

A FIELD TEST OF COMPUTER ASSISTED INSTRUCTION ON FETAL  
ALCOHOL SYNDROME

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A DISSERTATION  
SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS  
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IN THE GRADUATE SCHOOL OF  
TEXAS WOMAN'S UNIVERSITY

COLLEGE OF HEALTH SCIENCES

BY

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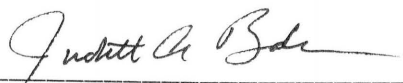
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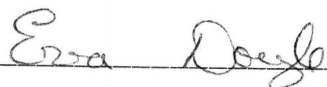
To the Associate Vice President for Research and Dean of the Graduate School:

I am submitting herewith a dissertation written by Carolyn Garver entitled "A Field Test of Computer Assisted Instruction on Fetal Alcohol Syndrome." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Health Education.



Dr. Judith Baker, Major Professor

We have read this dissertation and recommend its acceptance:



Chair, Department of Health Studies

Accepted:



Associate Vice President for Research and Dean of the Graduate School



## DEDICATION

I dedicate this to a young man and his mother, who made me aware of the problems that fetal alcohol syndrome presents. I had the pleasure of working with him and his mother for nine years. Their problems and frustrations were the inspiration for me to research the problem on a deeper level. I only hope this study will bring further awareness to the problem and challenge healthcare professionals to strive harder, toward excellent patient education and prevention efforts.

## ACKNOWLEDGEMENTS

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## ABSTRACT

COMPLETED RESEARCH IN HEALTH SCIENCES  
Texas Woman's University, Denton, Texas

Garver, C. R. A field test of computer assisted instruction on fetal alcohol syndrome, Ph.D in Health Education, 1998, 153 pp. (J. Baker).

The purpose of the study was to determine the changes in attitudes about alcohol among students attending a medical school in the Dallas/Fort Worth Metroplex before and after the use of computer assisted instruction (CAI) on fetal alcohol syndrome (FAS). Data were collected on a group of 30 medical students. The group was administered the Substance Abuse Attitude Survey (SAAS) before and after viewing a CAI on FAS to assess their attitudes about the use of alcohol. These attitudes would ultimately have a future effect on the medical students delivery of effective patient education. Data were collected on five dimensions of clinical attitudes towards substance abuse and its treatment, pre- and post-test scores which included permissiveness, non-stereotype, treatment intervention, treatment optimism, and non-moralism, and information about the usefulness of the educational information, evaluation of the CAI, and the participants plans to further utilize the educational information for patient education. A comparison of the pre- and post-test scores was determined using a t-test, which indicated no statistical difference in the scores. Fifty-three percent of the participants stated the CAI would be useful to them.

More than half of the participants had positive attitudes toward the CAI, and 63% of the participants stated they would use a product of this type for future patient education.

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## CHAPTER I

### INTRODUCTION

Fetal Alcohol Syndrome (FAS) is characterized by a variety of physical and behavioral traits present at birth from prenatal maternal alcohol consumption. There is a distinct, recognizable pattern of physical malformation. Associated with this are long-term intellectual and psychological problems resulting in a plethora of social, economic and medical issues. Many health experts are exploring methods to better detect, identify, prevent, and treat this problem. FAS can be prevented. Steps need to be taken to improve risk reduction and promote prevention efforts and education.

Comparatively little research has been published on the most effective way to promote low or no alcohol intake in pregnancy (Waterson & Murray-Lyon, 1990). To better meet the challenges of prenatal alcohol effects, the primary target area is prevention. The need for formal education for physicians and health professionals is critical. Beliefs and attitudes still persist among some health professionals that alcohol does not affect the unborn child (Donovan, 1991). Patient education that reflects and promotes the positive attitudes of physicians will better assist the patient toward making positive changes in their behavior. It is essential that health professionals be educated to recognize alcohol abuse and provide accurate information and meaningful interventions for patients. The challenge ahead is to reach and influence, through effective patient education, the women whose alcohol consumption may cause prenatal fetal damage.

Physicians and health professionals will be asked in the future to evaluate educational information that will be used for patient education. Different methods of teaching that include computer assisted instruction, videos, brochures and more standard educational tools will need to be examined to establish the efficacy for their patients.

More studies are needed to evaluate medical students attitudes toward alcohol use and patient education currently as well as over time. These studies should determine if medical students who receive education relating to alcohol can change their attitudes to better effect risk reduction in their patients.

#### Purpose of the Study

The purpose of the study was to determine the changes in attitudes about alcohol among students attending a medical school in the Dallas/Fort Worth Metroplex before and after the use of a CAI on FAS.

#### Hypothesis

For the purpose of this study, the hypothesis is as follows:

1. There is no statistically significant difference between attitudes before and after participating in a computer assisted instruction on fetal alcohol syndrome in attitudes about substance abuse among medical students.

#### Research Questions

For the purpose of this study, the research questions were as follows:

1. What are the perceptions of medical students regarding a CAI on FAS?

2. How do medical students plan to use the information from a CAI on FAS in a patient education setting?

### Definition of Terms

For this study the following terms will be defined as follows:

1. Medical Students. Students in their second year of medical school in the Dallas/Fort Worth Metroplex.
2. Attitude. Sensitivity toward alcohol use as measured by the Substance Abuse Attitude Survey (SAAS).
3. Fetal Alcohol Syndrome (FAS). Characterized by a variety of physical and behavioral traits present at birth from prenatal maternal alcohol consumption (Clarren & Smith, 1978).
4. Fetal Alcohol Effect (FAE). Patients exposed to ethanol in utero with some partial FAS phenotype, and/or central nervous system dysfunction (CNS), but without sufficient features for a firm diagnosis of FAS or strong consideration of any alternative diagnosis (Streissguth, Randels, & Smith, 1991).
5. Computer Assisted Instruction (CAI). Interactive multimedia tutorial.
6. Patient Education. Interaction with health professionals and response to the services they provide. Guidance of patients toward realistic new values and goals through traditional learning and interaction with technology (Purtilo, 1990).
7. Dallas/Fort Worth Metroplex. The geographic location where the medical students completed the research.

### Limitations

The study included the following limitations:

1. A sample of convenience was used.
2. Only short-term changes in attitudes were measured.

### Delimitations

The study included the following delimitations:

1. The participants were students enrolled at a medical school in the Dallas/Fort Worth Metroplex only.
2. Each participant was 18 years of age or older and was able to understand the English language.

### Assumptions

The assumptions of this study were the following:

1. Attitudes are complex, but can be measured.
2. The medical students completed the instrument honestly and to the best of their abilities.

### Significance of the Study

The impact of alcohol has both powerful social and financial implications. Alcohol abuse contributes to the significant loss of human potential especially when the patient issues are not addressed by the primary caregiver. Education of women prior to and during childbirth years is of utmost importance (Appelbaum, 1995). Unfortunately, the outcomes of alcohol use intervention and education can be influenced by the negative attitudes some physicians appear to have toward alcoholics [U.S. Department of Health and Human Services] (USDHHS, 1987).

Historically, the roots of these negative attitudes are the moralistic view that the use of alcohol and other drugs is a matter of personal choice (Chappel, Veach, & Krug, 1985). Chappel et al. (1985) state that the result of the negative attitudes has been that physicians learn little about alcohol and drug misuse problems and are hesitant to apply what they know. Members of the medical community have a special opportunity as the primary care physician to provide education to their patients on the use of alcohol (USDHHS, 1987). In a recent study done at the University of Wisconsin, a researcher found that a gentle suggestion from a person's family doctor might be all it takes to persuade problem drinkers to cut back on their alcohol consumption (Fleming, 1997).

In the last two decades, there has been increased national and medical interest in the problems presented by the misuse of alcohol and drugs resulting in the establishment of a Career Teacher program in alcohol and drug abuse. This program was established under the joint responsibility of the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and the National Institute on Drug Abuse (NIDA). In those medical schools that have added a Career Teacher to the faculty, significant increases in curriculum on alcohol and drug misuse have been a result. High on the list of educational priorities has been the inclusion of attitudinal objectives (Chappel et al., 1985). Research studies suggest that attitudes can be improved through training (USDHHS, 1987). Studies are needed to identify ways to improve, change, and influence the attitudes of physicians toward patient education. Starting early in the educational process of the student is a good way to begin to effect positive change mechanisms.

## CHAPTER II

### REVIEW OF THE LITERATURE

This literature review includes an overview of the published literature on FAS, patient education, and CAI from 1975 to 1997. The first section of this chapter will present information about the problems and implications of FAS and the need for supportive patient education. The next section discusses previous studies that provided the basis for the research presented in this paper regarding medical professionals attitudes toward alcohol use and its relationship to their patients. The final section presents an overview of the efficacy of using CAI in the educational arena and for effective patient education in other settings. A summary concludes the chapter.

#### Fetal Alcohol Syndrome and Its Implications For Patient Education

The negative effects of alcohol on the fetus have been suspected since biblical times (Abkarian, 1992). Because concern about maternal drinking goes back to ancient times, it is surprising that only recently has the healthcare system's emphasis been on alcohol abstinence. Dedam, McFarlane, and Hennessy (1993) cited that it said in the Bible an angel of the Lord admonished Samson's mother, "Behold... thou shalt conceive, and bear a son. Now therefore... drink not wine nor strong drink" (p.30).

Two thousand years later, in 1725, during the great "gin epidemic" (p.30) in England (1720-1750), the College of Physicians warned the House of Commons that alcohol was "too often the cause of weak and feeble,

distempered children” (Dedam et al., p. 30). In 1834, it was noted that infants of alcoholic mothers had “a starved, shriveled, and imperfect look” (p.30). Not long afterward, Charles Dickens noted that chronically drunken mothers produced children who were mentally defective (Dedam et al., 1993). Despite these forewarnings, it was not until 1967 that a French family practitioner, Dr. Alexandre Lamarche studied 1,245 children of alcoholic parents. His observations included neurological impairments, mental retardation, behavioral disorders, genital malformations, facial anomalies, and excess infant mortality (Dedam et al., 1993).

In 1973, a study by Jones and Smith sparked renewed interest in the role of alcohol as a teratogenic agent (cited in Abkarian, 1992). The distinct pattern of abnormalities was labeled fetal alcohol syndrome by a team at the University of Washington in Seattle in (Remkes, 1993).

Fetal alcohol syndrome (FAS) is now recognized as the leading known cause of mental retardation in the United States, surpassing Down’s Syndrome and spina bifida (Streissguth, Aase, Clarren, Randels, LaDue, & Smith, 1991). Researchers have also called it the most common, best known, preventable cause of mental retardation in the western world (Masis & May, 1991). FAS is characterized by a variety of physical and behavioral traits that result from maternal alcohol consumption during pregnancy. The full syndrome includes one or more characteristic facial features, growth deficiency (i.e., prenatal or postnatal height or weight  $\leq$  10th percentile for age), and central nervous system (CNS) impairment (cited in CDC, MMWR, 1993). The characteristic features include short palpebral fissures, midface hypoplasia, smooth and/or

long philtrum, and thin upper lip. The CNS manifestations include microcephaly or history of delayed development, hyperactivity, attention deficits, learning disabilities, intellectual deficits, or seizures (Streissguth, Aase et al., 1991). The facial anomalies tend to become gradually less distinctive after puberty (Dedam et al., 1993).

Patients exposed to ethanol in utero with some partial FAS phenotype, and/or CNS dysfunction, but without sufficient features for a firm diagnosis of FAS or strong consideration of any alternative diagnosis, are identified as possible fetal alcohol effect [FAE], (Streissguth, Randels, & Smith, 1991). FAE is estimated to occur in 3-5 per 100 live births (Spohr, Willms, & Steinhausen, 1993). A diagnosis of FAE is much more difficult to make with certainty. Children with FAE generally show unevenness in academic ability with arithmetic skills least well developed. Importantly, children with FAE have behavioral and social impairments every bit as debilitating as children evidencing full blown FAS (Abkarian, 1992).

This problem is preventable through the avoidance of alcohol by women who are pregnant or anticipate pregnancy. In response to the severity of this problem, a national health objective (Objective 14.4), for the year 2000 is to reduce the rate of FAS to no more than 1.2 per 10,000 live births (MMWR, 1993). During 1992, the CDC's Birth Defects Monitoring program (BDMP), a national program to monitor congenital malformations, identified 67 infants born with FAS, representing a rate of 3.7 per 10,000 births. From 1979 through 1992, a total of 1,782 FAS cases were reported among 9,057,624 births, a rate of 2.0 per 10,000 births.



The rate in 1992 showed an increase of more than threefold that for 1979 [1.0 per 10,000 births] (CDC, MMWR, 1993).

Because of the widespread use of alcohol, the potential magnitude of birth defects stemming from ethanol exposure is relevant (Clarren & Smith, 1978). Various researchers have tried to determine how and why alcohol affects the fetus. In a clinical trial conducted on six pregnant women, it was noted that fetal umbilical blood alcohol levels rapidly approximate maternal levels. It was also found that alcohol was present in the amniotic fluid after the ingestion of a single drink. The alcohol was only eliminated from the amniotic fluid at half the rate as from the maternal blood. The researcher hypothesized that alcohol reaches the amniotic fluid via the fetus and can only exit via the fetus, leading to what is termed as a trapping effect (Dedam et al., 1993).

Despite the high incidence of FAS, a U. S. survey suggests that Americans between the ages of 18 and 24 are not knowledgeable about the syndrome. Of the 55% who had heard of it, fewer than one-quarter could correctly identify it as a set of birth defects. Researchers also noted that people who were heavy drinkers did not acknowledge the risks as frequently as moderate or light drinkers (Remkes, 1993).

Safe levels of alcohol consumption during pregnancy have not yet been established, and consequences to the fetus of a single drinking binge are similarly unknown. Factors such as dosage, potency, timing of exposure, nutritional status, and exposure to other drugs may aggravate or mediate health outcomes (Donovan, 1991). Evidence suggests that chronic consumption of 89 ml of absolute alcohol or more per day, the equivalent of about six hard drinks,

constitutes a major risk to the fetus. Lower levels of consumption or less frequent use of alcohol carries an unknown risk and may be associated with less seriously affected children (Clarren & Smith, 1978). Because no safe standard for alcohol consumption during pregnancy has been established, the safest course for women who are pregnant or plan to become so is abstinence (Gordis, 1992).

Gottlieb (1994) states that all healthcare providers who care for women and children should have a particular sensitivity to the potential adverse consequences of alcohol consumption while pregnant. Women who are trying to become pregnant must be cautioned not to drink alcohol in any form, whether as a beverage or a solvent. Reid (1992) states the significance of contemplation of pregnancy, merits preconceptual care and counseling as an important part of healthy living, education, and advice. Sometimes the topic of alcohol is approached too discretely and is not given the emphasis it should. These perceptions are an indication of society's ambivalent attitude toward alcohol (Reid, 1992). Reid (1992) also states that it may be difficult to warn mothers of the dangers of alcohol without sounding sanctimonious, and patients sometimes think professionals are trying to put a stop to drinking and are using the pregnancy to get a personal view across.

Niccols (1994) states that alcoholics and intermittent alcohol abusers are at higher risk for bearing infants with FAS and FAE; yet a primary component of alcoholism is denial of alcohol dependence. Even though most women reduce their alcohol intake during early pregnancy, even alcoholic women, this is not necessarily sustained through out the remainder of the pregnancy. This is the

time when the healthcare provider has an opportunity to encourage and help maintain the initial decrease in alcohol intake throughout the pregnancy, as this is a time of continued contact with healthcare services, and advice about drinking in general would be given (Niccols, 1994).

A short instrument was developed that would enable physicians to identify pregnant patients with an alcohol problem. Researchers (Gordis, 1992) at Wayne State University developed a four question instrument that takes less than one minute to administer. Use of the instrument circumvents the problems of denial and under-reporting that historically makes self-reporting, the only other screening tool available, of limited value. The instrument is known as T-ACE, and has the further advantage of not seeming to pry into current drinking habits, which might prompt untruthful answers.

The key question concerns T, tolerance, one of the best predictors of continued drinking throughout a pregnancy. "How many drinks does it take to make you feel high" (p. 3183). A woman who replies more than two drinks is at a higher risk to drink enough alcohol to bear an infant with alcohol related birth defects (ARBD). The A queries annoyed, which addresses whether the woman has been criticized for her drinking and feels she should, C, cut down. E, eye-opener, represents if the woman needs a drink to get started in the morning or get over a hangover. Justification for the instrument comes from studies funded by the National Institute on Alcohol and Alcoholism (NIAAA), in which pregnant alcohol abusers were urged in a supportive manner to drink less, or better yet, to quit. Neonatal outcomes improved when there was compliance by the third trimester. The message here is that intervention is worth trying (Gordis, 1992).

Another screening instrument, that was developed at Boston City Hospital, was administered to all prenatal patients that were involved in a study in Tuba City, Arizona. It consisted of 10 questions that assessed drinking history. It relied on self-reported frequency of and amount of alcohol used. Its use at the hospital represented a major accomplishment in general clinical awareness of alcohol problems. Programs were developed due to the increased awareness to assist women who were abusing alcohol (Masis & May, 1991). Once identified, pregnant women at risk for delivering a child with FAS could be offered preventative counseling (Niccols, 1994). Niccols (1994) also states that positive reports have come out on such counseling programs from several research centers such as Boston and Helsinki.

Abkarian (1992) estimated that \$670 million is needed each year to treat the current population of 68,000 children with FAS under the age of 18 years in the United States. Estimates range between \$600,000 and \$1.4 million across the lifetime of each FAS patient .

A study conducted in 1978, in the State of New York, gives an indication of the serious implications related to maternal alcohol abuse (Donovan, 1991). For that year, out of the 233,328 live births, 386 appeared to have FAS and 1,563 were estimated to have FAE. The projected lifetime cost for these problems was approximately 155 million dollars for education, medical, and custodial care. Moreover, rulings in New York State proposed that physicians who failed to advise patients who were at risk of producing an abnormal child may be required to pay lifetime costs (Donovan, 1991).

Remkes (1993) states, "given the cost of one FAS and one FAE baby, if

we could help one woman to stop drinking during her pregnancy each year, we've saved \$1 million" (p.26). The lifetime costs are estimated from the special education classes, foster care, financial assistance, and social services that need to be provided for each individual. The big tragedy is the loss of human potential (Remkes, 1993).

Another aspect of this tragedy is the consideration of the family structure. Many of the patients came from remarkably unstable family environments: they had lived, on average, in five different principal homes in their lifetimes [not counting receiving homes or temporary shelters] (Streissguth, Randels, & Smith, 1991). In a study conducted by Streissguth, Randels, and Smith (1991), only 9% of children in the study were still with both biologic parents; only 3% were still with their biologic mothers. Of those for whom accurate data could be obtained, 69% of the biologic mothers were known to be dead. Many died of alcohol-related illnesses and causes. Nearly one-third of the patients with FAS/FAE were never raised by their biologic mothers; they were placed for adoption or abandoned in the hospital (Niccols, 1994; Streissguth, Randels, & Smith, 1991).

The long-term effects have far reaching consequences. FAS is not just a childhood disorder. There is a predictable progression of the disorder into adulthood in which maladaptive behaviors present the greatest challenge to treatment (Streissguth, Aase et al., 1991).

Alcohol consumption during pregnancy is related to a continuum of fetal defects. At one extreme is FAS and its profound consequences associated with chronic heavy maternal drinking; at the other end of the continuum is evidence

of FAE associated with moderate alcohol consumption (Donovan, 1991). This information points to the importance of the doctor-patient relationship holding the greatest promise for preventing alcohol-related birth defects (ARBD) and FAS (Gordis, 1992).

There are relatively few forms of mental retardation that can be diagnosed before birth. Through accurate understanding of the intrauterine effects of ethanol and widespread public awareness, this major cause of birth defects and mental retardation could be largely reduced and ideally, eliminated (Clarren & Smith, 1978). This is the goal implemented and fostered throughout the healthcare system. Physicians, nurses, healthcare workers, counselors, educators, and social service workers can impact the people they deal with through education and information. From the standpoint of community planning and patient management, it is extremely important to know the long-term consequences of this preventable birth defect. The knowledge that all alcohol-related birth defects are preventable should motivate prevention efforts. It is also important to be able to appropriately evaluate and plan for interventions with affected patients to enable as productive and successful a life as possible for each affected child (Streissguth, Randels, & Smith, 1991).

The use of alcohol and other drugs is growing among the nation's youth, and the National Institute on Alcoholism and Alcohol Abuse reports "more women are drinking than ever before" (Donovan, 1991, p.36). It is not known how many pregnant women are drinking nor how much they are drinking, but it is generally estimated that eight percent of females of childbearing age in this country are alcoholics (Donovan, 1991).

Education about the effects of alcohol during pregnancy needs to begin early in life when attitudes toward alcohol are forming (Leversha & Marks, 1995). Education on FAS needs to begin at least by early adolescence (Remkes, 1993). Remkes (1993) states that this is important due to the large number of young people who are becoming sexually active at an earlier age, and are starting to drink earlier and becoming heavy drinkers by adolescence.

In 1994, Gottlieb reported that The American Academy of Pediatrics statement on FAS and fetal alcohol effects in Pediatrics, emphasized that physicians whose patients included women of childbearing age, especially adolescents, have a unique responsibility in preventive healthcare. Leversha and Marks (1995) state that information needs to be provided in a variety of ways to reach as many people as possible, and education should be integrated into the school curriculum.

Pregnancy is a time when women are more motivated to change behavior, and the first antenatal contact should be a time of reinforcing previous health education and health promotion. Physicians can take an active role in assuming responsibility for imparting information which is accurate and consistent with the current research, to all women planning pregnancy as well as to all pregnant women and their families (Leversha & Marks, 1995).

Health professionals have a unique opportunity as educators. If there is any doubt about the effects of alcohol on the fetus, it is the healthcare providers' responsibility to advise couples, especially mothers, to stop drinking before and during pregnancy. Even though drinking during pregnancy is the responsibility of the individual, responsibility can only be assumed when a person is fully

informed (Reid, 1992). Even though there is no conclusive proof that a small intake of alcohol is harmful to the unborn child, there is also no proof that is harmless. Because of the reasonable evidence of harm, the safest course of action is nondrinking, when planning a pregnancy and during the pregnancy (Leversha & Marks, 1995).

Gottlieb (1994) states that physicians should work with educators to develop educational programs that include a focus on alcohol as a potential health hazard for the self and the fetus as part of the curriculum starting as early as elementary school. The message must be sent that "a woman who drinks during pregnancy does not drink alone" (p.78). In order to aid in the prevention of alcohol related birth defects, attitudes toward alcohol in pregnancy need to be well established prior to pregnancy. Among women already pregnant, prenatal counseling must be made available (Abkarian, 1992).

Early identification of children with FAS/FAE is essential. Physicians and other healthcare workers encountering neonates should be trained to recognize the physical characteristics associated with prenatal ethanol exposure. The pediatrician is critical because identification is easier in infancy and early childhood when the physical signs are the most pronounced (Abkarian, 1992). The physician can play an important role in the recognition of FAS (Streissguth, Aase et al., 1991).

A study was completed to assess clinical knowledge, practice, and attitudes among pediatricians concerning ARBD. Data were collected in a questionnaire that was mailed to 234 randomly selected Massachusetts pediatricians. The results suggested that a large number of pediatricians had



knowledge about the effects of alcohol on pregnancy, however, many considered themselves unprepared to deal with the topic. More physicians suspected the problem of FAS than made the diagnosis. Almost three-fourths reported that professional education in this field would be helpful (Morse, Idelson, Sachs, Weiner, & Kaplan, 1992).

A critical factor in recognition of the problem is accurate documentation. Health personnel must be willing to report such births to state agencies in the interest of developing accurate incidence data. Suspected alcohol effects should be reported to parents and social service professionals so that early counseling and habilitative services may be initiated and future needs are anticipated and met (Abkarian, 1992). Another important benefit of early, accurate diagnosis is the potential for primary prevention of future children being born with FAS. There is a 77% probability of FAS recurring in a family where a child has already been diagnosed FAS (Niccols, 1994).

The community can be a key element in developing programs to raise awareness about all forms of alcohol abuse, not just maternal alcohol abuse. If a community accepts and supports the programs, the individual tends to adopt the idea more readily (Masis & May, 1991). Gottlieb (1994) reported that the American Academy of Pediatrics called for state legislation that would make information about FAS and FAE available in marriage-license bureaus and other appropriate public locations, as well as places where alcohol was sold.

Intervention is most effective if implemented early and provided as an array of services from all aspects of society. These aspects include healthcare professionals, the school system, family planning services, prenatal clinics, church, family units, and establishments where alcohol is served (Duimstra et al., 1993).

The tragedy for society is that FAS, although untreatable, is completely preventable (Remkes, 1993). The importance of education of would-be and expectant parents on the topic of alcohol consumption cannot be overstated (Reid, 1992). Awareness of the risks of alcohol consumption in pregnancy needs to improve and education must be present within the medical profession as well as in the community as a whole. Clear guidelines on alcohol consumption in pregnancy need to be developed and a clear, consistent message delivered nationally across all groups of health professionals (Leversha & Marks, 1995).

#### Studies on Attitudes Toward Alcohol Use Among Medical Professionals

Physicians' attitudes regarding alcohol play an important role in the practice of medicine, but frequently these attitudes are misunderstood. Medical ethics dictate that physicians' apply their professional knowledge and skill equally to all patients, but this standard is not always practiced (Chappel & Veach, 1987). Chappel, Veach and Krug (1985) state that there is evidence that medical students enter their training with more negative attitudes toward alcoholics than toward patients with more "socially acceptable" medical problems, such as diabetes (p. 48).

Changes in attitudes of medical students have been measured following different educational experiences such as courses on alcohol and substance abuse and continuing medical education courses (Chappel & Veach, 1985).

The historical roots of these negative attitudes tend to stem from the moralistic view that the use of alcohol and other drugs is a matter of personal choice. The excessive use of alcohol is viewed as representing weakness and a sinful nature. In the 1920s many of these ideas stemmed from a combination of influences from the Prohibition and the Harrison Act which prevented physicians' from treating opiate dependency, accentuating the view that alcohol and drug misuse were moral and legal rather than medical problems (Chappel et al., 1985).

Negative attitudes can result in physicians' learning little about alcohol and drug misuse problems, therefore physicians' may be reluctant to apply what they know (Chappel et al., 1985). Volk, Steinbauer, and Cantor (1996) state that the uncertainty hypothesis about the efficacy and effectiveness of treatment might also extend to recognition and management of alcohol-related problems, as many primary care providers may not have the skills needed to treat alcohol problems in their patients and may question the effectiveness of alcohol treatment having seen their own patients refuse to modify consumption despite significant social and physical consequences of drinking. Negative attitudes among caregivers towards people with alcohol-related problems have been reported in many studies (Riley, 1996).

Riley (1996) cites research studies that show that healthcare professionals do not have positive attitudes toward patients with alcohol-related

problems. This thought is disturbing because several researchers have shown that the attitudes of healthcare professionals toward people with alcohol-related problems are pertinent to the treatment outcomes (Riley, 1996). Riley (1996) also suggests that the patient's negative self-image and drinking behavior may well be reinforced by healthcare professionals who embrace negative attitudes toward them.

There are numerous definitions of the word, "attitude." Cascio (1991) defines attitudes as internal states that are focused on particular aspects of objects in the environment. They include three elements; cognition, the knowledge an individual has about the focal object of the attitude; the emotion an individual feels toward the focal object; and an action tendency, a readiness to respond in a predetermined way to the focal object.

Riley (1996) describes three elements of attitudes which include; an affective component which describes the emotional reactions towards an object; a behavioral component which includes the behaviors associated with the attitude object; and a cognitive component which includes the beliefs, facts, and information regarding the attitude object.

There are several basic characteristics of attitudes. First, attitudes are inferred from the way individuals behave. Second, attitudes are directed towards a psychological object or category, and third, attitudes are learned (Riley, 1996). In order to explain the connection between attitudes and behavior, we must look at the precursors of attitudes. Attitudes are a function of beliefs (Cascio, 1991). Riley (1996) states that if an attitude is learned, it can imply that it can be unlearned. Generally speaking, a person who believes that

a particular behavior will lead mostly to positive outcomes will hold a favorable attitude toward that behavior. A person who believes that the behavior will lead mostly to negative outcomes will hold an unfavorable attitude (Cascio, 1991).

Alcohol is the most widely used mind-altering substance and problems associated with alcohol consumption now affect people in virtually every country in the world (Walsh, 1995). While the study of addictions and treatment has gained importance, the question remains whether attitudes of healthcare professionals toward alcoholic patients have, likewise, changed (Schwartz & Taylor, 1989). Without surprise, among professionals and nonprofessionals both, attitudes reflect opinions and biases of the community within which the individual works (Schwartz & Taylor, 1989).

Meakin and Lloyd (1996) state there is evidence that the attitudes of medical students influence their learning. Schwartz and Taylor (1989) report that within a medical school setting, negative attitudes of medical students entering their training become more negative through the four years of medical school. An Australian study found that attitudes toward the alcohol field deteriorated during medical training (Walsh, 1995).

The research indicates that there are a number of impediments to care for persons with alcohol-related problems. Walsh (1995) reports that several studies have emphasized the pessimistic views held by doctors about their ability to intervene effectively with patients affected by alcohol problems. Fisher, Mason, Keeley, and Fisher (1975) report that effective treatment of alcoholism necessitates that medical professionals have positive attitudes about the disease and its prognosis. Pessimism surrounding the prognosis of alcoholism

may cause physicians to be reluctant to treat patients with a problem (Fisher et al., 1975). Judgmental attitudes are considered to be an impediment in establishing a therapeutic working relationship with patients and the manner in which help is offered influences whether or not help is accepted or rejected (Riley, 1996).

Drinking habits, like sexuality, have been an uncomfortable topic for most doctors and has helped sustain the area as a taboo subject for many years (Walsh, 1995). Walsh (1995) states that in addition to inappropriate attitudes and lack of confidence, there is also evidence that medical school students and practitioners have inadequate levels of knowledge about alcohol and alcohol problems.

Rezler (1974) points out that any attempt to urge repeatedly attitudes which are contrary to those the student expects to encounter in his immediate future is likely to result in eventual failure. Rezler (1974) suggests that medical students tend to increase in cynicism which is situational in nature, and decrease in humanitarianism as a reaction to the medical school experience.

Fisher et al. (1975) reports that in an effort to isolate relevant factors in attitude formation, some investigators have correlated personality traits with views on alcoholism. In their study, they found that impulse expression and social maturity were related to attitudes toward alcoholics. Fisher et al. (1975) also state that findings from other studies have shown a relationship between attitudes and authoritarianism, custodial attitudes, and demographic variables. The researchers state, even though personality traits may be as resistant to change as attitudes, it is possible to manipulate the medical school curriculum

in order to have an effect on physicians' attitudes. If this assumption is correct, by altering the medical school experience it may be possible to change attitudes in a positive direction (Fisher et al., 1975).

The impact of alcohol has both powerful social and financial implications with regard to the significant loss of human potential especially when the patient issues are not addressed by the primary caregiver. Education of women prior to and during childbirth years is of the utmost importance (Appelbaum, 1995).

Women may be more likely to conceal their use of alcohol and limit consumption to those situations where negative social reactions may be avoided as well as denying alcohol problems (Volk et al., 1996). The perception appears to be that women receive more social disapproval and stigmatization than men who drink heavily (Schwartz & Taylor, 1996). Volk et al. (1996) also report that males were more likely to be asked about their alcohol consumption than women and it is unclear why female patients are less likely than male patients to have been warned about the harmful effects of alcohol, or to modify consumption.

In a study conducted by Schwartz and Taylor (1989), they noted that female health professionals were significantly more likely than their male counterparts to ask their patients about their drinking habits at the onset of early visits. Increased awareness by the female health professional of the perception of the female alcoholic patient may result in increased awareness of the need to look for underlying reasons for any patient to drink (Schwartz & Taylor, 1989).

As informative as these results may be, they have limited practical value since personality traits may be as resistant to change as attitudes. Unlike

personality traits, however, the medical school curriculum can be manipulated, if it is shown to have an effect on physicians' attitudes. Altering the medical school experience may be a viable way to change attitudes in a positive direction (Fisher et al., 1975).

Medical educators would like to believe that given the right kind of learning environment student attitudes will change in a desired direction (Rezler, 1974). The likelihood that physicians' will respond appropriately to the challenges posed by alcohol problems is increased by exposure to well-designed professional education programs (Walsh, 1995).

In a study done by Roche, Parle, Stubbs, Hall, and Saunders (1995), the authors report that better trained physicians express more confidence in drug and alcohol matters and intervene more often and more effectively. Postgraduate medical practitioners enrolled as trainees physicians, psychiatrists, and general practitioners through their prospective training colleges, were asked about their attitudes towards drug and alcohol management issues as a part of a national survey of knowledge, skills, and attitudes. Interpretation of the study indicates that regardless of the specialty, medical practitioners should play an active role in the management of drug and alcohol problems and that management by a physician influences prognosis (Roche et al., 1995).

Medical education faces increasing criticism because of the perception that it is difficult to produce physicians who are both technically competent and compassionate (Wolf, Woolliscroft, Calhoun, & Boxer, 1987). Wolf et al. (1987) state that the teaching of interpersonal and communication skills is included in



most medical school curricula, even though it is a relatively new phenomenon. Proposals for new ways to train physicians that include heightening physician's awareness of and sensitivity to the rights and emotional needs of patients have been introduced. Responding to the feelings expressed by patients has been considered an important humanistic skill (Wolf et al., 1987). One role of a physician is to effectively communicate with his or her patients. The need for medical students to study the art and science of communication is basic to nearly every aspect of their professional endeavors. Communication is a critical factor in accurate diagnosis and effective management of patient care. Two essential aspects of medical education are understanding the major barriers to communication and the cultivation of skill in observing, listening, and conveying information (Walsh, 1995).

A growing awareness and increasing concerns of the medical profession about alcohol abuse in the general population have prompted a search for successful methods of teaching about alcoholism and substance abuse diagnosis and treatment (Siegel, Markert, & Vojtech, 1986). Many, if not all, curricula of medical schools deal with alcoholism to some degree, but cognitive training which simply imparts facts about alcoholism may not be sufficient to strengthen positive attitudes (Fisher et al., 1975). Chappel and Veach (1987) suggests that the cognitive aspects of attitudes are more easily influenced than emotional aspects. Attitudinal education would have an optimal chance of success if it involved clinical training and taught appropriate attitudes in the same way as informational matters are currently taught (Fisher et al., 1975).

Chappel and Veach (1987) report the results of a five-year study that indicate that objectives for changing medical student's attitudes in substance abuse can be set and achieved in medical education. The optimum time required for attitude change is not clear. There is some reference in the literature that extended courses are more effective than short blocks of time (Chappel & Veach, 1987). Chappel and Veach (1987) believe that positive attitude changes can be consistently obtained with relatively brief educational experiences, but consider it unlikely that these changes will persist without reinforcement.

Changing medical behavior is a challenging undertaking (Walsh, 1995). The optimistic assumption of medical educators that individuals' attitudes can be changed fundamentally is shared by others engaged in both short-term and long-term programs (Rezler, 1974). High priority should be given to pedagogical methods that will encourage students to identify their personal experiences and subjective feelings, and attain the goal of professional objectivity (Chappel & Veach, 1987).

#### The Efficacy of CAI

One way to address the new pedagogical demands of medical school curricula is the use of CAI. Adsit (1996) defines a CAI as a computer program designed to teach or inform. Computer-based multimedia programs (i.e., those that provide varied graphic displays, sound, and animation in addition to text) have the potential to meet health education and medical training needs.

Delivery of instruction to single individuals or small groups via a microcomputer, has been shown to be effective in promoting learning across user types and content areas and a wide range of learning styles can be accommodated (Kinzie, Schorling, & Siegel, 1993).

CAI was designed to promote individualization of the learning process and adaption of instruction to individual student needs and patient needs (Calderone, 1994). Calderone (1994) suggests that the self-pacing of lessons and the ability to tailor the material to the learning style of the individual, creates an environment that allows for reinforcement, feedback, and learner control, which stimulates learning. Good quality interactive materials tend to motivate and promote effective learning (Longstaffe, 1996).

New technologies such as CAI offer the potential to tailor learning to the needs of the learner (Walsh, 1995). The content can be presented in a multi-sensory, multi-channel format of learning (Kinzie et al., 1993). Longstaffe (1996) states that technology-based materials contribute to the quality and richness of the learning experience by providing another series of learning paradigms in addition to those that already exist.

Multimedia is being used in health care education for a variety of content areas to present accepted instructional strategies: tutorials, drill and practice, simulations, and testing (Adsit, 1996). Walsh (1995) documented that in a study of primary care physicians, 30% said they had learned quite a bit from a computer simulation and 33 randomly selected students all gave their computer assisted instruction high ratings.

Medical education is a discipline in transition. The pressures on medical

educators to produce quality doctors who are capable problem-solvers, is unprecedented (Khadra, Guinea, & Hill, 1995). Khadra, Guinea, and Hill (1995) state that CAI has been seen by many as having the potential to fundamentally advance education generally and medical education specifically which will significantly alter the face of teaching. Walsh (1995) states that new perspectives on medical education and related curriculum developments offer an opportunity to improve medical teaching about alcohol.

Computer-based patient education materials are becoming more widely used in an attempt to increase the efficiency and efficacy of the delivery of healthcare (Sechrest & Henry, 1996). Glenn (1996) reports that the use of CAI decreases the time a person needs to master a given skill or body of knowledge and saves healthcare personnel time. In a study done to test a computer-based multimedia prenatal alcohol education program for use in a poor rural patient population, the authors found that use of the computer offered the potential to improve the health education possible with no increase in staffing levels at public health clinics (Kinzie, Schorling, & Siegel, 1993).

Sechrest and Henry (1996) report that the computer does not serve to replace the role of the healthcare provider in the educational process, but to enhance the interaction between caregiver and consumer. Information can be made available to the healthcare consumer in a more understandable fashion through the use of computer graphics, computer animation, and other multimedia techniques (Sechrest & Henry, 1996).

A salient part of the study focused on medical students evaluating their intent to use CAI for patient education when they became a physician. This was emphasized throughout the study as the basis for using CAI as the intervention.

Computer-based programs can be set up for free choice use in a patient waiting room or could be integrated into patient treatment by directing the patient to use the program during their visits (Kinzie, Schorling, & Siegel, 1993). One of the main purposes for using computers to educate patients is to make it easier and more accessible to obtain the necessary information (Sechrest & Henry, 1996). Sechrest and Henry (1996) discuss that learning should occur simply and effectively without a lot of input from staff members, and without requiring a college degree in computer science. The use of computers and multimedia technology in the healthcare field can be expected to follow the use of such technology in other fields (Adsit, 1996).

### Summary

The way a physician views his or her patient is a critical element in effective patient education. Research studies suggest that attitudes can be improved through training (Chappel & Veach, 1987; USDHHS, 1987). To better meet the challenges of prenatal alcohol effects, two areas must be considered. The first area is primary prevention that targets the voluntary modification of alcohol use behavior among women who become pregnant (Hawks, 1993). The second area is the need for formal education for physicians and healthcare professionals. Beliefs and attitudes still persist among some health professionals that alcohol does not affect the fetus (Donovan, 1991).

Prevention of FAS and FAE requires that health professionals be educated to recognize alcohol abuse and provide unbiased, accurate information and meaningful interventions for their patients (Donovan, 1991).

The challenge ahead is to reach and influence, directly and indirectly, the women who need education regarding the dangers of alcohol and its effect on the fetus. Studies are needed to identify ways to improve, change, evaluate, and influence the attitudes of physicians toward patient education.

### CHAPTER III

#### METHODOLOGY

The methodology of this descriptive study is discussed in relation to its population, procedures used to sample the population, instruments used to measure the variables, procedures used to collect the data, and descriptive and statistical techniques that were used to treat the data. In addition, the protection of human subjects is discussed.

#### Population and Sample

The target population of this study consisted of students attending a medical school who were enrolled in patient education workshops during the fall of 1997 in the Dallas/Fort Worth Metroplex. The sample consisted of 32 eligible participants who were willing to participate. A final sample of 30 eligible participants completed the entire study and comprised the sample for this study. Each participant was 18 years of age or older and was able to understand the English language. The participants ranged in age from 21-60 years. Forty-seven percent of the participants were female while 53% were male. Information on ethnicity was not collected at the time of the study and this demographic information could have bearing on the outcome of parts of the study. This will be discussed in a later section.

A non-randomized sample of convenience was utilized. Only those willing to complete an instrument prior to and after a series of patient education workshops which included viewing a CAI on fetal alcohol syndrome were asked

to participate. A pilot study was conducted prior to the actual study which employed the same procedures as in the research study.

### Protection of Human Subjects

Prior to collection of data, permission was obtained from the Institutional Review Board (IRB) of the University of North Texas Health Science Center at Fort Worth (UNTHSCFW) [Appendix A], the facility from which the participants were recruited. Permission was also obtained from the Human Subjects Review Committee (HSRC) at Texas Woman's University (TWU) [Appendix B]. Finally, approval to conduct the study was secured from the Graduate School at TWU (Appendix C).

All participants signed an informed consent form (Appendix D) that described the purpose of the study and study procedures. The consent form also assured participant confidentiality, anonymity, risks or discomforts, benefits, and absence of penalties with withdrawal from the study. It also noted that the study would have no bearing on the grade of the participant

The consent form also listed several phone numbers, including a pager number to reach the researcher should the participant have questions or concerns regarding the study. A copy of the consent form was made available to each participant to keep for his or her record once it was signed. A cover letter accompanying each instrument packet was provided, repeating the purpose of the study, the estimated time for completion of the packet, and a reminder that participation was strictly voluntary (Appendix E and F).



### Procedures

Before initiation of the study, the following steps were taken. Permission to use the instrument was secured from one of the authors, Dr. Tracy Veach (Appendix G) currently at the University of Nevada, School of Medicine.

A CAI on fetal alcohol syndrome (Appendix H) was created by the researcher using Authorware Academic (Allen, 1995), which served as the intervention. The CAI required several months to develop.

Some of the problems encountered while developing the CAI consisted of computer failure numerous times due to the large graphic base used. This was solved by upgrading the computer with 32 megabytes of RAM allowing the researcher to utilize more graphics and sound.

Another problem was the inability of the researcher to package the CAI for delivery in time for the pilot study. Packaging is the method where the CAI can be run but not edited and offers a finished version of the file. This created problems for the participants as well as the researcher. During the pilot, it was necessary to sit with each participant as she or he was completing the CAI. When icons were selected with a mouse click by mistake or inadvertently, the screen changed and the researcher had to stop the session to fix the problem. This created delays and interruptions in the learning process. The researcher sought technical assistance from a computer company in Dallas and the researcher accomplished packaging the CAI prior to the actual study.

Before the actual study, a pilot study was conducted using a sample of convenience that included six health professionals attending a graduate class in the Department of Health Studies at Texas Woman's University during

summer 1997. Each participant was 18 years of age or older and was able to understand the English language. The sample was made up of both men and women between the ages of 35-47 years. The purpose was to test both the procedures and CAI (Appendix H) on a sample population in order to identify and solve any problems before initiation of the actual study. The same format was followed in the pilot regarding Human Subjects procedures (Appendix B), informed consent (Appendix D) and distribution of the packets and cover letters (Appendix E and F) as in the actual study.

The pilot study was initiated June 18, 1997. At the first class session, the study was introduced and the participants completed the first packet which consisted of the informed consent (Appendix D), Demographic Inventory (Appendix I) and the first Substance Abuse Attitude Survey [SAAS] (Appendix J) [Chappel, Veach, & Krug, 1985]. After the informed consent (Appendix D) was signed, it was collected and placed in a separate envelope to assure all information was kept anonymous and confidential.

One week later, the students were asked to view a CAI on FAS (Appendix H), then complete another SAAS (Appendix J) and complete a Feedback Form (Appendix K) related to the software they had viewed. The researcher was present at both sessions to collect the packets and to assist with the study and answer any questions.

Upon initiation of the actual study, the researcher consulted the UNTHSCFW to obtain assistance with IRB approval and recruitment of data collection sites. With the assistance of one of the faculty members, UNTHSCFW agreed to participate in the study. The IRB required that the site be named on

the consent form (Appendix D). Also required on the consent form was the name of the professor who would be willing to be a co-investigator for the study. This individual was responsible for assisting in providing the series of patient education workshops that were used to collect the data for the study.

After IRB approval was obtained, the researcher contacted the faculty member who would be conducting the patient education workshops to schedule the dates for the study. A plan was formulated with the faculty member and the researcher as to how the study would be introduced to the participants in each of the workshops.

A series of two workshops was scheduled. In the first workshop there were 15 subjects. In the second workshop there were 15 subjects. Each workshop spanned a two week period. The first patient education workshop was September 11, 1997. The study was introduced by the researcher and if they agreed to participate, the participants completed the first packet which consisted of the informed consent (Appendix D), Demographic Inventory (Appendix I) and the first Substance Abuse Attitude Survey (SAAS) [Appendix J] (Chappel, Veach, & Krug, 1985). After the informed consent form (Appendix D) was signed, it was collected and placed in a separate envelope to assure all information remained anonymous and confidential. Next, a cover letter (Appendix E) was read by each participant that presented a review of the study and provided instruction for completion of the two questionnaires included in the packet. When the participant finished answering the questionnaires the cover letter instructed the participant to return them to the researcher who placed them in a separate envelope.

Two weeks later, which was a change from the pilot study timetable, on September 25, 1997, the participants were asked to view a CAI on FAS (Appendix H) and then complete a second questionnaire packet which also contained a cover letter that repeated the purpose of the study and reiterated that the study was strictly voluntary. The second packet also contained the SAAS (Appendix J) and a Feedback Form (Appendix K) related to the software they had viewed. When the participant finished answering the questionnaires, the cover letter instructed the participant to return them to researcher who placed them in a separate envelope.

The researcher was present at both sessions to collect the packets and assist with the study and answer any questions. The reason for the difference in the amount of time between data collection from one week as in the pilot, to two weeks, was twofold. The researcher decided that the participants would be less likely to remember the items on the SAAS (Appendix J) over a two week period thus reducing the likelihood of reactivity. There was also scheduling problems among the participants that had to be taken into account. The second patient education workshop was October 2, 1997. The same procedures were followed as in the first series of workshops.

Two weeks later on October 16, 1997, the participants were asked to view a CAI on fetal alcohol syndrome (Appendix H) and then complete a second questionnaire packet which also contained a cover letter that repeated the purpose of the study and reiterated that the study was strictly voluntary. The second packet also contained the SAAS (Appendix J) and a Feedback Form (Appendix K) related to the software they had viewed. When the participant

finished answering the questionnaires, the cover letter instructed the participant to return them to the researcher who placed them in a separate envelope. The researcher was present at both sessions to collect the packets and assist with the study and answer any questions.

### Instrumentation

One instrument, one demographic inventory, and one feedback form were used to collect data in the study: (a) the Substance Abuse Attitude Survey [SAAS] (Chappel, Veatch, & Krug, 1985) [Appendix J], (b) the Demographic Inventory (Appendix I), and (c) the Feedback Form (Appendix K).

The SAAS was utilized in the study to assess medical students attitudes toward various aspects of alcohol and drug misuse. A review of the literature revealed only one questionnaire available to collect data for this study, the SAAS. The first part of the SAAS consists of 50 attitude statements. Scores provide information on five dimensions of clinical attitudes toward substance abuse and its treatment. The respondent was asked to indicate the degree of agreement or disagreement on a five point scale ranging from strongly disagree to strongly agree. The respondent was asked to blacken in the answer that most closely represented his or her attitude toward the statements presented.

Scores were derived from five scales based on the 50 attitude statements: permissiveness, non-stereotype, treatment intervention, treatment optimism, and non-moralism. SAAS sub-scale scores were derived from all items. The substance abuse attitude score was the sum of item scores in each scale score column and was entered in a corresponding "Raw Score" box. T-score equivalents were converted using the T-Score Conversion Table.

The original SAAS was developed in 1977 by the Career Teachers in Alcohol and Drug Abuse, a group that later became the Association of Medical Educators and Researchers in Substance Abuse (Chappel & Veach, 1987). A factor analysis was run five different times and, as in the past, the same five stable coherent factors emerged (Chappel, Veach, & Krug, 1985). The scales are standardized in relation to a criterion group (c) of clinicians, experienced in treating patients who misuse alcohol and other drugs, versus a noncriterion group (nc) of clinicians: a score of 50 on any of the scales is equivalent to the average score for an experienced, professionally satisfied clinician who has a diverse background in the professional management of substance abuse patients, and who has experienced professional satisfaction and success in treating patients with substance abuse problems, as indicated by self-report (Chappel et al. , 1985).

Reliability and validity data have been reported by Chappel et al. (1985). The alpha reliability coefficient was reported for each subgroup factor. Factor I, nc, .77; c, .73. Factor II, nc, .63; c, .56. Factor III, nc, .81; c, .76. Factor IV, nc, .67; c, .64. Factor V, nc, .67; c, .63. The factor structure was found to be internally consistent over repeated administrations.

The SAAS is currently being utilized in its complete form. A Brief Substance Abuse Attitude Survey (BSAAS) is being developed but at the moment, there are no group norms available, and the sub-scales have yet to be standardized (Chappel & Veach, 1991).

The Demographic Inventory (Appendix I), part two of the instrument, was utilized by the researcher to collect demographic information such as age,

gender, educational attainment, and area of specialization. Information regarding clinical practice and professional satisfaction was included as part of the instrument, but was optional. The demographic inventory was administered with the first SAAS packet two weeks prior to the patient education workshop and CAI intervention.

The Feedback Form (Appendix K), was adapted by the researcher to collect information following the workshop and CAI intervention on fetal alcohol syndrome. The instrument was used to gather information about usefulness of the educational information, evaluation of the CAI, and the participant's future plans to utilize the educational information.

#### Treatment of the Data

The study was a one shot, pretest-posttest design. Only those participants who completed each questionnaire and all parts of the study were considered for inclusion in the data analysis of this study. Thirty-two participants were eligible to participate in the study during the data collection period. However, only 30 completed the entire study and were considered for data analysis. Attrition from the study was anticipated. Reasons for attrition included: failure to attend a section of the workshop, cancellation of class, and failure to complete the instrument.

The study utilized descriptive analysis of the data that included percentages, mean, and standard deviation to determine the normalcy of the data sample. A dependent *t*-test was utilized to determine acceptance or rejection of the null hypothesis. A significance level of .05 was utilized on all parametric tests. The Statistical Package for the Social Sciences, SPSS-X,

software program was utilized to analyze the data. Qualitative data were utilized to answer the research questions for this study.



## CHAPTER IV

### FINDINGS

The purpose of this study was to determine the effectiveness of a CAI about FAS on improving attitudes about alcohol use among medical students attending the University of North Texas Health Science Center at Fort Worth. The descriptive data of participants, statistical analyses of results, as well as additional findings are reported in this chapter. Descriptive analysis of data included the use of percentages, ranges, and standard deviation to determine normalcy of the data sample. A parametric test was utilized for the hypothesis which included a Dependent  $t$  Test. This design consisted of one group that yielded two scores and how they changed following the intervention.

#### Descriptive Characteristics of the Participants

The participants for this study were recruited between September and October of 1997 from the UNTHSCFW. The target population of this study was second year medical students attending patient education workshops in the fall semester. Each participant was 18 years of age or older, and was able to understand the English language. The participants ranged in age from 21-60 years of age. Forty-seven percent of the participants were female. Information on ethnicity was not collected at the time of the study, but the group was perceived to be culturally diverse based on researcher observation. A final sample of 30 eligible participants completed the entire study and make up the sample for this study.

No participant failed to complete the study due to voluntary withdrawal. The final sample of 30 participants who completed the entire study including two separate questionnaire packets, ranged in age from 21 to 60 years with a mean of 27.1 years. The participants were asked to report their age, gender, and any clinical practice related to patients with alcohol or drug-related problems on the Demographic Inventory (Appendix I). Only three (10%) of the participants reported any kind of previous contact with persons who had alcohol or drug-related problems.

Each questionnaire packet asked the participant to respond to a SAAS (Appendix J) which consisted of 50 questions related to their feelings and attitudes regarding alcohol and other substance abuse issues. The questions provide scores on five dimensions of clinical attitudes towards substance abuse and its treatment. The dimensions are permissiveness, non-stereotype, treatment intervention, treatment optimism, and non-moralism. These scales are standardized in relation to a criterion group of counselors, determined by the authors (Veach & Chappel, 1985): a score of 50 on any of the scales is equivalent to the average score for an experienced, professionally satisfied clinician who has a diverse background in the professional management of substance abuse patients, and who has experienced professional satisfaction and success in treating patients with substance abuse problems, as indicated by self-report (Chappel et al. , 1985).

At the second data point and prior to the second administration of the SAAS (Appendix J), the participants were asked to view a CAI on FAS (Appendix H). Upon completion of the study, pretest data revealed that on the

dimension of permissiveness, 5 participants (16%) scored 50 or above. Post-test data revealed that 4 of the participants (13%) scored 50 or above. The effect was not statistically different. The  $p$  value is  $.33 > .05$ . The obtained probability is greater than alpha. On the dimension of non-stereotype, pretest data revealed 7 participants (23%) scored 50 or above. Post test data revealed 6 participants (20%) scored 50 or above. The effect was not statistically different. The  $p$  value is  $.49 > .05$ . The obtained probability is greater than alpha. On the dimension of treatment intervention, pretest data revealed 12 participants (40%) scored 50 or above. Post test data revealed 14 participants (46%) scored 50 or above. The effect was not statistically different. The  $p$  value is  $.46 > .05$ . The obtained probability is greater than alpha. On the dimension of treatment optimism, pretest data revealed 10 participants (33%) scored 50 or above. Post test data revealed 8 participants (27%) scored 50 or above. The effect was not statistically different. The  $p$  value is  $.28 > .05$ . The obtained probability is greater than alpha. On the fifth and final dimension non-moralism, 9 participants (30%) scored 50 or above and the post test data revealed 8 participants (27%) scored 50 or above. The effect was not statistically different. The  $p$  value is  $.46 > .05$ . The obtained probability is greater than alpha.

### Study Findings

Data were analyzed using the Statistical Package for the Social Sciences, SPSS-X, (SPSS, Inc. , 1990) software program to test the hypothesis for this study. Descriptive data were collected and analyzed to answer the two research questions for this study. The hypothesis and each research question are listed below followed by the results obtained during the data analysis.

Hypothesis: There is no statistically significant difference before and after participating in a computer assisted instruction on fetal alcohol syndrome in substance abuse attitudes among medical students.

Substance abuse attitudes were measured by the SAAS. Each SAAS questionnaire packet that the participants answered requested the participants to respond to 50 statements based on a Likert scale format. The choices were strongly disagree, disagree, uncertain, agree, strongly agree. A Substance Abuse Attitudes Scoring Worksheet was provided at the time the instrument was secured by the researcher. Scores were derived by adding scores of the subgroups for each of the five categories and carrying out the addition or subtraction of the values in the "Base" and "Response" columns as indicated, and the results entered for each item in the "Reversal" column. This procedure yielded a "Raw Score". The "Raw Scores" were then converted to T-Scores, using Veach and Chappel's (1985) T-Score Conversion Table. The T-Scores were used to complete a t-test analysis. Table 1-10 provides a summary of the t-test results conducted on each one of the subgroups which include; permissiveness, non-stereotype, treatment intervention, treatment optimism, and non-moralism. A significance of .05 was utilized for all parametric tests. No statistically significant difference was found with the t-test analysis for any of the subgroups. The null hypothesis was not rejected.

Assumptions for this statistical analysis included;

1. Normalcy, the data sample were approximately normally distributed.

There were no outliers.

2. Randomness, this was violated but the  $t$ -test was robust enough to compensate for the violation.
3. Numerical data were used.
4. Dependence, each score was dependent on the first score.

Table 1

A Comparison of Medical Students Attitudes Toward Alcohol and Substance Abuse; Subgroup Permissiveness

Group	Range	M	SD	SEM	t	p
Pretest	17-57	36.83	10.92	1.99	.99	.33
Posttest	17-55	35.93	10.65	1.94		

Table 2

A Comparison of Medical Students Attitudes Toward Alcohol and Substance Abuse; Subgroup Non-Stereotype

Group	Range	M	SD	SEM	t	p
Pretest	13-57	42.53	10.07	1.84	.70	.49
Posttest	22-55	41.77	8.54	1.56		

Table 3

A Comparison of Medical Students Attitudes Toward Alcohol and Substance Abuse; Subgroup Treatment Intervention

Group	Range	M	SD	SEM	t	p
Pretest	31-69	47.60	9.10	1.66	-.75	.46
Posttest	35-66	48.77	7.56	1.38		

Table 4

A Comparison of Medical Students Attitudes Toward Alcohol and Substance Abuse; Subgroup Treatment Optimism

Group	Range	M	SD	SEM	t	p
Pretest	24-68	45.23	9.96	1.82	1.10	.28
Posttest	28-63	43.67	7.91	1.44		

Table 5

A Comparison of Medical Students Attitudes Toward Alcohol and Substance Abuse; Subgroup Non-Moralism

Group	Range	M	SD	SEM	t	p
Pretest	18-64	42.93	11.13	2.03	.75	.46
Posttest	21-68	41.80	9.88	1.80		

Research Question 1: What are the perceptions of medical students regarding a CAI on FAS?

This research question was answered by the data obtained from the Feedback Form (Appendix K) completed by participants after viewing the CAI. This questionnaire asked participants to record comments on how they perceived the CAI, if the CAI would help them set goals for themselves, and if they would use the product again.

Sixteen of the participants (53%) stated the CAI would enable them to set goals for themselves. Fourteen of the participants (47%) stated the CAI would not enable them to set goals for themselves. Nineteen of the participants (63%) stated they would use the product again. Eleven of the participants (37%) stated they would not use the product again. Table 11 presents the positive perceptions of the medical students toward the CAI. The question asked if there was one thing that stood out as being really good about the product.

Table 6

Perceptions of Medical Students (N = 30)

Positive Responses

Quite helpful

Up to date

Good background information and use of one sentence facts, easy to receive important points

Well done product, useful for patient education with minor refinements

---

Positive Responses (cont.)

Easy to understand and the quiz reinforces understanding. Use for educational purposes

Nice pictures

Educating skills

Easy to read and understand and gave valuable information

Would use product for patient education

Simple, short and to the point

Very clear instructions

It integrated sight, sound, and physical motion to reinforce teaching points

Flows well

Good for patient education

Emphasis on attitudes and positive communication is essential to good care

Simple, easy to learn and remember

Very well put together, organized and simple to use

Graphics were good

For educating a patient or lay person

Would like to utilize interactive education in own practice

Interactive and self-paced

More interesting than a brochure

Straight forward and accurate

Short and to the point

Informative in a concise, complete, and straight forward manner



---

Positive Responses (cont.)

Simple screens not too overwhelming to read for a patient

Interesting and innovative

Good for the general population

Well put together

Cool music

Good graphics, short sentences, and relevant information

The information being given about the dangers of alcohol use among pregnant woman

---

Table 7 presents the negative perceptions of the medical students toward the CAI. This question addressed the one thing that stood out as being really bad about the product.

Table 7

Perceptions of Medical Students (N = 30)

---

Negative Responses

For first two topics, wasn't much sound effects, when asked to use ear phones. Should be told not to expect much during first topic, main action is in third objective

Music is sometimes distracting

Music was intrusive, don't overload with flute music when trying to read

Possibly more information needed on how one drink a day effects the baby, one drink a week, or one drink a month effects the baby. Little more information to encourage abstinence on the part of the mother

---

Negative Responses (cont.)

Boring

What educational level of individual is the CAI designed for, wording may be too advanced for some audiences

Controlling the sound, go back to view previous slides

Can't spell false but can spell no

Seems too elementary, suggest different programs for varying intellectual levels

Little flexibility and some of the graphics need help

Music in part #3

Too slow

A little too brief. If used as a teaching tool, needs to be a little more "aggressive"

Music was distracting, letter size too big, and not interactive enough

Could have done all with mouse rather than keyboard with mouse. Music was distracting. Only useful for someone who has never had any experience in this field

The true/false statements

Simplistic

Really bad graphics and navigation

Too basic

---

Research Question 2: How do medical students plan to use information from a CAI on FAS in a patient education setting?

This research question was answered by the data obtained from the Feedback Form (Appendix K) from participants after viewing the CAI. The question focused on learning styles and what the participant thought the CAI

was trying to be. There were four choices. The choices were a book, a tutor, a reference book, or a tool.

One participant (.3%) stated he or she would use the information as a book. Seven participants (23%) stated they would use the information as a tutor. Two of the participants (.6%) stated they would use the information as a reference book. Fifteen participants (50%) stated they would use the information as a tool. Five participants (17%) stated they would use the information from two categories as a tutor and a tool.

#### Summary of Findings

One hypothesis and two research questions were answered. Descriptive data for demographic information of the participants and statistical analyses of the results were presented. The next chapter will discuss and analyze the findings in detail.

## CHAPTER V

### SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents concluding information that will be introduced under the following headings: (a) Summary of the Study, (b) Summary of the Findings, (c) Summary of Discussion and Conclusions, and (e) Recommendations.

#### Summary of the Study

This study was initiated to examine medical students' attitudes about alcohol, whether or not changes in their attitudes could take place following an intervention, and how these attitudes would influence and impact patient education in the future. The purpose of the study was to determine the changes in attitudes about alcohol among students attending a medical school in the Dallas/Fort Worth Metroplex before and after the use of a CAI on FAS. Demographic characteristics of the medical students was collected as well.

A pilot study was conducted in the spring of 1997, prior to the actual study which employed the same procedures as the research study. The actual study was conducted during the fall of 1997. Thirty-two participants agreed to participate and 30 eligible participants completed the entire study and made up the sample of this study. Each participant completed two questionnaire packets. The first packet was completed during the first of a series of patient education workshops. This packet included a cover letter with packet completion instructions and the SAAS developed by Chappel et al.

(1985) which also included a Demographics and Clinical Practice questionnaire. The second questionnaire packet was administered during the second patient education workshop after the students had viewed a CAI on FAS. This packet included a cover letter, the SAAS, and a researcher adapted feedback form, designed to receive information regarding the CAI.

Descriptive techniques such as ranges, means, and percentages were used in data analysis. A t-test was used to test the hypothesis. Qualitative data were used to interpret findings to answer the research questions.

#### Summary of Findings

The target population of this study was students who were enrolled in patient education workshops attending a medical school in the Dallas/Fort Worth Metroplex. The 30 participants who completed the entire study ranged in age from 21 to 60 years with a mean of 27.1 years. Forty-seven percent of the participants were female while 53% were male. In regard to the question of clinical practice, only three (10%) of the participants reported any kind of previous contact with persons who had alcohol or drug-related problems.

Each questionnaire packet asked the participant to respond to a SAAS (Appendix J) which consisted of 50 questions related to their feelings and attitudes regarding alcohol and other substance abuse issues. The questions provide scores on five dimensions of clinical attitudes towards substance abuse and its treatment. The dimensions are permissiveness, non-stereotype, treatment intervention, treatment optimism, and non-moralism. These scales were standardized in relation to a criterion group of counselors, determined by the authors (Chappel, Veatch, & Krug, 1985) : a score of 50 on any of the scales

is equivalent to the average score for an experienced, professionally satisfied clinician who has a diverse background in the professional management of substance abuse patients, and who has experienced professional satisfaction and success in treating patients with substance abuse problems, as indicated by self-report (Chappel et al., 1985).

Upon completion of the study, pretest data revealed that on the dimension of permissiveness, 5 participants (16%) scored 50 or above. The post-test data revealed that 4 of the participants (13%) scored 50 or above. The mean number for permissiveness was 35.93 (SD = 4.97). On the dimension of non-stereotype, pretest data revealed 7 participants (23%) scored 50 or above. Post-test data revealed 6 participants (20%) scored 50 or above. The mean number for non-stereotype was 41.77 (SD = 6.02). On the dimension of treatment intervention, pretest data revealed 12 participants (40%) scored 50 or above. Post-test data revealed 14 participants (46%) scored 50 or above. The mean number for treatment intervention was 48.77 (SD = 8.53). On the dimension of treatment optimism, pretest data revealed 10 participants (33%) scored 50 or above. Post-test data revealed 8 participants (27%) scored 50 or above. The mean number for treatment optimism was 43.67 (SD = 7.82). On the fifth and final dimension, non-moralism, 9 participants (30%) scored 50 or above and the post-test data revealed 8 participants (27%) scored 50 or above. The mean number for non-moralism was 41.80 (SD = 8.33).

Utilizing the SPSS-X, one hypothesis was tested. Descriptive data were collected and analyzed to answer the two research questions. The data analysis revealed the following:

1. Hypothesis: There is no statistically significant difference between attitudes before and after participating in a computer assisted instruction on fetal alcohol syndrome in attitudes about substance abuse among medical students. The null hypothesis was not rejected.

2. Research Question 1: What are the perceptions of medical students regarding a CAI on FAS?

Sixteen of the participants, (53%) stated the CAI would enable them to set goals for themselves. Fourteen of the participants, (47%) stated the CAI would not enable them to set goals for themselves. Nineteen of the participants (63%) stated they would use the product again. Eleven of the participants (37%) stated they would not use the product again. No participant stated the information was not relevant.

3. Research Question 2: How do medical students plan to use the information from a CAI on FAS in a patient education setting?

One participant (.3%) stated they would use the information as a book. Seven participants (23%) stated they would use the information as a tutor. Two of the participants (.6%) stated they would use the information as a reference book. Fifteen participants (50%) stated they would use the information as a tool. Five participants (17%) stated they would use the information from two categories, as a tutor and a tool.

### Summary of the Discussion and Conclusions

This study was an exploratory study, fashioned after a study completed by the authors of the SAAS, the tool used for data collection (Chappel & Veach, 1987). This study was conducted over a short time frame. Chappel and Veach (1987) presented their study over the course of a semester where the students took the SAAS prior to medical education on alcohol and then again after the term was completed. The results showed positive short-term change in attitudes regarding alcohol and the problem it presents. It is apparent that long-term studies on this subject would be beneficial.

Many of the studies that were used to justify the problem were dated, or were studies done in other countries. The problems FAS present as well as physicians' attitudes toward alcohol outcomes and the implications for delivery of effective patient education, substantiated the need for new research.

After data analysis, it was evident that there were discrepancies from the pretest results to the post-test results. Out of the five areas, the dimension of treatment intervention revealed the most positive change. On the pretest data 12 participants (40%) scored 50 or above and on the post-test 14 participants (46%) scored 50 or above. Not even half of the participants scored close to the criterion group of counselors used as the norm from the original study (Chappel et al., 1985). On the other four dimensions, the post-test scores were lower than the pretest scores, between 2 to 3 percentage points.



The way a physician perceives his or her patient is a critical element for effective patient education. Patient education plays a key role in prevention efforts today.

Another possible explanation to take into consideration is one of ethnicity which was not addressed on the demographic inventory and could have a bearing on a persons' view of how they deal with sensitive issues. Cultural barriers, as well as gender barriers, may sometimes hinder or prevent effective patient education and compromise confidentiality issues, where a patient may not feel free to discuss an issue with a person they feel does not understand the problem. A number of the participants in the study were from countries other than the United States and informed the investigator that in their culture, it is not acceptable for a woman to be alone with a male in an examining room, nor is it acceptable for a man to be alone with a woman in an examining room. In many instances the patient looks to the physician as the ultimate authority figure, and is only comfortable with him or her in the room. This would be a demographic variable worth exploring in future studies (Personal communication, September 25, 1997).

Gender can play a role in patient education. Women may feel more comfortable revealing problems to another woman, especially problems with alcohol. Studies showed that female health professionals asked more pertinent information about problems with alcohol, than their male counterparts. Many physicians have a female on their staff who will be the first contact with the female patient and will do the history taking and initial interviews. The initial contact is a critical factor as well as a time to begin the patient education

process. The role to be played by health professionals in the care of people with alcohol-related problems is a valuable one (Riley, 1996).

Attitude is a critical factor in learning and instruction. Medical students are beginning to form and develop their ideas and attitudes as they go through medical school. This is the time to impact the students with medical education geared toward alcohol prevention and the efficacy of unbiased treatment. Due to the seriousness the problems of alcohol can cause, attention to physician's attitudes early on and throughout their medical education can not be over emphasized. Importance of developing positive skills and attitudes for risk reduction efforts are reflected in the literature. Riley (1996) states that patients value their relationship with healthcare professionals, and through this relationship there is the potential to use a powerful therapeutic resource.

Due to the brevity of a one-shot study, this could be one reason for the lack of quantitative distinctions. This type of study does not allow for change on a large scale. There is no control group and the researcher has to try and evaluate the influence of the independent variable through supposition.

This study also looked at the efficacy of utilizing a CAI on FAS as the intervention. Even though the quantitative data failed to show significance, the qualitative data indicated that the concept of the CAI may be a good medium to present information. The results of the data indicate over half of the participants stated they felt the information was well presented, relevant, appropriate, and would use it as a tool for patient education purposes. Negative responses focused mainly on technical difficulties with the CAI, not content, which leads to the conclusion that the students were receptive to the information.

The CAI did not serve to change attitudes among the students participating in the study, but it did raise their awareness to the issues and problems that alcohol abuse can have on women if not addressed in some form or fashion. The sentiment among a small percentage of the students was that they knew all there was to know about the topic of alcohol abuse, but judging from the data, they did not fully understand the long-term ramifications of how their attitudes would impact their patients. The approach to a patient which a physician adopts will depend on knowledge and attitudes acquired during training (Meakin & Lloyd, 1996).

Paperny and Starn (1989) state that in a study done to assess adolescent pregnancy prevention through use of a CAI on knowledge and attitudes, CAI has been documented as an effective health assessment and health education tool. A better way to motivate changes in behavior is through the use of interactive techniques in health education (Paperny & Starn, 1989).

### Recommendations

The following recommendations are made for future investigations:

1. A larger sample size should be utilized among more medical school sites in a duplication of this study to further clarify attitudes about alcohol among medical students in different settings.
2. When replicating this study, a longer time frame should be considered between administrations of the SAAS. This would reduce the likelihood of reactivity and increase the chances of getting a better measure of the students attitudes over time.
3. The SAAS is the only tool currently available for use in a study of this

kind that has been tested for validity and reliability with medical students. However, a shorter version, the Brief SAAS is being developed due to time constraints in educational and clinical settings. Because time is precious, a shorter scale is more desirable. Reliability and validity studies are currently underway. When this scale becomes available, it will be a lot easier to administer and will better represent addiction in women, nursing, and self-help attitudes (Chappel & Veatch, 1991).

4. Results of this study should be used by the participating site to strengthen current medical education programs on alcohol abuse through the patient education workshops. Special attention should be paid during the educational process as to the benefits of research and the purpose that it serves.

5. Different types of interactive mediums should be utilized in the educational process as well as the patient education arena which are tailored to individual needs, but provides feedback, reinforcement, and control by the learner. Research reflects the learning effectiveness of CAI. Studies show that the method of instruction affects attitudes toward learning and outcomes. Further studies need to be done on the relationship between CAI and its effect on attitudes and learning.

## References

- Abkarian, G. G. (1992). Communication effects of prenatal alcohol exposure. Journal of Communication Disorders, 25, 221-250.
- Adsit, K. I. (1996). Multimedia in nursing and patient education. Orthopaedic Nursing, 15(4), 59-63.
- Allen, M. W. (1995). Authorware Academic. Englewood Cliffs, New Jersey: Prentice Hall.
- Appelbaum, M. G. (1995). Fetal alcohol syndrome: Diagnosis, management, and prevention. Nurse Practitioner, 20 (10), 24-36.
- Calderone, A. B. (1994). Computer assisted instruction: Learning, attitude, and modes of instruction. Computers in Nursing, 12 (3), 164-170.
- Cascio, W. F. (1991). The financial impact of employee attitudes. Costing human resources: The financial impact of behavior in organizations (3rd ed., pp. 130-149). Boston, Massachusetts: PWS-Kent Publishing Company.
- Centers for Disease Control. (1993). Fetal Alcohol Syndrome-United States, 1979-1992. Morbidity & Mortality Weekly Report, 42(17), 339-341.
- Chappel, J. N. , & Veach, T. L. (1987). Effect of a course on students' attitudes toward substance abuse and its treatment. Journal of Medical Education, 62, 394-400.
- Chappel, J. N. , & Veach, T. L. (1991). The brief SAAS: A short form of the substance abuse attitude survey. AMERSA conference. Washington D. C.
- Chappel, J. N. , Veach, T. L. , & Krug, R. S. (1985). The substance abuse attitude survey: An instrument for measuring attitudes. Journal of Studies on Alcohol, 46, 48-52.
- Clarren, S. K. , & Smith, D. W. (1978). The fetal alcohol syndrome. The New England Journal of Medicine, 298(19), 1063-1067.

Dedam, R., McFarlane, C., & Hennessy, K. (1993). A dangerous lack of understanding. The Canadian Nurse, 89 (6), 29-31.

Donovan, C. L. (1991). Factors predisposing, enabling, and reinforcing routine screening of patients for preventing fetal alcohol syndrome: A survey of New Jersey physicians. Journal of Drug Education, 21(1), 35-42.

Duimstra, C. Johnson, D. Kutsch, C. Wang, B. Zentner, M. Kellerman, S. , & Welty, T. (1993). A fetal alcohol surveillance pilot project in american indian communities in the northern plains. Public Health Reports, 108(2), 225-229.

Fisher, J. C. , Mason, R. L. , Keeley, K. A. , & Fisher, J. V. (1975). Physicians and alcoholics; the effect of medical training on attitudes toward alcoholics. Journal of Studies on Alcohol, 36 (7), 949-955.

Fleming, M. (1997). The 30-minute fix for problem drinkers. Health, 11 (5), 14-15.

Glenn, J. (1996). A consumer-oriented model for evaluating computer-assisted instructional materials for medical education. Academic Medicine, 71 (3), 251-255.

Gordis, E. (1992). From the national institutes of health. Journal of American Medical Association, 268 (22), 3183.

Gottlieb, M. I. (1994). Alcohol and pregnancy: A potential for disaster. Emergency Medicine, 73-79.

Hawks, S. R. (1993). Fetal alcohol syndrome: Implications for health education. Journal of Health Education, 24(1), 22-25.

Khadra, M. H. , Guinea, A. I. , & Hill, D. A. (1995). The acceptance of computer assisted learning by medical students. Australia New Zealand Surgery, 65, 610-612.

Kinzie, M. B. , Schorling, J. B. , & Siegel, M. (1993). Prenatal alcohol education for low-income women with interactive media. Patient Education and Counseling, 21, 51-60.

Leversha, A. M. , & Marks, R. E. (1995). Alcohol and pregnancy: Doctors' attitudes, knowledge and clinical practice. New Zealand Medical Journal, 108, 428-431.

Longstaffe, J. A. (1996). Using computer technology in support of teaching and learning. Journal of Audiovisual Media in Medicine, 19 (1), 33-36.

Masis, K. B. , & May, P. A. (1991). A comprehensive local program for the prevention of fetal alcohol syndrome. Public Health Reports ,106(5), 484-489.

Meakin, R. P. , & Lloyd, M. H. (1996). Disease prevention and health promotion: A study of medical students and teachers. Medical Education, 30, 97-104.

Morse, B. A. , Idelson, R. K. , Sachs, W. H. , Weiner, L. , & Kaplan, L. C. (1992). Pediatricians' perspectives on fetal alcohol syndrome. Journal of Substance Abuse, 4, 187-195.

Niccols, G. A. (1994). Fetal alcohol syndrome: Implications for psychologists. Clinical Psychology Review, 14 (2), 91-111.

Paperny, D. M. , & Starn, J. R. (1989). Adolescent pregnancy prevention by health education computer games: Computer-assisted instruction of knowledge and attitudes. Pediatrics, 83 (5), 742-752.

Purtilo, R. (1990). Health professional and patient interaction. Philadelphia, PA: W. B. Saunders Company.

Reid, L. (1992). Alcohol misconceptions. Nursing Times, 88 (42), 40-42.

Remkes, T. (1993). Saying no completely. The Canadian Nurse, 25-28.

Rezler, A. G. (1974) Attitude changes during medical school: A review of the literature. Journal of Medical Education, 49, 1023-1030.

Riley, A. J. (1996). Perceived carer attitudes to alcohol dependent patients. Nursing Standard, 10 (27), 39-44.

Roche, A. M. , Parle, M. D. , Stubbs, J. M. , Hall, W. , & Saunders, J. B. (1995). Management and treatment efficacy of drug and alcohol problems: What do doctors believe? Addiction, 90, 1357-1366.

Schwartz, L. S. , & Taylor, J. H. (1989). Attitudes of mental health professionals toward alcoholism recognition and treatment. American Journal of Drug and Alcohol Abuse, 15 (3), 321-337.

Sechrest, R. C. , & Henry, D. J. (1996). Computer-based patient education: Observations on effective communication in the clinical setting. The Journal of Biocommunication, 23 (1), 8-12.

Siegal, H. A. , Markert, R. J. , & Vojtech, D. L. (1986). Evaluation of a program to teach medical students about alcoholism. Journal of Medical Education, 61, 67-69.

SPSS-X. (1990). Statistical package for the social sciences. SPSS, Inc.

Spohr, H. L. , Willms, J. , & Steinhausen, H. C. (1993). Prenatal alcohol exposure and long-term developmental consequences. The Lancet, 341 (8850), 907-910.

Streissguth, A. P., Aase, J. M., Clarren, S. K., Randels, S. P., LaDue, R. A., & Smith, D. F. (1991). Fetal alcohol syndrome in adolescents and adults. Journal of American Medical Association, 265 (15), 1961-1967.

Streissguth, A. P. , Randels, S. P. , & Smith, D. F. (1991). A test-retest study of intelligence in patients with fetal alcohol syndrome: Implications for care. Journal of American Academy of Child and Adolescent Psychiatry, 30 (4), 584-587.

UDHHS Publication No. ADM 87-1519. Alcohol and health. National Institute on Alcohol Abuse and Alcoholism. (1987). Rockville, MD: Secretary of Health and Human Services.

Volk, R. J. , Steinbauer, J. R. , & Cantor, S. B. (1996). Patient factors influencing variation in the use of preventive interventions for alcohol abuse by primary care physicians. Journal of Studies On Alcohol, 57, 203-209.

Walsh, R. A. (1995). Medical education about alcohol: Review of its role and effectiveness. Alcohol & Alcoholism, 30 (6), 689-702.



Waterson, E. J. , & Murray-Lyon, I. M. (1990). Preventing fetal alcohol effects: A trial of three methods of giving information in the antenatal clinic. Health Education Research, 5 (1), 53-60.

Wolf, F. M. , Woolliscroft, J. O. , Calhoun, J. G. , & Boxer, G. J. (1987). A controlled experiment in teaching students to respond to patients' emotional concerns. Journal of Medical Education, 62, 25-34.

## APPENDIXES

APPENDIX A  
Institutional Review Board Approval/UNTHSCFW  
(July 8, 1997)

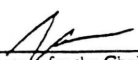
UNIVERSITY OF NORTH TEXAS HEALTH SCIENCE CENTER AT FORT WORTH  
INSTITUTIONAL REVIEW BOARD FOR THE PROTECTION OF HUMAN SUBJECTS  
BOARD ACTION

IRB PROJECT #: 96-39 DATE SUBMITTED: June, 1997  
 PRINCIPAL INVESTIGATOR: John C. Licciardone, D.O., M.S., M.B.A.  
 PROJECT TITLE: Medical Student Attitudes Toward Patient Education on Alcohol:  
A Field Test of Computer Assisted Instruction on Fetal Alcohol Syndrome  
 PROTOCOL #: N/A  
 DEPARTMENT: PH/PM TELEPHONE EXTENSION: \_\_\_\_\_

Protocol is defined as all documents related to the project, including project description/  
study protocol, Informed Consent and subject recruitment advertisements.

In accordance with the UNTHSC IRB Policy on the protection of human subjects, the following action has  
been taken on the above referenced protocol:

- X   Protocol is approved as submitted.  
 \_\_\_\_\_ Modified protocol is approved as submitted.  
 \_\_\_\_\_ Amendment \_\_\_\_\_ to the protocol is approved as submitted.  
 \_\_\_\_\_ Based on the recently completed Periodic Project Review (IRB Form 4), protocol has  
received continued approval through \_\_\_\_\_.  
 \_\_\_\_\_ Protocol has been approved, contingent upon the modifications outlined below being  
incorporated. In order to receive final approval, you must submit one copy of the  
modified protocol to the Chairman of the IRB for review and incorporation into the  
permanent IRB file.  
 \_\_\_\_\_ Consideration of the protocol has been tabled pending resolution of the issue(s) outlined  
below.  
 \_\_\_\_\_ Protocol is disapproved for the reason(s) outlined below.

  
 \_\_\_\_\_  
 Signature for the Chairman  
 Institutional Review Board

\_\_\_\_\_  
 July 8, 1997  
 Date

White Copy - P.I.

Yellow Copy - IRB Office

Pink Copy - Department File

IRB Form 2 (revised 01/97)

APPENDIX B  
Human Subjects Review Committee Approval  
(May 2, 1997)

TEXAS WOMAN'S  
UNIVERSITY  
DENTON, DALLAS/HOUSTON

HUMAN SUBJECTS  
REVIEW COMMITTEE  
P.O. Box 425619  
Denton, TX 76204-3619  
Phone: 817/895-3377  
Fax: 817/898-3416

May 2, 1997

Ms. Carolyn Garver  
2403 McCormick St.  
Denton, TX 76205

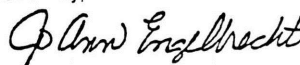
Dear Ms. Garver:

Your study entitled "Medical Student Attitudes toward Patient Education on Alcohol: A Field Test of Computer Assisted Instruction on Fetal Alcohol Syndrome" has been reviewed by a committee of the Human Subjects Review Committee and appears to meet our requirements in regard to protection of individuals' rights.

Be reminded that both the University and the Department of Health and Human Services (HHS) regulations typically require that agency approval letters and signatures indicating informed consent be obtained from all human subjects in your study. **These consent forms and an annual/final report (attached) are to be filed with the Human Subjects Review Committee at the completion of the study.**

This approval is valid one year from the date of this letter. Furthermore, according to HHS regulations, another review by the Committee is required if your project changes. If you have any questions, please feel free to call the Human Subjects Review Committee at the phone number listed above.

Sincerely,



Chair  
Human Subjects Review Committee

cc. Graduate School  
Dr. Judy Baker, Department of Health Studies  
Dr. William Cissell, Department of Health Studies

APPENDIX C  
Graduate School Approval  
(May 20, 1997)

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TEXAS WOMAN'S  
UNIVERSITY  
DENTON/DALLAS/HOUSTON

THE GRADUATE SCHOOL  
P.O. Box 425649  
Denton, TX 76204-5649  
Phone: 817/898-3400  
Fax: 817/898-3412

May 20, 1997

Ms. Carolyn Garver  
2403 McCormick St.  
Denton, TX 76205

Dear Ms. Garver:

I have received and approved the Prospectus entitled  
"A Field Test of Computer Assisted Instruction on Fetal  
Alcohol Syndrome" for your dissertation research project.  
Best wishes to you in the research and writing of your  
project.

Sincerely yours,

*Leslie M. Thompson*

Leslie M. Thompson  
Associate Vice President for  
Research and Dean of the  
Graduate School

dl

cc Dr. Judith Baker  
Dr. William Cissell



APPENDIX D  
Informed Consent

10/2/97

UNIVERSITY OF NORTH TEXAS HEALTH SCIENCE CENTER AT FORT  
WORTH

TEXAS WOMAN'S UNIVERSITY  
SUBJECT: CONSENT TO PARTICIPATE IN RESEARCH

Title of Study: A Field Test of Computer Assisted Instruction On Fetal  
Alcohol Syndrome

Name of Investigators: Dr. John Licciardone  
Carolyn Garver  
Judy Baker, Ph.D Advisor

Phone Numbers: 972-644-2076, pager 972-592-2080, Carolyn Garver  
940-898-2842, Judy Baker

I understand I will be participating in a research study for the purpose of determining the changes in attitudes about alcohol among students attending a medical school in the Dallas/Ft. Worth Metroplex after the use of a computer assisted instruction (CAI) on fetal alcohol syndrome (FAS). I will be asked to complete a survey about my attitude toward alcohol and other substances and a Demographic form, which will take approximately 20 minutes. Two weeks later I will participate in a patient education workshop, which will involve viewing a CAI on fetal alcohol syndrome. Immediately following the workshop, I will complete another survey and Feedback form, which will take approximately 20 minutes to complete. I further understand this research study does not involve any experimental procedures.

I understand the risks will be minimal which may include the possibility of breach of confidentiality, embarrassment, psychological discomfort or fatigue. Confidentiality will be ensured by the following methods. The survey will be preassigned a code for data collection only. The identification of participants will be kept confidential. Only the researcher will have the information provided by the subject to protect confidentiality. The data will be stored until the study is completed. The data will be stored in a secure location. The data will be destroyed by shredding following completion of the study.

I understand that my participation in this research study will be to increase knowledge and awareness of attitudes toward alcohol use and patient education. I understand the knowledge learned from participation may benefit others.

I understand that my participation is voluntary and that I may withdraw from the study at any time. My refusal to participate will involve no penalty or loss of benefits to which I am otherwise entitled.

I understand the researcher will be available to answer any of my questions or concerns by pager, phone, or in person. I will be given a copy of the dated and signed consent form to keep.

If a study related problem should occur, or if you have any questions at any time about the study, you may contact Dr. John Licciardone's office at (817) 735-2252. If you have any questions about your rights as a participant in the study, you may contact Dr. Jerry McGill, Chairman, Institutional Review Board, University of North Texas Health Science Center at Fort Worth at (817) 735-2561 for more information.

The researchers will try to prevent any problem that could occur because of this research. I should let the researchers know at once if there is a problem and they will help me. I understand, however, that UNTHSCFW or TWU does not provide medical services or financial assistance for injuries that might happen because I am taking part in this research.

---

Signature of Participant

---

Date

---

Signature of Researcher

---

Date

APPENDIX E  
Cover Letter Packet 1

(Date)

Dear Medical Student:

Thank you for considering to participate in this study. The purpose of the study will be to determine the changes in attitudes about alcohol and other substance abuse among medical students, after the use of a computer assisted instruction (CAI) on fetal alcohol syndrome (FAS). It will also ask about your intent to utilize the information in the future.

Your participation in this study is strictly voluntary. It asks you to answer two sets of surveys at two different times. One week before the patient education workshop you will answer the first set. After the workshop you will answer the second set.

The envelope given to you by the staff today contains the first set of surveys. One asks information about you that will be helpful in the study. It is called the Demographic Inventory. The other survey will ask you to look at your attitude about alcohol and other substance abuse. It is called the Substance Abuse Attitude Survey (SAAS). The surveys will take about 15-20 minutes to finish.

#### Directions For Answering The Surveys:

1. The Demographic Inventory: Read each question. Blacken in the box that matches the appropriate answer. You will answer ten questions in this section.
2. The The Substance Abuse Attitude Survey (SAAS): Please read each question carefully and answer by blackening in the box that corresponds with your answer. It is important to answer every question. You will answer 50 questions in this section.
3. When you have finished answering the surveys, put them back in the envelope and seal the envelope. Please return the envelope to the staff member.

Thank you for your help with this study.



Carolyn Garver, BED, MED Graduate Student, Texas Woman's University  
(972) 644-2076, pager (972) 592-2080

APPENDIX F  
Cover Letter Packet 2

(Date)

Dear Medical Student:

I would like to thank you for participating in this study. As you may recall, the study is looking at attitudes toward alcohol and other substance abuse before and after utilizing a computer assisted instruction (CAI) on fetal alcohol syndrome (FAS). It is time to complete the final survey and feedback form packet for this study.

This envelope contains one survey and a one feedback form. The first survey will ask you to look at your attitude about alcohol and other substance abuse. It is called the Substance Abuse Attitude Survey (SAAS). The other document is the Feedback Form. It will ask you questions about the CAI and how you will use the information in the future. The survey and feedback form will take about 15-20 minutes to finish.

Your participation in this study remains strictly voluntary. Your name will not be reported with the results of this study. If you decide to withdraw from the study you will not be penalized in any way.

I will be happy to answer any of your questions about the study. I can be reached at 972-644-2076 or my pager 972-590-2080 during the day. You may also contact the Office of Research & Grants Administration at Texas Woman's University at 817-820-8700.

Directions For Answering The Survey And Feedback Form:

1. The Substance Abuse Attitude Survey (SAAS): Please read each question carefully and answer by blackening in the box that corresponds with your answer. It is important to answer every question. You will answer 50 questions in this section.
2. The Feedback Form: Please answer each question with a short answer. If you have any extra comments, feel free to put them on the form. You will answer 15 questions in this section.
3. When you have finished answering the survey and feedback form, put them back in the envelope and seal the envelope. Please return the envelope to the staff member.

Thank you for your continued help in this research study.

A handwritten signature in cursive script that reads "Carolyn Garver". The letters are fluid and connected, with a prominent loop at the end of the last name.

Carolyn Garver, BED, MED  
Graduate Student, Texas Woman's University  
(972) 644-2076, pager (972) 592-2080



## APPENDIX G

### Permission to Use Substance Abuse Attitude Survey

Date: March 11, 1997

I, TRACT L. VEACH EdD., give Carolyn Garver, BED,  
(print name)

MED, consent to use the Substance Abuse Attitude Survey in her graduate  
dissertation research project.

  
Signature

3/11/97  
Date

APPENDIX H  
Computer Assisted Instruction

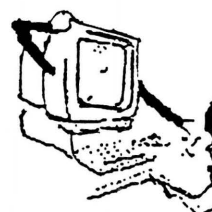
## **Instructions on how to use computer assisted instruction (CAI)**

**Follow instructions on each computer screen.**

**Click to continue to next screen.**



**At main menu, click on one topic at a time.**



**There will be a short true/false quiz at the end.**

**On final screen, click continue or go to File and select quit.**

# ***ALCOHOL AND PREGNANCY***



DEVELOPED BY: CAROLYN GARVER, MED  
DOCTORAL CANDIDATE  
TEXAS WOMAN'S UNIVERSITY  
SUMMER, 1997

**USING COMPUTER ASSISTED INSTRUCTION, YOU WILL LEARN TO IDENTIFY THE FOLLOWING:**

- **WHAT IS KNOWN ABOUT FETAL ALCOHOL SYNDROME (FAS)/FETAL ALCOHOL EFFECT (FAE)**
- **HOW ATTITUDES AFFECT PATIENT EDUCATION**
- **WHAT WE CAN DO AS HEALTHCARE PROFESSIONALS**

## MAIN MENU

CLICK ON A TOPIC IN ORDER PRESENTED



**INFORMATION**



**ATTITUDES**



**PROCESS FOR PREVENTION**

**Alcohol is the most commonly used drug in our society.**





**The negative effects of alcohol on the fetus have been suspected since Biblical times.**



**The term Fetal Alcohol Syndrome (FAS) or Fetal Alcohol Effect (FAE) was first applied by Jones and Smith (1973).**



**FAS/FAE is characterized by a variety of physical and behavioral traits that result from maternal alcohol exposure.**



**Definition of maternal alcohol exposure:**

**Pattern of excessive intake characterized by regular intake, substantial, or heavy episodic drinking.**



**Associated with FAS/FAE are long-term intellectual and psychological problems resulting in a plethora of social, economic and medical issues.**



**DAMAGE FROM FAS**

**CORRECT**

**MAY RANGE**

**FROM MODERATE TO**

**SEVERE?**

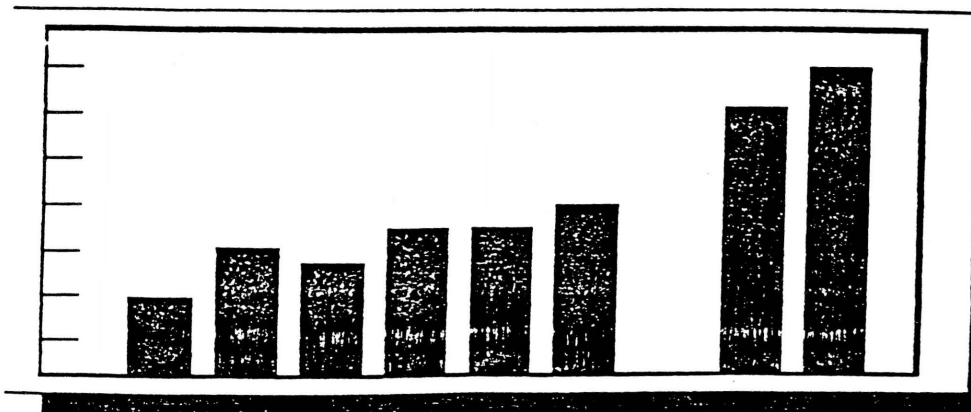
**INCORRECT**

**Damage from FAS/FAE can range from moderate to severe.**





**The true incidence rate of FAS/FAE is hard to determine.**



**In some cases the effects of prenatal alcohol exposure may be different than those of FAS.**

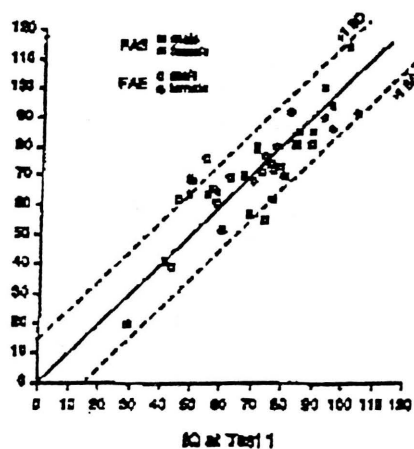


**When only some of the criteria for FAS are met, individuals have often been described as having fetal alcohol effect (FAE).**

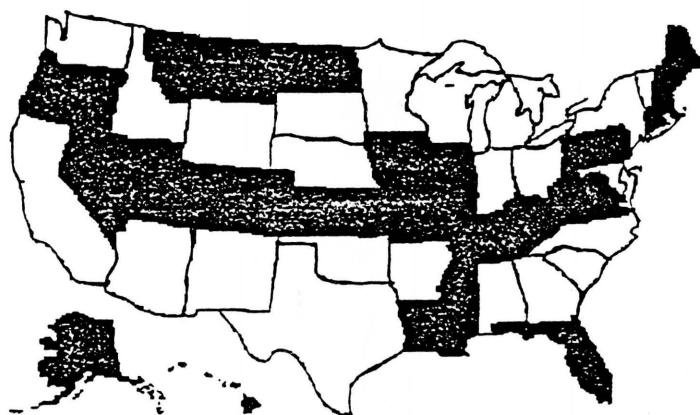
**The effects of FAS and FAE persist into adolescence and adulthood.**



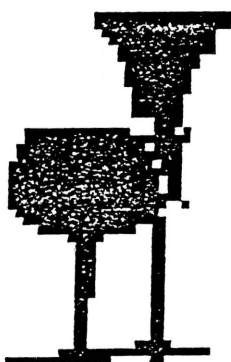
**Intellectual impairment is one of the most common and serious problems associated with FRS.**



**FAS/FAE is now recognized as the leading known cause of mental retardation in the United States.**



**Safe levels of alcohol consumption during pregnancy have not been established.**



**FAS has also been called the most preventable cause of mental retardation in the western world.**

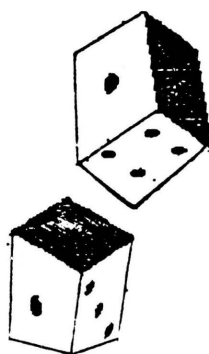




**Most studies have shown increasing abnormalities with greater doses of alcohol and full FAS occurring only with heavy drinking throughout pregnancy.**

**BEFORE U DRINK  
THINK**

**The effects of moderate drinking are more subtle and variable than those caused by heavier drinking.**



**Due to uncertainty about the effects of even low levels of alcohol exposure on the fetus, abstinence is the best policy.**

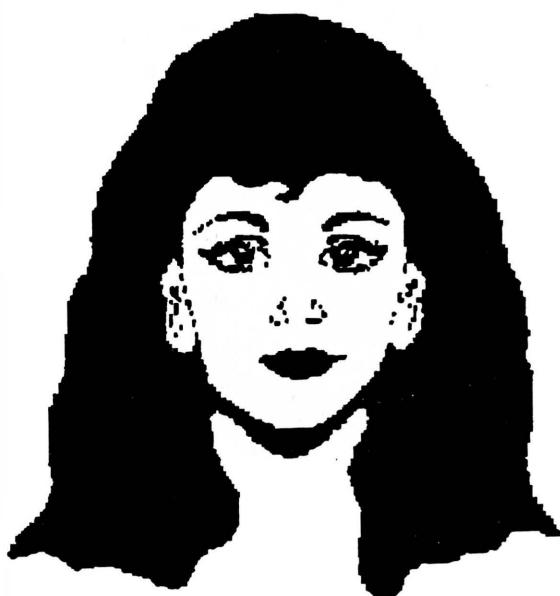
**Individuals readily "tune in" to personal attitudes and biases held by health professionals.**



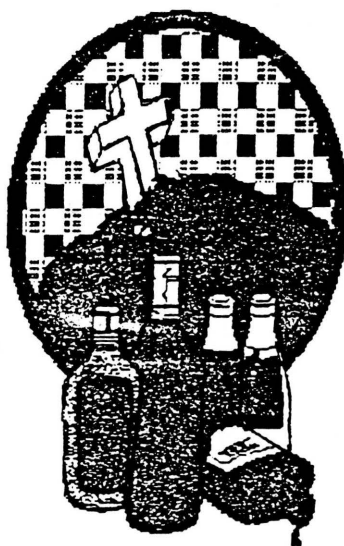
**Judgemental listening and insensitive responses  
can impair the establishment of trust and  
rapport.**



**Attitudes of the healthcare professional  
may influence information that individuals  
are willing to share during interviews.**



**Almost everyone has had some experience with alcohol and it has influenced their lives at some point.**

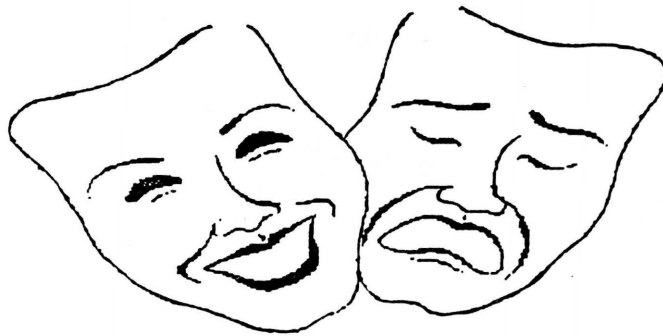


**We all have feelings about when  
it is appropriate to use alcohol  
and by whom.**





**Our own biases are part of who we are, where we come from and are often difficult to mask.**



**It is also important to be culturally sensitive.**



**BEING JUDGEMENTAL WILL**

**CORRECT**

**INFLUENCE**

**INCORRECT**

**PATIENTS IN A POSITIVE WAY?**

**Be ready to hear people in your audience express values, attitudes and beliefs that may be different than your own.**



**Respond to statements of differing values, attitudes and beliefs in a non-judgemental way.**



**Recognize the diversity of backgrounds and experiences among people.**



**Recognize how our background and experiences affect the way we view others.**

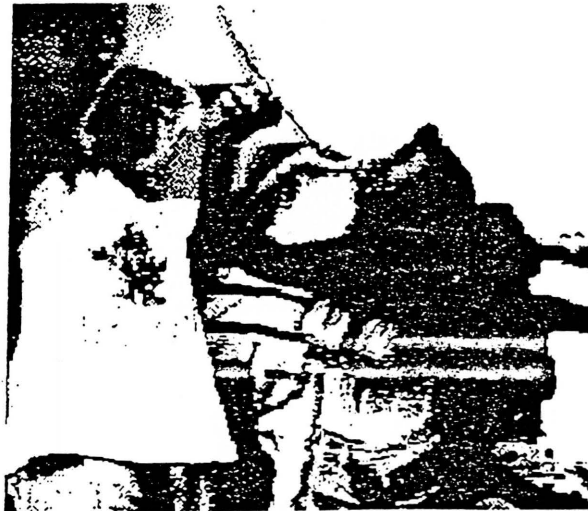


**Find appropriate ways of discussing alcohol use in a non-threatening manner.**

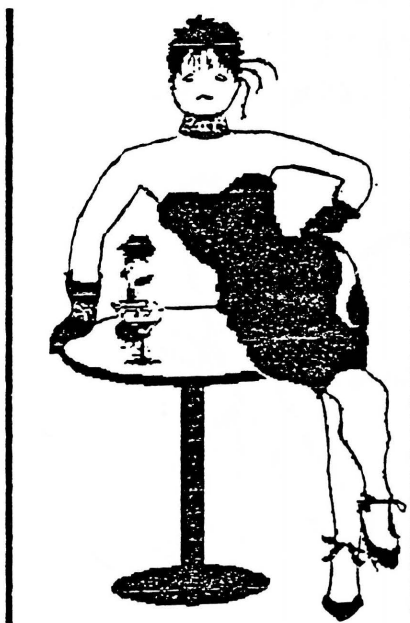




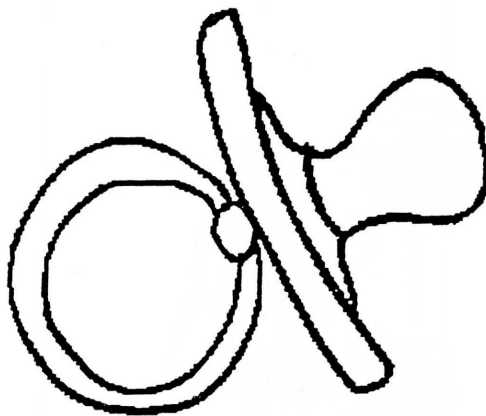
**Use of alcohol and drugs is  
growing among nation's  
youth.**



**The National Institute on Alcohol and Alcohol Abuse reports more women are drinking than ever before.**



**It is suggested that alcohol abuse during pregnancy presents a risk of negative effects to as many as 58% of exposed infants.**



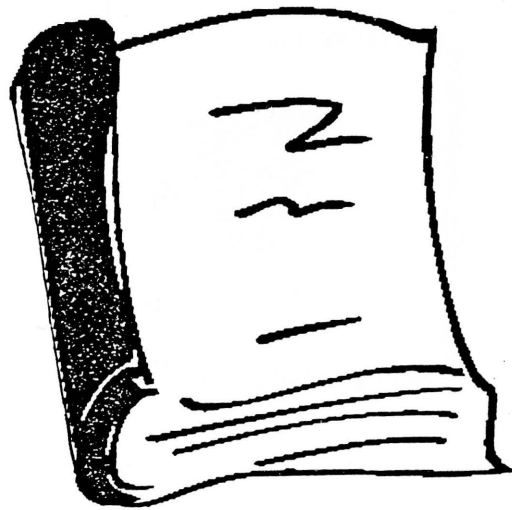
**Reducing the prevalence of binge, moderate and heavy drinking among women of child bearing age is an important focus for primary prevention.**



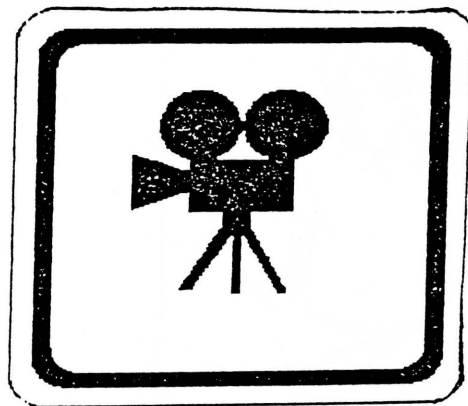
**More community involvement and awareness is a vital component to prevention of FAS.**

**Communities must acknowledge, seek to understand and address the underlying reasons for alcohol use among women generally, not just during pregnancy.**

**Education on FAS needs to begin at least by early adolescence.**



**Media campaigns need to be launched on local, state and federal levels.**

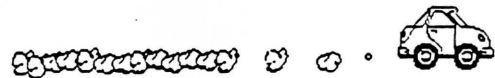




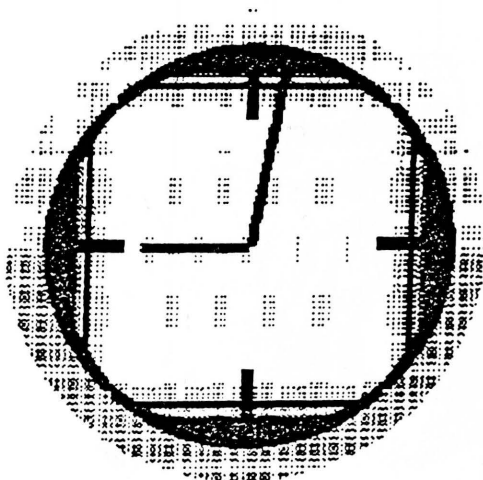
**Screening and prenatal education programs need to be developed that will encourage participation by a greater number of women.**



**Services such as counseling, support groups, family planning, parenting classes, financial assistance and transportation need to be offered regardless of ability to pay.**



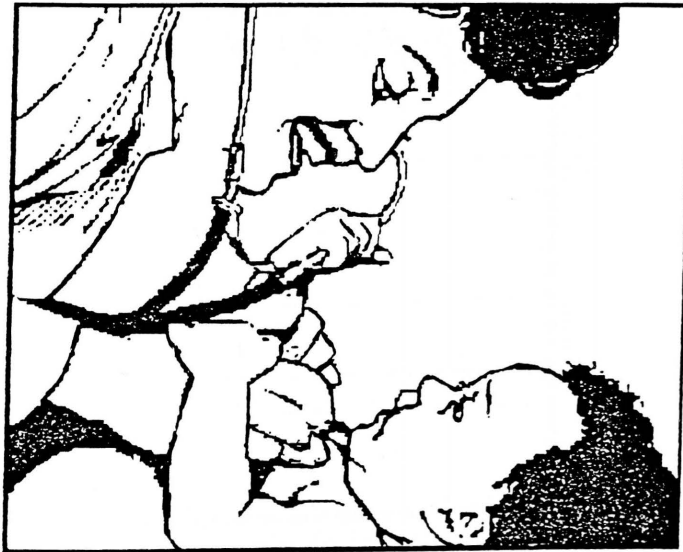
**Early identification of children with  
FAS/FAE is essential.**



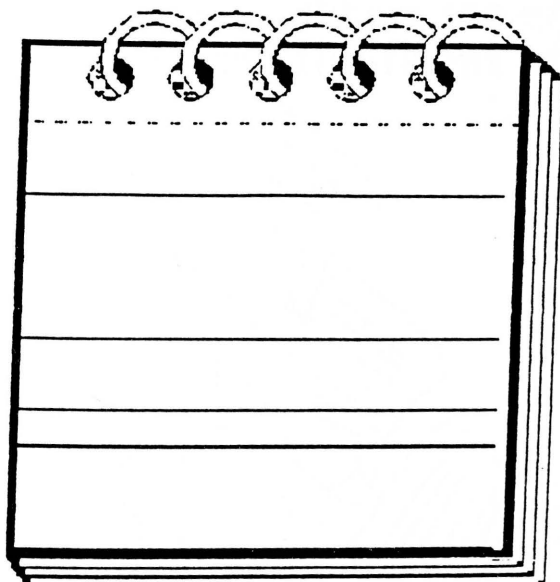
**Physicians and other healthcare personnel should be trained to recognize the physical characteristics associated with prenatal ethanol exposure.**



**Identification is critical because it is easier in infancy and early childhood when the physical signs are more pronounced.**



**A critical factor in recognition of the problem is accurate documentation.**



**Better data on the incidence and support systems for individuals with FAS/FAE and other alcohol related birth outcomes, will help the efficacy of prevention and treatment efforts.**



**A community based approach is  
a key element in developing  
programs to raise awareness.**





**Intervention will be most effective if implemented early and provided as a continuum from all aspects of society.**





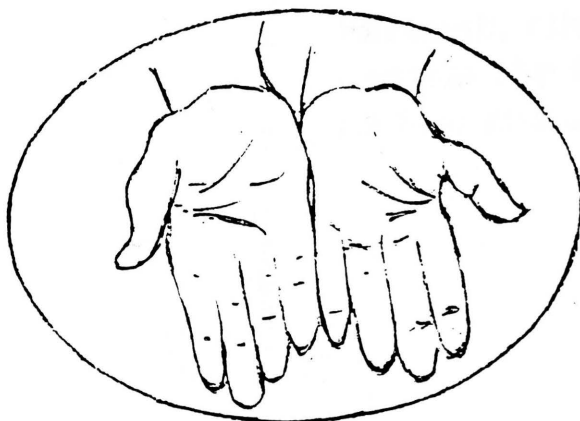
**The tragedy for society is  
that FAS although untreatable  
is completely preventable.**



**The US Public Health Service in its Healthy People 2000 Objectives set a goal to reduce FAS incidence to no more than 8.12 per 1,000 live births by the year 2000.**



**The challenge is in the hands of the community and the numerous healthcare professionals, who as a team, can provide the tools to impact this serious problem of alcohol and pregnancy and help reduce the incidence of FAS.**



**Final Test Scores**

_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-
_____	-	_____	-

**A short quiz will follow.**

**Answer the questions by typing in true or false, then hit return. When you are through, click to continue and review the information or go to File and choose quit.**

**The incidence of FAS is hard to determine but is increasing?**

▶ **false** (The incidence is increasing)

**The incidence is hard to determine and is increasing  
Try again.**

**Having one or more drinks a day is not harmful to the fetus?**

▶

**Having one or more drinks a day is not harmful to the fetus?**

**false**

**Correct! Click to continue.**



**You have reached the end of this  
CAI.**

**To go back to the main menu, click  
continue**

**or**

**Go to File and select quit.**

APPENDIX I  
Demographic Inventory

**PART II: Demographics and Clinical Practice**

The demographic information you provide will contribute to future development.

**TODAY'S DATE:**

0	1	2	3	4	5
6	7	8	9		
M				Y	
O				E	
N				A	
T				R	
H					

**AGE:**

0	1
2	3
4	5
6	7
8	9

**SEX:**

Male ☐  
Female ☐

**HEALTH PROFESSIONAL TYPE AND SPECIALTY:**

If physician, mark principal type of practice:

Family Practice ..... ☐ Psychiatry ..... ☐  
General Internal Med. .... ☐ Internal Medicine/Subspecialty ..... ☐  
Pediatrics ..... ☐ Surgery/Subspecialty ..... ☐  
OB/GYN ..... ☐ Other (specify below): ..... ☐

Other professions, mark principal area of work:

Counseling ..... ☐ Education ..... ☐  
Nursing ..... ☐ Social Work ..... ☐  
Pastoral/Clergy ..... ☐ Substance Abuse Counseling ..... ☐  
Psychology ..... ☐

**PROFESSIONAL CERTIFICATION:**

Do you have a professional certification in chemical dependency by:

American Society of Addiction Medicine ..... ☐  
State Certification in Alcohol/Drugs ..... ☐  
Other professional organization ..... ☐  
Specify \_\_\_\_\_

**EDUCATION:**

Mark highest level of education attained:

High School ..... ☐ 4 Years College ..... ☐  
2 Years College ..... ☐ Masters Level ..... ☐  
Doctoral Level ..... ☐

**CURRENT CLINICAL PRACTICE - Briefly describe:**

1. General estimate of the percentage of my patients with alcohol or other drug-related problems:

% 

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

2. Length of time treating chemically dependent patients:

YEARS 

0	1	2	3	4	5	6	7	8	9
0	1	2	3	4	5	6	7	8	9

**PROFESSIONAL SATISFACTION:**

Estimate the professional satisfaction you experience treating patients with alcohol/drug problems:

None at all ..... ☐ Moderate ..... ☐  
Very Little ..... ☐ A Great Deal ..... ☐  
Some ..... ☐ Not Applicable ..... ☐

Are you, or have you been in the last 12 months at: Patient in treatment ☐ Student, Full-Time ☐

APPENDIX J

Substance Abuse Attitude Survey

# SUBSTANCE ABUSE ATTITUDE SURVEY

**INSTRUCTIONS:** This survey has been designed for the purpose of assessing attitudes useful in the education of physicians and other health care professionals. Indicate your degree of agreement or disagreement by filling in the appropriate box to the right of each statement. USE A #2 LEAD PENCIL. There are no right or wrong answers, so work quickly and do not worry over every item.

## IDENTIFICATION NUMBER

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## PART I: Attitude Statements

	STRONGLY DISAGREE	DISAGREE	UNCERTAIN	AGREE	STRONGLY AGREE
1. Alcohol is an effective social relaxant.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Marijuana should be legalized.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Any drug can be safely used by a person who is mentally healthy.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Almost anyone would turn to drugs if their problems were great enough.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Alcohol is a food, not a drug.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Physicians are an important source of drugs for most users.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Marijuana use leads to mental illness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Heroin is so addicting that no one can really recover once he/she becomes an addict.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Smoking leads to marijuana use, which in turn leads to hard drugs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Clergymen should not drink in public.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Alcoholism is associated with a weak will.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. All heroin use leads to addiction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Daily use of one marijuana cigarette is not necessarily harmful.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Physicians should not smoke tobacco in front of their patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. People who use marijuana usually do not respect authority.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The laws governing the use of marijuana and heroin should be the same.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Angry confrontation is necessary in the treatment of alcoholics or drug addicts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Using any hard drug shortens one's life span.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Tobacco should not be smoked in the rooms where non-smokers are present.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Weekend users of drugs will progress to drug abuse.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Tobacco smoking should be allowed in high schools.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Anyone who is clean-shaven with short hair probably doesn't use illegal drugs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23. Family involvement is a very important part of the treatment of alcoholism or drug addiction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24. Alcohol is so dangerous that it could destroy the youth of our country if it wasn't controlled by law.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25. A physician who has been addicted to narcotics should not be allowed to practice medicine again.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26. Recreational drug use precedes drug abuse.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27. Lifelong abstinence is a necessary goal in the treatment of alcoholism.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28. Drug addiction is a treatable illness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29. Alcoholism is a treatable illness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
30. Street pushers are the initial source of drugs for young people.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31. Personal use of drugs should be legal in the confines of one's own home.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
32. People who dress in hippie-style clothing usually use psychedelic drugs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
33. A hospital is the best place to treat an alcoholic or drug addict.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
34. Group therapy is very important in the treatment of alcoholism or drug addiction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
35. Most alcohol and drug dependent persons are unpleasant to work with as patients.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
36. It can be normal for a teenager to experiment with drugs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
37. Once a person becomes drug-free through treatment, he can never become a social user.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
38. Paraprofessional counselors can provide effective treatment for alcohol or drug abusers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
39. Long-term outpatient treatment is necessary for the treatment of drug addiction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
40. An alcohol or drug dependent person who has relapsed several times probably cannot be treated.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
41. Marijuana use among teenagers can be healthy experimentation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
42. Urine drug screening can be an important part of drug abuse treatment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
43. Physicians who diagnose alcoholism early improve the chance of treatment success.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
44. Alcohol and drug abusers should only be treated by specialists in that field.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
45. The best way for a physician to treat an alcohol or drug dependent patient is to refer them to a good treatment program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
46. Persons convicted of sale of illicit drugs should not be eligible for parole.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
47. Chronic alcoholics who refuse treatment should be legally committed to long-term treatment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
48. An alcohol or drug dependent person cannot be helped until he/she has hit "rock bottom."	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
49. Once an alcohol or drug dependent patient is abstinent and off all medication, no further contact with a physician is necessary.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
50. Parents should teach their children how to use alcohol.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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FORM NO 2971-UNR



SCATRON

APPENDIX K  
Feedback Form

## Software Evaluation

*(1) Engagement*

Were the tasks you were asked to do about the right level for you?

Was there enough variety?

Did the product seem relevant to real life?

Was it always clear where you were in this product?

Was it enjoyable?

Was it interesting?

Was it challenging ?

Did you feel that you had achieved (or could achieve) something with this product?

Would you want to use the product again?

*(2) Interactivity*

Did the product give you enough opportunity to choose and enter things?

When you weren't making choices, was it still interesting?

Did you ever feel that you were making choices just for the sake of it?

Did you feel that you could decide what you wanted to do?

Could you choose which route you wanted to take that was most relevant to you?

When you were using this product did you feel that you were basically in control?

Was it easy to make choices with the equipment provided?

*(3) Tailorability*

Did you feel that you could alter things sometimes to suite you personally? For example.

-turn down the volume? Change the colors? –set up new ways of doing things? – save your own work? - work at the right level? – get the just the right level of help (say, for a new user)?

*(4) Appropriateness of the Multi Media Mix*

Did you feel that the various features (e.g. text, sound, graphics, video, etc.) worked well together, or did one (or two) crowd the others out?

If there was video or graphics, did the size seem OK?

If there was audio, was the sound quality good enough?

In this case, do you think that having extra features like sound, video, pictures, etc., would help you to learn?

Do you think that having extra features like sound, video, pictures, etc., made the product more enjoyable and interesting?

(5) *Mode and style of interaction*

Did the use of the mouse, keyboard or trackerball (etc.) seem natural when using the product or did it restrict you in any way?

Did the use of the mouse, keyboard or trackerball (etc.) make using the product more enjoyable or interesting?

Did you like the way that you made choices (e.g. from the menu, etc.)?

Did the way choices were made alter how you felt about the software, (that is, did they make it more or less interesting or enjoyable)?

(6) *Quality of interaction*

Were you always certain how to proceed?

How do you feel about the screen displays?

Was everything always clearly laid out?

Did you get the sense of where this product might fit into your own personal educational scheme?

Did the software ever bother you or confuse you or just mystify you, perhaps because of the language or examples used?

Was it racist or sexist?

(7) *Quality of end-user interfaces*

How did you feel about the way in which information was presented to you?

Did you always know how to make important choices, like, -moving from one part to another?

Did you feel that there was a regular way of moving about the package?

If icons were use,  
How did you feel about using the icons?

Was it fairly obvious how to use each one?



(8) *Learning styles*

What do you think this product was trying to be?

\_\_\_\_\_ A book?

\_\_\_\_\_ A tutor?

\_\_\_\_\_ A reference book?

\_\_\_\_\_ A tool?

Etc.

Were you able to bring to this product other skills you had already acquired in the outside world or from other computer packages?

(9) *Monitoring and assessment techniques*

Did this product help you assess how you were getting on?

Did you think this product would help you to set goals for yourself?

(10) *Built-in intelligence*

Did you get any extra help from this product because it seemed to remember what you did in the past?

(11) *Suitability for single user/group/distributed use*

If used with a group of people,

Did this software help you work together as a group?

Did it help you cooperate with one another?

Did it help you to assess how well you were doing?

(12) *Outstanding strengths and attractive features*

Is there one thing that stand out as being rally good about this product?

(13) *Outstanding limitation and weaknesses*

Is there one thing that stand out as being rally bad about this product?