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The purpose of the study was to describe the drug knowledge of selected ninth grade high school students according to the Family Life Publications Drug Knowledge Inventory, and to compare these test scores with six sociological indices: age, sex difference, sibling relationship, race, high school academic standing, and social status. The design of the study allowed for testing 100 students who had previously completed a drug education course and for testing 100 students who had no previous formal drug education course.

The instrument used in this study were the Family Life Publications Drug Knowledge Inventory, a standardized drug knowledge inventory test with national high school student norms; a questionnaire to derive the sociological factors; and the Hollingshead Two Factor Index to determine the social status of the participating students.

The subjects were 200 boys and girls enrolled in ninth grade history courses at Kennedy High School and at Atkins High School, Winston-Salem/Forsyth County School System, Winston-Salem, North Carolina. Subjects who agreed to participate in the study were randomly selected. Random selection by the principals included students who had completed a drug education course and students who had not experienced classroom teaching involving drugs.

DRUG KNOWLEDGE AND SELECTED SOCIOLOGICAL FACTORS AMONG HIGH SCHOOL STUDENTS

by

Michael V. Wychules

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APPROVAL PAGE

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CHAPTER I

INTRODUCTION

There is concern in our society about the use, misuse, and abuse of drugs among youth. Official and voluntary health agencies have developed a variety of programs directed towards combating drug abuse. Educators have inaugurated courses designed to inform students about drugs and to favorably influence attitudes and behavior toward drug use. An initial policy in developing a drug education course should be based on students' present knowledge about or concerning drugs. Published research has not described high school students' drug information.

The writer's first encounter with the drug problem occurred while teaching in elementary school education near the New York City area. Many girls in the sixth grade admitted taking amphetamines, without their physician's consent, to lose weight. During the author's two years as a high school basketball coach, players conveyed concern about their peers and sports "heroes" who were abusing drugs. Interest in students' knowledge or lack of knowledge about drugs, and the source of information about drugs, continues to be of concern to the author.

CHAPTER I

INTRODUCTION

There is concern in our society about the use, misuse, and abuse of drugs among youth. Official and voluntary health agencies have developed a variety of programs directed towards combating drug abuse. Educators have inaugurated courses designed to inform students about drugs and to favorably influence attitudes and behavior toward drug use. An initial policy in developing a drug education course should be based on students' present knowledge about or concerning drugs. Published research has not described high school students' drug information.

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In our present society, we consider ourselves as intelligent human beings whose actions are controlled by reason. Similarly, we consider our health related behavior as a function of our ability to judge between beneficial and detrimental behaviors. Although individuals do not always make sensible decisions regarding health related behavior, decisions are partially based on knowledge. A premise that health educators hold is that health knowledge favorably influences an individual's attitudes, values, and behavior. Drug education courses should be offered to students so that they may become more knowledgeable in order to properly deal with decision making situations.

STATEMENT OF THE PROBLEM AND HYPOTHESES

The purpose of the study was to describe the drug knowledge of selected high school students attending Kennedy High School where no drug education program had been given and Atkins High School where a drug education program had been given; Winston-Salem, North Carolina, according to the Family Life Publications Drug Knowledge Inventory; and to compare these test scores with six sociological indices; age, sex difference, sibling relationship, race, high school

academic standing, and social status, as identified by education and occupation of the head of household.

The investigation tests the following hypotheses statistically treated by using the Fisher t test for significant differences of mean scores:

1. There is no significant difference in the mean scores for subjects between Kennedy High School, Atkins High School, and The Family Life Publications Normative High School sample.

2. There is no significant difference in the mean scores for subjects between Kennedy High School, Family Life Publications Normative High School sample, and Atkins High School.

3. There is no significant difference in the mean age between Kennedy High School, Atkins High School, and the Family Life Publications Normative High School sample.

4. There is no significant difference in the mean scores for subjects between Kennedy High School where no drug education program had been given and Atkins High School where a drug education program had been given.

5. There is no significant difference in the mean scores for age between Kennedy High School and Atkins High School.

6. There is no significant difference in the mean scores for sex between Kennedy High School and Atkins High School.

7. There is no significant difference in the mean scores for sibling relationship between Kennedy High School and Atkins High School.

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9. There is no significant difference in the mean scores for race and sex between Kennedy High School and Atkins High School.

10. There is no significant difference in the mean scores for academic standing between Kennedy High School and Atkins High School.

11. There is no significant difference in the mean scores for social status between Kennedy High School and Atkins High School.

12. There is no significant difference in the mean scores for age within Kennedy High School and within Atkins High School.

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within Atkins High School.

16. There is no significant difference in the mean scores for academic standing within Kennedy High School and within Atkins High School.

17. There is no significant difference in the mean scores for social status within Kennedy High School and within Atkins High School.

DEFINITION OF TERMS

Drug knowledge will be represented by the responses of the subjects to the Family Life Publications Drug Knowledge Inventory,* (22) developed by McHugh and Williams.

Social status will be measured by the Hollingshead Two Factor Index (10) which is derived by the educational background and occupation of the subjects' head of household.

The selected sociological factors involved in the study will be derived from a questionnaire, adapted by the author from a questionnaire format originally developed by Dr. Pearl Berlin (1); School of Health, Physical Education and Recreation; University of North Carolina at Greensboro; Greensboro, North Carolina, that includes the six indices cited in the statement of the problem.

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*FLPI hereafter refers to the Family Life Publications Drug Knowledge Inventory.

ASSUMPTIONS UNDERLYING THE RESEARCH

The FLPI (22) is, in fact, a valid and reliable measure of high school students' drug knowledge.

Knowledge is an influential factor in determining students' attitudes and behavior toward drug use.

SCOPE OF THE STUDY

This investigation is concerned with the drug knowledge of 200 high school students from the Winston-Salem/ Forsyth County School System, Winston-Salem, North Carolina. The FLPI (22) will represent drug knowledge. This inventory particularly emphasizes questions related to addictive and habit forming drugs. The research was conducted during the spring of 1972.

SIGNIFICANCE OF THE STUDY

In the review of literature, studies have not described the drug knowledge of high school students. Published research has not delineated the relationship between sociological factors and drug knowledge.

The investigation will also lend evaluative criteria to the participating schools. School authorities may determine, from the results, whether a drug education course should be offered in the future in their respective schools, and the cognitive value of courses offered in the past.

LIMITATIONS OF THE STUDY

Social status was determined only on the basis of education and occupation of the head of household of the subjects participating in this investigation. There were only six sociological indices (age, sex, race, sibling relationship, academic standing, and social status) used in this investigation.

CHAPTER II

REVIEW OF LITERATURE

The concept of Health Education involves the total being: physical, social, emotional, and spiritual, with its primary goal to help man achieve his full potential in life. This concept concerns itself with the application of health knowledge to help promote capabilities of problem solving and decision making based upon an individual's rational rather than irrational r[illegible]ility (26).

It should be noted that health education is concerned with more than imparting health knowledge in helping students in their problem solving and decision making processes.

The Review of Literature will focus specifically on the role of knowledge in health education; health surveys conducted to measure students' health knowledge, attitudes and behavior; theoretical bases for drug use and abuse; and the role of schools in combating drug problems.

Health educators have become acutely cognizant that the possession of knowledge is essential if individuals are to develop attitudes and behaviors favorable to the achievement of optimal levels of health (9).

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Kilander (16) felt that the dissemination of health information should not be minimized by health educators and

that knowledge should be an essential part of health education. Kilander emphasizes that:

> Since it is impossible to form in school all the specific health habits needed by an individual, knowledge is essential in aiding the individual to make satisfactory responses to new situations. Knowledge is needed in furnishing rational motives for attitudes and habits. . . . When knowledge stimulates self-analysis and serves as a motivation, then it is the type of knowledge desired in health education. (16:3)

In the review of literature, studies have not described the drug knowledge of high school students. Published research has not delineated the relationship between sociological factors and drug knowledge.

HEALTH SURVEYS

Southworth, Latimer and Turner (33) conducted one of the first major surveys of the health knowledge, practices, attitudes, and interests of 15,480 tenth, eleventh, and twelfth grade students in 27 different high schools in Massachusetts in 1941-1942. The purpose of the study was to evaluate the health activities in operation, to determine the physical status of youth, and to utilize the information gathered for the planning of a more effective health program. Results from the study indicated that there was a slight improvement of student health knowledge from grade level to grade level. There was no significant difference in the health knowledge between male and female subjects. (33:119)

Neher (24) administered a health knowledge and attitudes inventory to 2,415 junior and senior high school students in Los Angeles in 1944. Neher reported that those students with average or above average intelligence and students of a high socio-economic level scored higher than their counterparts. There was a statistically significant difference between male and female scores, with the females scoring higher. Students whose fathers were in professional and managerial occupations ranked high. There was a slight positive correlation between health knowledge and attitudes and the stated health status of the students involved in the study.

In 1959, Rich (29) conducted a health survey to determine the health instructional needs of Los Angeles High School students. From the data recorded from student personal health histories, it was evident that drugs, especially stimulants and depressants, was an area needing greater emphasis in the classroom. It was from this study and similar findings that researchers testing for health knowledge included sections on drugs in their surveys.

Kilander (15), from testing over a 25 year period of elementary, high school, and college students' health knowledge, revealed that females were better informed than males on matters of health knowledge. Kilander also found that intelligence was a key factor in higher scores. Another significant finding was that the home environment

influenced the degree to which students obtain and recall a large variety of misconceptions and superstitions in relation to health knowledge. (15:29)

As early as 1937, Kilander advocated drug education testing in the area of stimulants and depressants. He felt that elementary and high school students should receive more health education from qualified health educators and that elementary education teachers should receive some health education during college before teaching. (16:28)

Johns (11) helped conduct a study to evaluate the effectiveness of the school health program in selected schools and colleges in the Los Angeles area between 1954 and 1961. One aspect of the study was to appraise student health behavior in terms of knowledge and attitudes. In using LeMaistre's Health Behavior Inventory as a pre-test and post-test, Johns reported that girls scored higher than boys and achievement in health knowledge appeared to be greater than attitude development.

The School Health Education Study (32) which was conducted in 1962 tested over five hundred thousand sixth, ninth, and twelfth grade students on Health Behavior Inventories. The results of the study showed that some common misconceptions in the area of drugs were that the use of pep pills and sleeping pills does not require supervision, that commercial medicines are safe to purchase if the label clearly indicates the dose and content, or if

recommended by a pharmacist and that legalization guarantees the reliability of any advertised medicine. Some highlights of the findings were that high school seniors excelled on questions related to stimulants and depressants. The percentage of correct responses in each of the 12 health areas was higher for girls than for boys. The results of the study indicate that there is a need for Health Education to be implemented, K - 12, in all of our school systems throughout the United States.

Pethel (28) conducted a study involving drug knowledge of high school students at Casa Roble High School, Orangevale, California, from 1969 to 1970. Pethel compared student drug knowledge and attitudes to drug abuse before and after exposure to a drug abuse educational unit lasting eight weeks. Results showed that before instruction the ninth grade students had a total of 39.8% correct responses to a drug knowledge test and after instruction the students had a 46.0% correct response to testing. Female subjects scored higher than males in both pre-tests and post-tests.

McHugh (23) designed the Family Life Publications Drug Knowledge Inventory, and analyzed the results of 2,010 subjects that were tested. McHugh reported that the average person tested could only answer correctly slightly better than half of the questions. McHugh anticipated this lack of knowledge:

> I felt we are doing a lot of talking--using the term "drug abuse" without knowing what we are talking about, that's why I developed the Drug Knowledge Inventory. (23:113)

Significance of the Health Survey Findings

The majority of surveys conducted to determine health knowledge levels of students have shown that females achieved higher levels of health knowledge than males. Grade level also influences the health knowledge possessed by students. Some studies revealed that average or above average intelligence is a factor in the amount of health knowledge students possess. In relation to drug education, many of the earlier studies conducted included only questions concerning stimulants and depressants. Indications are that there seems to be some inconsistency in the measuring instruments which are available in the area of health education. Future research should focus on the relationship of health education methodology and other selected variables, such as teachers, length of courses, that may have an effect upon learning.

YOUTHFUL DRUG USE AND ABUSE

We are living in a drug oriented society. Many people turn to drugs to alleviate sociological, physical and psychological problems encountered in our rapidly changing environment. There are a number of conflicting forces encountered by the youth of today in connection with

decision making processes concerning the use of drugs. Drug abuse is of particular concern to both educators and parents. These concerns may be viewed from sociological, psychological and pharmacological aspects.

Sociological Aspects

Although there are substantial differences in our social environments in the United States, drug abuse no longer has cultural or economic boundaries. In relation to factors inherent in the current American social environment, Kaplan (12) suggests that today there are growing similarities in youthful drug use:

> Drug abuse, in past years, was considered to be a phenomenon of the city--particularly the inner-city or slum areas. Crime, juvenile delinquency, and drug abuse are associated with poverty, deprivation, broken homes, lack of parental supervision, insecurity, lack of opportunity for creative or productive activity, and boredom. In the suburbs, they are associated with affluence, over-indulgence, permissiveness, broken homes, lack of parental supervision, insecurity, failure to utilize opportunities for creative and productive activity, and boredom. Though there are differing socio-economic and cultural aspects of the inner-cities, urban areas, and suburbs which tend to lead to differing abuses, there are notable similarities in drug abuse. (12:8)

Psycho-social Aspects

Life in a highly competitive and technological society creates an environment which places many demands of productivity on the youth of today. Regardless of the sociological environment of the individual mentioned by Kaplan (12), Buckman (3) asserts that the pressures placed

upon the adolescent in today's society are the primary factors leading to youthful drug abuse:

> The adolescent is under enormous pressure of conflictual material from within. The conflicts have to do with emerging adult sexuality, aggression, dependency-independency struggle, and identity diffusion. The adolescent may be using a variety of drugs in order to belong to a group or sub-culture, in order to modify threatening eruption of underlying mental illness, and in order to cope with aggressive drives. He may also use drugs for meditation, for self-exploration, and as a conscious or unconscious attempt at self-destruction. (3:26)

Pharmacological Aspects

In the past 25 years, hundreds of new drugs have been discovered and introduced to the public. These new drugs, in many instances, have revolutionized the medical profession. However, like other revolutions, the pharmacological revolution carries with it the risk of abuse. Ray (27) postulates that our present drug taking behavior, in part, can be related to rapidly developing pharmacological revolutions that have taken place in the past century. The first pharmacological revolution that Ray alludes to is the development of the vaccines which helped eradicate the major communicable diseases. The second revolution was the discovery of the sulfa drugs, penicillin, and broad-spectrum antibiotic drugs. The third revolution was the advent of the tranquilizers for the treatment of the mentally ill. The fourth pharmacological revolution, the oral contraceptive, is, as Ray asserts, still developing and has had a

great deal to do with our present drug taking behavior. An example of this type of behavior can be witnessed with the elimination of the fear of unwanted pregnancy which has encouraged sexual activity. This increase in sexual activity is often accompanied by the use of drugs that lower an individual's inhibitions. However, Ray feels that:

> . . . of more interest, here, however, is the fact that for the first time potent chemicals clearly labeled as drugs are being widely used by healthy people because of their social convenience. (27:4)

Patterns of Drug Use

It has previously been pointed out that drug abuse has permeated virtually every social segment of our society. It is still advantageous, however, to view the patterns of youthful drug use in our society. Einstein (5), in discussing patterns of youthful drug use, points out that the frequency of drug use and the amount of drug which is used are dependent upon many factors, including:

1. the type of drug used and its effect
2. the availability
3. the manner in which the drug is administered
4. the cost of the drug
5. the type of drug user
6. the physical and psychological conditions of the drug user
7. the communities' attitude toward the particular drug (5:9).

Einstein (5) cautions people not to look at the problem of drug abuse in a stereotyped manner so that we do not view drug abusers as a select group (5:10). To grasp

the full meaning of Einstein's message, one needs only to look at the abuse of legal drugs, by many members of our society, such as amphetamines for the reduction of weight, barbiturates which have led to overdoses and possible suicide, and other socially acceptable drugs like alcohol and tobacco whose health related problems are multiple.

Factors Related to Youthful Involvement in Drugs

Many drug authorities believe that alienation, resulting from societal conflicts such as the youth-adult communication gap, is one of the major underlying reasons for the apparent increase in drug use in America. Van Dyke (34) hypothesizes that the reasons young people become involved with drug abuse and groups them into the following categories:

1. availability
2. the fad element or the "in" thing to do for kicks
3. a way of showing rebellion
4. natural curiosity--new experience-promises of pleasures
5. as a solution to the pressures of society
6. as a way to escape the realities of life
7. as the price of group approval
8. emotional instability or personality inadequacy
9. living in a permissive, affluent, freedom-seeking society
10. association with drug abusers and
11. searching for a deeper insight into the meaning of life (34:introduction).

Risk Taking Behavior

In another viewpoint toward youthful drug use Nowlis (25) points out that somewhat overlooked is the significance of risk taking behavior by young people.

Nowlis (25) states that:

> Another important aspect of current society is its attitude toward risk. Students have grown up in an atmosphere which takes risks for granted and assumes that there is little that can be done without risk. Risk-taking ideally involves rational decisions about the utility of a certain action, decisions which are based on informed estimates of both the value of the goal and the probability of gain or loss, of reward or disaster. (25:52)
>
> Thus an adequate description of the risks involved in drug use may serve as an effective deterrant to some but have no effect or even the opposite effect on others. (25:53)

One of the most serious characteristics of risk taking behavior is in the false illusion of harmlessness seemingly portrayed. Often when an individual who is abusing drugs would like to stop the practice, he finds that certain drugs have a psychological or physiological stronghold over him that he cannot overcome.

To further indicate the relationship of risk taking behavior and the motivational aspects of youthful drug use, Keniston (14) asserts that:

> Drug use is no different from any other form of human behavior, in that a great variety of distinct motives can cooperate to produce it. The particular weight of each of these motives and the way they are combined differs in each individual. Furthermore, drug use is affected not only by motives and forces within the individual, but by what is happening outside of him in his interpersonal environment, and in the wider social and political world. (14:122)
>
> Along with the focus on the present and "existential" values goes a very great tolerance for experimentation. Youth is increasingly defined (by youth itself) as a time for exploration, trial and error, and deliberate efforts to enlarge, change or expand personality. (14:129)

Health educators have almost come to the crossroads where they will have to present meaningful alternatives to students engaged in drug related risk taking behavior.

Religious Factors

In reference to the lack of traditional religious following as a contributing factor to the present youthful drug use in our society Marin and Cohen (21) state:

> This particular generation is a collective dividing point, uprooted and ungrounded but still relatively free of corrosive guilt and shame. Their parents still believe in someone and something over them; they need and revere it, but their children cannot understand that idea. It is almost as if they are the first real Americans, set free at last from Europe and somehow fatherless and confused and with nothing to grasp save their own incomplete vision of things. . . . (21:11)

It is almost as if the youth of today were trying to lead a God-like existence in trying to achieve mystical and spiritual revelations through the experimentation of drugs to better understand themselves and the meaning of life.

Family Problems

Affluence has helped create many family dilemmas that Americans are not accustomed to and have been unable to cope with the magnitude of such problems. Cohen (4) indicates these problems have become especially prevelant in the area of child-rearing and child teaching:

> Many of those attracted to the drug experience suffer from anhedonism, the inability to derive pleasure from ordinary existence, and alienation, the inability to find meaning within or outside oneself. These are serious deficits, and in a young person they

> lead to serious disorders of behavior or character. From childhood through adolescence we are failing (1) to provide goals appropriate to our times, (2) to train the emotions and the senses, and (3) to set limits. Therefore, goallessness, an inability to enjoy, and an attenuated sense of social responsibility predispose to chemical escape, chemical hedonism, and the search for chemical enlightenment. (4:120)

Summary of Youthful Drug Use and Abuse

In the Review of Literature concerning youthful drug use and abuse one can see the multitude of forces that interact from which the youth must make decisions about drug use. Youth must cope with social as well as psychological changes in their daily lives never experienced by previous generations.

There must be an acute awareness by each member of our society in relation to the factors previously mentioned about youthful involvement with drugs, if we are to begin to eradicate the drug dilemma in the United States. Through this awareness each member of society can do his part in helping individuals cope with their social, psychological, and intellectual environments.

In summarizing the complexity of the youth drug situation in America, Love (20) reminds us that:

> . . . the drug problem is a symptom of far deeper, more complex human problems. The real problem is not drugs but the people who use drugs. It is increasingly evident that people with problems--personal, social, and intellectual--use drugs, and it is the individual with his reason for using drugs that is the key to understanding abuse. (20:9)

THE ROLE OF EDUCATION

In relation to educational endeavors to help curb the youthful drug dilemma, authors are quick to point out that we should not overestimate the significance of pure transmission of knowledge. This is, in part, in disagreement with previously mentioned Health Education goals and purposes.

Russell (30), however, helps clarify the Health Education hypothesis by stating:

> Knowledge, the main commodity of the educator, is only infrequently a motivator in itself but is an absolute essential when motivation to change behavior is stimulated. The primary responsibility of the profession is still to provide knowledge and learning experiences so that individuals and groups, however they may be motivated, do not lack fundamental facts and understandings as bases for making choices when behavior change seems appropriate. (30:108)

Brotman and Suffet (2) contend that school systems should be aware of preventative drug education programs that proclaim to change or alter individuals' modes of behavior. Brotman and Suffet (2) maintain that programs designed for such purposes can have negative consequences (2:6).

When one looks at the positive and negative outcomes alluded to above, it is of grave necessity that communities seek drug education instructional programs that present an honest effort in meeting that particular community's needs. This would also include the qualifications of the school's existing teachers in teaching drug education

courses.

In looking at background considerations for drug programs Levy (18) maintains that:

> The best deterrent to drug abuse is the individual's value system and his assessment of the consequences associated with drug involvement. Decision making can be aided when sensitive teacher-pupil relationships based upon mutual understanding, integrity, and honesty are established. (18:3)

Fort (7) explains that maybe we should inspect more closely educational programs devised to combat drug abuse. Fort emphasizes that:

> The term "education" needs to be examined. What is education, and what is propaganda? How often, when we claim to be putting on educational programs or informing people are we instead adding to the problem by creating a climate of emotionalism and hysteria? We may actually be playing a kind of criminogenic role such as the sociologists ascribe to many of the laws governing drugs, i.e., instead of reducing drug use, it attracts some people to it, particularly the alienated or "deviant" young person, and adds to the likelihood of illicit drug use. (7:95)

In considering Levy's (18) and Fort's (7) comments about background considerations and inspecting drug educational programs, the next matter of significance would be at what age level should the implementation of drug education programs begin. Fort maintains that:

> We need immediately to institute, beginning no later than sixth grade and possibly even kindergarten, objective, factual programs of drug education dealing with the full context of mind altering drugs from alcohol to narcotics presented by specially trained, knowledgeable teachers. . . (6:227)

Regarding the implementation of drug education programs Hackett, Lewis, and Pierce (8) maintain that educators

should not be possessed with modifying students' behavior:

> One of the gross misconceptions or misdirections of many drug education programs in the schools and colleges is that they seem to feel obligated to shape student opinion or mold behavior. If it could be done, this would be an invasion of personal rights of decision making. A more proper goal is one of providing a source of accurate, reliable drug information and helping students to understand these facts and their implications as a basis for making their own rational decisions. The theory here is not one of influencing students to adopt a certain point of view, so much as encouraging them to base their decisions on careful analysis of the facts in relation to their value premises and life-styles. (8:8)

Thus far we have talked about the relative importance of background considerations, inspections of drug programs, and the implementation of drug programs. However, the relative chances of success of any drug education program many times rests squarely on the shoulders of the capabilities of the teachers involved in these programs.

Cohen (4) points to the significance of teachers presenting drug knowledge to students by stating that:

> The teacher, in addition to making the educative process as interesting, constructive, and alive as possible, can also have a great influence on the decision to take or continue to take drugs. He is often the confidant when parents are lacking or have failed to accept their role. The teacher may be the first to learn of, or notice, aberrant behavior due to drugs. He may be able to persuade his pupil by presenting factual information. This is no taboo topic. If reliable information about drugs is not obtained, questionable information will be gathered from street myths. (4:121)

Another viewpoint concerning the role of teachers by Marin and Cohen (21) indicates that teachers can play a key role in helping students overcome the drug involvement

and state that:

> What the young need is found in individuals, and not in programs. They need passionate and restless young teachers who are themselves allied with the young in the attempt to retrieve from oblivion the lost part of the self. What the young must find in teachers is what we all want as adults: camaraderie, ease, energy, sense, warmth, support, respect, authenticity and then, perhaps affectionate advice. (21:73)

Summary of the Role of Education

In summarizing the role of education there appear to be ideological conflicts arising out of whether primary interests of school systems should be selecting drug education programs in hopes that their teachers can successfully implement these programs, or, should the major emphasis be placed on the teacher's role, in looking at their capabilities, and the selection of drug education programs and materials secondary. Ideally, these decisions would be decided by a joint effort of students, entire school staff, parents, and the community.

In grasping the implications of this unified approach to the drug problem Klee (17) indicates that one hopeful sign for the future may lie with the students themselves by setting up student organizations that distribute factual information to their peers with the advice from drug authorities. (17:103)

Regardless of the approach undertaken Keniston (13) reminds us of the significance of meaningful alternatives to drugs by stating:

> . . . those of us who are critical of student drug abuse must demonstrate to our students that there are better and more lasting ways to experience the fullness, the depth, the variety and the richness of life than that of ingesting psychoactive chemicals. (13:128)

Concluding Statement

In conclusion, knowledge can be seen as a significant factor in developing an individual's attitudes and behavior toward drug use. Health surveys have indicated, which should help school systems in divising future drug education programs, that females were better informed on health knowledge tests than males; average or above average intelligence is a factor in the amount of health knowledge students possess; grade level also influences the amount of health knowledge possessed by students; and there appears to be a need for research in the area of health education methodology and its effect upon learning.

The literature concerning youthful drug use and abuse indicates that there are a number of conflicting forces placed upon youth, in our present society, from which youth must make rational decisions concerning drug use. It is the responsibility of students, educators, parents, and all members of the community to make a total commitment to the eradication of our present drug dilemma in the United States.

CHAPTER III

PROCEDURES

Purpose of the Study

The purpose of the study was to describe the drug knowledge of selected ninth grade high school students according to the Family Life Publications Drug Knowledge Inventory, and to compare these test scores with six sociological indices: age, sex difference, sibling relationship, race, high school academic standing, and social status. The design of the study allowed for testing 100 students who had previously completed a drug education course and for testing 100 students who had no previous formal drug education course.

SELECTION AND DEVELOPMENT OF INSTRUMENTS

In order to select an instrument that would determine the drug knowledge of the participating students in the investigation, a thorough and careful analysis of existing drug knowledge tests available was undertaken by the writer. The selection of the FLPI (22) proceeded from this analysis.

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The purpose of the study was to describe the drug knowledge of selected ninth grade high school students according to the Family Life Publications Drug Knowledge Inventory, and to compare these test scores with six sociological indices: age, sex difference, sibling relationship, race, high school academic standing, and social status. The design of the study allowed for testing 100 students who had previously completed a drug education course and for testing 100 students who had no previous formal drug education course.

SELECTION AND DEVELOPMENT OF INSTRUMENTS

In order to select an instrument that would determine the drug knowledge of the participating students in the investigation, a thorough and careful analysis of existing drug knowledge tests available was undertaken by the writer. The selection of the FLPI (22) proceeded from this analysis.

In comparing the FLPI (22) with various other existing drug knowledge tests, in the writer's opinion, there were several factors used as criteria in the selection of an inventory. The primary criterion used in the selection of the FLPI (22) was that there were established national norms on high school students who had taken the inventory. Secondly, the terminology used within the FLPI (22) items was not as physiologically oriented as other tests available and thus more readily comprehended by high school students. Thirdly, the other available tests over-emphasized items on alcohol and tobacco. The author does not wish to minimize the dangers involved in the abuse of alcohol or tobacco, but a more real concern for the health and welfare of youth in our society presently is the abuse of the more harmful drugs. The last factor used as criterion in the selection of the FLPI (22) was that it could be easily administered to large groups of students in a 25 minute period of time.

The FLPI (22) consists of 44 multiple choice questions divided into the following categories: addicting and habit forming drugs, barbiturates, opiates, tranquilizers, amphetamines, hallucinogens, marihuana, and questions of a general nature concerning drugs. The entire FLPI (22) instrument can be found in Appendix B.

The next item of concern was the development of a questionnaire to derive the sociological factors which would

relate to the drug knowledge of the students involved in the study. The writer originally adapted a questionnaire format developed by Dr. Pearl Berlin (1); School of Health, Physical Education, and Recreation; University of North Carolina at Greensboro; Greensboro, North Carolina. The questionnaire consisted of a nine question format as follows: 1. high school, 2. date of birth, 3. sex, 4-5. sibling relationship, 6. religion, 7. race, 8. high school academic standing, and 9. head of household, which involved the education and occupation of the parent or guardian.

The questionnaire and FLPI (22) were submitted to Mr. Harold Simpson (31); Assistant Superintendent of the Winston-Salem/Forsyth County School System; Winston-Salem, North Carolina, for his approval. From the items listed above on the original questionnaire, only number six, concerning religion, was deleted from the format. The final questionnaire that was administered to the subjects is shown in Appendix A.

The selection of a social index that would determine the social status of the students involved in the research was undertaken by the author. After a review of the existing social status indexes available that determine social status, it was the investigator's opinion that the Hollingshead Two Factor Index (10) seemed most suitable for this study. The Hollingshead Two Factor Index (10) is designed to use only occupation and education as a means of

determining social status. Since it was not allowable, in the Winston-Salem/Forsyth County School System, to question students about their parents' income, the Hollingshead Index (10) was most aptly suited for this particular study and thus was selected by the author.

NATURE OF THE SAMPLE

Mr. Harold Simpson (31), Assistant Superintendent of the Winston-Salem/Forsyth County School System; Winston-Salem, North Carolina, agreed to permit the administration of the FLPI (22) and questionnaire to 200 ninth grade students at Kennedy High School and Atkins High School; Winston-Salem/Forsyth County School System; Winston-Salem, North Carolina.

A general description of the health education program in the Winston-Salem/Forsyth County School System was outlined by Mr. Simpson (31). In grades one through six health is taught by the classroom teacher as an indirect learning experience, not as a scheduled subject. Grades seven through twelve receive health instruction in "blocks," generally consisting of a four week period. These health instruction blocks are taught either by the history, biology, or physical education teacher depending on the content area being covered during the block.

The students involved in the study were enrolled in a ninth grade history course in which they received health

instruction from the respective history instructor. According to Mr. Simpson, this procedure was carried out at Atkins High School, where the students had just completed a drug education block. Due to the sociological overtones interwoven in the current drug dilemma, the Winston-Salem/Forsyth County School System felt that the history instructors could best handle the drug education program.

The 100 students, selected at random by the principal, attending Kennedy High School had received no prior formal drug education from the school system before the author administered the FLPI and questionnaire. The 100 students, selected at random by the principal, involved in the study at Atkins High School had just completed a 15 class session programmed instruction drug education unit entitled, Drug Decision (19) produced by the Lockheed Aircraft Corporation in 1969.

In regard to the program design, the Lockheed Aircraft Corporation asserts that:

> The overall objective of Drug Decision is to create in the student an understanding and awareness of the problems and effects of drug abuse by increasing his cognitive store of knowledge about drugs and their uses, and then permitting the student to manipulate and explore this cognitive information in a simulated real-life environment. Through cognitive awareness and simulated experience with the effects of drugs, the students develop a negative view of drug use based on sound knowledge rather than emotional appeals. (19:1)

The Lockheed Teachers' Manual proclaims that for optimal attitudinal change in students that the materials be

presented over a 15 day period of 15 class sessions of approximately 45 to 50 minutes each. The limitations of the Lockheed program will be discussed in Chapter V.

ADMINISTRATION OF THE QUESTIONNAIRE AND FLPI

The FLPI (22) and questionnaire were administered in the spring of 1972 to a random sample selected by the principal of 200 ninth grade students at Kennedy High School and Atkins High School in Winston-Salem, North Carolina. The students attending Kennedy High School had no prior drug education program, while the students at Atkins High School had just completed the Lockheed drug program. The classification of the population by school, age, sex, sibling relationship, race, high school academic standing, and social status is shown in Table 1.

The writer met with the principals and history teachers in both Kennedy and Atkins High School to explain the purpose of the study and the procedures to be used in the administration of the FLPI (22) and questionnaire to the students participating in the investigation. The author administered the FLPI (22) and questionnaire in all testing sessions, with the assistance of the respective history teacher of the participating schools, to the students who were selected at random by the principals of each school.

The first step was to give the students directions in filling out the questionnaire. The author gave explicit

Table 1

Population Used in the Administration of the FLPI and Questionnaire by School, Age, Sex, Sibling Relationship, Race, High School Academic Standing and Social Status

Population by		Kennedy	Atkins
Age	13	1	1
	14	39	37
	15	53	56
	16	7	5
	17	0	1
Sex	Male	55	38
	Female	45	62
Sibling Relationship	Only child	11	7
	Youngest child	29	27
	Middle child	38	45
	Oldest child	22	21
Race	White	72	68
	Black	27	30
	Indian	1	0
	Other	0	2
Academic Standing	A	10	12
	B	39	41
	C	40	38
	D	11	9
Social Status	Upper class	7	6
	Upper middle class	12	2
	Middle class	31	20
	Lower middle class	32	45
	Lower class	18	27

directions to check each item on the questionnaire as a group before moving on to the next item. The student's name was not requested, in order that he might feel free to give his honest reaction to the item or question.

An explanation of the directions, as outlined step by step on the front page of the FLPI (22), was given orally by the writer before the testing began. The directions were given to all testing groups using exactly the same words. The directions can be found in Appendix C. Each student was given 25 minutes to complete the FLPI (22) and none of the students who had finished earlier were allowed to talk.

On March 27, 1972, and on April 1, 1972, the author administered the questionnaire and FLPI (22) to 100 students at Kennedy High School and to 100 students at Atkins High School, respectively. The principals selected students at random from all the ninth grade classes and scheduled four 50 minute periods for testing.

The random selection by the principals of students at both Kennedy and Atkins High School combined to provide a good cross-section of subjects in relation to the sociological indices previously mentioned.

TREATMENT OF THE DATA

The questionnaire data sheets were checked to make sure that the students followed the directions accordingly and that all items had been marked properly. The investigator then referred to the Hollingshead Two Factor Index (10) to classify the students in relation to social status from their head of household's education and occupation. The social status categories were as follows: upper class, upper middle class, middle class, lower middle class, and lower class.

The author converted the raw data recorded for sibling relationship and recorded the responses into the following categories: only child, youngest child, middle child, and oldest child.

The FLPI (22) items were marked and graded by the investigator with the number of correct responses being recorded on the basis of one to 44.

Due to the quantity of data, the author coded the raw data and utilized the data processing laboratory at the University of North Carolina at Greensboro for the remaining statistical results. Fisher's t test for difference between mean scores was used. The statistical results have been interpreted on the .05 level of confidence and a list of the tables can be found in Chapter IV.

An item analysis was undertaken by the writer to determine which drug category the students answered correctly most frequently and which drug category the students answered incorrectly most frequently. A discussion of the item analysis can be found in Chapter V. The item analysis can be found in Appendix D.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

Chapter III was concerned with the construction and administration of the instruments used in this study. The purpose of Chapter IV is to report the results obtained from the questionnaire and Inventory administered to a sample of two hundred ninth grade students selected at random by the principals in the Winston-Salem/Forsyth County School System, Winston-Salem, North Carolina.

CHAPTER IV

ANALYSIS AND INTERPRETATION OF DATA

In this chapter a comparison is made of the mean scores of the students involved in this study, in relation to attending school and to the sociological indices previously cited. The statistical results for all tables have been interpreted at the .05 level of confidence using the Fischer's t test for significant mean differences.

Table 8 shows the comparison of the mean scores between Kennedy High School, Atkins High School and the Family Life Publications normative high school group on the Drug Knowledge Inventory consisting of 44 items. The mean score for the 200 students attending Kennedy and Atkins High Schools was 16.29 and the mean score for the Family Life Publications Normative high school group was 20.15. The

CHAPTER IV

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In the tables on the following pages a comparison is made of the mean scores of the students involved in this study, in relation to attending school and to the sociological indices previously cited. The statistical results for all tables have been interpreted at the .05 level of confidence using the Fischer's t test for significant mean differences.

Table 2 shows the comparison of the mean scores between Kennedy High School, Atkins High School and the Family Life Publications normative high school group on the Drug Knowledge Inventory consisting of 44 items. The mean score for the 200 students attending Kennedy and Atkins High Schools was 16.29 and the mean score for the Family Life Publications Normative high school group was 20.15. The

Fisher t test revealed a t ratio of 7.14, which was significant at the .05 level of confidence and thus the Null Hypothesis was rejected. The subjects used in the Family Life Publications normative high school group were from suburban areas and classified as upper-middle class. The subjects used in this study were from an urban area and classified primarily as middle and lower-middle class. It may be assumed that social status and geographical location influenced individual drug knowledge, among other factors.

Table 2

Comparison of the Mean Scores Between Kennedy High School, Atkins High School and the Family Life Publications Normative High School Group

SCHOOL	N	SD	M	t
Kennedy & Atkins	200	4.95	16.29	7.14*
Normative	332	5.17	20.15	

*Significant at the .05 level of confidence

Table 3 is a comparison of the mean scores of Kennedy High School and Atkins High School individually with the Family Life Publications Normative high school group. A significant difference existed between the subjects at Kennedy High School, Atkins High School and the Family Life Publications Normative high school group. The author can only assume that social status and geographic location are factors in the difference in drug knowledge of the three high school

groups. The Null Hypothesis was rejected due to the Fisher's t tests indicating a significant difference at the .05 level of confidence.

Table 3

Comparison of the Mean Scores Between Kennedy High School, Family Life Publications Normative High School Group and Atkins High School

SCHOOL	N	SD	M	t
Kennedy	100	4.57	15.65	
				8.36*
Normative	332	5.17	20.15	
				5.34*
Atkins	100	5.32	16.93	

*Significant at the .05 level of confidence

Table 4 is a comparison of the mean ages between subjects at Kennedy High School, Atkins High School and the Family Life Publications Normative high school group. A significant difference can be seen in the mean ages with the students at Kennedy and Atkins High School having a mean age of 14.67, while the mean age of the Normative group is 17.37. The Null Hypothesis was rejected and the author assumes that age does influence drug knowledge of students between the ninth and twelfth grades.

Table 5 shows the comparison of the mean scores for subjects between Kennedy High School and Atkins High School. No significant difference existed between subjects at Kennedy and Atkins High Schools and the Null Hypothesis was

accepted. The author would like to indicate that there was a difference in the mean scores of the subjects involved in this study with the students at Kennedy High School having a mean score of 15.65 and the students at Atkins High School who had just completed a drug education block had a mean score of 16.93. The Lockheed Drug Decision (19) programmed instruction course did in fact help increase the students' drug knowledge, but a t ratio of 1.82 was not high enough to warrant a significant difference at the .05 level.

Table 4

Comparison of the Mean Ages Between Kennedy High School, Atkins High School and the Family Life Publications Normative High School Group

SCHOOL	N	SD	M	t
Kennedy & Atkins	200	.63	14.67	20.77*
Normative	332	2.23	17.37	

*Significant at the .05 level of confidence

Table 5

Comparison of the Mean Scores for Subjects Between Kennedy High School and Atkins High School

SCHOOL	N	SD	M	t
Kennedy	100	4.57	15.65	1.82
Atkins	100	5.32	16.93	

Table 6 shows the comparison of the mean scores for age between subjects at Kennedy High School and Atkins High School. The subjects were grouped into either the 14 and younger category or the 15 and older category. No significant differences existed and the Null Hypothesis was accepted. Regardless of the variation of age levels of the subjects involved in this sample, the assumption can be made that age does not have as much influence on an individual's drug knowledge as does age and grade level combined.

Table 6

Comparison of the Mean Scores for Age Between Kennedy High School and Atkins High School

School	Age	N	SD	M	t
Kennedy	14 & younger	40	5.33	16.23	1.36
Atkins		38	6.01	17.97	
Kennedy	15 & older	60	3.99	15.27	1.28
Atkins		62	4.79	16.29	

Table 7 shows the comparison of the mean scores for sex between subjects at Kennedy High School and Atkins High School. There was a significant difference between the mean scores of the male students involved in this study. The Null Hypothesis was rejected for the male students, but was accepted for the female students. It appears that the male students may have responded to the programmed instruc-

tion technique better than females, but the determination of that factor is beyond the scope of this research study.

Table 7

Comparison of the Mean Scores for Sex Between Kennedy High School and Atkins High School

School	Sex	N	SD	M	t
Kennedy	Male	55	4.77	15.22	2.09*
Atkins		38	5.45	17.45	
Kennedy	Female	45	4.31	16.18	0.46
Atkins		62	5.26	16.61	

*Significant at the .05 level of confidence

Table 8 reveals that there are no significant differences in the mean scores for sibling relationships and thus the Null Hypothesis was accepted.

Table 9 depicts the comparison of mean scores for race between Kennedy High School and Atkins High School. There was a significant difference in the mean scores for black students and the Null Hypothesis was rejected. The Null Hypothesis was accepted for the remaining racial groups. It is of interest to note that the black students at both Kennedy High School and Atkins High School had the lowest mean scores. However, the difference between the former to the latter was enough to make a significant difference. The assumption that the programmed instructional approach

used at Atkins High School is more adapted to minority groups is a feasible hypothesis for the difference in mean score from Kennedy High School to Atkins High School.

Table 8

Comparison of the Mean Scores for Sibling Relationship Between Kennedy High School and Atkins High School

School	Sibling Relationship	N	SD	M	t
Kennedy	Only child	11	3.70	15.91	1.04
Atkins		7	4.86	18.00	
Kennedy	Youngest child	29	5.04	16.21	1.37
Atkins		27	5.35	18.11	
Kennedy	Middle child	38	4.15	14.84	0.78
Atkins		45	5.06	15.64	
Kennedy	Oldest child	22	5.11	16.18	0.98
Atkins		21	5.71	17.81	

Table 10 exhibits the comparison of mean scores for race and sex between Kennedy High School and Atkins High School. The only Null Hypothesis that was rejected was that of black males.

Table 11 reveals that there are no significant differences in the mean scores for academic standing between subjects at Kennedy High School and Atkins High School. The Null Hypothesis was accepted for A, B, C and D students. It

Table 9

Comparison of the Mean Scores for Race Between Kennedy High School and Atkins High School

School	Race	N	SD	M	t
Kennedy	White	72	4.39	16.86	1.20
Atkins		68	5.65	17.88	
Kennedy	Black	27	2.71	12.11	2.80*
Atkins		30	3.83	14.60	
Kennedy	Indian	1		24.00	
Atkins		0			
Kennedy	Other	0			
Atkins		2		19.50	

*Significant at the .05 level of confidence

Table 10

Comparison of the Mean Scores for Race and Sex Between Kennedy High School and Atkins High School

School	Race & Sex	N	SD	M	t
Kennedy	White males	39	4.77	16.15	1.59
Atkins		24	5.79	18.29	
Kennedy	Black males	15	2.91	12.20	2.16*
Atkins		12	4.78	15.42	
Kennedy	White females	33	3.79	17.69	0.03
Atkins		44	5.63	17.65	
Kennedy	Black females	12	2.56	12.00	1.91
Atkins		18	3.08	14.06	

*Significant at the .05 level of confidence

is interesting to note that the highest mean score increase from Kennedy High School to Atkins High School was for the B students, with the next highest increase seen in the D students. The C students at Kennedy High School had a mean score of 14.70. The C students at Atkins High School showed a mean score of 14.37, and a decrease of .33 in mean score when compared to Kennedy High School's C students. This factor may lend credibility to the assumption that the programmed instructional approach was more geared to the needs of the high, low and minority students than the average student.

Table 11

Comparison of the Mean Scores for Academic Standing Between Kennedy High School and Atkins High School

School	Academic Standing	N	SD	M	t
Kennedy	A students	10	4.76	20.20	0.84
Atkins		12	4.78	21.92	
Kennedy	B students	39	4.28	16.49	1.79
Atkins		41	5.35	18.44	
Kennedy	C students	40	4.13	14.70	0.37
Atkins		38	3.80	14.37	
Kennedy	D students	11	2.97	12.00	1.32
Atkins		9	4.52	14.22	

Table 12 displays that there are no significant differences in the mean scores for social status between Kennedy and Atkins High School. The Null Hypothesis was accepted for all classifications of social status.

Table 12
Comparison of the Mean Scores for Social Status Between Kennedy High School and Atkins High School

School	Social Status	N	SD	M	t
Kennedy	Upper class	7	3.63	14.86	2.12
Atkins		6	7.09	21.33	
Kennedy	Upper middle class	12		20.50	
Atkins		2		18.00	
Kennedy	Middle class	31	4.29	15.55	1.92
Atkins		20	4.93	18.05	
Kennedy	Lower middle class	32	4.54	15.53	1.48
Atkins		45	4.99	17.18	
Kennedy	Lower class	18	3.48	13.11	1.11
Atkins		27	5.02	14.63	

An analysis of the data within Kennedy High School and Atkins High School, in relation to the sociological indices, was conducted by the author where the raw data suggested significant differences. Table 13 shows the comparison of the mean scores for age within Kennedy High

School and within Atkins High School. There were no significant differences recorded and the Null Hypothesis was accepted.

Table 13
Comparison of the Mean Scores for Age Within Kennedy High School and Atkins High School

School	Age	N	SD	M	t
Kennedy	14 & younger	40	5.33	16.23	1.03
Kennedy	15 & older	60	3.99	15.27	
Atkins	14 & younger	38	6.01	17.97	1.55
Atkins	15 & older	62	4.79	16.29	

Table 14 exhibits the comparison of mean scores for sex within Kennedy High School and within Atkins High School. No significant differences existed for sex and thus the Null Hypothesis was accepted. The male students at Atkins High School had the highest mean score which may be related to the instructional approach that was utilized in the Lockheed program.

Table 15 depicts the comparison of the mean scores for race within Kennedy High School and within Atkins High School. The white students had a higher mean score than black students at both Kennedy High School and Atkins High School which provided a significant difference in the mean

scores for race. The Null Hypothesis was rejected for race. The author cannot relate concrete factors that would support the results that white students had higher mean scores than black students. However, one must consider variables such as home environment, intelligence, and societal and educational factors that relate to the accessibility of knowledge for a particular race, as a possible relevant association.

Table 14

Comparison of the Mean Scores for Sex Within Kennedy High School and Within Atkins High School

School	Sex	N	SD	M	t
Kennedy	Male	55	4.77	15.22	1.04
Kennedy	Female	45	4.31	16.18	
Atkins	Male	38	5.45	17.45	0.76
Atkins	Female	62	5.26	16.61	

Table 16 shows the comparison of mean scores for race and sex within Kennedy High School and within Atkins High School. The Null Hypothesis was rejected in every instance except for white and black males attending Atkins High School. The white students clearly showed higher mean scores than black students for both sex and race. The variables that could conceivably indicate the results shown are beyond the scope of this study.

Table 15

Comparison of the Mean Scores for Race Within Kennedy High School and Within Atkins High School

School	Race	N	SD	M	t
Kennedy	White	72	4.39	16.86	5.25*
Kennedy	Black	27	2.71	12.11	
Atkins	White	68	5.65	17.88	2.89*
Atkins	Black	30	3.83	14.60	

*Significant at the .05 level of confidence

Table 16

Comparison of the Mean Scores for Race and Sex Within Kennedy High School and Within Atkins High School

School	Race and Sex	N	SD	M	t
Kennedy	White Males	39	4.77	16.15	2.99*
Kennedy	Black Males	15	2.91	12.20	
Atkins	White Males	24	5.79	18.29	1.48
Atkins	Black Males	12	4.78	15.42	
Kennedy	White Females	33	3.79	17.69	4.80*
Kennedy	Black Females	12	2.56	12.00	
Atkins	White Females	44	5.63	17.65	2.56*
Atkins	Black Females	18	3.08	14.06	

*Significant at the .05 level of confidence

Table 17 displays the comparison of the mean scores for academic standing within Kennedy High School and within Atkins High School. The differences in mean scores at both Kennedy High School and Atkins High School for A and D students was significant and the Null Hypothesis was rejected. The assumption that the higher the academic standing of a student the higher score he will have on a drug knowledge test is feasible or tenable.

Table 17

Comparison of the Mean Scores for Academic Standing Within Kennedy High School and Within Atkins High School

School	Academic Standing	N	SD	M	t
Kennedy	A students	10	4.76	20.20	4.79*
Kennedy	D students	11	2.97	12.00	
Atkins	A students	12	4.78	21.92	3.74*
Atkins	D students	9	4.52	14.22	

*Significant at the .05 level of confidence

Table 18 shows the comparison of the mean scores for social status within Kennedy High School and within Atkins High School. The Null Hypothesis was rejected for all classes compared except upper class and lower class for Kennedy High School students. The assumption can be made that social status has a relationship to the drug knowledge of individuals.

An Item Analysis of the Family Life Publications Drug Knowledge Inventory conducted by the investigator will be discussed in Chapter V. The Item Analysis is shown in Appendix D.

Table 18

Comparison of the Mean Scores for Social Status Within Kennedy High School and Within Atkins High School

School	Social Status	N	SD	M	t
Kennedy	Upper class	7	3.63	14.86	
					1.11
Kennedy	Lower class	18	3.48	13.11	
					2.05*
Kennedy	Middle class	31	4.29	15.55	
Atkins	Upper class	6	7.09	21.33	
					2.75*
Atkins	Lower class	27	5.02	14.63	
					2.33*
Atkins	Middle class	20	4.93	18.05	

*Significant at the .05 level of confidence

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

The purpose of the study was to describe the drug knowledge of selected ninth grade high school students according to the Family Life Publications Drug Knowledge Inventory (22); and to compare these test scores with six sociological indices: age, sex difference, sibling relationship, race, high school academic standing, and social status.

CHAPTER V

SUMMARY AND CONCLUSIONS

The design of the study allowed for testing 100 students who had previously completed a drug education course and for testing 100 students who had no previous formal drug education course.

The instruments used in the investigation were the FLPI (22), a standardized drug knowledge test with national student norms; a questionnaire to derive the sociological factors, adapted from a questionnaire format developed by Dr. Pearl Berlin (1), School of Health, Physical Education and Recreation, University of North Carolina at Greensboro, Greensboro, North Carolina; and the Hollingshead Two Factor Index (10) to determine the social status of the participating students.

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The total population consisted of 200 boys and girls, selected at random by the principals, who were enrolled in ninth grade history courses at Kennedy High School and Atkins High School, Winston-Salem/Forsyth County School System, Winston-Salem, North Carolina. The 100 students attending Kennedy High School had received no prior formal drug education from the school system that they were attending before the author administered the FLPI (22) and questionnaire. The 100 students attending Atkins High School had just completed a 15 class session programmed instruction drug education unit entitled, Drug Decision which was produced by the Lockheed Aircraft Corporation (19).

On March 27, 1972, and April 11, 1972, the investigator administered the questionnaire and FLPI (22) to 100 students selected at random by the principals at both Kennedy High School and Atkins High School respectively.

The FLPI (22) items were marked and graded by the investigator with the number of correct responses being recorded on the basis of one to 44. The Fischer t test for significant difference in mean scores was used to analyze the data which was processed by the IBM system at the University of North Carolina at Greensboro Data Processing Laboratory.

Summary of the Findings

The following is a summary of the findings of the comparisons made:

1. A comparison of the mean scores for subjects between Kennedy High School, Atkins High School and the Family Life Publications Normative High School group showed the following:

   A. The Kennedy High School, Atkins High School and Family Life Publications Normative High School student groups were statistically significantly different at the .05 level of confidence when comparing mean scores of drug knowledge. The Family Life Publications Normative High School student group had statistically higher mean scores than the Kennedy High School, Atkins High School combined mean scores and the Kennedy High School, Atkins High School individual mean scores. The mean score for the combined Kennedy High School, Atkins High School subjects was 16.29 while the mean for the Family Life Publications Normative High School group was 20.15. A t ratio of 7.14 indicated a statistically

significant difference at the .05 level of confidence. The mean for the 100 students at Kennedy High School was 15.65 while the mean of the 332 students of the Family Life Publications group was 20.15 with a t ratio of 8.36 indicating a significant mean difference at the .05 level of confidence. The mean score for the 100 students at Atkins High School was 16.93 and the mean score of the Family Life Publications group was 20.15, while a t ratio of 5.34 showed to be significant at the .05 level of confidence.

2. A comparison of the mean ages between Kennedy High School, Atkins High School and the Family Publications Normative High School student groups showed the following:

   A. The mean ages between subjects at Kennedy High School, Atkins High School and the Family Life Publications were statistically significantly different at the .05 level of confidence. The mean age for subjects at Kennedy High School and Atkins High School was 14.67 while the mean age for the Family Life Publications Normative student group was 17.37. A t ratio of

20.77 was significant at the .05 level of confidence.

3. A comparison of the mean scores for subjects between Kennedy High School and Atkins High School showed the following:

   A. The two High School groups were not statistically significantly different, when comparing the mean scores in drug knowledge of the ninth grade students.

   B. Atkins High School students had a mean score of 16.93, while the mean score of Kennedy High School students was 15.65. Although a t ratio of 1.82 was not statistically significant at the .05 level of confidence there was a mean difference of 1.28 between subjects attending Atkins High School and Kennedy High School.

4. A comparison of the mean scores for age between Kennedy High School and Atkins High School students indicated the following:

   A. There were no statistically significant differences in mean scores for age between Kennedy High School and Atkins High School subjects.

   B. There were slight mean differences between subjects at Kennedy High School and Atkins

High School, with Atkins High School subjects showing the higher mean scores for both the 14 and younger and 15 and older groups.

5. A comparison of the mean scores for sex between Kennedy High School and Atkins High School students indicated the following:

   A. There were statistically significant differences in mean scores for male subjects at Kennedy High School and Atkins High School. The mean score for male subjects at Kennedy High School was 15.22, while the mean score for male subjects at Atkins High School was 17.45. A t ratio of 2.09 was statistically significant at the .05 level of confidence.

   B. There were no statistically significant differences in mean scores for female subjects at Kennedy High School and Atkins High School. The female subjects at Atkins High School showed higher mean scores than females attending Kennedy High School.

6. A comparison of the mean scores for sibling relationship between Kennedy High School and Atkins High School subjects showed the following:

A. There were no statistically significant mean differences in drug knowledge for sibling relationship between Kennedy High School and Atkins High School subjects.

B. There were slight mean differences in mean scores for the sibling relationship groups of only child, youngest child, middle child, and oldest child between subjects at Kennedy High School and Atkins High School, with the subjects at Atkins High School showing the higher mean scores for each sibling relationship classification.

7. A comparison of the mean scores for race between Kennedy High School and Atkins High School indicated the following:

A. There were statistically significant differences in the mean scores for black subjects at Kennedy High School and Atkins High School. The mean score for black subjects at Kennedy High School was 12.11, while the mean score for black subjects at Atkins High School was 14.60. A t ratio of 2.80 proved to be significantly different at the .05 level of confidence.

B. There were no statistically significant mean differences for white subjects at Kennedy High School and Atkins High School, although the white subjects at Atkins had higher mean scores.

8. A comparison of the mean scores for race and sex between Kennedy High School and Atkins High School subjects showed the following:

A. There were statistically significant differences in the mean scores for black males attending Kennedy High School and Atkins High School. The mean score for black males at Kennedy High School was 12.20, while the mean score for black males at Atkins High School was 15.42. A t ratio of 2.16 showed to be significantly different at the .05 level of confidence.

B. There were no statistically significant differences in the mean scores for white males, or black females at Kennedy High School and Atkins High School, although mean scores for white males and black females were higher at Atkins High School.

C. There were no statistically significant differences in the mean scores for white females at Kennedy High School and Atkins

High School. Contrary to previous findings, white females attending Kennedy High School had higher mean scores than white females attending Atkins High School.

9. A comparison of the mean scores for academic standing between Kennedy High School and Atkins High School subjects showed the following:
   A. There were no statistically significant differences in the mean scores for academic standing between Kennedy High School and Atkins High School subjects.
   B. The largest mean difference occurred between the classification of D students for academic standing.

10. Comparison of the mean scores for social status between Kennedy High School and Atkins High School subjects showed the following:
   A. There were no statistically significant differences in the mean scores for social status between Kennedy High School and Atkins High School subjects.
   B. The largest mean difference occurred between subjects classified as upper class between Kennedy High School and Atkins High School.

11. A comparison of the mean scores for age within Kennedy High School subjects and within Atkins High School subjects showed the following:

    A. There were no statistically significant differences in the mean scores for age within Kennedy High School subjects classified either 14 and younger or 15 and older.

    B. There were no statistically significant differences in the mean scores for age within Atkins High School subjects classified either 14 and younger or 15 and older.

12. A comparison of the mean scores for sex within Kennedy High School and within Atkins High School subjects showed the following:

    A. There were no statistically significant differences in the mean scores for sex within Kennedy High School subjects. Female subjects showed higher mean scores than males at Kennedy High School.

    B. There were no statistically significant differences in the mean scores for sex within Atkins High School subjects. Male subjects showed higher mean scores than females at Atkins High School.

13. A comparison of the mean scores for race within Kennedy High School and within Atkins High School subjects showed the following:

    A. There was a statistically significant difference in the mean scores between white and black subjects at Kennedy High School. The white students had a mean score of 16.86, while the black students had a mean score of 12.11. A t ratio of 5.25 showed to be statistically significant at the .05 level of confidence.

    B. There was a statistically significant difference in the mean scores between white and black subjects at Atkins High School. The white students had a mean score of 17.88, while the black students had a mean score of 14.60. A t ratio of 2.89 showed to be statistically significant at the .05 level of confidence.

14. A comparison of the mean scores for race and sex within Kennedy High School and within Atkins High School subjects showed the following:

    A. There was a statistically significant difference in the mean scores between white males and black males at Kennedy

High School. The white males had a mean score of 16.15, while the black males had a mean score of 12.20. A t ratio of 2.99 showed to be statistically significant at the .05 level of confidence.

B. There was no statistically significant difference in the mean scores between white males and black males at Atkins High School.

C. There was a statistically significant difference in the mean scores between white females and black females at Kennedy High School. The white females had a mean score of 17.69, while the black females had a mean score of 12.00. A t ratio of 4.80 showed to be statistically significant at the .05 level of confidence.

D. There was a statistically significant difference in the mean scores between white females and black females at Atkins High School. The white females had a mean score of 17.65, while the black females had a mean score of 14.06. A t ratio of 2.56 showed to be statistically significant at the .05 level of confidence.

15. A comparison of the mean scores for academic standing within Kennedy High School and within Atkins High School subjects showed the following:

    A. There was a statistically significant difference in the mean scores between A students and D students at Kennedy High School. The A students had a mean score of 20.20, while the D students had a mean score of 12.00. A t ratio of 4.79 showed to be statistically significant at the .05 level of confidence.

    B. There was a statistically significant difference in the mean scores between A students and D students at Atkins High School. The A students had a mean score of 21.92, while the D students had a mean score of 14.22. A t ratio of 3.74 showed to be statistically significant at the .05 level of confidence.

16. A comparison of the mean scores for social status within Kennedy High School and within Atkins High School subjects showed the following:

    A. There was no statistically significant difference in the mean scores between

upper class and lower class students at Kennedy High School.

B. There was a statistically significant difference in the mean scores between middle class and lower class students at Kennedy High School. The middle class students had a mean score of 15.55, while the lower class students had a mean score of 13.11. A t ratio of 2.05 showed to be statistically significant at the .05 level of confidence.

C. There was a statistically significant difference in the mean scores between upper class students and lower class students at Atkins High School. The upper class students had a mean score of 21.33, while the lower class students had a mean score of 14.63. A t ratio of 2.75 showed to be statistically significant at the .05 level of confidence.

D. There was a statistically significant difference in the mean scores between middle class students and lower class students at Atkins High School. The middle class students had a mean score of 18.05, while the lower class students had a mean

score of 14.63. A t ratio of 2.33 showed to be statistically significant at the .05 level of confidence.

DISCUSSION OF THE RESULTS AND CONCLUSIONS

Results of the study showed that there were statistically significant differences between the mean scores of Kennedy High School, Atkins High School and the Family Life Publications Normative high school students. The 200 students selected at random by the principals, involved in this study from Kennedy High School and Atkins High School were enrolled in ninth grade history courses at their respective schools. The mean age for the students in this study was 14.67, while the mean age for the 332 subjects in the Family Life Publications Normative group was 17.37. In reviewing the literature it was found that several authors reported increases in health knowledge following each successive school year. The results of this study supported such conclusions. An explanation often cited for this difference has been mass media. With topics of public concern, such as drugs, much information is provided daily. Therefore, exposure to the mass media for a year longer could have an effect upon the drug knowledge of high school students.

In analyzing the overall results of the study for mean differences in drug knowledge for age, sex, sibling relationship, race, high school academic standing, and social status between subjects at Kennedy High School and Atkins High School findings showed only three statistically significant mean differences. There were statistically significant mean differences found at the .05 level of confidence for male students, black male students, and black students between Kennedy High School and Atkins High School subjects. With the consistent increase in mean scores for male, black male and black students between Kennedy High School and Atkins High School subjects it may be concluded that the Lockheed programmed instructional approach to drug education was more effective in increasing drug knowledge of male, black male and black students than that of other sociological factors such as age, sibling relationship, academic standing, and social status. It should be noted that in comparing the mean differences between Kennedy High School and Atkins High School subjects, in essence, what was being compared was the effectiveness of the Lockheed program.

In analyzing the mean differences within Kennedy High School and within Atkins High School there were more statistically significant mean differences due to the absence of the impact of the Lockheed program. The sociological indices that had a relationship to students'

drug knowledge were more readily identifiable due to the above factor.

There were statistically significant mean differences in drug knowledge for sex and race within Kennedy High School and within Atkins High School subjects. White students had statistically significant mean differences when compared to black students within Kennedy High School and within Atkins High School. The author cannot relate concrete factors that would support the results that white students had statistically higher mean scores than black students. However, one must consider variables such as home environment, intelligence, and societal and educational factors that relate to the accessability of knowledge for a particular race. Another factor might involve reading skills and the ability to interpret test items. It is possible that incorrect answers might not indicate the individual's true knowledge of drugs. The variables that could conceivably indicate the results shown are beyond the scope of this study.

There were statistically significant mean differences in mean scores for A students and D students within Kennedy High School and within Atkins High School. It can be concluded that the higher the academic standing of students the more receptive they will be to direct and indirect modes of communication concerning drugs from sources such as mass media, formal education and other

sociological institutions.

Statistically significant differences in mean scores existed within Kennedy High School subjects when comparing middle class and lower class students. The middle class subjects showed significantly higher mean scores than lower class students. There were statistically significant mean differences within Atkins High School when comparing upper class and lower class, with the upper class students showing the higher mean scores. There were statistically significant mean scores within Atkins High School subjects when comparing middle class and lower class students, with the middle class students showing the higher mean scores than the lower class students. Since this variable has not been considered in previous drug knowledge research studies, it is difficult to form any definite conclusions as to why such differences did occur. It is possible that the lower class student is less favorably oriented towards learning; and that the accessibility of drug knowledge is less prevalent to the lower class individual in his home environment.

Although most health education studies reported differences between male and female subjects to be the most significant, the results of this study did not support that conclusion. Differences between female and male students were not found to be significant when comparing mean scores of drug knowledge.

Results of the study showed no statistically significant differences existed between subjects at Kennedy High School and Atkins High School. In part, this is a reflection upon the ineffectiveness of the Lockheed programmed instructional approach to drug education. It should be noted that there were increases in drug knowledge in specific drug categories by the students at Atkins High School when compared to the students at Kennedy High School. In referring to the item analysis found in Appendix D, it was shown that the students at Atkins High School had a higher percentage of correct responses to the 44 item Family Life Publications Drug Knowledge Inventory in the following categories: drug addiction, barbiturates, opiates, amphetamines, and hallucinogens. Drug categories that Kennedy High School students actually had a higher percentage of correct responses were the following: addictive and habit forming drugs, tranquilizers, and marijuana. The Atkins High School subjects had a higher percentage of correct responses on 27 of the 44 item Drug Knowledge Inventory. The results of this study indicate that health educators should be concerned with the methodology and selected variables of drug education courses that may have an effect on learning.

It is clear that the present drug dilemma in the United States is interwoven with other problems such as poverty, racism, inequal educational opportunities, inequal

employment opportunities, and sex and ethnic discrimination. The solutions to our drug problems are not clearly defined and are as diverse as they are complex. The role of education in helping combat the present drug dilemma should not be minimized.

It is important for school systems to evaluate their existing Health Education programs, define their strengths and weaknesses, and to determine their needs in content areas such as drug education.

The decisions of what to teach in the area of drug education, who should teach the courses offered, at what grade level should instruction begin, and the duration of such courses should be determined by a unified effort by parents, students, school personnel and the community.

Suggestions for Further Research

As a result of this study, the following recommendations are offered for future research:

1. Research studies in health education are needed to compare drug education methodology to selected variables such as teachers and grade levels upon student drug knowledge achievement levels.
2. The construction of valid and reliable knowledge tests in drug education and other related health education areas is needed.

3. School systems should be encouraged to develop their own drug education programs in health education which can meet the needs of their particular students.
4. Research studies in drug education are needed to compare programs with regard to course curriculum and current issues.
5. Drug education courses should be initiated at the elementary education level, with a sequential curriculum design K-12, rather than the present emphasis placed only at the secondary education level.
6. Research studies should distinguish professional competencies required of teachers involved in drug education courses.
7. The design of a drug knowledge test using "street terms" on causes of drug use and effects of drug use is needed.

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APPENDIX A

GENERAL BIOGRAPHICAL INFORMATION*

Instructions: The purpose of this questionaire is to gather background information about individuals who take part in this investigation. Note that boxes, ☐ , or spaces, ____, are provided for your responses. For each question, write in the answer or mark the box that best describes your situation.

1. High School: _____ Code# ____

2. Date of birth: Month _____ Day ____ Year ____

3. Sex: Male ☐ Female ☐

4. How many brothers and sisters are younger than you are? younger brothers ____ younger sisters ____

5. How many brothers and sisters are older than you are? older brothers ____ older sisters ____

6. Race: White ☐ Black ☐ Indian ☐ Other ☐

7. High school academic standing: (Last Semester)
A ☐ B ☐ C ☐ D ☐

8. Head of Household is that person who works regularly to provide enough money to support the family. It could be the father, mother or guardian. If both mother and father are working, consider the father as head of your household.

(a) How much education has the head of your household had. Mark the one box that is most appropriate:

☐ 1. Graduate professional training
☐ 2. Standard college or university graduation
☐ 3. Partial college training
☐ 4. High school graduate
☐ 5. Partial high school
☐ 6. Junior high school
☐ 7. Less than seven years of school

(b) What does the head of your household do? What is his ☐ or her ☐ job? Mark one box; briefly describe the job.

_____

_____

* Adapted from a questionaire format developed by Dr. Pearl Berlin, Health, Physical Education, and Recreation Department, University of North Carolina at Greensboro, Greensboro, North Carolina.

DRUG KNOWLEDGE INVENTORY

1. An addictive drug is one which causes:

   1. emotional and physical craving and a need to increase dosage.
   2. emotional and physical craving, but no need to increase dosage.
   3. emotional craving, but no physical craving or need to increase dosage.
   4. regular use, but no craving or need to increase dosage.

2. A habit-forming drug is one which causes:

   1. emotional and physical craving and a need to increase dosage.
   2. emotional and physical craving, but no need to increase dosage.
   3. emotional craving, but no physical craving or need to increase dosage.
   4. regular use, but no craving or need to increase dosage.

APPENDIX B

3. Where in the United States is drug addiction most often found?

   1. College campus
   2. Middle-class suburb
   3. Rural area
   4. City slum area

4. In the United States today, the most common drug addiction is to:

   1. cocaine
   2. heroin
   3. morphine
   4. phenobarbital

5. Of those listed below which is the least frequent cause of drug addiction among teenagers?

   1. Curiosity
   2. Peddlers or "pushers"
   3. Pressure from peers
   4. Thrill-seeking

DRUG KNOWLEDGE INVENTORY

1. An addictive drug is one which causes:

   1. emotional and physical craving and a need to increase dosage.
   2. emotional and physical craving, but no need to increase dosage.
   3. emotional craving, but no physical craving or need to increase dosage.
   4. regular use, but no craving or need to increase dosage.

2. A habit-forming drug is one which causes:

   1. emotional and physical craving and a need to increase dosage.
   2. emotional and physical craving, but no need to increase dosage.
   3. emotional craving, but no physical craving or need to increase dosage.
   4. regular use, but no craving or need to increase dosage.

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   2. Middle-class suburb
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   1. cocaine
   2. heroin
   3. morphine
   4. phenobarbital

5. Of those listed below which is the least frequent cause of drug addiction among teenagers?

   1. Curiosity
   2. Peddlers or "pushers"
   3. Pressure from peers
   4. Thrill-seeking

6. Which terms refer to barbiturates?

   1. Amytal, Nembutal, Seconal
   2. Benzedrine, Dexedrine, Methedrine
   3. Librium, Miltown, Thorazine
   4. Codeine, Heroin, Morphine

7. The most important medical use of barbiturates is:

   1. to bring about sleep.
   2. to reduce tension.
   3. to relieve pain.
   4. in research.

8. Which one is the most likely description of a person who has taken more than a prescribed amount of a barbiturate?

   1. Giggling, daydreaming
   2. Even-tempered, withdrawn
   3. Drowsy, slurred speech
   4. Restless, perspiring

9. Opium is derived from:

   1. a cactus.
   2. a hemp plant.
   3. a mushroom.
   4. a flower.

10. Which of the following terms refers to a drug made from opium?

    1. Cocaine
    2. Methedrine
    3. Morphine
    4. Hashish

11. The most important medical use of opiates is:

    1. as an anaesthetic.
    2. to relieve pain.
    3. to reduce tension.
    4. in research.

12. Which one is the most likely description of a person who has taken more than a prescribed amount of an opiate?

    1. Excited and hyperactive
    2. Hostile and aggressive

3. Nervous and tearful
4. Quiet and inactive

13. What happens when an opiate addict discontinues the use of opiates?

1. Withdrawal causes no more physical distress than discontinuing use of tobacco.
2. Withdrawal causes much physical distress but little danger of death.
3. Withdrawal causes much physical distress and considerable danger of death.
4. Withdrawal causes much emotional distress but little physical distress.

14. What happens when an unborn baby's mother is an opiate addict?

1. The baby is an opiate addict at birth.
2. The baby is likely to be physically deformed.
3. The baby is likely to be mentally retarded.
4. The baby will be unaffected.

15. Which is the best explanation for the close relationship between opiate use and crime?

1. An addiction to opiates is very expensive.
2. Opiates inspire criminal acts.
3. An opiate user is not fully aware of what he is doing.
4. Opiates decrease fears and inhibitions.

16. Which terms refer to tranquilizers?

1. Amytal, Nembutal, Seconal
2. Benzedrine, Dexadrine, Methedrine
3. Codeine, Heroin, Morphine
4. Librium, Miltown, Thorazine

17. The most important medical use of tranquilizers is:

1. to bring about sleep.
2. to reduce tension.
3. to relieve pain.
4. to increase alertness.

18. Which are the physically harmful effects most likely to result from misuse of tranquilizers?

1. Damage to brain, kidneys, and liver
2. Reduced sex drive and damage to reproductive capacity

3. Irregular heartbeat and high blood pressure
4. Weight gain and blood cell damage

19. Which of the following terms refer to amphetamines?

1. Amytal, Nembutal, Seconal
2. Benzedrine, Dexedrine, Methedrine
3. Librium, Miltown, Thorazine
4. Codeine, Heroin, Morphine

20. The normal medical use of amphetamines is in:

1. relief from drowsiness and depression.
2. relief from fear and anxiety.
3. relief from restlessness and excitability.
4. research on human behavior.

21. By taking an amphetamine one may be able to:

1. think more clearly.
2. do better on tests.
3. stay awake.
4. remain calm under pressure.

22. Which is the most likely description of a person who has taken more than a prescribed dose of an amphetamine?

1. Giggling, daydreaming, enlarged pupils
2. Inactive, quiet, small pupils
3. Poor balance, slurred speech, short temper
4. Restless, perspiring, enlarged pupils

23. The greatest danger from over use of an amphetamine is in its effect on:

1. body temperature.
2. breathing rate.
3. heartbeat.
4. oxygen in the blood.

24. Which terms refer to hallucinogens?

1. Cocaine, novocaine
2. Dilaudid, paregoric
3. Luminal, Tuinal
4. Mescaline, psylocybin

25. The most important medical use of hallucinogens is in:

    1. overcoming depression.
    2. treatment of mental and emotional problems.
    3. controlling fear and anxiety.
    4. research on human behavior.

26. Which of the following is intensified by taking hallucinogens?

    1. Concentration
    2. Imagination
    3. Judgment
    4. Motivation

27. How does LSD affect vision and hearing?

    1. It has no effect on vision and hearing.
    2. It affects the ways sights and sound are experienced.
    3. It makes vision and hearing less sensitive.
    4. It makes ears and eyes hear and see better.

28. Which are the physical side effects most likely to accompany LSD use?

    1. Vomiting, stomach cramps
    2. Headache, fever, sweating
    3. Increased blood pressure and pulse rate
    4. Nausea, chills, enlarged pupils

29. Authoritative literature about the possibility of physical damage from marihuana indicates that:

    1. its use does damage to nerves and lungs.
    2. its use does no physical damage.
    3. it has not been proved to be physically harmful.
    4. it is physically harmful only if often used.

30. What kind of person is likely to become an habitual user of marihuana?

    1. One who has little self-control
    2. Those who are easily influenced by others
    3. People who are unhappy because of conditions in their lives
    4. No one kind of person

31. Which are the most probable immediate effects of marihuana use?

    1. Daydreaming, altered sense of time
    2. Restlessness, quick temper
    3. Inactivity, small pupils
    4. Slurred speech, poor balance

32. The frequent user of marihuana is likely to be:

    1. calm and alert.
    2. depressed and fearful.
    3. excitable and irritable.
    4. tired and indifferent.

33. Which statement best describes the relationship of marihuana use to mental illness?

    1. Its use can cause mental illness.
    2. Its use is not related to mental illness.
    3. Its use may increase one's chances of becoming mentally ill.
    4. Its use may disclose or aggravate mental illness.

34. Which of the following best accounts for the belief that use of marihuana causes use of more dangerous drugs?

    1. Frequent use of marihuana causes a need for addictive drugs.
    2. A marihuana user is likely to contact and be influenced by users of other drugs.
    3. Frequent use of marihuana causes a craving for other "mind-altering" drugs.
    4. Marihuana use weakens personality and causes willingness to use stronger drugs.

35. How can one know that a person has been smoking marihuana?

    1. Blood test
    2. Dilated pupils
    3. Odor on breath
    4. Urinalysis

36. The person who occasionally uses more than the prescribed amount of addictive drugs:

    1. will not become addicted.
    2. may become addicted.
    3. will become addicted in time.
    4. may already be moderately addicted.

37. Which one of the following is the best description of the kind of person who is likely to become a drug addict?

    1. No one kind of person
    2. A person who is unable to achieve a satisfactory social adjustment
    3. A person who is unable to foresee the end results of his behavior
    4. A person of weak character and of little self-control

38. Black market drugs are unsafe because:

    1. they often are of unknown strength and of questionable purity.
    2. they usually are stronger than prescribed drugs.
    3. they are more likely to cause addiction than prescribed drugs.
    4. they often are spoiled drugs that have been discarded.

39. Misuse of which one of the following kinds of drugs most often causes death?

    1. Amphetamines
    2. Barbiturates
    3. Hallucinogens
    4. Opiates

40. An addicted person is in the greatest danger of dying when he discontinues use of which one of the following:

    1. Alcohol
    2. Heroin
    3. Phenobarbital
    4. Morphine

41. When taken more often than prescribed or in larger doses than directed, some cough medicines may cause addiction because they contain:

    1. heroin.
    2. codeine.
    3. morphine.
    4. phenobarbital.

42. Which of the following are the most probable effects of cocaine?

    1. Daydreaming, enlarged pupils, habit-formation
    2. Inactivity, small pupils, addiction
    3. Slurred speech, poor balance, addiction
    4. Excessive talking, excitement, habit-formation

43. Which of the following are probable harmful effects of sniffing substances such as glue, cleaning fluids, gasoline, etc.?

    1. Damage to brain, kidneys, and liver
    2. Damage to chromosomes and nervous system
    3. Irregular heartbeat and high blood pressure
    4. Weight gain and blood cell damage

44. Which is likely to be the most productive first step in overcoming a drug addiction or a drug habit?

    1. Stop all use at once
    2. Begin gradual withdrawal
    3. Seek professional help
    4. Ask friends and family to help

TEST DIRECTIONS

The following test directions were provided verbally and visually for each test session:

Drug Knowledge Test: This is a multiple choice test. Draw a circle around the number printed to the left of the answer you consider to be the best answer to each question. Choose a best answer to each question. If you do not know, guess. Be sure to answer every question.

APPENDIX C

TEST DIRECTIONS

The following test directions were provided verbally and visually for each test session:

Drug Knowledge Test: This is a multiple choice test. Draw a circle around the number printed to the left of the answer you consider to be the best answer to each question. Choose a best answer to each question. If you do not know, guess. Be sure to answer every question.

APPENDIX D

KEY TO ITEM ANALYSIS

A. Percentage of correct responses to the 44 question Family Life Publications Drug Knowledge Inventory by the students participating in the study at Kennedy High School.

B. Percentage of correct responses to the 44 question Family Life Publications Drug Knowledge Inventory by the students participating in the study at Atkins High School.

C. Percentage of correct responses to the specific drug categories in the Family Life Publications Drug Knowledge Inventory by the students participating in the study at Kennedy High School.

D. Percentage of correct responses to the specific drug categories in the Family Life Publications Drug Knowledge Inventory by the students participating in the study at Atkins High School.

ITEM ANALYSIS

CATEGORY	QUESTION	A*	B**	C+	D++
Addictive and habit forming drugs	1	64%	66%	41%	40%
	2	18%	14%		
Drug addiction	3	33%	38%	46.67%	50%
	4	84%	79%		
	5	23%	33%		
Barbiturates	6	11%	9%	31%	34.67%
	7	28%	33%		
	8	54%	62%		
Opiates	9	22%	48%	28.57%	31%
	10	35%	33%		
	11	35%	24%		
	12	27%	23%		
	13	25%	35%		
	14	13%	17%		
	15	43%	37%		
Tranquilizers	16	14%	20%	22.33%	19.33%
	17	42%	25%		
	18	11%	13%		
Amphetamines	19	22%	32%	32.80%	47%
	20	35%	40%		
	21	42%	68%		
	22	29%	41%		
	23	36%	54%		
Hallucinogins	24	18%	38%	38.60%	43.20%
	25	20%	19%		
	26	58%	59%		
	27	65%	76%		
	28	32%	24%		
Marihuana	29	49%	43%	35.57%	35.29%
	30	37%	42%		
	31	51%	46%		
	32	30%	34%		
	33	12%	15%		
	34	37%	42%		
	35	33%	25%		

*Kennedy High School
**Atkins High School
+Kennedy High School per category
++Atkins High School per category

ITEM ANALYSIS (Cont.)

CATEGORY	QUESTION	A*	B**	C+	D++
Drugs in general	36	32%	36%		
	37	40%	36%		
	38	56%	50%		
	39	38%	32%		
	40	15%	14%	41.89%	42.89%
	41	53%	63%		
	42	30%	36%		
	43	52%	56%		
	44	61%	63%		

*Kennedy High School
**Atkins High School
+Kennedy High School per category
++Atkins High School per category