU WOULD SAY TO ANSWER WHAT YOUR FRIENDS HAVE SAID.

____59 1 _____

____60 2 _____

____61 3 _____

____62 4 _____

33. READ the cartoon

Pretend that YOU are the kid in the DARK sweatshirt and that the other two kids are your friends from school.

Imagine that what is shown in the cartoon really happened.

Now, in the space below, WRITE DOWN WHAT YOU WOULD SAY TO ANSWER WHAT YOUR FRIENDS HAVE SAID.

_____63 1 _____

_____64 2 _____

_____65 3 _____

_____66 4 _____

_____

34. DRUG USE

13 drugs are listed below.
On the right, mark an "X"
in the one box which best
describes your use of each drug.

		Never use	No longer use	Use once or twice a year	Use once or twice a month	Use once or twice a week	Use once or twice a day	Use often each day
_____67	CHEWING TOBACCO OR SNUFF "Red Man" "Skoal"	1	2	3	4	5	6	7
_____68	CIGARETTES	1	2	3	4	5	6	7
_____69	ALCOHOL Beer Liquor Wine "Coolers"	1	2	3	4	5	6	7
_____70	INHALANTS Aerosols Amyl/Butyl- Solvents nitrite	1	2	3	4	5	6	7
_____71	MARIJUANA Pot THC Grass Hashish	1	2	3	4	5	6	7
_____72	BARBITUATES Phenobarbital "Downers"	1	2	3	4	5	6	7
_____73	TRANQUILIZERS Valium Miltown Librium	1	2	3	4	5	6	7
_____74	AMPHETAMINES Methamphetamine Crank Diet pills	1	2	3	4	5	6	7
_____75	COCAINE Crack Freebase Rocks	1	2	3	4	5	6	7
_____76	OPIATE - NARCOTICS Heroin Codeine Demerol Morphine	1	2	3	4	5	6	7
_____77	HALLUCINOGENS LSD MDA/MMDA Acid Mescaline	1	2	3	4	5	6	7
_____78	PCP Angel Dust Loveboat	1	2	3	4	5	6	7
_____79	OTHER Please list drug name on the right	1	2	3	4	5	6	7

Please place your questionnaire in the provided envelope and seal it.
Thanks for your cooperation.

APPENDIX D

PARENTAL CONSENT FORM

PARENTAL CONSENT FORM

Dear Parent or Guardian:

Your teen or preteen child is participating in the Oklahoma Community Youth Effort, a comprehensive prevention program designed to address multiple issues such as adolescent suicide, school dropouts, social pressure, and drug use. The program is being sponsored in your community by:

_____

_____

The objectives of the Oklahoma Community Youth Effort (OCYE) include helping teens to: develop leadership skills; provide service to others and the community; believe in themselves and make the most of their potential; value a healthy mind and body; become self-sufficient, productive members of society; understand problems facing them and their communities; encourage one another to make positive decision; and develop solutions to problems that affect daily lives.

During the next few weeks your child will be studying five specific issues: tobacco, alcohol, other drugs, peer pressure and decision making. Your child is among the first Oklahoma youth to have fun using these new drug prevention materials -- and both your opinion and your child's opinion about the OCYE are very important.

If your child chooses to, he or she may also take part in an investigation called "Drug Prevention; An Evaluation of the Oklahoma Community Youth Effort." This study is part of an evaluation research project designed to determine if there are any changes in your child's drug knowledge, drug attitudes, drug resistance skills and drug use, as a result of the OCYE.

Your child will be surveyed three times during the program. Twice he or she will be asked about personal drug knowledge, drug attitudes, and drug resistance skills. Your child will be asked about personal drug use three times. There will also be questions about drug use among your child's friends.

Your child's answers to the questions will be CONFIDENTIAL. No one will know what he or she answered. No adults or youth in your community will see the responses. The questionnaires will be ANONYMOUS. Once your child has answered the questions, he/she will place the survey forms in an envelope and seal it. The sealed envelopes will be collected by the researcher and returned to Oklahoma State University where the data will be entered into a computer for analysis. The original forms will be destroyed. None of the results will be reported by community and no comparisons between schools or communities will be made.

Because the use of some drugs is illegal, your consent is needed for your child to participate in the research. If you decide not to give your consent for your child to take part in the evaluation project, your child can still enjoy the OCYE program. If you decide to

give parental consent, your child may choose not to participate or choose to withdraw from the study at any time.

If you have any questions regarding legal rights you may contact:

Ms. Terry Maciula
001 Life Science East
Oklahoma State University
Stillwater, OK 74078
405-744-5700

Any questions about the program content or the research project may be directed to your local sponsor or:

Ms. Suellen Scott
State 4-H Department
Room 205, Poultry Science
Oklahoma State University
Stillwater, OK 74078
405-744-7960

These are examples of the questions your child will be asked to respond to. Please look them over carefully before you sign the consent form.

T F 1. Chewing tobacco and snuff are safer than cigarettes because they have less nicotine.

2. Would you say that the drug information that you received in school or other educational programs has...

_____Made you less interested in trying drugs
_____Not changed your interest in trying drugs
_____Made you more interested in trying drugs

3. You are definitely overweight. You have tried to cut down on your eating but you just can't. A friend offers you some pills which will keep you from being hungry. He says they will help you study too. What will you say? What will you do?

4. How would you best describe your use of alcohol (including beer, wine, "coolers" or whiskey)?

_____Never used
_____No longer use
_____Use once or twice a year
_____Use once or twice a month
_____Use once or twice a week
_____Use once or twice a day
_____Use often each day

OKLAHOMA COMMUNITY YOUTH EFFORT
PARENTAL CONSENT FORM

Two copies of this form are being provided. Please sign them both and keep one, along with the attached letter for your records. Return the other signed form with your child at the next OCYE meeting scheduled _____

Please read the statements below and sign your name along with the date and time.

I have read and fully understand the attached letter and the parental consent form. I given my consent for my child,

_____ to take part in the OCYE evaluation research
(Child's name)

project. I give my consent for my child to answer questions on the surveys about drug knowledge, drug attitudes, drug resistance skills, and personal drug use.

I understand that being part of this study is voluntary and that I may withdraw my consent at any time.

Date: Time:

Signed:_____
(Signature of Parent or Guardian)

THANK YOU FOR YOUR CONSIDERATION. Remember, if you decide not to give your consent, your child may still participate in the OCYE drug prevention program.

APPENDIX E

INSTRUCTOR SURVEY

TO:

RE: OCYE Pilot Program

FROM: Suellen Scott

Thank you for your support of the Oklahoma Community Youth Effort. Your participation in the evaluation project is greatly appreciated.

We would like to know more about how the lessons were taught in order to interpret the data. Please answer the enclosed questionnaire and return it to Sheila Forbes before July 9. Thank you again for your participation.

ss/bb

Please review the lesson plans and describe any additions or deletions you made to the following OCYE lesson units.

Peer Pressure

Decision Making

Alcohol

Tobacco

Drugs

How were the 4 refusal skills (includes just say "no" or say no and give a reason) in the Lesson topic "Tobacco" presented? For example: Were youth given opportunities to practice these skills in role plays or other activities?

Make any comments or suggestions for change here. Thank you!

APPENDIX F

PARENTAL INVOLVEMENT ACTIVITY

OKLAHOMA COMMUNITY YOUTH EFFORT (OCYE)

Family Focus: Talking to Adults About Drugs

Family Focus is designed to help parents/adults and young people talk about drugs and drug use. Children who start to use drugs (tobacco, alcohol, marijuana) at a young age are at higher risk for becoming chemically dependent (addicted or "hooked") clear, well-understood rules and consequences about drug use. Spend the next few minutes answering the five questions on the sheet for your OCYE teen or preteen.

1. Do you think drugs are a problem in our community?

   Yes, because _____

   _____

2. Did you feel pressure to try drugs when you were my age?

   Yes. In what ways? _____

   _____

   No.

3. What are some ways to which adults might influence people my age to stay away from drugs?

   _____

   _____

   _____

4. What are three reasons why you don't want me to use drugs?

   _____

   _____

   _____

5. What are our family rules for drug use and the consequences for breaking the rules?

Drug Rule Consequences for violation

Tobacco

Alcohol

Marijuana

Other

VITA

Suellen Scott

Candidate for the Degree of

Doctor of Philosophy

Thesis: DRUG PREVENTION: AN OUTCOME EVALUATION OF THE OKLAHOMA COMMUNITY YOUTH EFFORT

Major Field: Home Economics

Biographical:

Personal Data: Born in Roanoke, Virginia, May 4, 1943, the daughter of Walter H. and Maybelle S. Scott

Education: Graduated from Jefferson High School, Roanoke, Virginia, June, 1961; attended James Madison University and University of Virginia from 1961 to 1965; received a Bachelor of Science degree in General Home Economics from James Madison University in 1965; attended Virginia Polytechnic Institute and State University, University of Oklahoma, and Oklahoma State University; received a Master of Science degree in Family Relations and Child Development from Oklahoma State University in May, 1979; attended Northeastern State University and Oklahoma State University; completed requirements for the Doctor of Philosophy degree in Home Economics from Oklahoma State University in December, 1991.

Professional Experience: Extension Agent, Home Economics, in Rockbridge and Arlington Counties, Virginia, 1965 to 1969; Extension Home Economist, McAlester, Carter and Rogers Counties, 1970 to 1980; District Home Economics Program Specialist, Muskogee, 1981 to 1988; State 4-H Prevention Specialist, 1989 to 1990; Extension Graduate Research Assistant 1991 to the present.

Professional Organizations: American Home Economics Association, National Association of 4-H Agents, Epsilon Sigma Phi, Phi Kappa Phi, and Omicron Nu Honor Societies.