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AN EXPLORATORY STUDY TO INVESTIGATE THE DETERMINANTS OF
HEALTH BEHAVIOR TOWARDS SMOKING IN BAHREINI SECONDARY
SCHOOL MALES

The University of Iowa

Ph.D. 1983

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DETERMINANTS OF HEALTH BEHAVIOR
TOWARDS SMOKING IN BAHREINI
SECONDARY SCHOOL MALES

by

Larry Anna Afifi

A thesis submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy in Education
in the Graduate College of
The University of Iowa

May, 1983

Thesis supervisor: Associate Professor Barry D. Bratton

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CERTIFICATE OF APPROVAL

PH.D. THESIS

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TABLE OF CONTENTS

	Page
LIST OF TABLES	vii
LIST OF FIGURES	ix
CHAPTER I INTRODUCTION	1
Health Belief Model	4
Locus of Control	5
Cultural Factors	7
Health Education	9
Specification of the Problem	13
Significance of the Problem	15
Conceptual Framework of the Study	15
Design of the Study	18
Limitations of the Study	19
Definition of Terms	20
Determinants of Health Behavior	20
Health Beliefs	20
Susceptibility	21
Seriousness	21
Benefits of Action	22
Barriers to Action	22
Cues to Action	22
Health Locus of Control	23
Health Value	23
Educational Program	23
CHAPTER II REVIEW OF LITERATURE	24
Social Learning Theory (SLT)	26
Health Belief Model	29
Evaluation of the Health Conditions	31
Evaluation of Advocated Health Behavior	32
Interaction of Variables	33
Cues to Action	34
General Health Motivation	34
Modification of Health Beliefs	35
Cultural Aspects of Health Belief Model	38
Question Format in Health Belief Model	39

	Page
Locus of Control	40
Locus of Control and Health	42
Multidimensionality of Locus of Control	46
Origins of Locus of Control Beliefs	48
Tailoring of Educational Programs	49
Aspects of Locus of Control and Culture	50
Health Valuing	53
Family Support Systems	54
Adolescent Cigarette Smoking	55
Determinants and Health Education	55
Smoking and the Health Belief Model	60
Smoking and Locus of Control	61
Smoking and Health Valuing	62
Conclusion	62
CHAPTER III METHODOLOGY	63
Design of Study	63
General Research Approach	63
Rationale for Approach	64
Weakness and Strength of the Design	64
Population and Sample	66
Instrument Development	69
Pretest	69
Post Test I	72
Post Test II	72
Educational Program	72
Procedure	74
Data Analysis	76
Health Belief Model	77
Health Locus of Control	83
Health Valuing	86
Sociocultural and Smoking Behaviors	87
Questionnaire Cross Tabulations	87
Comparison of Questionnaire Data	88

	Page
CHAPTER IV RESULTS	90
Smoking Behavior Pretest	90
Stated Smoking Behavior	91
Knowledge of Effects of Smoking	95
Health Belief Model	95
Health Locus of Control	101
Family Support System	108
Health Valuing	114
Educational Program	116
Change in Knowledge	116
Change in Attitude	116
Other Differences Between Stated Smoking Behavior	121
Comparative Results Between Type of Program, Sex and Country	122
CHAPTER V SUMMARY AND DISCUSSION	127
Summary of Results	128
Discussion	130
Suggestions for Further Research	133
BIBLIOGRAPHY	136
APPENDIX A SMOKING BEHAVIOR PRETEST	152
APPENDIX B POST TEST I	169
APPENDIX C POST TEST II	172
APPENDIX D VIDEO SCRIPT	177
APPENDIX E OCCUPATIONAL CLASSIFICATION	183

LIST OF TABLES

Table	Page
1 Type of Program	91
2 Stated Smoking Behavior by Type of Program	92
3 Reported Age of Initiation of Smoking	93
4 Reported Number of Smoking Friends by Reported Smoking Behavior	94
5 Reasons Why an Adolescent Smokes	96
6 Reasons Why an Adolescent Would Not Smoke	97
7 Knowledge Concerning Immediate Effects of Smoking	98
8 Perceived Susceptibility of Health Problems Related to Smoking	99
9 Perceived Susceptibility by Stated Smoking Behavior	100
10 Perceived Seriousness of Health Problems Related to Smoking	100
11 Seriousness Perception	102
12 Comparison of Perceived Susceptibility and Perceived Seriousness	102
13 Cues to Action by Stated Smoking Behavior	103
14 MHLC Descriptive Data	104
15 Descriptive Data on Subscales MHLC	105
16 MHLC - Subscale Range of Scores	106
17 Intercorrelations of MHLC Scales	107
18 Parents' Educational Achievement Level	109

Table		Page
19	Number of Extended Family Members Living in Home by Stated Smoking Behavior	111
20	Health Referral by Stated Smoking Behavior	112
21	Perceived Parental Objection to Smoking by Reported Smoking Behavior	113
22	Number of Family Members Who Smoke by Stated Smoking Behavior	113
23	Health Value - Position of Importance	115
24	Comparison of Knowledge of Immediate Health Problems by Pre- and Post Test	117
25	Perceived Susceptibility to Health Problems Secondary to Cigarette Smoking	119
26	Perception of Susceptibility by Stated Smoking Behavior -- Post Test II	119
27	Nonsmokers' Perception of Susceptibility (Pre- and Post Test)	120
28	Perceived Seriousness of Health Problems	121
29	Perception of Seriousness for Stated Smokers and Nonsmokers (Pre- and Post Tests)	122

LIST OF FIGURES

Figure		Page
1	Instructional Design Process	11
2	Health Education Instructional Design	12
3	Learner Characteristics--Determinants of Health Behavior	17
4	Individual Health-Related Behaviors	36

CHAPTER I

INTRODUCTION

There are no health problems without social values. (World Health Organization, 1976, p 4)

In September 1978, a WHO-UNICEF International Primary Health Care Conference issued a declaration calling for health care for all by the year 2000 (World Health Organization - UNICEF, 1978). The magnitude of this dictum demands concerted action by all health professionals to even approach the goal. However, the problem is not only one of providing health services and health professionals in sufficient numbers to meet the current needs of the ill population. An additional and perhaps more urgent need is to enable the population to prevent the illness states to the degree possible. Maintenance of health is a multi-factorial concept--dependent on medical knowledge and availability of service as well as the health consumer's behavior in making adequate use of medical knowledge.

Health care and rising health costs constitute a social problem of astronomical magnitude. The rewards to the individual who remains free of disease and disability are not only financial, but also include physical and emotional

well-being, allowing for an increase in economic as well as education output (American Psychological Association Task Force, 1976; Strickland, 1978).

Health professionals are responsible for providing the individual with health information, environmental protection and access to health care as needed (Adcock, 1981; Somers, 1977b). The individual is usually held directly responsible for his own health (Somers, 1977b).

The current state of medical knowledge is such that links between specific health behaviors and health outcomes are well-documented in some areas, such as cigarette smoking and cancer. Cigarette smoking is considered one of the most important preventable environmental factors contributing to illness and death (Perry et al., 1980; United States Department of Health, Education, and Welfare, 1979; Willard, 1981). For other health problems, correlations between specific behavior and health outcomes, while less well documented, are sufficient to make the health professionals recommend certain courses of action.

Creating actual change in behavior in health matters is not always successful, however, even when the health reasons for change are well documented (Kaplan and Cowles, 1978; Kirscht and Rosenstock, 1977; Tirrell and Hart, 1980). Successful modification of health behavior may only follow adequate understanding of the causal processes that create that health behavior in the original case (Rosenstock,

1966). Smoking behavior would appear to be one of the most difficult areas of behavior change. Success in reducing smoking behavior after it has started appears to be minimal. Efforts spend on health education towards prevention of initiation of smoking may be more efficacious than attempting to change an already ingrained habit.

In recent years, interest has intensified in exploring these determinants of health behavior, that is, knowledge, values, expectations, and beliefs held by the individual which affects his actions regarding health (Becker et al., 1974, 1977; Haefner and Kirscht, 1970; Parcel and Baranowski, 1981; Sackett, 1976; Strickland, 1978; Wallston and Wallston, 1978). An explanation of human behavior in health-related actions would appear to be based on a multitude of contributing factors (Rotter, 1966). Social learning theory (SLT) postulates that the potential for any given behavior to occur in a set situation is dependent on the individual's expectancy that the behavior will secure the reinforcement desired, the relative value placed on the reinforcement and the situation in which the behavioral decision is made (Bandura, 1977; Rotter, 1966). Aspects of social learning theory are found in both the health belief model and locus of control model (Maiman and Becker, 1974; Strickland, 1978). Both models have been utilized as vehicles to investigate determinants of behavior change in

health areas (Becker et al., 1977; Phares, 1976; Strickland, 1978).

Health Belief Model

According to the Health Belief Model (HBM) (Rosenstock, 1966, 1974), four conditions must exist before an individual will take health action: an individual must believe himself susceptible to the disease, believe that disease has serious effects on him, be aware of action to reduce the threat of disease and perceive that the benefits of action are greater than the threat of not acting, and finally that a 'cue to action'--an internal or external stimulus--must occur to make the individual aware of the need to take the desired health behavior (Maiman and Becker, 1974).

The Health Belief Model has demonstrated considerable ability to predict health actions based on the investigations of all four aspects of the model (Cummings et al., 1978). The individual's perception of both susceptibility to and severity of a disease play the important role in health behavior, not the medical determination of these factors. Studies have demonstrated that perceived susceptibility to a disease has explanatory and predictive value in health behavior (Becker, 1974; Haynes, 1976). Perceived severity has a similar value. Both appear to have a strong cognitive component, at least partially dependent on knowledge (Rosenstock, 1974).

The third aspect of HBM involves the individual's perception of a possible treatment of the health problem and the calculations of the benefits and barriers perceived towards utilizing that treatment. The costs and benefits include real economic costs as well as psychosocial factors such as perceived peer pressure or social customs (Crog and Richards, 1977). Research suggests that the individual's perception of the degree of benefit of a health action increases as the degree of perceived barriers decreases (Cummings et al., 1978).

The fourth element, the 'cue to action,' triggers the advocated health behavior. The cue could be an internal aspect of physical ill health or an external cue such as an advertisement or speech (Sackett and Haynes, 1976).

One of the strengths of the Health Belief Model is its potential for application to a wide range of health issues (Kirscht, 1974b).

Locus of Control

The concept of locus of control refers to the nature of the individual's expectation that a particular occurrence is contingent upon a specific act or behavior. If this event is perceived by the individual as contingent on his own behavior, the individual is said to have an internal locus of control. However, if the person believes that this event is contingent on chance or powerful others, the person is

said to have an external locus of control. Although it is conceptualized as a dichotomy, in reality this concept represents a continuum of internality to externality (Lewis et al., 1978).

It is generally accepted that the internally controlled individual is self-motivated and responds better to a cognitive approach, while the externally controlled person relates to chance or powerful others and is more influenced by others. A number of studies have shown that internally controlled individuals are more likely to utilize behaviors that facilitate healthy states (Wallston and Wallston, 1978). Available information on smoking and locus of control appears to portray the externally controlled individual as more susceptible to pressures from peers and media to start smoking and less likely to be able to stop the smoking habit (James et al., 1965; Kaplan and Cowles, 1978).

The original Internal-External (I-E) scale (Rotter, 1966) was formulated to measure a general, non-health specific orientation. Later research showed that an assessment of a more specific locus of control orientation may be necessary to adequately describe this concept as it relates to specific areas such as health (Rotter, 1975). Several health locus of control scales have been developed that are specific to health (Lau and Ware, 1981; Wallston, Wallston, Kaplan and Maides, 1976). Results of research

with health specific locus of control scales would suggest that locus of control in individuals is related in significant ways to health status and other health related matters (Strickland, 1978). However, other evidence has indicated the multidimensionality of health locus of control (Strickland, 1978; Wallston et al., 1978). Wallston and his group developed a multi-dimensional health locus of control scale in work with American adults (1978). Using the three dimensions of internal, chance, and powerful others as locus of control, Wallston and coworkers showed a positive correlation between internal control and health status, and a negative correlation between chance locus of control and health status.

According to social learning theory, then, the locus of control as well as health belief should affect the likelihood of health behaviors. The value of the reinforcement must also be considered (Maiman and Becker, 1974; Rotter, 1975). Other contributing factors, however, should be examined (Cummings et al., 1978; Wallston and Wallston, 1978). Cultural aspects of health behavior are one of these other contributing factors.

Cultural Factors

"To most people health and illness states are largely a matter of the way one knows, sees, and understands health and illness conditions in terms of his own cultural

background and perceptual screen" (Leininger, 1970, p 32). Cultures have varying patterns of learned behaviors and values which translate into perceptions and health actions that differ from relative health values and actions in other cultures (Foster and Anderson, 1978; Leininger, 1976; Mead, 1956). It would follow that the effectiveness of health education would be dependent on the conscious design of instruction to take into consideration these health factors--knowledge, values, and behaviors.

Cultural imposition refers to "subtle and less than subtle ways that an outsider imposes his own values, beliefs, and practices upon another individual or group" (Leininger, 1976, p. 7). The use of health education techniques in a specific culture which are based on research findings gathered in other cultures without evidence of their validity to that culture may be considered a cultural imposition. Congruence between health education and cultural needs and concerns would seem to be essential for effective health behavior change (Leininger, 1966; Reinhardt and Quinn, 1973).

Few studies on health beliefs or health locus of control appear to have been attempted in other cultures. Significant difference was found in perceived vulnerability (susceptibility) to general health problems between Spanish American and Anglo American children (Stone, 1978) but not

between English and American children (Gochman and Sheiham, 1978).

Hseih et al. (1969) found that individuals reared and living in the Chinese culture in Hong Kong differed significantly in an external direction from Chinese Americans and Anglo Americans. Externality then may be essentially a defensive or passive trait--a learned factor in societies with fatalism as an aspect of the cultural mode (Rotter, 1975).

The Arab culture is traditionally an extended family culture. While this is changing, particularly in the urban areas (Prothro and Diab, 1974), the influence of the extended family continues to be a major factor in decision-making. American research suggests that a stable supportive family setting increases the possibility of behavior change in health related matters (Lewis et al., 1978).

The educational system in the Arab world continues to be based on traditional autocratic methodologies. Based on powerful family influence and autocratic educational systems, one might expect therefore the majority of the Arab population to be externally controlled by significant and powerful others.

Health Education

Health education programs have generally been based on the theoretical assumption that changes in knowledge level

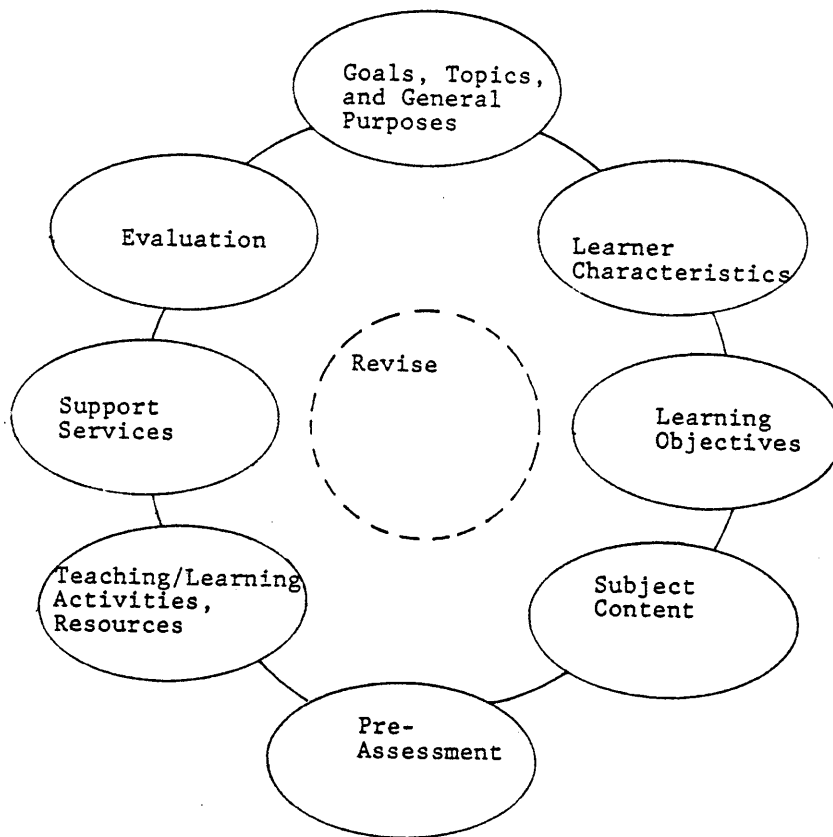
will automatically lead to changes in behavior (Parcel et al, 1980). However, individuals with extensive knowledge about the disease are not necessarily those who display adequate health behaviors (Sackett, 1976). The instructional process of health education--like all educational areas--is complex and composed of major interrelated interdependent elements. Several instructional design processes have been formulated to assist the educator in treatment of all aspects of instructional design (Briggs, 1977; Kemp, 1977). Kemp (1977) illustrates the process as in Figure 1.

Each of the eight elements shown in Figure 1 may be considered essential elements in the creation of an instructional system. Revision may be necessary at any/all points of the design process.

The creation of culturally relevant health education materials can be effectively carried out through the use of an instructional design system. Modification of Kemp's model for the specific purpose of health education may be visualized as in Figure 2.

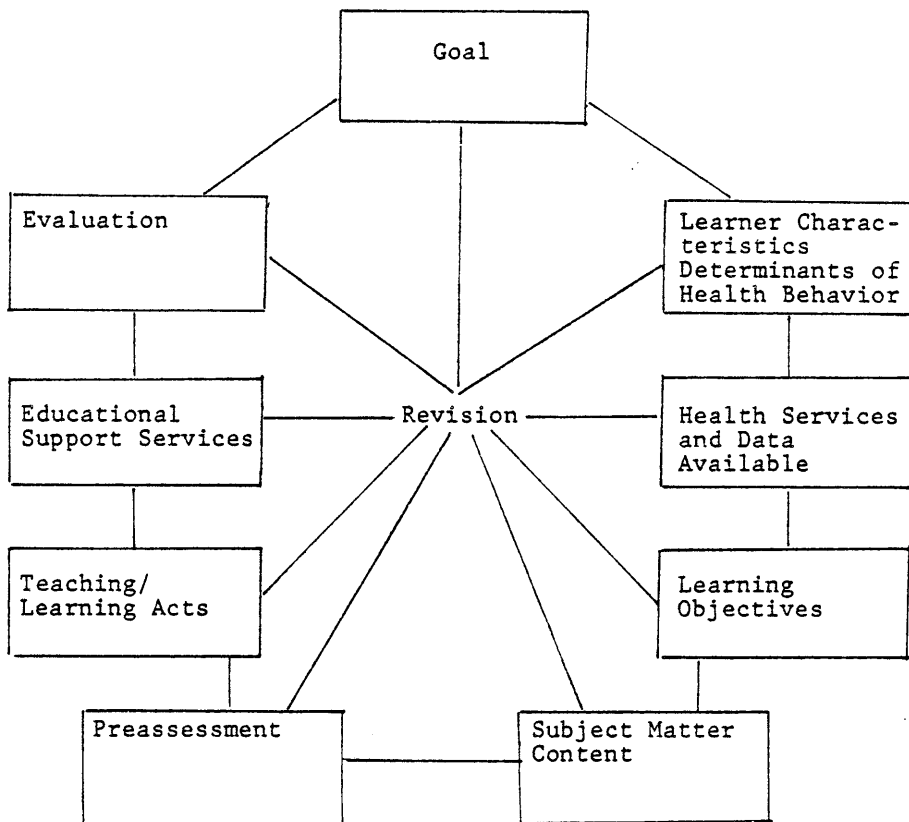
The reader will note the change in Figure 2 with the element 'health services and data available' added to the model in Figure 1. While some information concerning a particular health problem is nonspecific and general, other areas may be open to interpretation by the health professional. Similarly, specific services may be necessary

Figure 1: Instructional Design Process



From Kemp, 1977, p. 9.

Figure 2: Health Education Instructional Design



for aspects of the health problem. To avoid confusing the public, such information should be known to the educator before design of health education materials.

All elements in Figure 2 are interrelated and interdependent. It is essential to obtain information in all elements to create effective health education materials. While no one element can be singled out as more primary in importance than the others, any one element can be used as a starting point. For this study, the area of learner characteristics, with specific emphasis on the determinants of health behavior which includes sociodemographic information as well as information concerning the perceptual world of the individual about health problems, has been selected for investigation. These particular areas have been labeled determinants of health behavior in this study. No other area in the health education instructional design system will be discussed.

Specification of the Problem

Health education in the Arab Middle East has generally used translated Western materials. No investigation of determinants of health behavior nor any other aspect of the instructional design model has been undertaken for this population. As part of an effort to create an effective health education program against initiation of the smoking habit for the Arab adolescent, a pilot research project was

undertaken to investigate the determinants of health behavior through the use of concepts related to the social learning theory, namely, the Health Belief Model, health locus of control, health valuing, and culturally relevant aspects of the situation as defined by the support system.

The purpose of the study was to investigate the feasibility of adapting the tenets of social learning theory to the development of instruments which will measure the determinants of health behavior in a particular Arab population. A secondary project included the creation of a prototype education program, based on prior research and the investigator's experience with the culture, to gather preliminary information on its effects.

Male secondary students in Bahrein were used to investigate the determinants of health behavior towards smoking and the effects of the designed educational program. Six questions were generated for investigation.

1. Do stated smokers and nonsmokers in the studied sample differ on perceived susceptibility to, seriousness of, or reported cues to action of health problems related to smoking?
2. Is there a difference in the health locus of control between smokers and nonsmokers?
3. Is the studied sample more external in health locus of control than reported United States samples?

4. What specific support profile, if any, differs the stated smoker from the nonsmoker in the studied sample?
5. Is there a difference in the health valuing between the stated smokers and nonsmokers?
6. Is there a change in the knowledge and attitudes towards susceptibility to and seriousness of health problems related to smoking following the educational program?

Significance of the Problem

Health education in the Arab world is generally based on foreign-made programs translated into Arabic. No research could be located in the Arab world concerning determinants of health behaviors that may be utilized to design health education materials relevant to the population. Hopefully, aspects of the methodology utilized for this research will be useful to health educators in the Arab world.

Conceptual Framework of the Study

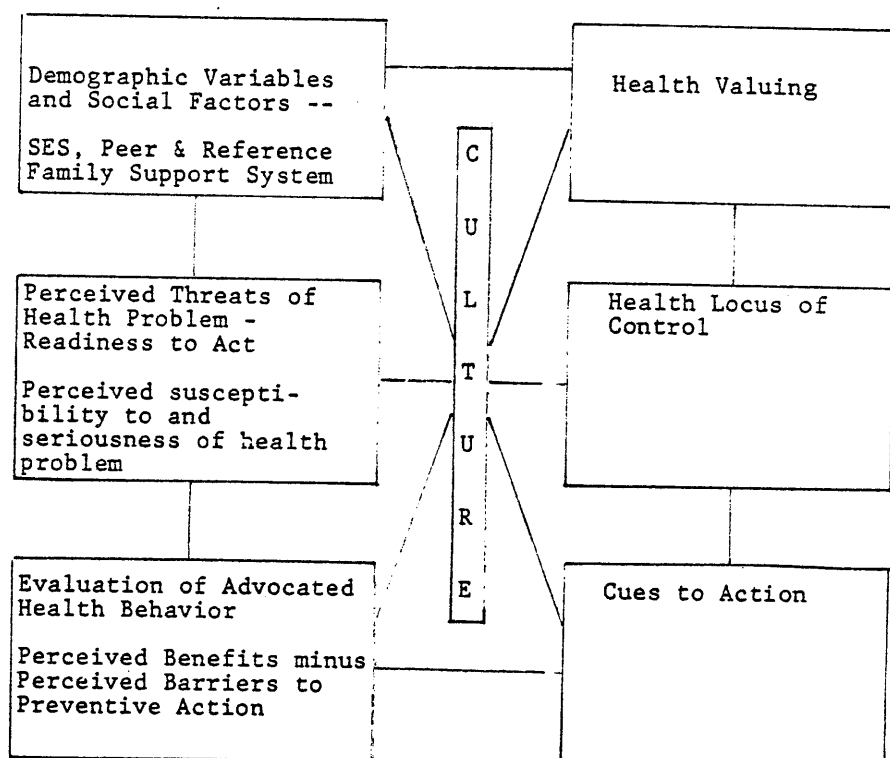
The present investigation examined specific health behavioral dimensions and a health education program specifically designed for the externally controlled male secondary school population in Bahrein. The values under study were health beliefs, health locus of control, health valuing, and sociodemographic variables as constructs of the

social learning theory. The hypothesized values of these concepts were used to determine the learner characteristics in the instructional program for health education. This program was designed for the primary prevention of initiation of smoking cigarettes. The concepts of transcultural health care are pervasive in all aspects of the design (Figure 3).

In Figure 3, the three areas of 'perceived threats of health problem,' 'evaluation of advocated health behavior,' and 'cues to action' are all aspects of the Health Belief Model. The Health Belief Model may be utilized to assess educational needs. If it is known that a specific population does not believe that they are susceptible to a disease entity, that its occurrence could be serious, or that the benefits of treatment outweigh the barriers to action, certain behavioral objectives can be defined for lesson planning (Cummings et al., 1978). This knowledge of need, however, does not help the educator in selecting the instructional method of choice.

It is possible that the knowledge of the individual's health locus of control may provide additional input to possible instructional methodology choice. Present research seems to indicate that internally controlled individuals display greater behavior change and learning under conditions of self-regulation, while externals with a chance locus of control may learn best from peer pressures, and

Figure 3: Learner Characteristics--Determinants of Health Behavior



those individuals with powerful other locus of control appear to display behavioral change when messages are obtained from perceived powerful others (Strickland, 1978). Based on these ideas the type of educational treatment that is appropriate for the individual's locus of control is an important concept in providing conceptual and empirical basis for health education.

Knowledge of the value of reward--in this case a healthy state--provides the educator with information concerning the strength of the reinforcement.

Since the family provides numerous cues for health behavior, information concerning its structure and referral patterns consists of a vital aspect in the perceptual world of the health learner. Other demographic and social variables provide additional information about the learner.

Design of the Study

The study is concerned with the beginning investigation of determinants of health behavior towards smoking in the Arab adolescent. The population consisted of in-school adolescent males in Bahrein. A pretest was given to 649 randomly selected secondary school male students. The questionnaire obtained information regarding defined determinants of health behavior towards smoking--specifically, stated smoking behavior, social structure variables, health beliefs concerning health problems related

to smoking, health locus of control, and health valuing. Immediately following the pretest, a pilot health education video specifically designed for the population was presented. Two post tests were given--one immediately following the video and one two to three weeks later--to attempt to begin to assess the effect of this type of health education material.

Limitations of the Study

No previous information was available concerning smoking behavior, health beliefs about health problems related to smoking, health locus of control, or health valuing in the sample under study nor any other similar Arab population. Therefore, the conceptual framework of the study has not been validated in other research in the same culture.

The student sample had not been familiarized through their educational or other experiences with this type of questionnaire forcing self-opinion on a worded scale.

No information concerning the use of the teaching/learning mode--video--was available for this population.

One eighteen-minute health education video cannot be expected to create changes in life style in a proven difficult health behavior area--smoking.

Only one element in the health education instructional design system was studied.

The basis for this study allows for direction of information gathering in determinants of health behavior only.

Definition of Terms

Determinants of Health Behavior

CONCEPTUAL -- a set of perceptions the individual holds concerning the health beliefs about a health problem, his health locus of control, the value of health, and the support system.

OPERATIONAL -- the questions asked in the Smoking Behavior pretest and post tests I and II.

Health Beliefs

CONCEPTUAL -- a set of perceptions an individual holds about susceptibility to disease, the seriousness of those diseases on his life, and the benefit of taking action to reduce the threat.

OPERATIONAL -- a set of perceptions the individual holds about susceptibility to lung cancer, emphysema, and coronary heart disease (all secondary to cigarette smoking), the seriousness of these diseases of his life, and the benefits of taking action to reduce the threat (not start cigarette smoking) as stated on the Smoking Behavior pretest

questions #23 through #31 inclusive, post test I, questions #1 through #3 inclusive, and post test II, questions #4 through #9 inclusive.

Susceptibility

CONCEPTUAL -- the individual's belief concerning the subjective risk of contracting a disease or specific health problem.

OPERATIONAL -- the perceived belief of an individual concerning the subjective risk of contracting lung cancer, emphysema, and coronary heart disease secondary to cigarette smoking as stated in Smoking Behavior pretest, questions #23 and #29, post test I, questions #1 through #3 inclusive, and post test II, questions #4 and #9.

Seriousness

CONCEPTUAL -- the perceived belief of an individual concerning the effects of a health problem on his life and social actions.

OPERATIONAL -- the effects of lung cancer, emphysema and heart disease--all secondary to smoking--on the individual as stated in Smoking Behavior pretest, questions #25 and #27, post test I (none), and post test II, questions #5, #6 and #7.

Benefits of Action

CONCEPTUAL -- the individual's beliefs concerning positive reasons for following specific health action. The beliefs may include financial, social, and/or physical reasons.

OPERATIONAL -- the individual's beliefs concerning reasons for not smoking as stated in Smoking Behavior pretest, questions #26 and #31.

Barriers to Action

CONCEPTUAL -- the beliefs of an individual concerning reasons which may negate taking a specific health action.

OPERATIONAL -- the reasons stated by an individual which would lead to the action of smoking as stated in Smoking Behavior pretest, question #30.

Cues to Action

CONCEPTUAL -- a stimulus, either internal or external, that leads an individual to take a specific action. The stimulus may be conscious or unconscious.

OPERATIONAL -- the stimulus that leads the individual to decide to or not to smoke cigarettes as stated in Smoking Behavior pretest, questions #24 and #28.

Health Locus of Control

CONCEPTUAL -- the expectancy of the individual concerning the causal relationship between his behavior and reward of health.

OPERATIONAL -- the individual's expectancy as stated in Smoking Behavior pretest, questions #34 through #51.

Health Value

CONCEPTUAL -- the value an individual places on his health in relation to other concepts considered comparable in his society.

OPERATIONAL -- the individual's value as stated in Smoking Behavior pretest, question #52.

Educational Program

CONCEPTUAL -- material specifically designed through the use of an instructional system to educate a designated population concerning a specific subject area.

OPERATIONAL -- an 18-minute video tape designed for the Arab adolescent concerning cigarette smoking.

CHAPTER II

REVIEW OF LITERATURE

The goal of understanding and predicting behavior should appropriately precede the goal of attempting to persuade people to modify their health practices. (Rosenstock, 1966, p 94)

Haynes (1976) in discussing determinants of compliance in both preventive and illness health behavior reviewed studies examining determinants such as client demographic characteristics, disease therapeutic regimen, therapeutic source, client-therapist interaction, and sociobehavioral aspects. Only those programs with sociobehavioral aspects and client-therapist interaction showed high degrees of compliance. An additional factor in positive health behaviors appeared to be a stable supportive family.

Health-related behavior has been divided into three distinct areas: 1) health behavior--any health-related actions undertaken by an individual who believes himself to be healthy for the express purpose of preventing disease or detecting disease in an asymptomatic stage; 2) illness behavior--health-related actions undertaken in response to symptoms of illness; and 3) sick role behavior--actions taken by individuals who consider themselves ill for the

purpose of returning to the health state (Kasl and Cobb, 1966).

While there is overlap in these three types of behavior, it would appear necessary to be able to define the actions leading to the healthy behaviors before attempting to understand illness behaviors. For the purposes of this study, illness or sick role behavior will not be considered unless the research cited is of specific interest. Only health behavior is of concern in this study.

One explanation of decision-making under uncertainty is that behavioral decisions are made to avoid negatively valued outcomes--a reduction to a threat of illness--and increase the probability of a highly valued health-state. The self-perception then of being "at risk" causes a psychological readiness to consider behavioral alternatives for health reasons (Baric, 1969; Kasl, 1974). Choice of action is based on subjective estimates of the individual that may or may not coincide with objective scientific facts of outcome and probability of health states (Kirscht, 1974a; Rosenstock, 1974a). Individual behavior is caused by expectations of the future and influenced by self-regulation and self-evaluation of the actual in relation to intended states (Anderson et al., 1976).

Perceived disorder initiates the internal tension motivating behavior aimed at adjusting disorder (Purola, 1974). An individual therefore engages in goal directed

behavior if he values the reinforcers of the potential outcome and believes that his action will lead to those reinforcers (Lefcourt, 1966). Both the health locus of control construct and the health belief model stem from similar theoretical frameworks (Maiman and Becker, 1974; Rotter, 1966). The theoretical background for this study utilized aspects of the social learning theory.

Social Learning Theory (SLT)

According to social learning theory, individuals have a degree of choice in their actions. The explanation of human behavior is approached in terms of a continuous interaction between cognitive, behavioral, and environmental determinants (Bandura, 1977; Parcel and Baranowski, 1981). Operant conditioning theory postulates that those behaviors that are reinforced by the environment are more likely to be repeated. Thus, the expectancy is built up that specific reinforcements will follow performance of given behaviors. Learning in operant theory is on the basis of mechanical associations between stimulus, response, and reinforcement (Parcel and Baranowski, 1981). Social learning theory, while based on operant theory, stresses the complexity of human behavior, expanding to include the additional factors that influence behavior. The principle of reciprocal determinism--that the environment may be influenced by the human subject as the subject is by the environment--is an

integral aspect of social learning theory. An interactive relationship between the environment, the individual and the behavior implies that a change in one of these areas creates a change in the others (Parcel and Baranowski, 1981).

Increasing an individual's experience in a given situation leads to development of specific expectancies. These expectancies in turn play a part in determination of future behavior in that situation (Bandura, 1977; Wallston, Wallston, Kaplan and Maides, 1976).

The individual's subjective probability as well as the value placed on the potential outcome in the environment forms the basis for social learning theory (Lefcourt, 1966; Zytoskee et al., 1971). Aspects of the social learning theory that are critical for understanding and predicting health behavior change include the following (Lewis et al., 1978; Rotter, 1975):

1. Sources of support and reinforcement for a particular situation.
2. A specific expectancy for a specific situation.
3. Value of the reinforcement.
4. Perceived probability of the situation.

The SLT concepts of expectations and expectancies are important in understanding creation of behavior change in health-related areas. For behaviors that are not habitually performed, anticipation of numerous aspects of the situation as perceived by the individual are generated based on

previous experiences, observation, and learning from others in similar situations. In SLT, one basis for learning is modeling, the basing of one's actions on the behavior of others seen in similar situations. Modeling in the form of a vicarious reward may be the basis of many cultural patterns in a given society and a prime basis for all socialization (Enelow, 1976). These expectations (or anticipatory determinants of behaviors) serve to help the individual work through expectations of the situation before it occurs (Bandura, 1977; Parcel and Baranowski, 1981).

Expectancies (or incentives) refer to the value placed on specific outcomes by the individual. If possible, an individual will choose a behavior that either maximizes positive outcomes or minimizes negative outcomes (Bandura, 1977; Mischel, 1973).

The individual has therefore developed expectations and expectancies concerning a particular health problem and its relationship to self and significant others (Parcel and Baranowski, 1981). These concepts suggest that health behaviors can be modified by changing the subjective value of the anticipated outcome and by modifying the individual's perception concerning the health threat (Enelow, 1976). Behavioral change processes in health education that will be relevant to the individual cannot be designed without adequate understanding of these factors for the population under study.

Health Belief Model

The question of why individuals engage in health practices that do or do not lead to the highest level of health possible for these individuals has plagued researchers for years. A number of articles have used the Health Belief Model (HBM) as a vehicle to understand this decision-making in health behaviors for both health maintenance and disease control (Becker et al., 1977; Cummings et al., 1978; Dielman et al., 1980; Kirscht, 1974a; Maiman and Becker, 1974; Rosenstock, 1974).

The HBM, originally formulated in the 1950s, hypothesized that before the person will seek preventive health care the individual must possess minimal levels of relevant health knowledge and motivation, view themselves as potentially vulnerable to a threatening health condition, and that the efficacy of the recommended action outweighs any perceived barriers to that action (Becker et al., 1977; Rosenstock, 1974a). A critical aspect of the HBM is that it is the individual's subjective perception of the health situation that is important, not the objective information of the health provider. Many studies have shown little relationship between public compliance in health matters and the health professions' recommendations (Haynes et al., 1979; Sackett and Haynes, 1976). The objective of understanding aspects of the client's health beliefs is to discover intervention points that may lead to narrowing the gap

between the perceptions of the individual client and the health professional (Bowers, 1980).

Maiman and Becker (1974) compared the Health Belief Model to six other predictive psychological models with a "value-expectancy" approach to decision-making--including both Lewinian and the social learning theory of Rotter. All the models examined were similar in predicting behavior based on two main variables: 1) the value placed on a specific outcome or goal; and 2) the individual's subjective probability of the likelihood that a given action will attain that goal.

One of the first researchers to utilize the HBM, Hochbaum (1958) utilized the model to investigate decision-making leading to the behavioral action of taking chest x-rays as a precautionary measure for tuberculosis. Combining the respondents' beliefs in personal susceptibility to tuberculosis and the benefits of early detection, the results demonstrated that four out of five individuals who exhibited positive beliefs in both areas of personal susceptibility and benefits of action reported taking a voluntary chest x-ray as a preventive step for tuberculosis. Only one out of five individuals who exhibited neither of the two beliefs had also reported receiving a voluntary chest x-ray.

Numerous other studies have, since that time, examined the subjective perceptions of individuals in aspects of

seriousness, susceptibility, barriers and benefits to action--the main variables of the HBM--in a wide variety of preventive health care: breast cancer (Stillman, 1977), dental care (Kegeles, 1969; Tash et al., 1969), genetic problems (Becker et al., 1975), influenza (Cummings et al., 1978), obesity (Maiman et al., 1977), and many others. Illness care health behavior has likewise generated much research utilizing the framework of the HBM as a decision-making model. However, since the focus of this study is preventive care, these studies are not discussed here.

Evaluation of the Health Conditions

Perceived Susceptibility

Preventive health behavior calls for an action in absence of any symptom. Individuals vary widely in their perceptions of the risk of contracting a health condition.

Research results consistently show that the belief of personal or family member vulnerability to the health problem has predictive and explanatory power in both preventive and sick-role behavior (Becker et al., 1977; Maiman et al., 1977; Rosenstock, 1974a).

Perceived Severity

Even if an individual recognizes that he or his significant other is vulnerable to a health problem, the HBM

asserts that no health action will occur unless the belief is also present that the health problem will cause serious physical or social difficulties, such as an effect on job, family life or social relationships. Research with this variable has shown mixed results. In general, a moderate to high degree of belief in the seriousness (when the threat appears manageable) has been found to be positively correlated with health action. However, very high levels of perceived severity without perceived benefits of action appear to have a negative effect on preventive health action (Becker and Maiman, 1975). This may be explained by negative or disruptive reactions following high fear levels (Janis and Feshback, 1953), or a form of cognitive dissonance (Festinger, 1959).

In general, the evidence does appear to indicate that the variable of perceived seriousness is an important aspect of the HBM (Becker and Maiman, 1975). Both perceived seriousness and susceptibility have a strong cognitive component at least partially dependent on knowledge of the health problem (Rosenstock, 1974).

Evaluation of Advocated Health Behavior

While the 'perceived threat of the health problem'--a combination of perceived susceptibility and seriousness--may be high, the individual still must weigh the costs and

benefits in economic, physical and social terms of the alternative health actions available. Perceptions of benefits include a belief in the efficacy of the treatment and faith in health professionals.

Barriers perceived to health action may include expected social censure, financial cost, inconvenience, questioned safety of action, fear of pain, and intensive life-style change needed to comply. Cummings et al. (1978), however, found that as the individual's degree of perceived benefits increased, the perception of barriers to the same health problem decreased. They suggest that these variables--benefits and barrier--may in reality be a single continuum and not two separate belief entities. If readiness to act is high, the individual considers both elements. Positive health action may follow if the individual believes the benefits outweigh the barriers of that action.

Interaction of Variables

The concepts of susceptibility, seriousness and barriers/benefits to action have been found to be separate predictors of health behavior change (Becker et al., 1977; Cummings et al., 1978; Maiman and Becker, 1977; Warnecke et al., 1978). The theoretical construct of the HBM postulates that the separate belief variables interact to produce an additive response to health action. The overwhelming

evidence shows that, taken in combination, the HBM variables do appear to account for a significant number of health change decisions (Becker and Maiman, 1978; Becker et al., 1979).

Cues to Action

A stimulus appears necessary to trigger appropriate health action by making the individual aware of his feelings about a specific health threat. These cues may be internal--including physical symptoms and perception of bodily states--or external such as impact of mass media, interpersonal communications, or similar health states as a friend or relative.

The intensity of the cue required to trigger the appropriate health behavior would differ with level of readiness to act. A high level of readiness would presumably require a slight stimulus to cause an action to take place. However, a very strong cue would be needed to spur action in an individual with low state of readiness to act (Rosenstock, 1966).

General Health Motivation

More recently the concept of general health motivation has been added to the original model (Becker and Maiman, 1975). This concept is based on measures of general health concern, practices, and beliefs about prevention that are

primarily stable across situations and non-specific, and general faith in medical care.

This general health concern appears to have an additional additive effect in recent research that has included this element. Both Becker et al. (1978) in their work with asthmatic patients and Maiman et al. (1977) working with overweight subjects found a positive correlation between this variable and health behavior.

Enabling and modifying factors such as sociodemographic factors and structural factors such as reference groups and cultural attitudes are assumed to influence the individual's health beliefs but are not viewed as an integral aspect of the HBM (Becker et al., 1977).

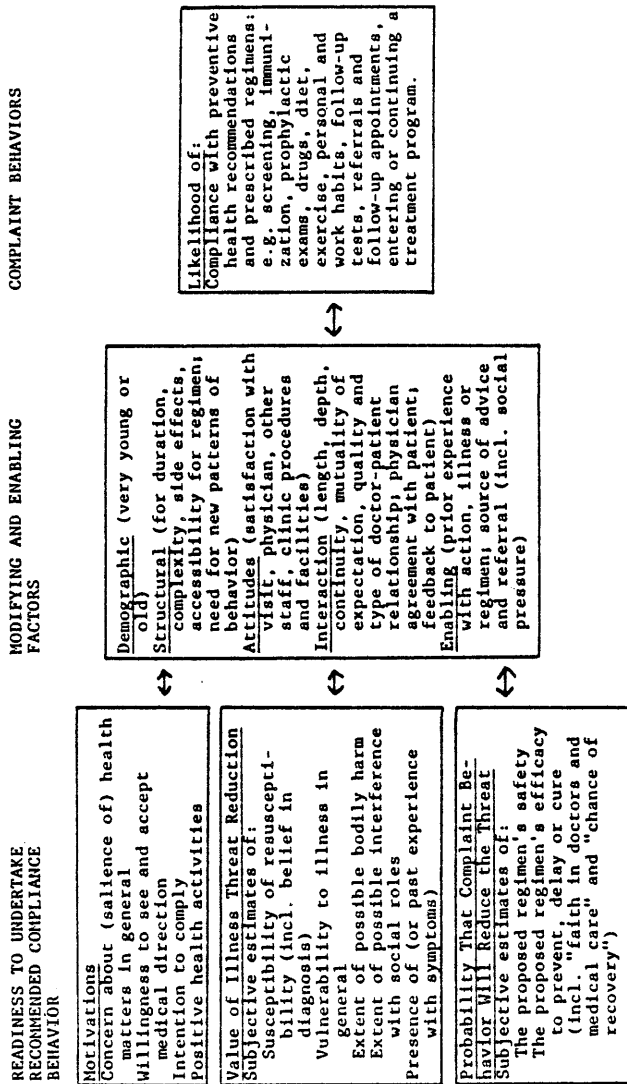
The presently used framework of the hypothesized HBM is as presented in Figure 4.

Modification of Health Beliefs

There appears to be ample evidence that health beliefs are modifiable (Kirscht, 1974b). Through the use of health education, health beliefs have been modified successfully to lead to a positive health action in dental disease (Evans et al, 1970), cervical cancer (Kegeles, 1969), cancer, heart disease, and tuberculosis (Haefner and Kirscht, 1970) as well as other health actions.

One study (Taylor, 1979) found beliefs regarding the dependency implications of illness the only significant

Figure 4: Individual Health-Related Behaviors



From Becker et al, 1977, p. 39.

relationship between pre-treatment state and compliance. Taylor found that the other health beliefs, though not related to compliance when assessed pre-treatment, were found on reassessment six months and 12 months later to be predictive of compliance at that time. Patient experience with a treatment regimen may be needed before adequate decision making on changing health beliefs is possible.

Much of this cited work appeared at least a decade ago. The concept of the ability to modify health beliefs seems to have been accepted by researchers. The thrust of research now is not to study whether the health beliefs can be changed, rather to study the health beliefs and educate for a targeted health behavior.

Modification of health beliefs towards smoking has proved a more difficult issue. While the threat belief does appear to change following health interventions for both smokers and non-smokers, the belief in personal risk does not appear to be altered sufficiently in non-quitters to create change in smoking behavior (Crogg and Richards, 1977; Kirscht, 1974b).

The model provides identification of specific elements that provide intervention points for helping individuals with positive change directions for health-related activities. It does not denote any specific change technique or approach to intervention--only the area of

change needed (Becker et al., 1977; Cummings et al., 1978; Kirscht, 1974b).

Assessment of educational needs through use of HBM should allow tailoring of the educational program to meet the need of the client group (Cummings et al., 1978).

Possession of health beliefs implies a future orientation with deliberate planning for long range goals (Rosenstock, 1966, 1974). This may be particularly true for suggested preventive health behavior when the individual has no illness symptoms.

Cultural Aspects of Health Belief Model

Utilizing an instrument designed to measure children's perceived vulnerability (susceptibility) to health problems (Gochman et al., 1972), researchers have found significant differences between Spanish-Americans and Anglo Americans (Stone, 1978) as well as between inner city and non-inner city schools (Gochman et al., 1972). No differences in this measure were found between English and American school children (Gochman and Sheiham, 1978).

Caffrey and MacLennan (1973), working with the population in Columbia, found positive relationships between use of health services and stated variables of the health belief model. The questionnaire items included areas of

concern for general health, health control, and health determinants.

Although insufficient research utilizing the health belief model in other cultures has been done to enable its total acceptance as a cross cultural concept, the value of health behavior research done within the United States requires its inclusion within a total framework for determinants of health behaviors.

Question Format in Health Belief Model

Discussion in recent years has centered on the validity of various question formats utilized to pinpoint health beliefs. Efforts have been made to standardize questions for research into theoretical aspects of the HBM (Sackett and Haynes, 1976). However, due to the wide variety of research efforts, the standardized format proved unsuccessful.¹

A variety of formats utilizing 'self reference' versus 'reference to men and women your own age' and fixed format versus open ended questions were studied by Kirscht et al. (1966). Though different responses were obtained (with similar directionality), no one question format was found to be more valid than the others. Cummings et al. (1978)

¹Personal communication with D. L. Sackett, September 1981.

utilized Likert scales, fixed alternative multiple choice questions, and vignettes. Convergent validity in measuring HBM variables was found in utilizing either the Likert scale or fixed alternatives but not the vignette method.

Locus of Control

The importance of the role of reinforcement as one of the determinants in behavioral actions has been recognized as critical in understanding and predicting human behaviors. However, it is not the reinforcement per se that is of major importance, but the perceived value of that reinforcement and the expectancy of the individual concerning a causal relationship between his behavior and the reward or reinforcement. Individual differences in placing responsibility for reinforcement in life events on self or others is acknowledged as an important aspect of behavior. To aid in understanding the learning process in a variety of situations, the concept of locus of control considers the individual's perception of the causal relationships between one's own behavior and the outcome or reward. If the outcome is perceived as directly dependent on their own behavioral actions, and therefore controllable, the individual is characterized as 'internal.' If, however, their lives are considered to be related to the environment through fate, chance or the power of others--and therefore beyond personal control--the person is labeled 'external.'

There is not a dichotomy of roles, rather a continuum of internal-external control dimension according to the degree of personal responsibility that is accepted for life's events (Rotter, 1966).

According to this theory, repeated experience with a similar environmental event brings about an expectancy that one's behavior evokes a certain goal or, contrarily, that there is no apparent relationship between behavior and goal. Expectancies than are based on prior experience. If a situation is routine, reliance is placed on expectancy of past reinforcement. If the situation is new, however, the individual must rely on generalized past experience to create a possible scenario and therefore a behavioral expectancy. In any specific event the final behavior choice is influenced by assessment of the immediate situation (situational expectancy) and past experience (generalized expectancy). The extent to which one is influenced by social pressures is determined by a number of psychological forces--one of which is the locus of control.

The role of modeling (Bandura, 1977) may be of particular value in locus of control research. If modeling is the basis for many cultural patterns (Enelow, 1976), the externally controlled individual may possess greater awareness of the importance of social and environmental factors in determining health behavior and be more likely to emulate positive (as well as negative) behaviors being modeled.

The possibility of a difficulty with time orientation in the health locus of control concept may render the concept invalid for socioeconomic reasons. The concept implies a 'future' orientation--the ability or desire to project the reward that behavior will bring in a future time. In the United States, the middle socioeconomic class appears to be future oriented. The lower class tend to prefer immediate rewards (Phares, 1976). However, Zytoskee et al. (1971), utilizing all lower socioeconomic subjects, found a significant correlation between race, locus of control, and delay of gratification, suggesting the phenomena may be one of cultural conditions rather than socioeconomic status.

Locus of Control and Health

Since the initial discussions of the variable of perceived causality of behavior, numerous research studies have been carried out to test the concept's validity. Reviews of the literature indicate the extensiveness of the area covered by this research (Joe, 1971; Lefcourt, 1966, 1976; Phares, 1976; Rotter, 1966, 1975; Strickland, 1978). Research in a variety of preventive health actions as well as illness and sick role behaviors have shown strong indications that the locus of control concept is related in significant ways to health-related behaviors. McFarlane et al (1980) in a preliminary report on a continuing

longitudinal study concerning influence of psychosocial environment on the health status of individuals report initial findings that perceived control over the environment and negative stress conditions do interact with the health status.

Seeman and Evans (1962) in one of the earliest studies on the concept of locus of control in health-related matters found that internal male patients had more objective knowledge and were less satisfied with care if information could not be obtained than external patients in the same setting. Though this has repeatedly been found since that time, it also appears that in chronic conditions this internality with concomitant 'need to control' may actually work against the individual. Since it is not possible to completely control the chronic disease situation in some cases, the internal may tend to become less adaptive and/or more denying than the external after time. In fact, it may not be always better to be internal (Garrity, 1973; Lipp et al, 1968; Lowery and DuCette, 1976; Strickland, 1978).

Such studies have used a variety of scales measuring a generalized global aspect of reinforcement--such as Rotter's Internal-External-Locus of Control Scale (I-E) (1966). Some of these results in health related areas were not as significant as hypothesized based on observed behaviors and previous experience of researchers (Marston, 1970; Rotter, 1975). Generalized expectancies may be utilized to define

important personality characteristics, allow broad predictors based on limited data, and define dimensions of generality. They therefore allow prediction at a fairly low level in a wide variety of situations. However, a more specific measure would be necessary to predict for a specific behavior to any degree of accuracy (Rotter, 1975). This has led to the development of several health locus of control scales (Lau and Ware, 1981; Wallston et al., 1976; Wallston and Wallston, 1978).

The concern of this study is the area of preventive health care education--why do, or do not, individuals display behaviors that facilitate life-long health to the extent it is possible?

Research in the preventive health area (as well as sick role and illness behavior) has shown that individuals with an internal locus of control are more apt to utilize behaviors that facilitate control over their environment and promote a healthy state than externals (Joe, 1971; Wallston and Wallston, 1978). Research in weight loss in the obese consistently has shown that the internally controlled individual loses more weight than the externally controlled (Chavey and Michaels, 1980; Kincey, 1981; Muhlenkemp and Nelson, 1981). However, a variety of concomitant factors (self-concept, reaction to type of treatment, early or late weight loss) leads the reviewers to hypothesize that the internals and externals may respond to different types of

treatment programs. Internally controlled individuals lose the most weight in programs geared to self-responsibility while external individuals respond equally well when placed in a group support program.

Several studies have found that internals are more likely to take responsibility for their actions. Individual responsibility for one's own actions may be an important aspect of preventive health behavior in a cultural setting where this trait is held in high esteem. However, aspects of a cultural phenomenon tend to cloud this picture. In cultures that respect loyalty to the group, the perceived responsibility of the individual may be to the group.

Both internals and externals respond in the direction of an influence message. Externals, however, respond most for a perceived high status communicator. Internals appear equally responsive, regardless of perceived source of the message (Ritchie and Phares, 1969). Studies on smoking message and behavior change showed more internals responding by stopping cigarette smoking following the U. S. Surgeon General's report on ill effects of smoking (James et al., 1965). The seeking out and utilization of information from authority figures has been shown to be a more expected aspect of the internal individual (Ferguson and Kennelly, 1974).

Multidimensionality of Locus of Control

Rotter's original concept of a single continuum of locus of control (1966) has since been questioned by a number of researchers (Collins, 1974; Lau and Ware, 1981; Levenson, 1974; Wallston et al., 1978). Rotter, discussing the numerous research studies that have differentiated externals into two types, appears to hypothesize that, while different, both groups are still externals and therefore the concept remains a single continuum. The difference between the 'defensive' and 'congruent' externals may come about through the type of learning process involved from childhood but is felt by Rotter to be insufficient to differentiate them (1975).

Other researchers, however, have felt that the difference between the two external groups is sufficient to hypothesize that the concept is multidimensional. Collins (1974), working with a generalized locus of control, identified four areas of externality--unjust world, difficult world, world governed by chance, and politically unresponsive world. Lau and Ware (1981), utilizing this framework, developed an instrument to measure the multidimensionality of health locus of control--chance health outcomes, self-control over health, general health threat, and provider control over health. Their study results showed these as different and separate entities.

High positive correlation between perceived competence of provider, satisfaction with care, and provider control over health was also a pertinent finding in this study.

Levenson (1974) differentiated three dimensions of locus of control beliefs--internal, powerful others, and chance. The powerful others and chance scales are moderately inter-correlated but distinct from the internal scales. Wallston and Wallston (1978), based on their previous unidimensional scale (Wallston et al., 1976) and Levenson's work, developed a multidimensional health locus of control scale (MHLC) utilizing the three areas--chance, powerful other, and internal. The internal dimension was found distinct while some correlation was found between the other two dimensions.

Both Lau and Ware (1981) and Wallston and Wallston (1978) have therefore utilized the three dimension of internal, chance, and powerful other locus of control. Lau and Ware in addition hypothesized an additional dimensions of general health threat, a concept which appears to be somewhat similar to aspects of the health belief model (Rosenstock, 1975) in seriousness and susceptibility.

The increased probability of understanding and predicting health behaviors depends on being more specific in the measurement of this concept. Although there does appear to be some correlation between the two dimensions of externality, there appears to be little doubt that there is

difference between the two. Increased understanding by health professionals of specific underlying dimensions of health behaviors should enable more specific treatment programs and more adequately designed health education materials.

Origins of Locus of Control Beliefs

The perception of control is a subjective process of expectancies developed through prior experience. Lau (1982), in his study exploring origins of health locus of control, found HLC was related to prior sickness experience and early health habits involving self-care and/or health professionals. Recent sickness experiences did not affect the locus of control, however, leading Lau to support the view that health locus of control beliefs are relatively stable, developed early in life. Tolor (1978), however, found only some support for his hypothesis that more severe and frequently repeated childhood health problems would result in increased perceived externality of health control. There was no difference for male subjects, and significant difference for female subjects with more childhood illnesses, but not for those with more childhood accidents. Nowicki and Strickland (1973) in a general locus of control study found internality increased over grade level and were

able to modify the locus of control through a specific training program.

Locus of control as a generalized expectancy appears to be a relatively stable factor developed on past experiences. However, repeated new experiences may change previous expectations of success or failure, thereby giving the potential for a change in an individual's locus of control (Arakelian, 1980; Phares, 1976; Wallston and Wallston, 1978).

Tailoring of Educational Programs

Externally controlled individuals appear to be more attentive and positively facilitated in task performance by the presence of social cues while internal individuals resist social cues and influence and require independent, self-regulated learning (Lefcourt, 1976). This leads to the expectation that educationally tailored programs should differentiate technique for the internal or external individuals. Reliance on social support systems and perceived powerful others in a structured format may be stressed for the externally controlled individual. Unstructured self-regulating programs may be more beneficial for the internally controlled (Kilman et al., 1975; Phares, 1976; Wallston and Wallston, 1978). Success in health-related behavior modification, when matched with locus of control types, was more pronounced than mismatched programs.

This appeared to hold true in several health problem areas-- obesity (Wallston et al., 1976) and smoking (Best, 1975; Best and Streffey, 1975).

Rotter (1975) has stressed that there cannot be a 'good' locus of control. In contrast, several sources have stated that internality training is possible and may be necessary to bring about a preventive or compliance focus in health for the individuals (Arakelian, 1980; Eitzen, 1974; Kaplan and Cowles, 1978; Saltzer, 1978; Smith, 1970). If this were necessary, whole societies that may display a more external orientation would have inadequate preventive health behaviors. One would also expect health behavioral problems therefore to be more severe in such societies.

Aspects of Locus of Control and Culture

The premise is often stated that to be internal is the preferred state in locus of control, although Rotter (1975) was careful to point out that this is not an aspect of the concept. In fact, it has been stated that the internally controlled individual shows more achievement (Lefcourt, 1976), has greater adaptive functioning and is more likely to take an action to improve health habits (Strickland, 1978), actively engages in cognitive activity more than externals (Lowery and DuCETTE, 1976), is less influenced by others opinions and maintains control over their own

impulses and their environment (Joe, 1971). To the extent that these hypotheses are expected, other factors that may influence behavior change may be overlooked. That there may be in fact a response bias as a function of a sociocultural background becomes more clear when looking at ethnicity and cultural studies being done. If a given situation is clearly labeled as skill or chance-determined in a culture, the role played by generalized expectancy (such as locus of control) in determining individual behaviors would be greatly lessened (Rotter, 1966). Ethnicity studies in the United States utilizing the locus of control concept consistently reported differences in groups with the American 'white' consistently more internal than others. However, economic factors and social class may have had a strong impact as a complicating factor in these studies (Lefcourt, 1966). Perceived control appears to be positively associated with access to opportunity in the American culture. Minority groups who do not have this access in that culture--such as Spanish Americans, Indians, and Blacks--hold more external, fatalistic beliefs (Lefcourt, 1976).

The large bulk of locus of control research has been done within the American culture. However, some work does compare locus of control between various cultures.

McGinnies et al. (1974) in work in five different countries--Australia, Japan, New Zealand, Sweden and the

United States--found significant differences between Sweden and Japan, and between each of these two and the other three countries. While Sweden was the most highly external, Japan was also external. The other three were internal. The authors suggest the explanation lies within the sociocultural heritage of these countries. While the study did not include health dimensions, all the countries involved are developed countries and in general do provide equally good preventive health services.

Parson and Schneider (1974) studied eight countries--Canada, France, India, Israel, Italy, Japan, United States and West Germany. The European and North American countries were found to be quite similar. Japan was highly external which agreed with McGinnies et al. (1974). However, India was found to be more internal (both males and females) than the European and North American countries. The most internal male sample was Israel, although the Israeli female equalled that of the European-North American group.

Both studies (McGinnies et al., 1974; Parsons and Schneider, 1974) found females were more external than males. However, other studies have found no differences between sexes in reactions to perceived locus of control (Lewis et al., 1978).

Poll and DeNour (1980) have done a number of studies studying chronic kidney disease patients in Israel and their adjustment to disease. The instrument utilized for this

work was Rotter's I-E Scale (1966) translated into Hebrew. Information of compliance, vocational rehabilitation, and acceptance of the disease as well as amount of externality compares with information in similar populations in the United States (Woleslagle, 1978).

Hsieh et al. (1969) in a study between Chinese, American born Chinese, and Anglo Saxon found a significant relationship between ethnicity and locus of control. The cultural valuation of independence and self-reliance may be more likely to produce an internally controlled individual than a culture that values different elements.

No work was found done on the Middle Eastern Arab population.

Health Valuing

Social learning theory stresses the importance of the value of the goal, or reinforcement, of the behavior. When a behavioral action is believed to lead to the attainment of a desirable personal goal, a higher priority will be placed on that consequence than on other possible consequences (Parcel et al., 1980). Theoretically, unless the expected outcome is valued highly, expectancy of an outcome following a specified behavior may be a neutral or possibly negative force.

Several researchers have investigated change in health behaviors as a joint function of health locus of control and

health valuing. Results indicate that individuals with high health value and internal locus of control do show significantly more change in the expected direction than low health value internals or externals, or high health value externals (Kaplan and Cowles, 1978; Parcel et al., 1980; Wallston, Maides and Wallston, 1976; Woleslagle, 1978).

Family Support Systems

The individual's primary group provide the support base of beliefs and doubts, thus shaping both the knowledge base and expectations concerning health matters. Cues for rewards and reinforcements relating to behaviors emit from this family environment (Jenkins, 1979).

Health behavior of close relatives has been considered as normative influence towards health actions on family members (Warnecke et al., 1978). Haynes (1976) cites a number of studies showing a positive correlation between client compliance in health matters and a supportive family structure. The perceived sources of support for a particular behavior in a specific situation do influence the individual's expectations for reinforcement or constitute a direct reinforcement (Lewis et al., 1978).

Although the extended family of the Middle East is less frequently living in one household than previously, the social and psychological ties remain a reality. The family in the Middle East remains an important agent of social

change and modernization. Notions of family solidarity and loyalty remain strong. Although the degree of individual decision making has increased, the authority and control of senior family members--particularly paternal and paternal family--remain generally unchallenged (Khuri, 1980; Prothro and Diab, 1974).

The strong family ties within the Arab culture lead the researcher to hypothesize that the family knowledge and support for or against a particular health habit--cigarette smoking in this instance--would have strong effects on the individual family members. Therefore, the importance of understanding the family attitudes and behaviors concerning a specific health matter would assist the health educator in clarifying the determinants of health behavior in the target population.

Adolescent Cigarette Smoking

Determinants and Health Education

Health behaviors appear to be based on a complex system of environmental and psychosocial factors. While knowledge concerning a health problem is essential for an action to be rationally undertaken, it is by no means sufficient to lead to changes in attitudes and behaviors about the social significance of effects of life style on health. There can no longer be any medical doubt concerning a link between cigarette smoking and numerous health problems. However,

cigarette smoking continues to be a high priority concern through most areas of the world. The poor success rate for cessation of the smoking habit leads investigators into the area of primary prevention of smoking initiation among adolescents (McAlister et al., 1979; Mettlin, 1976; US DHEW, 1977). This area of study is the objective of the present research.

Much of the epidemiological research in cigarette smoking has been carried out in the United States and Western Europe. Significant association has been reported between teenage smoking and such variables as sex (Horn et al, 1959; Joe, 1971; Lanese et al., 1972; US DHEW 1977), parental and sibling smoking patterns (Foss, 1973; Horn et al, 1959; Lanese et al., 1972; Salbert et al., 1963; US DHEW 1977; Warnecke et al., 1978), socioeconomic status (Horn et al, 1959; McAlister et al., 1979; Salber and McMahon, 1961; US DHEW, 1977), and peer smoking (Foss, 1973; Lanese et al., 1972; McAlister et al., 1979; US DHEW 1977).

Although United States figures in the late 1960s showed that twice as many male as female adolescents smoked, at present it appears that there is no difference in smoking rate between sexes among adolescents (US DHEW, 1977). Children in the United States are beginning to smoke between 12 and 13 years of age (McAlister et al., 1979). A steady increase is displayed in the percentage of the age population that smokes, with 4 percent of the 12 to 14 years of

age smoking and 22 percent of the 17 to 18 years of age smoking (Duryea and Martin, 1981). English figures show 6 percent of the boys and 2.5 percent of the girls smoking at age 11 to 12 years (Banks et al., 1981). A study of university students at the American University of Beirut, Lebanon, reported age of introduction to smoking as 10 to 15 years of age for 3 percent of the population with 28.5 percent reporting initiation of smoking between 16 and 20 years of age. In the Beirut study, there was no significant relationship between smoking behaviors and sex, nationality, or religion (Nassar et al., 1980).

Same sex family member smoking behaviors appear to be closely related to smoking behavior of the individual (Warnecke et al., 1978). Although Foss (1973) reported more non-smokers had both parents that smoke and Straits and Seckrest (1963) did not find any relationship, the vast majority of research confirms that smoking behavior of both parents and siblings has a definite influence on adolescent smoking behavior (Horn et al., 1959; Mettlin, 1976; Salber et al., 1963; US DHEW, 1977; Warnecke et al., 1978). Absence of smoking models within the family setting may be an important normative behavior influence on smoking behavior of the individual (Warnecke et al., 1978).

Both socioeconomic status indicators of education level of the parents and status of father's occupation have been found to inversely affect the rate of teenage cigarette

smoking--the lower the education level of the parents and perceived status of father's occupation, the higher the rate of smokers (Horn et al., 1959; Salber and McMahon, 1961). This effect may be secondary to increased environmental stress to comply with peer pressures (McAlister et al., 1979).

As base line information on characteristics of smokers versus non-smokers, the cited sociodemographic information is essential to aid in instructional design. More recently, however, studies have utilized this information to increase understanding of the psychosocial determinants of smoking behavior. Peer and social pressure to smoke have been indicated as among the most influential factors for adolescent smoking (Arkin et al., 1981; Botvin and Eng, 1980; Evans et al., 1978; Lanese et al., 1972; McAlister et al., 1979, 1980; Mettlin, 1976; Neeman and Neeman, 1975; Rabinowitz and Zimmerly, 1974).

Although the vast majority of adolescents (90% to 95%) report knowledge of harmful effects of smoking on health (Nassar et al., 1980; US DHEW, 1977), strong social and peer pressures encountered during this period may abrogate this knowledge. Recent work on the use of psychological inoculation techniques against peer and media pressure has shown some positive results. Through the use of film or small group work, adolescents are exposed to known or implied statements positive to smoking and taught verbal or

cognitive responses appropriate as pressure-resistant statements and skills. Modeling and behavior rehearsal techniques are often included within these teaching/learning sessions. Significant results in reduction rates of initiation of smoking have been found in utilizing these methods (Arkin et al., 1981; Botvin and Eng, 1980; Evans et al., 1978; McAlister et al., 1979, 1980; Perry et al., 1980).

If social pressures positive to smoking increase the chance of initiation into smoking, then culture pressure against smoking should decrease this possibility.

The most appropriate message themes concerned with primary prevention or reduction of smoking has been the subject of several studies. Utilizing mass media for adolescent health education on smoking, Cresswell et al. found messages that stress immediate effects of smoking on health to be most effective (as reported by Neeman and Neeman, 1975). Others have found small group identification and modeling of peer beliefs and pressures as the mode of choice (McAlister et al., 1979; Perry et al., 1980).

Messages that are high in fear content or do not offer a behavior selection to reduce the fear appear to be counterproductive in producing a health related behavior (Janis, 1953; Stern et al., 1975). However, it has been reported in smoking research that perceived vulnerability to health hazards secondary to cigarette smoking interacts with

the strength of the fear arousal in the message in ability to produce action (Leventhal and Watts, 1966).

Impersonal communication appears to be the preferred route for individuals with an internal locus of control. Externals, however, prefer presence of social stimuli (Lefcourt, 1976).

The influence of television or video media on health matters has been reported as the most influential source of health information in both Nigeria and the United States (Ogionwo, 1973; Warnecke et al., 1978). However, repeated exposures to the message via a variety of media appear to strengthen belief in the efficacy of the proposal (Rogers and Shoemaker, 1971; Warnecke et al., 1978).

Research has not been able to pinpoint a medium of choice. The utilization of a systems approach to instructional design with a clear analysis of the target population, learner objectives and knowledge of availability of media and support services will allow the choice of media to gain maximum possible stimulus within financial and logistic restraints (Briggs, 1977; Schramm, 1977).

Smoking and the Health

Belief Model

Several smoking programs have been designed around the assessed health beliefs--susceptibility to and severity of health problems secondary to health beliefs (Duryea and

Martin, 1981; Irwin et al., 1970; Roberts, 1980). The success of these programs suggests the efficiency of the design of health education programs around the phenomenological world of the target population.

Smoking and Locus of Control

A number of studies have shown that smokers tend to be more external in locus of control than non-smokers (Coan, 1973; Hjelle and Clauser, 1970; James et al., 1965; Straits and Sechrest, 1963; Williams, 1973). Other research reports that, among smokers, the individuals with an internal locus of control are more likely to be able to reduce or quit smoking than the externally controlled (Foss, 1973; Mlott and Mlott, 1975). This may be due to the external individual's feeling of remoteness of danger of health problems due to smoking. More recently, the type of intervention has been shown to interact with locus of control in determining treatment outcomes to reduce or quit smoking (Best, 1975; Best and Steffy, 1975). The use of different educational treatments for preventive health education for internal and external locus of control populations should also prove significant.

No difference was found in locus of control between sexes and the variable of smoking (James et al., 1965).

Smoking and Health Valuing

Health valuing was investigated as an additive value with locus of control for success in reducing smoking rate. Both internally and externally controlled individuals with high health value smoked less following treatment than did both locus of control groups with low health value. Internally controlled high health value individuals, however, showed a reduction rate equal to the combined total of all other groups (Kaplan and Cowles, 1978).

Conclusion

Prevention of onset of cigarette smoking is a major public health education. The necessity of utilizing experimental technique and research thoroughness to identify relevant programs must be accepted for increased success in meeting educational objectives.

There can be little doubt that a number of complex factors combine to create health related attitudes and behaviors (Phares, 1976; Strickland, 1978). The amount of variance accounted for by each factor may be small, but a gestalt effect is to be expected. If health beliefs, locus of control, reinforcement value and support systems are investigated together, predictive value in explaining health behavior should be greatly increased.

CHAPTER III

METHODOLOGY

Design of Study

General Research Approach

The general research approach is a one group pre-test post-test design. The instruments include:

PRETEST: a general questionnaire obtaining information regarding social structure variables, stated smoking behavior, health beliefs concerning smoking, health locus of control and health valuing.

POST TEST I: a questionnaire given immediately following the educational intervention, obtains information concerning smoking knowledge and perceived relevance of the intervention.

POST TEST II: a questionnaire administered between two and four weeks following the educational program, obtains information regarding smoking knowledge, stated smoking behaviors, and health beliefs regarding smoking.

EDUCATIONAL PROGRAM: an 18-minute video containing anti-smoking information specifically produced for the study.

Rationale for Approach

This study was concerned with the investigation of defined variables within the given sample and the possible relationships between the educational program and some of these variables. The pretest instrument was specifically designed to gather information on these variables. This measure had not been validated for this population previous to this study. No information was available concerning the student sample reaction to the teaching/learning medium (video) selected for the educational program. Nothing was known concerning the variables in the sample being studied. However, there was general agreement among health professionals in the Arab world that, as hypothesized by the researcher, the study sample would be generally of an external locus of control--both towards chance and the powerful other dimensions.¹ Therefore, an educational program was designed for individuals with an external locus of control--utilizing both a 'powerful other' figure and a peer group situation.

Weakness and Strength

of the Design

Nothing was known about the locus of control, health valuing, or health beliefs about smoking in the population

¹Personal communication with Arab health professionals in Bahrein, Jordan and Lebanon, Winter 1981-82.

prior to the design of the educational program. Therefore, the program was based on the hypothesized external locus of control of the population.

The extraneous variables of history and maturation, usually a problem in this type of design, were not difficulties due to the time element in this research. The pretest, the educational program, and post test I were all given during one class period. Random selection from the student population should address of the regression problem.

Although one Arab country, Bahrein, was utilized for a thorough study of this problem, a selected sample of a second Arab country, Jordan, was utilized to allow initial comparison between the two Arab adolescent samples. A selected female sample in Bahrein was used to allow initial investigation into differences in determinants of health behavior between sexes. It was hoped that this research may serve as a basis for similar studies of the theoretical concepts for other health problems and other Arab countries.

The extremely short time span between post test I and post test II was necessitated by the schedule for government examinations and the end of the school year. Therefore, no long term effects could effectively be measured.

No attempt was made to measure individual or group change in behavior but only group change in knowledge and beliefs.

The design allows for an investigation of the concepts of health locus of control, health beliefs, health valuing and support systems at the same time as investigating the effects of a specific health education package. The theoretical basis of these concepts allows direction for information gathering. The pretest instrument will also be tested for validity, particularly that section of the instrument that has been validated for a different cultural population, the health locus of control.

Population and Sample

Bahrein, an Arabian Gulf State, consists of eleven islands with an area of 669.4 square kilometers and a population of 281,570 (census 1976 UN 1982).

Bahrein has a long history as a mercantile center and has developed a unique blend of traditionalism and modernizing innovation. Educational systems in the western sense began to develop in the early 1900s (Khuri, 1980). At present the governmental education system includes liberal arts and technical colleges as well as elementary, intermediate, and secondary education.

Jordan, a land locked Arab monarchy of 97,740 square kilometers, has a population of 2,779,000 on both East and West Banks (census 1976 UN 1982). A number of government universities including professional schools are available for the Jordanian student.

Government schools below college level in both countries are sex segregated in conformance with traditional standards. While both countries have in general a teacher oriented educational system, innovative changes are rapidly being made in the educational structures.

The decision to work with secondary students was based on the findings of Nassar et al. (1980) that the majority of Arab students were initiated to the smoking habit from 16 to 18 years of age. In general in the Arab world, health education subjects such as drinking and cigarette smoking are not encouraged in primary or intermediate schools.

The sample for the study consisted of all male secondary students in government schools in the country of Bahrein. Government secondary schools in Bahrein are of two distinct types--general education and technical. Two program tracts are offered in the general education system--literary and scientific. One program tract is offered in the technical system.

A list of all male secondary schools which consisted of six general education and three technical secondary schools was obtained from the Ministry of Education. . The total male population during the school year 1981-82 was 2,286 for the general secondary education and 1,246 for the technical program (Ministry of Education, Bahrein, 1981). There are five education districts in Bahrein, four of which have secondary schools. Three of the general education schools

were located in one district. One of these schools was chosen by random card selection. The three remaining general education secondary schools were each located in a different district. Each was utilized as a sample choice. Only one of the technical schools contained students in all grade levels. This school was selected for the study.

Three grade levels are found in each type of program in the secondary school sequence. The headmaster of each selected school was requested to randomly select one section of each level of each type of program to be the final sample for the investigation. The total final sample was 649 or 18.4 percent of the total population. The total for the technical level was 89 or 7.1 percent of that total population versus 560 or 24.4 percent of the general education population. The age range of the sample was 14 to 21 years.

Secondary school girls were not available to the researcher for comparative studies. To enable an initial comparison between sexes on determinants of health behavior, a sample of girls from the freshman class of a national university--Bahrein University College--was utilized. The sample was chosen from a required course for all freshman at that university. A total of 97 girls between the ages of 16 to 21 years comprised this sample. No definite comparative statements can be made from this sample.

A sample of convenience, selected by the Ministry of Education in Jordan, allowed for initial comparison on determinants of health behavior between Arab adolescents from different Arab countries. A boys secondary school in the capital city of Amman was assigned as the test school. A section of each grade level and each type of program in that school--Scientific and Literary--were assigned to take part in the program. The total sample was comprised of 176 male students. No definite comparative statements can be made concerning differences between the two samples.

Instrument Development

Pretest

No suitable instrument for investigation of smoking behavior and health beliefs towards cigarette smoking was found. Since no previous work could be found on beliefs of the Arab adolescent concerning smoking, as well as short term effects on health, these questions were designed as open ended.

Following review of several American health locus of control instruments, two instruments (Lau, 1981; Wallston et al, 1978), validated for United States populations, were given to three Arab health experts, Ms. Beth AbuHaydar, Dr. Adel Afifi, and Dr. Huda Zurayk, who have worked in both cultures to check for cultural bias. One instrument (with

two forms), the MHLC (Wallston et al., 1978), was felt by the three experts to be slightly superior in cultural terms. In discussions, it was felt necessary to add one additional item--the concept of "God's will." Both forms of the instrument were translated into Arabic, reviewed for translation misconceptions, and corrected. On second review by the three Arab health experts, one form (form B) was felt to be superior in its Arabic form. This form was selected for the pretest questionnaire. The original six point Likert scale was used.

Researchers in health-related research (Kaplan and Cowles, 1978; Wallston et al., 1976; Woleslagle, 1976) have used a shortened version of Rokeach's Terminal Value Survey (1973) with "Health: Physical and Mental Well-Being" added as a health value measure. The same measure was used as the health value measure of the pretest. The additional values of 'family togetherness' and 'education (formal)' were felt by the researcher¹ to be concepts highly valued by the Arab adolescent, and were added to the health value measure.

The complete pretest included demographic and support system information, stated smoking behavior, health beliefs (divided into questions on seriousness, susceptibility,

¹The researcher is an American who has worked in the health field in the Middle East for 20 years.

benefits and hindrance to action, and cues to action), health locus of control and health valuing (Appendix A).

The entire questionnaire was given to two faculty members, Ms. Beth AbuHaydar and Dr. Huda Zurayk, and two MPH graduate students, Ms. Meha Shamsuddine and Dr. May Haddad, of the American University of Beirut to judge the instrument for clarity, readability and understandability for the defined population of Arab adolescents (ages 14 to 20). All four reviewers have previously worked with Arabic-English and English-Arabic translation. One health locus of control question, 'the type of care I receive from other people is what is responsible for how well I recover from an illness' required further translation due to lack of clarity.

The pretest instrument was then given to eleven Arab adolescents (ages 15 to 17) chosen by convenience as a pilot test. The students completed the pretest and were then asked for comments concerning the questionnaire. The HLC question 'the type of care I receive from other people is what is responsible for how well I recover from an illness' as translated into Arabic was unclear and confusing. Since this question had already been translated three different ways, the decision was made by the researcher to remove this question. There was also no perceived difference between positions three (3) and four (4) on a six point Likert scale. Therefore, a five point Likert scale was used for the final version of the concept questions.

The internal consistency of designated scales of the pilot test was checked by observation. Directionality of each scale was consistent in all pilot test questionnaires.

Post Test I

A short questionnaire, designed to elicit information on knowledge of smoking problems and perceived relevancy of the teaching/learning activity utilized, was written in English and translated into Arabic. The questionnaire was reviewed by two faculty members at the American University of Beirut for clarity for the defined population.

Post Test II

Information concerning stated smoking behavior and health beliefs concerning smoking were included in the second post-test. Faculty member review was again utilized.

Educational Program

It had been hypothesized that the population would have an external locus of control--both for chance and powerful other dimensions.¹ It appears from current research that individuals with an external locus of control respond better to information received from an authority figure of perceived high status as well as peer pressure (Wallston and

¹Agreement on this point was reached between a number of Arab health professionals and the investigator, who has worked in the culture for a number of years.

Wallston, 1978). Therefore, the decision was made by the researcher to utilize both these information sources in the designed educational program.

To assess effectiveness of the teaching/learning activity between countries and avoid the variable of different teachers, an audiovisual aid format was needed to present the material desired to the sample population. No appropriate video or film was available.

No previous research information was available that studied peer pressures used in statement form for or against smoking behavior in the Arab adolescent. To obtain relevant statements needed for the peer pressure section of the video program, three high schools in Lebanon were selected on a convenience basis. A graduate student in the Department of Education, American University of Beirut, met separately with a small group of students of each sex in each of the three schools.

Discussion in the groups was centered on two questions--why teenagers smoke, and what arguments are used by peers to convince teenagers to smoke or not to smoke. The information received was similar in the three schools. Two Bahreini and two Jordanian university students at the American University of Beirut verified the information as relevant in Bahrain and Jordan. The information was then utilized to design the section on peer pressures in the educational program.

Two separate video programs were designed--one for adolescent males and one for adolescent females. While the section using an authority figure was the same for both videos, the peer pressure section for each sex utilized same sex actors and statements discovered relevant to that sex. The statements were very similar in context (Appendix D).

The president of the Lebanese Cancer Society, who is a faculty member of American University of Beirut Medical Center, was utilized as the authority figure for the video. Although it is possible that the designated population did not know the physician involved, the American University of Beirut Medical Center is highly regarded in the Arab world as an institution of respected authority in health matters.

The video format was selected over the 16-mm film format due to financial considerations. Video receiver-playback equipment was available for use in schools in the designated population.

Procedure

Permission was received from the Ministries of Education, Bahrein and Jordan, to administer the instruments to selected male secondary students as well as a sample of female freshman college students in Bahrein.

Due to the fact that the researcher was a foreigner whose presence in the setting might cause a Hawthorne effect, the decision was made to utilize Bahreini and

Jordanian staff of the respective country to administer the questionnaires and educational program.

In Bahrein, the Department of Health Education, Ministry of Health, Bahrein, provided the video equipment and staff to administer the questionnaires and provide the educational program as required by the researcher. One staff member was responsible for presenting all questionnaires and the educational program to all the selected schools. The principals of all selected schools were agreeable to the study and provided student time and room space as requested. All subjects were given the pretest, the educational program and the first post test during a four week period from April 8 to May 6, 1982. The second post test was given to all subjects during the period of May 12 to May 30, 1982.

The students involved were taken to an empty classroom or auditorium. Because of the small video screen used, the Ministry of Health staff member was requested by the researcher to allow only 20-25 students at one time in the room. The pretest questionnaire was distributed to the students and the following instructions were given:

'We would like your help on discovering some factors that cause cigarette smoking in adolescents and some of your ideas about health. There are no correct answers--we are asking your personal opinion. Please fill in the answers on your own. Do not give us your name. All answers are confidential. Thank you for your help.'

After students completed the questionnaire, the video was introduced by the simple statement: 'We would now like to show you this video on cigarette smoking.'

The video program, approximately 18 minutes in length, was then shown.

Immediately following the video presentation, the first post test was given to the students. The time required for completion was 5-10 minutes. The students were then dismissed from the session.

Between two to four weeks later, the same individuals were administered the delayed post test, post test II, in their classroom.

In Jordan, the educational counselor assigned to the school administered the pretest, educational program, and first post test in the same manner as described above. However, due to interference with the time schedule in Jordan for final and government examinations, it was not possible to administer the second post test to the Jordan subjects.

The questionnaires were collected at the Ministries in Bahrein and Jordan respectively and returned to Beirut to the researcher for data analysis.

Data Analysis

Each major component of the conceptualized determinants was operationalized by multiple questionnaire items with

responses given on Likert scales. The single items constructed to measure the same health determinant were then combined to construct index measures for each of the determinants. An index measure was derived by adding the responses of an individual on two or more items composing a particular determinant. Means and standard deviation were obtained for each scale.

The pretest of the questionnaire showed very little perceived difference between positions 3 and 4 on a 6-point Likert scale. Therefore, 4 or 5 point Likert scales were used for the concept questions.

Significance level of $p \geq 0.05$ was established as the alpha level criterion for significance.

Differences between type of program (literary, scientific or technical), stated smoking behavior, sex, and country for defined determinants of health behavior were investigated.

Health Belief Model

The health belief index measures of seriousness, susceptibility and cues to action were constructed. Likert scale scoring for 'seriousness' and 'susceptibility' ranged from score 1 for highest perceived 'seriousness' or 'susceptibility' to 5 for lowest perceived 'seriousness' or 'susceptibility.' The possible index score on the pretest for 'seriousness' was 4 high to 20 low, and for

susceptibility was 4 high to 20 low. Means and standard deviation was computed for both scales. Pearson correlation between susceptibility and seriousness scales was computed to investigate interrelationship between the two scales.

Both these index measures were divided into high, medium, and low components. These components were designated according to the index measure score response for seriousness and susceptibility. 'Seriousness' index measure scores of 4-6 were considered high perceived seriousness, scores of 7-11 were regarded as of moderate perceived seriousness, and scores of 12-20 were stated to be of low perceived seriousness. 'Susceptibility' index measure scores of 4-6 were considered high perceived susceptibility, scores of 7-11 regarded as moderate perceived susceptibility, and 12-20 were stated to be low perceived susceptibility. The ranges were determined by utilizing the possible value range within each score, and assigning an expected range to each component of high, moderate and low.

The designated component positions of high, moderate and low were utilized in the cross tabulations of variables to investigate interrelationships between these variables and sex, type of program, country of respondent and stated smoking behavior.

The 'cues to action' index measure provided a score portraying that 'cues' were not present with a score of 4-5, or present with scores of over 5. Scores of 0 to 3 were

missing values and considered invalid. No attempt was made to measure the strength of the present 'cues.'

Answers given to open ended questions inquiring into perceived barriers and benefits were coded into several categories. The categories were selected by the researcher after reviewing answers on fifty questionnaires with one faculty member and two graduate students at the American University of Beirut. Frequent evaluation of statements with the questionnaire coders was carried out. No revision was necessary in the selected categories. Individual answers were then tallied into specific statements to allow more specific understanding of Arab adolescents' reasons for smoking.

Post Test I

The true/false format was used for susceptibility questions for post test I. The sample under study was not familiar with the multiple choice question which is the questionnaire format of choice for attitude measures. The decision to use the true/false format was to allow a general idea as to directionality of responses for the two forms of questions. No comparisons can be made between susceptibility scores on the pretest and post test I or between post tests I and II. The percentage of students in each component designated as high or low was calculated.

Post Test II

Index measures for seriousness and susceptibility were developed by combining responses on a Likert scale for questions concerned with these concepts. Mean, standard deviation, and percentage of students in each component designated as high, moderate or low for each scale were calculated.

The index measures scales for the health belief model were as follows:

Susceptibility Index Measures

Pretest

23. Someone who smokes at your age could in the next 15 years develop:

	Defi- nitely	Pro- bably	Possibly	Not Very Likely	Impos- sible
a. Heart attack	_____	_____	_____	_____	_____
b. Cancer of the lung	_____	_____	_____	_____	_____
c. Emphysema	_____	_____	_____	_____	_____
<u>Index score</u>	1	2	3	4	5

29. The chance of a smoker getting a heart attack is greater than that for a nonsmoker.

	100% More	75% More	50% More	25% More	Equal Chances
_____	_____	_____	_____	_____	_____
<u>Index score</u>	1	2	3	4	5

Post Test I

1. Lung cancer has a definite correlation to the amount of cigarettes smoked.

True _____

False _____

2. Lung tissue damage is not a complication of smoking except after at least 15 years of smoking.

True _____

False _____

3. A nonsmoker has less chance than a smoker of getting a heart attack.

True _____

False _____

Post Test II

4. Someone my age who smokes develop after 15 years.

	Defi- nitely	Possibly	Not Very Likely	Impos- sible
a. Heart attack	_____	_____	_____	_____
b. Cancer of the lung	_____	_____	_____	_____
c. Emphysema	_____	_____	_____	_____
<u>Index score</u>	1	2	4	5

9. A smoker is more apt than a nonsmoker to get a heart attack.

	Definitely	Probably	May Be	Not True
	_____	_____	_____	_____
<u>Index score</u>	1	2	4	5

Seriousness Index Measures

Pretest

25. If detected early, treatment is successful for:

	100% of time	75% of time	50% of time	25% of time	Never
a. Lung cancer	—	—	—	—	—
b. Coronary artery heart disease	—	—	—	—	—
c. Emphysema	—	—	—	—	—
<u>Index score</u>	5	4	3	2	1

27. Smoking causes lung cancer:

	Definitely	Probably	Slight Chance	No cor- relation
	—	—	—	—
<u>Index score</u>	1	2	4	5

Post Test II

5. If detected early, treatment is completely successful for:

	Always	Usually	Seldom	Never
a. Lung cancer	—	—	—	—
b. Emphysema	—	—	—	—
c. Heart disease	—	—	—	—
<u>Index score</u>	5	4	2	1

6. There is correlation between smoking and lung cancer.

	Definitely	Probably	Maybe	None
	—	—	—	—
<u>Index score</u>	1	2	4	5

7. Smoking cigarettes does no harm if one smokes in small amounts.

	Definitely True	Probably True	Maybe True	Not True
	—	—	—	—
<u>Index score</u>	1	2	4	5

Cues to Action Index Measures

Pretest

24. Have any of your family or close friends been diagnosed as having:

	Yes	No
a. Lung cancer	_____	_____
b. Coronary heart disease	_____	_____
c. Emphysema	_____	_____

If yes, state relationship.

Index score: Each No = 1.
Each Yes, a number other than 1,
dependent on family relationship.

28. Has publicity on harmful effects of smoking decreased your desire to smoke?

Yes ____ No ____ I have not seen/heard
any ____

If yes, what type of media has had the most effect?

Index score 3 or more 1 2
(depending on media type)

Benefits to Action Question

31. Why should an individual not smoke?

Barriers to Action Questions

26. What do you believe to be some immediate harmful effects, if any, if one has just started smoking?
30. What are some reasons that an individual your age would smoke?

Health Locus of Control

The multidimensional health locus of control (MHLC) scales (form B) (Wallston et al., 1978) were translated into

Arabic and formed a section of the pretest questionnaire. Each question falls into one of the three dimensions of health locus of control--Internal, Chance or Powerful Others. Eighteen items were included in the scale--six questions for internal control (IHLC), five items for powerful others (POHLC), and seven questions for chance (CHLC). One of the original MHLC items for powerful others - 'The type of care I receive from other people is what is responsible for how well I recover from an illness' - was not included in this questionnaire because of lack of clarity in understanding the question during the expert review and the student pilot test. One additional 'chance' question - 'When I get sick I just rely on God and don't follow any treatment' - was added to the scale. However, to allow comparison of the original scales, that question was treated separately in analysis.

The Likert scale for health locus of control was constructed on a scale ranging from 1 to 5 with score 1 equal to "Strongly Disagree" and score 5 equal to "Strongly Agree."

The index measure for each scale consisted of the sum of the scores of each question in the scale. Means and standard deviations of each locus of control scale were obtained. Pearson correlation was computed to investigate interrelationships among the three scales.

Internal consistency of each health locus of control scale was measured by the use of Cronbach Alpha.

Each index measure was divided into low, average and high components of that measure, designated according to the mean of the individual scale. These designated component positions were utilized in investigating relationships between variables and types of program, sex, stated smoking behavior, and country of respondent.

The index measure scales of the three dimensions of health locus of control are presented below:

Internal Health Locus
of Control (IHLC)

- 34. If I become sick, I have the power to make myself well again.
- 39. I am directly responsible for my health.
- 41. Whatever goes wrong with my health is my own fault.
- 45. My physical well-being depends on how well I take care of myself.
- 46. When I feel ill, I know it is because I have not been taking care of myself properly.
- 49. I can pretty much stay healthy by taking good care of myself.

Powerful Others Health Locus
of Control (POHLC)

- 36. If I see an excellent doctor regularly, I am less likely to have health problems.
- 38. I can only maintain my health by consulting health professionals.
- 40. Other people play a big part in whether I stay healthy or become sick.
- 43. Health professionals keep me healthy.
- 50. Following doctor's orders to the letter is the best way for me to stay healthy.

Chance Health Locus of
Control (CHLC)

- 35. Often I feel that no matter what I do, if I am going to get sick, I will get sick.
- 37. It seems that my health is greatly influenced by accidental happenings.
- 42. When I am sick, I just have to let nature run its course.
- 44. When I stay healthy, I'm just plain lucky.
- 47. Even when I take care of myself, it's easy to get sick.
- 48. When I become ill, it's a matter of fate.

Health Valuing

Health valuing was a single question (#52) with possible rank order score of 1 to 11. The mean of the

sample was established. Based on this mean, the health value was designated into one of two positions. Scores 1 to 3 were designated high health value, scores 4 to 11 were designated low health value.

Sociocultural and Smoking Behaviors

Results for sociocultural, demographic and smoking behavior methods were computed by frequency of response.

Family support systems were determined by pretest questions #5, #13 through #16 and #19 concerning the family composition, the numbers and relationship of family members other than the extended family living at home or next door, and their smoking behaviors, and perceived parental objection to smoking.

Degree of influence by family members in health decisions was determined by response of student to question #7 in the pretest, 'If you have a health problem, to whom do you refer first?' Computation of response was frequency calculations.

Student response frequency for post test II questions concerning acceptability of brother or sister smoking was also calculated.

Questionnaire Cross Tabulations

The difference in determinants of health behavior, that is susceptibility to and seriousness of health problems related to smoking, health locus of control, health value,

support systems, and sociodemographic variables, between smokers and nonsmokers were questions for investigation in this study. The influence of the type of school program, sex and the country of respondents' schools were identified as possible confounding variables. Cross tabulations with Chi square levels were performed between defined determinants of health behavior versus type of program, sex of respondent, stated smoking behaviors, and country of respondent in the pretest questionnaire.

Comparison of Questionnaire Data

It was not possible to obtain information concerning individual subjects' scores across tests. The change therefore in knowledge and attitudes about health problems related to smoking are group changes only and not individual changes. The pretest and post test groups were the same individuals, although not all the subjects who completed the pretest completed the post tests. No statistical test was available that allowed no examination of difference scores from the same group across time. Measures from independent groups are typically more powerful than nonindependent measures. If significant differences are found using the chi square with nonindependent groups, there is an indication of a significant difference. If no difference is found, however, the clarity of the information is uncertain and noninformative. The decision was made therefore to

utilize the chi square test for indicative purposes only in investigation of changes between the pretest and the post tests, with the reservation that the groups were not independent.

Cross tabulation with Chi square calculations between student scores in each of the designated positions of high, medium and low for seriousness and susceptibility between the pretest and post test II were computed.

Stated smoking behaviors in the pretest and post test II were compared through the use of Chi square calculations.

CHAPTER IV

RESULTS

The study investigated the feasibility of the use of social learning theory concepts to the development of instruments which will measure determinants of health behavior in the Arab adolescent. The creation of a prototype health education program was a secondary project. The questions posed in Chapter I led to the questionnaire design. This chapter presents results for each of the questions posed.

Smoking Behavior Pretest

A total of 649 Bahreini secondary male students answered Smoking Behavior Pretest questionnaire. Of the students, 160 (or 20.2% of the total Bahrain government school Literary enrollment) were Literature majors, 325 (or 21.7% of the total Scientific enrollment of Bahrain government schools) were Science majors, 89 (or 7.1% of the total Technical school enrollment) were students enrolled in Technical secondary schools, and 75 (or 11.6% of the total N) did not specify their majors (Table 1).

Concerning the grade levels for the respondents, 190 students were listed at first secondary level (12.1% of

Table 1: Type of Program

Science	Literature	Technical	Not Specified	Total
325	160	89	75	649

all students in Bahrein government schools at that level), 187 reported second secondary level (17.8% of the government school students enrolled at that level), 249 were at third secondary level (27.1% of total students in Bahrein government schools at that level), with 23 (3.5% of N) not answering this question. The age range of the subjects was from 14 to 21 years of age.

Stated Smoking Behavior

Personal Smoking

Of the total respondents, 533 students (82.1%) reported not smoking at all. Other responses were:

occasionally	40 (6.2%)
less than 3/day	22 (3.4%)
3-5/day	9 (1.4%)
6-10/day	8 (1.2%)
11-12/day	11 (1.7%)
more than 1 pack/day	6 (0.9%)
no answer	20 (3.1%)

Because of the low reported smoking behavior, all categories of reported smoking were utilized together for use in data analysis of smoking students (n = 96, 14.8% of total N) versus nonsmokers (n = 533, 82.1%). Technical

students smoked more than either Literature or Science students ($\chi^2_{(4)} = 13.01$, $p \leq 0.01$). The difference between Literature and Science students ($\chi^2_{(2)} = 5.68$, $p \leq 0.06$) may be partially explained by the number of Science students who did not answer this question (Table 2). A total of 75 students did not specify their type of school program. Thirteen of these were smokers, and one had not answered the smoking question.

Table 2: Stated Smoking Behavior by Type of Program

	No Answer	Not at all	Smoke	Total
Literature	2 (1.25%)	132 (82.5%)	26 (16.25%)	160 (100%)
Science	15 (4.6%)	274 (84.3%)	36 (11.1%)	325 (100%)
Technical	2 (2.2%)	66 (74.2%)	21 (23.6%)	89 (100%)
$\chi^2_{(4)} = 13.01$, $p \leq 0.01$				

No differences in stated smoking behavior among the grade levels were found ($\chi^2_{(2)} = 1.78$).

The age at which the respondents initiated smoking behavior is reported in Table 3. There was no significant difference in reported age of initiation for type of school program ($\chi^2_{(10)} = 17.62$). While 96 students reported present smoking behavior, 109 respondents reported age of

Table 3: Reported Age of Initiation of Smoking

Before 10 yrs	10-12 yrs	13-15 yrs	16-18 yrs	Total
20 (17.7%)	21 (19.5%)	42 (38.9%)	26 (23.8%)	109 (100%)

initiation of smoking. No question was asked regarding the respondents who have smoked but do not now smoke. This difference may be due to quitters.

Peer or Friend Smoking

Of the total sample, 332 (44.5% of total N) respondents reported that at least one of their friends smoked. There was a significant difference between type of program ($\chi^2_{(4)} = 31.05, p \leq 0.01$) on this measure. Fewer friends of the Science students were reported as smoking followed by Literature student peers, then Technical student peers. This coincides with the finding that more Technical students themselves reported smoking behavior (see page 91).

A significant difference between reported smokers and nonsmokers was found for the numbers of peer friends who smoked ($\chi^2_{(7)} = 126.55, p \leq 0.001$). Reported smokers attested to many more friends who smoke (Table 4).

Table 4: Reported Number of Smoking Friends by Reported Smoking Behavior

	None	One	2-3	4-6	7+
Smokers	14 (14.6%)	4 (4.2%)	17 (17.7%)	14 (14.6%)	28 (29.2%)
Non-smokers	307 (57.6%)	38 (6.9%)	67 (12.6%)	46 (8.6%)	24 (4.5%)

	All	Un-specified	No Answer	Total	
Smokers	7 (7.3%)	10 (10.4%)	2 (2.1%)	96 (100%)	
Non-smokers	6 (1.1%)	31 (5.8%)	15 (2.8%)	533 (100%)	
$\chi^2_{(7)} = 126.55, p \leq 0.001$					

Reasons For/Against Smoking

Reasons given by the respondents to why an adolescent would smoke (question #30) are listed in Table 5 with tallied responses.

Reasons why an adolescent would not smoke as reported by the respondents are listed in Table 6 with tallied responses.

Knowledge of Effects of Smoking

There was no significant difference between knowledge of immediate effects of smoking between smokers and non-smokers ($\chi^2_{(6)} = 8.73$). Only 82 respondents (12.6%) answered this question completely and correctly (Table 7).

Health Belief Model

Health behavior appears to be partially determined by the perception of the individual concerning his susceptibility to and seriousness of a health problem as well as his cues to action (Rosenstock, 1974a). The first question in the study for investigation related to differences between smokers and nonsmokers on these concepts for health problems related to smoking.

Susceptibility

The susceptibility index measure consisted of the Smoking Behavior Pretest questions #23 and #29. Coefficient alpha reliability of this scale was 0.67.

Table 5: Reasons Why an Adolescent Smokes

Mimic adults and others	226
Personal and adolescent reasons	
Prove manhood/adult status	129
Stress	78
Escape from family problems	72
Boredom	59
Part of adolescence	56
Show off	45
Loneliness	29
Increase concentration	24
Seek pleasure	24
Prove one's self	21
Peer pressures	149
Milieu effect	
Parents don't object	64
Media propaganda	35
Parents are smokers	31
Acceptability of smoking	18
Available cigarettes/money	16
Other	
Ignorance about hazards of smoking	32
Uneducated	7

Table 6: Reasons Why an Adolescent Would Not Smoke

Health and disease	
Fear of illness/knowledge of hazards	360
External influence	
Propaganda against smoking	94
Financial constraints	48
Friends don't smoke	24
Advice from others (excluding parents)	22
Role of parents	
Parental concern and advice	98
Parental role model	20
Fear of punishment from parents	14
Internal motivation	
Self-control - self-confident	152
General awareness of life and responsibility	121
Concern with athletics/other hobbies	33
Intelligence	11
Religious reasons	15

Table 7: Knowledge Concerning Immediate Effects of Smoking

True	False	Misplaced	True and Misplaced	True and False
82 (12.6%)	22 (3.4%)	110 (16.9%)	120 (18.5%)	81 (12.5%)

False and Misplaced	All	Don't Know	No Answer	Total
44 (6.8%)	101 (15.7%)	7 (1.1%)	82 (12.6%)	649 (100%)

In general the perceived susceptibility of health problems related to smoking in this sample was relatively high (Table 8).

Table 8: Perceived Susceptibility of Health Problems Related to Smoking

High 4-6	Moderate 7-11	Low 12-20	Invalid 0-3	Total
253 (39.0%)	326 (50.2%)	32 (4.9%)	38 (5.9%)	649 (100%)

Smokers were markedly lower in perception of susceptibility to health problems related to smoking than nonsmokers (Table 9).

Seriousness

The seriousness index measure in the Smoking Behavior Pretest consisted of questions #25 and #27. The coefficient alpha reliability of this scale was 0.71.

In general the sample perceived the seriousness of health problems related to smoking as low (Table 10).

Smokers perceived a much lower degree of seriousness in the health problems related to smoking (Table 11).

In general the sample is higher on perceived susceptibility than perceived seriousness ($\chi^2_{(3)} = 314.28$, $p \leq 0.001$) (Table 12). The Pearson correlation coefficient

Table 9: Perceived Susceptibility by Stated Smoking Behavior

	High 4-6	Moderate 7-11	Low 12-20	Invalid	Total
Smokers	28 (29.2%)	48 (50%)	15 (15.6%)	5 (5.2%)	96 (100%)
Non-smokers	214 (40.2%)	271 (50.8%)	17 (3.2%)	31 (5.8%)	533 (100%)
$\chi^2_{(6)} = 34.358, p \leq 0.001$					

Table 10: Perceived Seriousness of Health Problems Related to Smoking

High 4-6	Moderate 7-11	Low 12-20	Invalid 0-3	Total
88 (13.5%)	233 (35.9%)	303 (46.7%)	25 (3.9%)	649 (100%)

between seriousness and susceptibility was 0.2469 indicating little correlation between these variables. The susceptibility and seriousness scales appeared therefore to be measuring independent aspects of health beliefs.

Cues to Action

Significantly fewer cues to action were claimed by smokers ($\chi^2_{(2)} = 8.75, p \leq 0.01$) (Table 13). Although the number of invalid answers for the stated nonsmoker is higher, even without considering invalid questions, the difference was significant ($\chi^2_{(1)} = 5.27, p \leq 0.05$).

Comparison Between Stated

Smoking Behaviors

Smokers perceived significantly less susceptibility to and seriousness of health problems related to smoking than nonsmokers. Fewer cues to action were also claimed by smokers over nonsmokers.

Health Locus of Control

Questions #2 and #3 of the study investigate the concept of health locus of control--the difference between smokers and nonsmokers as well as the difference between reported American studies and the Bahreini students. This concept was covered by questions #34 through #51 of the Smoking Behavior Pretest.

Table 11: Seriousness Perception

	High 4-6	Moderate 7-11	Low 12-20	Invalid	Total
Smokers	8 (8.3%)	29 (30.2%)	57 (59.4%)	2 (2.1%)	96 (100%)
Non- smokers	80 (15.0%)	203 (38.1%)	227 (42.6%)	23 (4.3%)	533 (100%)
$\chi^2_{(2)} = 8.84, p \leq 0.02$					

Table 12: Comparison of Perceived Susceptibility and Perceived Seriousness

	High 4-6	Moderate 7-11	Low 12-20	Invalid	Total
Seriousness	88 (13.6%)	233 (35.9%)	303 (46.7%)	25 (3.9%)	649 (100%)
Suscepti- bility	253 (39.0%)	326 (50.2%)	32 (5.0%)	38 (5.9%)	649 (100%)
$\chi^2_{(2)} = 314.28, p \leq 0.001$					

Table 13: Cues to Action by Stated Smoking Behavior

	Cues Present	No Cues	Invalid	Total
Smokers	73 (76%)	18 (18.7%)	5 (5.2%)	96 (100%)
Nonsmokers	420 (78.8%)	55 (10.3%)	58 (10.9%)	533 (100%)
$\chi^2_{(2)} = 8.75, p \leq 0.01$				

The multidimensional health locus of control (MHLC) scales (form B) (Wallston et al., 1978) were utilized for the study. Each question fell into one of three dimensions: internal, powerful others and chance. Seventeen items were included in the data analysis: six questions in the Internal Health Locus of Control (IHLC) scales, five items in the Powerful Others Health Locus of Control (POHLC) scale, and six items in the Chance Health Locus of Control (CHLC) scale. A five-point Likert scale ranging from 'Strongly Agree' (score 5) to 'Strongly Disagree' (score 1) was utilized for each question. An index measure score for each scale consisted of the addition of the score of each question in the scale for each dimension.

Descriptive information (mean, standard deviation, and alpha reliability) for the three subscales for Bahrain students are presented in Table 14.

Table 14: MHLC Descriptive Data

Subjects: Bahrein N = 649

Scale	$\bar{X}$	SD	Alpha
IHLC	24.07	3.25	0.61
POHLC	19.73	3.19	0.54
CHLC	18.508	3.88	0.51

Descriptive information (mean, standard deviation and alpha reliabilities) for the three subscales as found in this study, Wallston's original study (1978), and Muhlenkamp study (1981) are presented in Table 15. While Wallston (1978) utilized a six-point Likert scale ranging from 1 ('strongly disagree') to 6 ('strongly agree'), the present research used a five-point Likert scale ranging from score 1 ('strongly disagree') to score 5 ('strongly agree'). Muhlenkamp (1981) used Wallston's instrument as presented. To allow comparison between the three studies, mean score information of the five-point scale data for the present study has been presented plus translation into a comparable mean on a six-point scale presented in parentheses. Significant differences at the 0.001 level were found between the Wallston study on an American sample and this study on all three dimensions.

Table 15: Descriptive Data on Subscales MHLC

Scale	$\bar{X}$	SD	Alpha
IHLC			
Afifi	24.071* (28.88)	3.25	0.61
Wallston	25.304	4.646	0.710
Muhlenkamp	29.00	3.36	----
$t = 9.99$ ($p \leq 0.001$)			
POHLC			
Afifi (5 questions)	19.731* (23.677)	3.19	0.54
Wallston (6 questions)	20.974	5.487	0.715
Muhlenkamp (6 questions)	16.53	4.63	
$t = 7.25$ ($p \leq 0.001$)			
CHLC			
Afifi	18.508* (22.209)	3.88	0.51
Wallston	15.461	5.204	0.691
Muhlenkamp	14.36	5.58	
$t = 16.04$ ($p \leq 0.001$)			

* Scales used on 5-point Likert scale. Information in parentheses is transcribed to a 6-point scale.

The internal reliability of the internal health locus of control scales appears to be fairly high. However, the alpha reliability of both the chance and powerful other dimension does not allow for definitive statements concerning their internal reliability. Despite this relatively low internal reliability, however, significant differences were found between this sample and the reported American sample. Further research will be needed to clarify the question of the dimensionality of health locus of control for the Arab population.

The range of scores for each subscale and the percentage of subjects in each designated category of low, average and high is presented in Table 16.

Table 16: MHLC - Subscale Range of Scores

	Low	Average	High	Not Valid
IHLC (possible 30)	6-20 104 (16.1%)	21-26 420 (64.7%)	27-30 123 (18.9%)	1-5 2 (0.3%)
POHLC (possible 25)	5-16 118 (18.2%)	17-21 349 (53.8%)	22-25 175 (27.0%)	1-4 7 (0.1%)
CHLC (possible 30)	6-15 130 (20.1%)	16-21 364 (56.1%)	22-30 150 (23.1%)	1-5 5 (0.8%)

The intercorrelation matrix of the HLC scales is presented in Table 17. The Internal Health Locus of Control (IHLC) scale was statistically independent of the Chance Health Locus of Control (CHLC) scales. However, IHLC was strongly correlated with Powerful Other Health Locus of Control (POHLC). CHLC and POHLC scales also showed a positive correlation. There appears to be insufficient differentiation between the dimensions of internal and powerful other locus of control for the population studied.

Table 17: Intercorrelations of MHLC Scales

	IHLC	POHLC
IHLC	-----	-----
POHLC	.6046	-----
CHLC	.1909	.3090

God's Will

The additional question, 'When I get sick I just rely on God, and don't follow any treatment,' was added as a possible item for study for this culture. Almost three-fourths (n = 467, 71.9%) of all students disagreed with this statement.

No significant differences between stated smoking behavior was found on this question ($\chi^2_{(5)} = 3.86$).

Comparison Between Stated

Smoking Behavior

No significant difference was found between smokers and nonsmokers for Internal Health Locus of Control ($\chi^2_{(2)} = 1.16$), Powerful Others Health Locus of Control ($\chi^2_{(2)} = 1.23$), or Chance Health Locus of Control ($\chi^2_{(2)} = 1.07$).

Family Support System

In literature, health behavior of close relatives as well as a supportive family structure appear to have an influence on an individual's health behavior (Lewis et al., 1978; Warnecke et al., 1978). The study question posed this aspect--is there a difference in the family support system between smokers and nonsmokers in the studied population?

Socioeconomic Status

Socioeconomic status (SES) of respondents compared to other families in Bahrain was stated by 497 of the respondents (76.6% of total N) as average with 110 students (16.9%) claiming low/very low SES and only 25 students (3.9%) stating family income was high. There was no significant difference between stated smoking behavior for the different SES groups ($\chi^2_{(3)} = 0.18$).

Parents educational achievement level is presented in Table 18. While there was a significant difference between the level of the father's and mother's educational achievement, there was no relationship between either parent's

Table 18: Parents' Educational Achievement Level

	None	1-4 yrs	5-8 yrs	9-12 yrs	13-16 yrs
Mothers	379 (58.4%)	102 (15.7%)	46 (7.1%)	26 (4%)	10 (1.5%)
Fathers	272 (41.9%)	89 (13.7%)	62 (9.6%)	29 (4.5%)	30 (4.6%)

	17+ yrs	Don't Know	No Answer	Total	
Mothers	8 (1.2%)	70 (10.8%)	8 (1.2%)	649 (100%)	
Fathers	52 (8%)	110 (16.9%)	5 (0.8%)	649 (100%)	
$(\chi^2_{(6)} = 62.42 \text{ } p \leq 0.001)$					

educational achievement and stated smoking behavior of respondent (mothers: $\chi^2_{(6)} = 3.81$; fathers: $\chi^2_{(6)} = 2.93$).

The mother's occupation was listed as housewife by 598 respondents (92.1% of total N). Since very few mothers worked outside the home (total 26), comparisons were made between women who worked outside the home and housewife. There was no significant relationship between this variable and stated smoking behavior ($\chi^2_{(2)} = 2.72$).

The classification of the Registrar General was used for classification of father's occupation (Harfouche, 1965). Five classes of occupation were used: Class I: Professional

(requiring graduate work), senior business executive; Class II: Lesser business executives, shop owner, professional (requiring college level work); Class III: Skilled artisan/skilled labor; Class IV: Semiskilled laborer; and Class V: Unskilled laborer. 'Unemployed' and/or 'retired' was a separate category as was 'deceased' (Appendix E). No significant relationship was found between this question and stated smoking behavior ($\chi^2_{(7)} = 7.16$).

Family Composition

Large families were reported by 68.8% of the respondents with 256 students (39.5% of total N) claiming 5-7 siblings and 190 subjects (29.3% of total N) with 8-10 siblings. There was no significant difference in number of siblings between smokers and nonsmokers ($\chi^2_{(5)} = 2.96$).

No difference in sibling placement between smokers and nonsmokers was found ($\chi^2_{(4)} = 7.47$).

The majority of the sample had no extended family members living in their home ($n = 391$, 60.2% of total). Smokers have significantly fewer extended family members living at home than do nonsmokers (Table 19).

Extended family members living next door were reported by 427 respondents (65.8% of total). The extended family members living next door were close paternal relatives for 174 respondents (26.8% of total N) followed by close maternal (95s, 14.6% of total). Close paternal was defined

Table 19: Number of Extended Family Members Living in Home by Stated Smoking Behavior

	None	1-3	4-6	More	No Answer	Total
Smokers	50 (52.1%)	26 (27%)	11 (11.5%)	5 (5.2%)	4 (4.2%)	96 (100%)
Non-smokers	326 (61.2%)	113 (21.2%)	26 (4.9%)	58 (10.9%)	10 (1.9%)	533 (100%)
$\chi^2_{(4)} = 11.48, p \leq 0.05$						

as paternal uncle and/or aunt. Close maternal was defined as maternal uncle and/or aunt. Nonsmokers reported significantly more close paternal relatives living next door than smokers (smokers $n = 18$; nonsmokers, $n = 175$) ($\chi^2_{(1)} = 4.38, p \leq 0.05$). However, there was no difference for maternal relatives between smokers and nonsmokers (smokers, $n = 14$; nonsmokers, $n = 80$) ($\chi^2_{(1)} = 0.01$), nor in any other mentioned relative identity.

Health Referral

Almost three-fourths ($n = 470, 72.4\%$ of total N) of the respondents referred first to either one or both of their parents for advice with a health problem. While smokers and nonsmokers referred equally to the mother, the smokers referred significantly less to their fathers and more to brothers and best friends (Table 20).

Table 20: Health Referral by Stated Smoking Behavior

	Father	Mother	Parents	Brother
Smokers	17 (17.7%)	45 (46.8%)	2 (2.1%)	11 (11.5%)
Non-smokers	167 (31.3%)	212 (39.8%)	27 (5.1%)	35 (6.6%)

	Best Friend	Other	No Answer	Total
Smokers	11 (11.5%)	9 (9.4%)	1 (1%)	96 (100%)
Non-smokers	30 (5.6%)	53 (9.9%)	9 (1.7%)	533 (100%)
$\chi^2_{(6)} = 13.13, p \leq 0.05$				

Parental Objection

Strong parental objection to smoking was claimed by 488 respondents (75.2%). Self-reported smokers perceived much less parental objection than reported nonsmokers (Table 21).

Family Smoking

More than half of the respondents ($n = 365$, 56.2% of total N) reported at least one family member who smokes. While this variable for reported smoking behavior was not significant at $p \leq 0.05$, it is suggestive that self-stated smokers did report more family members that smoke ($\chi^2_{(4)} = 9.33, p \leq 0.06$) (Table 22). However, because of the large

Table 21: Perceived Parental Objection to Smoking by Reported Smoking Behavior

	No At All	Not Very Much	Slightly	Very Much	No Answer	Total
Smokers	6 (6.2%)	19 (19.8%)	14 (14.6%)	56 (58.3%)	1 (1%)	96 (100%)
Non- smokers	28 (5.0%)	24 (4.5%)	22 (4.3%)	432 (81.0%)	27 (5.1%)	533 (100%)

$\chi^2_{(4)} = 52.62, p \leq 0.001$

Table 22: Number of Family Members Who Smoke by Stated Smoking Behavior

	None	1-3	4-6	7+	No Answer	Total
Smokers	16 (16.7%)	40 (41.7%)	13 (13.5%)	7 (7.2%)	20 (20.8%)	96 (100%)
Non- smokers	124 (23.3%)	229 (43.0%)	64 (12.0%)	12 (2.3%)	104 (19.5%)	533 (100%)

$\chi^2_{(4)} = 9.33, p \leq 0.06$

number of respondents who did not answer this question ($n = 128$, 19.7% of sample), the results are not clear.

There was no significant difference in the identity of the family member who smokes for stated smoking behavior ($\chi^2_{(4)} = 1.44$).

No significant difference between stated smoking behavior and the availability in the home of other smoking products was found ($\chi^2_{(1)} = 0.74$). Of the total respondents, 264 students (47.7% of total N) report no smoking products used in the home. The use of three smoking habits in the Bahreini home besides cigarettes--all forms of the water pipe (arghile, shisha, quado)--were reported by 89 respondents (13.7% of total). Other tobacco products (pipe, cigar) were reported as minimally found in the home ($n = 25$, 3.8% of total). Only 12 students (1.8%) reported personal use of any tobacco product other than cigarettes.

Comparison in Family Support System Between Stated Smoking Behavior

The smoker reported fewer extended family living at home, fewer close paternal relatives living close by, less health referral to his father, and less perceived parental objection to smoking.

Health Valuing

The question of the value of the reward to the individual led to study question #5 concerning the

difference between the health values of smokers and nonsmokers.

In general, health was valued highly with 289 respondents (38.7% of total) placing health as of first importance and only 62 students (9.5% of total) stating the health value as seventh or lower. Placement of health valuing is presented in Table 23.

Table 23: Health Value - Position of Importance

1	2	3	4	5
251 (38.7%)	103 (15.9%)	59 (9.1%)	52 (8.0%)	35 (5.4%)

6	7 or More	No Answer	Total	
33 (5.1%)	62 (9.5%)	54 (8.3%)	649 (100%)	

High value for health was designated by the researcher as the top 3 value positions on the scale, while low health value was stated as positions 4 through 11. A total of 413 students (63.6% of total) valued health highly, while 152 respondents (23.4%) reported low health value.

No significant difference in health valuing was found between smokers and nonsmokers ($\chi^2_{(1)} = 2.999$).

Educational Program

A secondary project for this study was the development of a prototype health education program and to gather preliminary information concerning its effects. An eighteen minute video program about the effects of smoking on health was designed for the study. The last question generated for this study relates to the change between the smokers and nonsmokers in knowledge and attitudes towards susceptibility to and seriousness of health problems related to smoking following the video. Change in knowledge was examined in the immediate post test, post test I. Change in attitude was examined in the delayed post test, post test II.

Change in Knowledge

A total of 500 male students answered the first post test.

There was a significant difference in the knowledge of immediate health effects of smoking between the pre- and post test with more students knowing the true effects. However, false and misplaced answers did not appear to have changed (Table 24).

Change in Attitude

Change in attitude towards susceptibility to and seriousness of health problems related to smoking was measured by comparison of index score measures between the Smoking Behavior Pretest and Post Test II.

Table 24: Comparison of Knowledge of Immediate Health Problems by Pre- and Post Test

	True	False	Mis placed	True and Misplaced	True and False
Pretest	82 (12.6%)	22 (3.4%)	110 (16.9%)	120 (18.5%)	81 (12.5%)
Post Test I	83 (16.6%)	18 (3.6%)	61 (12.2%)	99 (19.8%)	82 (16.4%)

	False and Misplaced	All	Don't Know	No Answer	Total
Pretest	44 (6.8%)	101 (15.7%)	7 (1%)	82 (12.6%)	649 (100%)
Post Test I	51 (10.2%)	91 (18.2%)	2 (0.4%)	13 (2.6%)	500 (100%)
$\chi^2_{(8)} = 58.16, p \leq 0.001$					

A total of 517 male secondary school respondents answered the Post Test II questionnaire. Of the respondents, 68 (13.2% of total) reported smoking behavior. Seven respondents did not answer this question. Technical students reported more smoking behavior than Literature or Science students ($\chi^2_{(2)} = 6.72$, $p \leq 0.05$). There was no significant difference in reported smoking behavior between the Smoking Behavior pretest and Post Test II ($\chi^2_{(1)} = 1.41$).

Perceived Susceptibility

Perceived susceptibility was measured on Post Test II by the score obtained by addition of responses to questions #4 and #9 answered on a Likert scale of 1-4. Possible scale responses ranged from 4 for high perceived susceptibility to 16 for low perceived susceptibility. The scale was divided by the researcher into high, medium and low responses with those respondents with scores of 4-7 described as high perceived susceptibility, scores of 8-11 as medium perceived susceptibility and 12-16 as low perceived susceptibility. Responses from 0-3 were stated as invalid (Table 25).

The mean score of the susceptibility scale was 6.879 showing the population with an average high perceived susceptibility to health problems secondary to smoking.

Smokers perceived less susceptibility to health problems secondary to smoking than nonsmokers ($\chi^2_{(3)} = 55.89$, $p \leq 0.001$) in Post Test II (Table 26).

Table 25: Perceived Susceptibility to Health Problems
Secondary to Cigarette Smoking

High 4-7	Moderate 8-11	Low 12-16	Invalid 0-3	Total
353 (68.2%)	137 (26.6%)	16 (3.1%)	11 (2.1%)	517 (100%)

Table 26: Perception of Susceptibility by Stated Smoking
Behavior -- Post Test II

	High	Moderate	Low	Invalid	Total
Smokers	27 (39.7%)	30 (44.1%)	10 (14.7%)	1 (1.4%)	68 (100%)
Non-smokers	322 (72.9%)	107 (24.2%)	5 (1.2%)	8 (1.8%)	442 (100%)
$\chi^2_{(3)} = 55.89, p \leq 0.001$					

Nonsmokers increased their perception of susceptibility to health problems from the pretest to post test II ($\chi^2_{(3)} = 120.74$, $p \leq 0.001$) (Table 27). Smokers, however, showed no difference in perception of susceptibility to health problems secondary to smoking ($\chi^2_{(3)} = 3.37$).

Table 27: Nonsmokers' Perception of Susceptibility (Pre- and Post Test)

	High	Moderate	Low	Invalid	Total
Pretest	214 (40.2%)	271 (50.8%)	17 (3.2%)	31 (5.8%)	533 (100%)
Post Test II	322 (72.9%)	107 (24.2%)	5 (1.1%)	8 (1.8%)	442 (100%)
$\chi^2_{(3)} = 120.74$, $p \leq 0.001$					

Perceived Seriousness

Perceived seriousness of health problems was measured by a single score obtained by addition of responses to questions #5, #6 and #7 answered on a Likert scale of 1 to 4. Possible scale scores ranged from 5 to 20. Scores 0-4 were considered invalid. Low perceived seriousness was described as those scores between 5-9, moderate seriousness as scores between 10 and 14, and high seriousness as scores between 15 and 20 (Table 28).

The mean score of the seriousness scale was 12.204, indicating a moderate amount of seriousness perception by

Table 28: Perceived Seriousness of Health Problems

High 5-9	Moderate 10-14	Low 15-20	Invalid 0-4	Total
52 (10.1%)	316 (61.1%)	148 (28.6%)	1 (0.2%)	517 (100%)

the sample. There was no difference in the perception of seriousness of these health problems found in post test II between smokers and nonsmokers ($\chi^2_{(3)} = 0.55$).

The perception of the seriousness of health problems related to smoking increased between the Smoking Behavior Pretest and Post Test II for both nonsmokers ($\chi^2_{(2)} = 141.84$, $p \leq 0.001$) and smokers ($\chi^2_{(2)} = 41.09$, $p \leq 0.001$) (Table 29).

Other Differences Between Stated

Smoking Behavior

Several other differences between smokers and nonsmokers that are not directly related to the study questions were found.

Health status was perceived as less satisfactory by smokers than nonsmokers ($\chi^2_{(4)} = 14.78$, $p \leq 0.01$).

Over three-fourths of the respondents stated that it was not acceptable for either brothers nor sisters to smoke. However, it was significantly less acceptable for sisters to smoke ($n = 54$, 10.4% of total) than brothers ($n = 109$, 21.2%

Table 29: Perception of Seriousness for Stated Smokers and Nonsmokers (Pre- and Post Tests)

	High	Moderate	Low	Invalid	Total
<u>Nonsmokers</u>					
Pretest	80 (15%)	203 (38.1%)	227 (42.6%)	23 (4.3%)	533 (100%)
Post Test II	43 (9.7%)	273 (61.6%)	126 (28.4%)	1 (0.2%)	443 (100%)
$(\chi^2_{(2)} = 41.09, p \leq 0.001$					
<u>Smokers</u>					
Pretest	8 (8.3%)	29 (30.2%)	57 (42.6%)	2 (2.1%)	96 (100%)
Post Test II	8 (11.4%)	39 (57.4%)	21 (30.9%)	0 (0%)	68 (100%)
$\chi^2_{(2)} = 41.09, p \leq 0.001$					

of total) ($\chi^2_{(1)} = 25.6, p \leq 0.001$). Smokers considered it more acceptable for their siblings to smoke than nonsmokers ($\chi^2_{(1)} = 10.65, p \leq 0.01$).

Comparative Results Between Type of
Program, Sex and Country

To enable initial comparison between sexes in the Arab adolescent as well as between Arab countries in the feasibility of utilizing the tenets of social learning theory for measurement of determinants of health behavior, the designed questionnaires and educational program were given to a sample of Bahreini females and Jordanian male adolescents. It had also been hypothesized that the

different types of school programs may have been a confounding variable. Results of these comparisons will be given in this section.

Type of School Program

Respondents in Bahrein were from three types of school programs--Literary, Scientific and Technical. Technical students reported more smoking behavior ($\chi^2_{(4)} = 13.01$, $p \leq 0.01$) and more friends who smoke ($\chi^2_{(4)} = 31.05$, $p \leq 0.01$). Technical students also reported both significantly higher and lower susceptibility on both the Smoking Behavior Pretest and Post Test II but no difference in the seriousness score. Technical students agreed more with the question on God's will ($\chi^2_{(10)} = 28.407$, $p \leq 0.01$). No other differences were found between types of programs.

Sex

A sample of 97 Bahreini female college freshmen between the ages of 16 and 21 were chosen for the study. Only four females reported smoking behavior. The reader is reminded of the differences in educational level between the female and male sample. The female sample reported higher mother's education ($\chi^2_{(6)} = 27.21$, $p \leq 0.001$) and fewer extended family members living at home ($\chi^2_{(4)} = 14.69$, $p \leq 0.01$). Although the average of the Powerful Other Health Locus of Control was the same as for males, females perceived significantly less control over their health by powerful

others ($\chi^2_{(2)} = 14.39, p \leq 0.001$), and disagreed more on the question of God's will ($\chi^2_{(5)} = 13.81, p \leq 0.02$). More parental objection to smoking was perceived by the female sample ($\chi^2_{(4)} = 13.11, p \leq 0.01$). No other differences between sexes were found.

Country

Respondents in Jordan (N 176) were from one male secondary school. Of the total, 65 students were in the first level of secondary school, 71 were in the second level, 30 were in the third level, and 10 did not answer this question. The school involved was an urban governmental school in the capital city, Amman, offering the general education program. No technical students were involved. One hundred students (56.8% of total) did not state their major. Therefore, no differentiation between types of program could be made. Respondents ranged in age between 14 to 19 years.

The Jordanian sample claimed more smoking behavior ($\chi^2_{(1)} = 51.11, p \leq 0.001$) with 68 Jordanian respondents (38.6% of total) reporting smoking behavior.

As compared to the Bahrein population the Jordanian sample claimed higher mother's educational level ($\chi^2_{(6)} = 130.18, p \leq 0.001$); higher fathers educational level ($\chi^2_{(6)} = 117.6, p \leq 0.001$), higher occupational status for father ($\chi^2_{(4)} = 81.18, p \leq 0.001$), fewer extended family

members living at home ($\chi^2_{(3)} = 23.65$, $p \leq 0.001$), fewer extended family members living next door ($\chi^2_{(1)} = 50.99$, $p \leq 0.001$), more family members who smoke ($\chi^2_{(1)} = 9.51$, $p \leq 0.01$), more peers who smoke ($\chi^2_{(6)} = 66.91$, $p \leq 0.001$), less perceived parental objection to smoking ($\chi^2_{(3)} = 12.3$, $p \leq 0.01$), lower perception of susceptibility to health problems secondary to smoking ($\chi^2_{(3)} = 19.93$, $p \leq 0.001$), and fewer perceived cues to action ($\chi^2_{(1)} = 7.11$, $p \leq 0.01$).

In comparing health locus of control of the Bahrain population and the Jordanian sample, the Jordanian sample was lower in Internal Health Locus of Control ($\chi^2_{(2)} = 6.29$, $p \leq 0.05$), lower in Powerful Other Health Locus of Control ($\chi^2_{(2)} = 20.9$, $p \leq 0.001$), and higher in Chance Health Locus of Control ($\chi^2_{(2)} = 12.23$, $p \leq 0.01$). No difference in the question on God's will was found ($\chi^2_{(4)} = 3.01$).

The Jordanian sample referred less to their fathers in health matters ($\chi^2_{(2)} = 28.85$, $p \leq 0.001$), valued health less ($\chi^2_{(1)} = 18.01$, $p \leq 0.001$), but showed no difference in perceived health status ($\chi^2_{(3)} = 2.62$).

In the Jordanian sample, smokers differed from nonsmokers in declaring more peer friends who smoke ($\chi^2_{(6)} = 21.8$, $p \leq 0.01$), less perceived parental objection to smoking ($\chi^2_{(3)} = 7.88$, $p \leq 0.05$), and lower perceived susceptibility to health problems related to smoking

($\chi^2_{(2)} = 10.65, p \leq 0.01$). No change was found between the Smoking Behavior Pretest and Post Test II in the Jordan sample's knowledge of effect of smoking ($\chi^2_{(8)} = 5.085$).

CHAPTER V

SUMMARY AND DISCUSSION

The question of causation for health-related actions that lead to an increase in the positive health state of an individual has lead to the design of this research. The choice of an individual's actions appears to be based on the subjective perceptions of the individual which may or may not coincide with the medically known facts of the health problem. To increase relevance of health education programs, then, it would appear to be necessary to understand the perceptual state of the individual towards a specific health problem.

This study investigated the feasibility of adapting the concepts of the social learning theory to the development of instruments that would measure the determinants of health behavior towards smoking in the Bahreini secondary school student. A secondary project was the development of a prototype health education program against smoking designed specifically for that population, and to initially investigate its effects.

Summary of Results

The following observations were made on the study questions.

- 1) Do stated smokers and nonsmokers in the studied sample differ on perceived susceptibility to, seriousness of, and cues to action for health problems related to smoking?

Studied Bahreini adolescent smokers reported a significantly lower perceived susceptibility to and seriousness of health problems related to smoking than nonsmokers did. Fewer cues to action were also claimed by smokers.

- 2) Is there a difference in the health locus of control between smokers and nonsmokers?

No difference between smokers and nonsmokers was found in this concept. Although literature appears to relate health locus of control to health related behavior, this did not appear to be true in this study. The reader is reminded that the scales used were American scales (Wallston et al, 1978) translated into Arabic. The internal reliability of these scales for this population was not as high for the powerful other and chance dimensions as would be desired.

- 3) Is the studied sample more external in health locus of control than reported United States samples?

The Bahreini population studied was a male secondary school population. A Bahreini female college freshmen

sample was used for preliminary sex comparison purposes. No differences in the mean of health locus of control dimensions were found between sexes. Results used for comparative purposes from the United States were taken from a reported study in a general public population with no control for educational level. As noted previously, the internal reliability of the scales used in the Bahrein study was not as high as desired. Despite this, however, the present study did show that the Bahreini secondary school sample was higher in external health locus of control--both in chance and powerful other dimensions--than the reported American study (Wallston et al, 1978). The Bahreini sample was also higher in internal locus of control than the reported American sample. The unexpectedly high internal locus of control may be due to the educational level attained. Those individuals who have reached this level in Bahrein may be more internally controlled than the average general public.

- 4) What specific profile, if any, differs the stated smoker from the nonsmoker in the studied sample?

Smokers in the Bahreini secondary schools reported fewer extended family members at home, fewer close paternal relatives living next door, and less perceived parental objection to smoking. Referral on health matters was more often to brothers and best friends for stated smokers, while

nonsmokers reported health referral more frequently to their fathers.

- 5) Is there a difference in the health valuing between smokers and nonsmokers?

No difference was found in health valuing between smokers and nonsmokers. A generally high value of health was reported by respondents.

- 6) Is there a change in the knowledge of and attitudes towards susceptibility to, and seriousness of, health problems related to smoking following the educational program?

A significant change in the true statements for knowledge of effects of smoking was noted between the pretest and immediate post test following the educational program. While nonsmokers increased perception in both susceptibility to and seriousness of health problems related to smoking following the educational program, smokers showed an increase in perceived seriousness of those problems only.

Discussion

The use of the tenets of the social learning theory does appear to be a feasible tool for use in construction of instruments to investigate determinants of health behavior in the Bahreini adolescent. The use of the health belief measures appeared to provide indicators of intervention

points in the studied cultural group for positive change direction in smoking behavior.

While health valuing did not distinguish between smokers and nonsmokers, the value of health was reported as high. Since the percentage of stated smokers was low, the health value concept may have been an important factor.

Smoking behavior did appear to be influenced by the family support system. The question is raised concerning this evidence of the strong family support system role with the determinants of health behavior. The extended family role is being questioned by many of the younger Arab generation. Evidence of a positive role of the extended family in health matters may be suggestive for further research to clarify this aspect further.

The health locus of control, which in this study did not distinguish between positive and negative health behaviors, was also utilized as one of the aspects considered in designing the educational program which was a secondary aspect of this study. The goal of the program was to prevent initiation of smoking. Use of powerful other and peer figures were utilized to give information. The results seem to indicate that the use of this framework for educational program development did provide positive chance in knowledge and attitudes in the desired direction.

The sample studied in Bahrein was secondary school males in government schools. Very few respondents claimed

either high or low socioeconomic status. The fact that the subjects were in secondary school is an obvious educational level bias. The sample therefore is a selective sample of adolescents in Bahrein. The results of this study cannot therefore be generalized to other populations in Bahrein or the Arab world.

The studied sample was not familiar with the type of questionnaire and attitude research that constituted this study. While this did not appear to negatively influence the results, other formats of investigation for health determinants need to be utilized and results compared with this study to verify the indications of this research.

Health education against smoking in the mass media of Bahrein had been ongoing for approximately one and one-half years at the time of the study. Approximately two-thirds of the respondents ($n = 423$, 65.2% of total) reported positive influence against smoking through the television media. No influence from any media was claimed by 57 students (8.8% of total). Results of the post test may have been affected by another mass media program, although no new antismoking program was reported as being started during the period between the educational program of the study and the delayed post test.

The use of the video medium may not at this time be as effective as a different audiovisual medium. Classes are in general large with an average of 30 students. Small screens

do not allow proper viewing for more than 15-20 students. Schools do not have videos installed but required the equipment to be acquired for the program. The barriers for effective use of video may outweigh the benefits--easy packaging at much less expensive output.

One 18-minute health education video cannot be expected to create long lasting change in a proven difficult health behavior area--smoking. The use of such a video may best be considered as part of a school health education program against smoking, but probably should not be utilized as the only element. Due to the early reported age of initiation of smoking, such educational programs should be presented earlier than in this study. Health education programs are not frequently given in the school curriculum in most Arab countries. Research results in health behavioral determinants, particularly if coupled with an educational program, may lend impetus to the use of such programs.

Suggestions for Further Research

The Health Belief Model appeared to be a feasible method to investigate attitudes towards health problems. Research investigating this concept in relationship to other health problems and utilization of other question formats is needed to allow further indications of the model's validity.

Some studies have indicated that individuals with an internal health locus of control have better health status.

The studied sample appeared to be highly external although the issue is not clear since high levels of internal control were also reported. A relatively small group of respondents reported smoking behavior. The smoking behavior is a stated behavior only. Reliability of stated behaviors has been questioned in research. However, even considering this problem, it would appear that the sample had a lower smoking incidence than reported American samples of the same age. Further research is needed to provide insight into the issue of health locus of control and health status.

Further clarification of the health locus of control questions to be used to measure this concept in the Arab population needs to be made. While support can be tentatively given based on this research for the inclusion of this concept in health behavioral research, further investigation into form and type of questions in this area needs to be developed. Developmental aspects of this concept for this population may need to be investigated to further clarify this work.

The comparison between Bahreini adolescent males and females cannot be definitive since the female sample was not representative and of a different educational level. However, few differences appear to be found between the two groups. Thorough investigation of differences in health behavior determinants between sexes would seem to be

important to identify aspects of further research needs in this area.

The difference between the Bahreini adolescent sample and the Jordanian adolescent sample does not allow comparison of two societies but does raise interesting issues for further research. Although the Jordanian sample is small and definite differences were shown, the conceptual framework of determinants of health behavior appeared to be valid. A thorough study of that population would clarify the situation further.

The conceptual framework for health determinants to be used as learner characteristics utilized to base systems development of health education materials needs to be further validated by using the same framework for other health problems, designing health education materials based on the findings, and longitudinal research to monitor changes in health behavior and status. It should not be inferred that health behavior or determinants are identical in all Arab countries. The dynamics of the social learning theory, however, do appear to have been useful in identifying determinants of health behavior in the studied sample. While the results of this research suggest positive use of this framework, further research in other Arab countries would enhance its potential.

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APPENDIX A

SMOKING BEHAVIOR PRETEST

(Translation from Arabic)

School _____

Grade _____

Country _____

We are gathering information on smoking. The information is confidential. Please do not write your name on the form.

People have different ways of thinking about health and illness. We would like to know what you think about it. The statements do not have a right or wrong answer. We would like to know your ideas.

1. Age: _____
2. Nationality: _____
3. Sex: _____
4. Religion: _____
5. Number of siblings: _____
6. Of the brothers and sisters in your family, are you the:

Oldest _____	middle _____	youngest _____
only boy/girl _____	Other _____	
7. If you have a health problem, to whom do you first refer? (check one)

father _____	mother _____	brother _____
sister _____	grandmother _____	grandfather _____
aunt _____	uncle _____	best friend _____
teacher _____	other (please state whom) _____	
8. As compared with others in your country, would you consider your family income as:

high _____	medium _____	low _____	very low _____
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9. What was the highest level of schooling reached by your mother?
- none _____ 1-4 years _____ 5-8 years _____ 9-12 years _____
 13-16 years _____ more than 16 years _____ don't know _____
10. What was the highest level of schooling reached by your father?
- none _____ 1-4 years _____ 5-8 years _____ 9-12 years _____
 13-16 years _____ more than 16 years _____ don't know _____
11. What is your mother's occupation?
- housewife _____ other (please specify) _____
 deceased _____
12. What is your father's occupation (please specify) _____
 deceased _____
13. How many people other than father, mother, brothers, sisters, and self live in the same house?
- 1-3 _____ 4-6 _____ more than 6 (please specify) _____
14. Do you have any close relations living next door to you?
- Yes (please specify relationship) _____
 No _____
15. How many of these family members smoke cigarettes?
 Please list relationship of any who do smoke cigarettes

16. What other types of smoking, if any, are used in your home (please specify) _____
17. Do any of your close friends smoke cigarettes?
- Yes _____ No _____
- If yes, how many? _____
18. Are you a poor student _____ average student _____
 good student _____ excellent student _____
19. Would your parents object to your smoking cigarettes?
- not at all _____ not very much _____ strongly _____ very strongly _____

20. Do you at present smoke cigarettes?

- (a) not at all _____
- (b) occasionally (not daily) _____
- (c) less than 3 per day _____
- (d) 3-5 cigarettes a day _____
- (e) 6-10 cigarettes a day _____
- (f) 11-20 cigarettes a day _____
- (g) more than 1 pack a day (specify how many) _____

21. If you smoke, at what age did you start smoking.

- (a) before age 10 years _____
- (b) between age 10-12 years _____
- (c) between age 13-15 years _____
- (d) between age 16-18 years _____

22. Do you smoke anything other than cigarettes?

Yes ____ No ____

If yes, please state what you smoke _____

23. Someone who smokes at your age could in the next 15 years develop:

	Defi- nitely	Pro- bably	Possibly	Not Very Likely	Impos- sible
a. Heart attack	_____	_____	_____	_____	_____
b. Cancer of the lung	_____	_____	_____	_____	_____
c. Emphysema	_____	_____	_____	_____	_____

24. Have any of your family or close friends been diagnosed as having:

- a. Lung cancer Yes (specify relationship) _____
No _____
- b. Coronary heart disease Yes (specify relationship) _____
No _____
- c. Emphysema Yes (specify relationship) _____
No _____

25. If detected early, treatment is successful for:

	100% of time	75% of time	50% of time	25% of time	Never
a. Lung cancer	_____	_____	_____	_____	_____
b. Coronary artery heart disease	_____	_____	_____	_____	_____
c. Emphysema	_____	_____	_____	_____	_____

26. What do you believe to be some immediate harmful effects, if any, if one has just started smoking?
- _____
- _____

27. Smoking causes lung cancer:

Definitely _____ probably _____
slight chance _____ no correlation _____

28. Has publicity on harmful effects of smoking decreased your desire to smoke?

Yes _____ No _____ I have not seen/heard any _____

If yes, which media has been more influential in decreasing your desire.

T.V. _____ Radio _____ Newspaper _____
Posters _____ Other (please specify) _____

29. The chance of a smoker getting a heart attack is greater than that for a nonsmoker.

100% more _____ 75% more _____ 50% more _____
25% more _____ equal chances _____

30. What are some reasons that an individual your age would smoke?
- _____
- _____

31. Why should an individual not smoke?
- _____
- _____

32. There is nothing wrong with smoking as long as one smokes in moderate amounts. True _____ False _____

33. Would you consider your health is:

Poor _____ Average _____ Better than average _____
Excellent _____

34. If I become sick, I have the power to make myself well again.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____
35. Often I feel that no matter what I do, if I am going to get sick, I will get sick.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____
36. If I see an excellent doctor regularly, I am less likely to have health problems.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____
37. It seems that my health is greatly influenced by accidental happenings.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____
38. I can only maintain my health by consulting health professionals.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____
39. I am directly responsible for my health.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____
40. Other people play a big part in whether I stay healthy or become sick.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____
41. Whatever goes wrong with my health is my own fault.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____
42. When I am sick, I just have to let nature run its course.
- Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

43. Health professionals keep me healthy.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

44. When I stay healthy, I'm just plain lucky.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

45. My physical well-being depends on how well I take care of myself.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

46. When I feel ill, I know it is because I have not been taking care of myself properly.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

47. Even when I take care of myself, it's easy to get sick.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

48. When I become ill, it's a matter of fate.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

49. I can pretty much stay healthy by taking good care of myself.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

50. Following doctor's orders to the letter is the best way for me to stay healthy.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

51. When I get sick, I just rely on God and don't try to follow any treatment.

Strongly agree _____ Agree _____ Uncertain _____
Disagree _____ Strongly disagree _____

Please rank each of the groups in the order you believe to be most important to you, with 1 as the most important, until 11 as the least important to you.

Please write the number in front of each group.

There is no correct answer.

- _____ a comfortable life (money, prosperous life)
- _____ an exciting life (stimulating, active)
- _____ freedom (independence, free choice)
- _____ happiness (contentedness)
- _____ health (physical and mental well-being)
- _____ inner harmony (freedom from inner conflict)
- _____ pleasure (an enjoyable, leisurely life)
- _____ self-respect (self-esteem)
- _____ peer recognition (respect, admiration)
- _____ family togetherness
- _____ education (formal)

ملوك التدخين

المدرسة :

الصف :

البلد : () لبنان () الاردن () البحرين

نرجو ان تساعدنا بتجميع المعلومات حول التدخين .

الرجاء عدم ذكر اسمك على هذه الورقة .

كل واحد منا له آراء تختلف عن غيره في مفهومه للصححة أو للمرض . نود ان

نعرف رأيك الشخصي حول هذا الموضوع . الاسئلة أو الجمل التالية ليرثينا جواب

صح أو خطأ . نود فقط الاطلاع على رأيك .

٤- العذهب الديني

١- العمر

٥- عدد الاشفا

٢- الجنسية

٣- ذكر () انثى ()

٦- بين حقيقتين وأشغلتك في البيت - هل انت

() الوحيد

() الاكبر

() غيره

() الاوسط

() الاصغر

٧- عندما تشعر بأل توءن في صحتك — من هو أول شخص تطلب مساعدته او نصيحتة ؟

() الخالة

() الاب

() الاخ

() الام

() الاخت

() الجدة

() صديق مقرب

() الجد

() المعلم أو المعلمة

() العم

() غيرهم (اذكر من)

() النعمة

() الخال

٨- بالنسبة الى باقي العائلات في بلدكم - هل تعتبر مدخول عائلتكم

- () مرتفع
() معتدل
() منخفض
() منخفض جداً

٩- ما هي درجة التعليم التي وصلت اليها والدتكم

- () لم تتعلم ابداً
() تعلمت بين سنة و ٤ سنوات
() بين ٥ و ٨ سنوات
() بين ٩ و ١٢ سنة
() بين ١٣ و ١٦ سنة
() أكثر من ١٦ سنة
() لست أدري

١٠- ما هي درجة التعليم التي وصل اليها والدك

- () لم يتعلم ابداً
() تعلم بين سنة و ٤ سنوات
() بين ٥ و ٨ سنوات
() بين ٩ و ١٢ سنة
() بين ١٣ و ١٦ سنة
() أكثر من ١٦ سنة
() لست أدري

١١- ماذا تعمل والدتكم

- () ربة بيت
() غيره (اذكري عملها)
() متوفية

١٢- ماذا يعمل والدك

- () متوفي

١٣- كم شخص يعيش معكم في البيت غير والدك ووالدتك وأخوتك وأخواتك

- () لا أحد
() ١-٣ أشخاص
() ٤-٦ أشخاص

أكثر من ٦ أشخاص اذكر كم شخص

- ١٤- هل لكم أصدقاء يعيشون بالقرب من منزلكم ؟
 () نعم () كلا
 اذا نعم — ما هي القرابة التي تربطكم بهم ؟
- ١٥- ثم شخص من هؤلاء يدخل السجائر ؟
 اذكر القرابة التي تملك بكل شخص يدخل
- ١٦- ما النوع الاخر من التدخين الذي يستعمل في منزلكم ؟
- ١٧- هل هناك أحد من اصدقائكم المقيمين يدخل السجائر ؟
 () نعم () كلا
 اذا نعم — عدد هؤلاء الاصدقاء
- ١٨- هل انت
 () تلميذ ضعيف في الصف
 () تلميذ متوسط في الصف
 () تلميذ جيد
 () تلميذ ممتاز
- ١٩- هل يعترض أهلك اذا دخلت السجائر ؟
 () ابدا () قليلا () ليس كثيرا () كثيرا
- ٢٠- هل تدخن في الوقت الحاضر ؟
 () ابدا
 () في بعض المناسبات
 () أقل من ٣ سجائر في النهار
 () بين ٣ و ٥ سجائر في النهار
 () بين ٦ و ١٠ سجائر في النهار
 () بين ١١ و ٢٠ سيجارة في النهار
 () أكثر من علبتي في النهار

٢١- اذا كنت تدخن - لم كان عمرتك عندما بدأت التدخين ؟

() قبل سن العاشرة

() بين ١٠ و ١٢ سنة

() بين ١٣ و ١٥ سنة

() بين ١٦ و ١٨ سنة

٢٢- هل تدخن اى نوع غير السجائر ؟

() نعم () كلا

٢٣- يمكن لاي شخص في مثل سنك ويدخن ان يصاب خلال ال ١٥ سنة القادمة

- بجلطة قلبية -

() موكد () معقول () مستبعد () غير معقول

- سرطان الرئة -

() موكد () معقول () مستبعد () غير معقول

- انتفاخ الرئة -

() موكد () معقول () مستبعد () غير معقول

٢٤- هل تعرف شخصا يمكن ان يكون ممابا ؟

- بمرطبان الرئة : () نعم () كلا

اذا نعم - ما قرابتك بهذا الشخص

- بجلطة قلبية () نعم () كلا

اذا نعم - ما قرابتك بهذا الشخص

- انتفاخ الرئة () نعم () كلا

اذا نعم - ما قرابتك بهذا الشخص

٢٥- إذا اكتشف سرطان الرئة بالرمضان ان يكون العلاج

١٠٠ ناجحا ٧٥ ٥٠ ٢٥ ابدا

إذا اكتشف الجلطة القلبية بالسر — يمكن ان يكون العلاج

١٠٠ ناجحا ٧٥ ٥٠ ٢٥ ابدا

إذا اكتشف انتفاخ الرئة بالسر — يمكن ان يكون العلاج

١٠٠ ناجحا ٧٥ ٥٠ ٢٥ ابدا

٢٦- عدد مضار التدخين التي تعرفها والتي تظهر بوقت قصير :

٢٧- التدخين يسبب سرطان الرئة

() موكد () معقول () مستبعد () لا يوجد اى علاقة

٢٨- هل الاعلام عن مضار التدخين خفف من رغبته للتدخين ؟

() نعم () كلا () لم أسمع بأن نوع من هذا الاعلام

إذا سمعت نوعا من هذا الاعلام ، ان وسيلة من وسائل الاعلام كان لها التأثير الأكبر في التخفيف من رغبته للتدخين :

- () التلفزيون
- () الراديو
- () الصحف والمجلات
- () المظاهرات العامة
- () غيرها

٢٩- ان نسبة حدوث خلطة قلبية لشخص يدخن أعلى من نسبة حدوثها لشخص لا يدخن

١٠٠٪ أعلى ٧٥٪ أعلى ٥٠٪ أعلى ٢٥٪ أعلى النسبة متساوية

٣٠- ما هي بعد الاسباب التي تدفع نخدا في فشل سنك الى التدخين؟

٣١- ما الاسباب التي تدفع الشخص الى عدم التدخين ؟

٣٢- التدخين غير مضر على شرط ان يكون بصورة معتدلة ؟

() صح () خطأ

٣٣- هل تعترصحت الجسدية

() ضعيفة

() متوسطة

() أفضل من متوسطة

() متازة

٣٤- باستخاعتي شخصا ان اشفي نفسي من اي مرض .

() اوافق بشدة () اوافق () اعارض بشدة () اعارض

٣٥- سما حاولت ان افعل كي لا أمر فائتي سأمرارحتما اذا كتب الله لي ذلك .

() اوافق بشدة () اوافق () اعارض بشدة () اعارض

٣٦- سأواجه مشاكل صحية اقل اذا قمت بزيارة طبيب مستمر بصورة منتظمة للاختصاصات مسن صحتي حتي لو لم أكن اشعر بأي نوع صحي .

() اوافق بشدة () اوافق () اعارض بشدة () اعارض

٣٧- يبدو لي ان صحتي متأثرة الى حد كبير بأحداث غير مرتتبة (كالقضاء والقدر)

() اوافق بشدة () اوافق () غير متأكد
() اعارض بشدة () اعارض

٣٨- استطعت ان احافظ على صحة جيدة فقط اذا قدمت باستشارة الاختصاصيين في مجال الصحة .

() اوافق بشدة () اوافق () غير متأكد
() اعارض () اعارض بشدة

٣٩- انا مسؤول بصورة مباشرة عن صحتي .

() اوافق بشدة () اوافق () غير متأكد
() اعارض () اعارض بشدة

٤٠- يلعب الآخرون دوراً مهماً في محافظتي على صحة سليمة او اصابتني بتوهم صحي .

() اوافق بشدة () اوافق () غير متأكد
() اعارض () اعارض بشدة

٤١- كل توهم صحي يصيبني يكون مصدره خطأ وارد عني شخصياً .

() اوافق بشدة () اوافق () غير متأكد
() اعارض () اعارض بشدة

٤٢- عندما امرت لا أحاول القيام بأمر حل قد يساعدني على الشفاء بل اترك الأمر يأخذ مجراه .

() اوافق بشدة () اوافق () غير متأكد
() اعارض () اعارض بشدة

٤٣- اختصاصيو الصحة هم الذين يحتاجون على صحتي سليمة .

() اوافق بشدة () اوافق () غير متأكد
() اعارض () اعارض بشدة

٤٤- عندما أكون صحيح الجسم ، يكون الحفاظ على السبب في ذلك .

() اوافق بشدة () اوافق () غير متأكد
() اعارض () اعارض بشدة

٤٥- تعتمد صحتي الجسدية على مدى عنايتي بنفسي

() اوافق بشدة () اوافق () غير متأكد
() اعارض بشدة () اعارض

٤٦- عندما أشعر بتوقع صحي أدرك أن سبب ذلك عدم عنايتي بصحتي بصورة جيدة .

() اوافق بشدة () اوافق () غير متأكد
() اعارض بشدة () اعارض

٤٧- حتى إذا اعتنيت بنفسي بصورة جيدة ، فمن السهل جدا أن أمرض .

() اوافق بشدة () اوافق () غير متأكد
() اعارض بشدة () اعارض

٤٨- أصابني بمر ما أمر متعلق بالفضاء والقدر .

() اوافق بشدة () اوافق () غير متأكد
() اعارض بشدة () اعارض

٤٩- باستطاعتي البقاء سليما معاني أن اعتنيت جيدا بصحتي .

() اوافق بشدة () اوافق () غير متأكد
() اعارض بشدة () اعارض

٥٠- أن العمل حسب 'أمر الطبيب هو أفضل' ضروري لابقى بصحة جيدة .

() اوافق بشدة () اوافق () غير متأكد
() اعارض بشدة () اعارض

٥١- عندما أمر ، اتوكل على الله فلا أحاول أن أقوم بأي عمل قد يساعدني على الشفاء من هذا المرض .

() اوافق بشدة () اوافق () غير متأكد
() اعارض بشدة () اعارض

رتب من الجمل الاتية حسب الاهمية التي تراها مناسبة ، مبتدئاً بالاهم (١)
ومنتهياً بالاقل اهمية (١١) . الرجاء : وضع الرقم مقابل كل جملة .

حياة مريحة مربية - خاصة من الناحية المالية
حياة مثيرة مليئة بالحركة والاحداث المثيرة
الشعور بالحرية - بالاستقلال الذاتي وحرية الاختيار
السعادة
الراحة الجسدية والعقلية
الشعور بالراحة النفسية وراحة الضمير وعدم وجود تناقض في الافكار
حياة مليئة بالمهم والمفرح
الشعور بالاحترام والتقدير الذاتيين
تقدير واحترام الاصدقاء لنا واعجابهم بنا
تسامح وتضامن من افراد العائلة - وعدم وجود ان تناقض او خلاف بينهم
التربية والتعليم المدرسي

نشكركم لمساعدتكم

APPENDIX B

POST TEST I

(Translation from Arabic)

School _____

Grade _____

Country _____

1. Lung cancer has a definite correlation to the amount of cigarettes smoked.

True _____ False _____

2. Lung tissue damage is not a complication of smoking except after at least 15 years of smoking.

True _____ False _____

3. A nonsmoker has less chance than a smoker of getting a heart attack.

True _____ False _____

4. Please list three immediate harmful effects of smoking.

5. The film was pertinent to my age group.

Strongly agree _____ Agree _____ Disagree _____

6. The peer pressures to smoke as portrayed were realistic.

Strongly agree _____ Agree _____ Disagree _____

7. The answers given to peer pressure were helpful.

Strongly agree _____ Agree _____ Disagree _____

8. I feel I know more about the dangers of cigarette smoking because of Dr. Salem's presentation.

Strongly agree _____ Agree _____ Disagree _____

9. The film had a positive influence on me in my attitude against smoking.

Strongly agree _____ Agree _____ Disagree _____

سلوك التدخين

المدرسة :
الصف :
البلد :

- ١- توجد علاقة مباشرة بين سرطان الرئة وكمية المجائر المستهلكة
() خطأ () صحيح
- ٢- يحدث تلف في أنسجة الرئتين بعد التدخين مدة لا تقل عن ١٥ سنة .
() خطأ () صحيح
- ٣- ان الشخص الذي لا يدخن معرض للإصابة بالجلطة القلبية نسبة تقل عن الذي يدخن .
() خطأ () صحيح
- ٤- المرجو ان تذكر/ تذكرى ثلاث مضار مهمة تحدث بعد وقت قصير من التدخين :
٥- لقد تناسب الفيلم حول التدخين مع أبناء / بنات جيلي .
— أوافق بشدة — أوافق — لا أوافق
- ٦- لقد أظهر الفيلم الضغوطات التي تتعرض لها من قبل الاصدقاء والصدقات للتدخين بصورة واقعية .
— أوافق بشدة — أوافق — لا أوافق
- ٧- ان الاجوبة الموضحة بالفيلم لجاذبة لضغوطات الاصدقاء / الصديقات للتدخين كانت مثيرة .
— أوافق بشدة — أوافق — لا أوافق
- ٨- لقد علمني عن الدكتور سالم المزبد عن اخطار التدخين .
— أوافق بشدة — أوافق — لا أوافق
- ٩- لقد أثير الفيلم ايجابيا على تفكيري بمعاداة التدخين .
— أوافق بشدة — أوافق — لا أوافق

APPENDIX C

POST TEST II

(Translation from Arabic)

School _____

Grade _____

Country _____

1. Age: _____
2. Sex: Male _____ Female _____
3. Do you at present smoke cigarettes?
 - a. Not at all _____
 - b. Occasionally (not daily) _____
 - c. Less than 3 per day _____
 - d. 3-5 cigarettes a day _____
 - e. 6-10 cigarettes a day _____
 - f. 11-20 cigarettes a day _____
 - g. More than 1 pack a day _____
4. Someone my age who smokes may develop after 15 years

	Defi- nitely	Possibly	Not Very Likely	Impos- sible
a. Heart attack	_____	_____	_____	_____
b. Cancer of the lung	_____	_____	_____	_____
c. Emphysema	_____	_____	_____	_____
5. If detected early, treatment is successful for:

	Always	Usually	Seldom	Never
a. Lung cancer	_____	_____	_____	_____
b. Emphysema	_____	_____	_____	_____
c. Heart disease	_____	_____	_____	_____
6. There is correlation between smoking and lung cancer.
 Definitely _____ probably _____ may be _____ none _____
7. Smoking cigarettes does no harm if one smokes in small amounts.
 Definitely true _____
 May be true _____

Probably true _____
Not true _____

8. There are immediate effects to the health in cigarette smoking.

Many _____ some _____ none _____

9. A smoker is more apt than a nonsmoker to get a heart attack.

Definitely will _____ Probably _____
May be _____ Not true _____

10. I believe it is acceptable for my brother to smoke cigarettes.

Absolutely _____ Occasionally _____
Seldom _____ Never _____

11. I believe it is acceptable for my sister to smoke cigarettes.

Absolutely _____ Occasionally _____
Seldom _____ Never _____

المدرسة :
الصف :
البلد :

ملوك التدخين / ١١١

نرجسوان تساعدنا بتجميع المعلومات حول التدخين .

الرجاء عدم ذكر اسمك على هذه الورقة .

كل واحد منا له آراء تختلف عن غيره في مفهومه للصحة او للمرض . نود ان
تعرف رأيك الشخصي حول هذا الموضوع . الاسئلة او الجمل التالية ليس فيها جواب
صح او خطأ . نود فقط الاطلاع على رأيك .

١- العمر

٢- () ذكر () انثى

٣- هل تدخن في الوقت الحاضر ؟

() ابدا

() في بعض المناسبات

() أقل من ٣ سجائر في اليوم

() بين ٣ و ٥ سجائر في اليوم

() بين ٦ و ١٠ سجائر في اليوم

() بين ١١ و ٢٠ سجارة في اليوم

() أكثر من علبه في اليوم

٤- يمكن ان يسبب التدخين لشخص في مثل عمري بعد ١٥ سنة :

أ- جلطة قلبية : () موهكد () معقول () مستبعد () غير معقول

ب- سرطان الرئة : () موهكد () معقول () مستبعد () غير معقول

ج- انتفاخ الرئة : () موهكد () معقول () مستبعد () غير معقول

٥- أ - اذا اكتشف سرطان الرئة باكرا معدن ان يكون العلاج كامل النجاح :

() دائما () غالبا () في بعض الاحيان () ابدا

ب- اذا اكتشف انتفاخ الرئة باكرا معدن ان يكون العلاج كامل النجاح :

() دائما () غالبا () في بعض الاحيان () ابدا

ج- اذا اكتشف مزق القلب باكرا معدن ان يكون العلاج كامل النجاح :

() دائما () غالبا () في بعض الاحيان () ابدا

- ٦- توجد علاقة مباشرة بين التدخين وسرطان الرئة .
 () دائما () غالبا () في بعض الاحيان () ابدًا
- ٧- لا يضر تدخين السجائر ان كان عددها قليلا :
 () لا يضر () يضر بمعظم الحالات () يضر ببعض الحالات () يضر دائما
- ٨- للتدخين ما ارضية تبرز سرعان ما يبدأ الشخص بالتدخين :
 () توجد صار عديدة تبرز بسرعة () توجد بعض المضار () لا يوجد اي مضار
 التي تبرز بسرعة التي تبرز بسرعة
- ٩- يمكن ان يضرب الشخص الذي يدخن بمشاكل في القلب اكثر من الشخص الذي لا يدخن :
 () مؤهك () في الغالب () في بعض الاحيان () ابدًا
- ١٠- اعتقد انه من المقبول به لاختي ان يدخن سجائر :
 () دائما () غالبا () في بعض الاحيان () ابدًا
- ١١- اعتقد انه من المقبول به لاختي ان تدخن سجائر :
 () دائما () غالبا () في بعض الاحيان () ابدًا

شكرا لمساعدتكم

APPENDIX D

VIDEO SCRIPT

(Translation from Arabic)

Your Friend is your Enemy
If he offers you a cigarette

One can smoke or not - simply as he chooses. The environment is full of temptations or reminders to follow up your decision. Many people feel that the moderate use of cigarette smoking may create no serious social or medical risk. However, medical evidence is unmistakable that this is not true - there are immediate and future harmful effects of cigarette smoking on health.

There may be several reasons why one chooses to smoke - among them lack of knowledge about the harmful effects of cigarettes smoking, as well as social pressures to do as others do (or are perceived to do) in one's own age groups.

This film is designed to help you have more knowledge about hazards of smoking, and also to present the social pressures that may lead to smoking and ways to handle these pressures.

Dr. Phillip Salem, leading Lebanese oncologist, from the American University of Beirut Medical Center, will discuss with you immediate and long term effects to your health when you smoke cigarettes.

- Dr. Salem -

(Second Part)

Peer pressures appear to be an important factor favoring the onset of smoking. Identification of social cues and ways to resist pressures to smoke, help in enabling students to evaluate these pressures in a neutral setting and realize the fallacies of many of the statements made by peers to encourage smoking. The following scene could take place anywhere.

(MAY, LEILA and SAWSAN sitting and studying around a table. All are smoking.)

LEILA: What a difficult lesson--(the bell rings)

SAWSAN: Who can it be? (the three put off their cigarettes--enters FATIN happily)

MAY: I can't believe my eyes! It is FATIN-- (they all hug, then sit down)

LEILA: We missed you dearest! It is almost two years now since you left--we have been following your news through your parents--

MAY: Your success did not surprise us--we were sure of it--

SAWSAN: Let us get to the point--tell us about London, we are anxious to hear about it.

FATIN: Life in London is beautiful. I only missed your presence with me in the school I joined-- Oh! You can't believe my joy to be with you now here, at home--

LEILA: ---And we are also happy that you are among us.

SAWSAN: Come on, tell us, how did you spend your time?

FATIN: You know SAWSAN, that I had to study very hard to keep the bursary aid, so studying occupied most of my time--but it did not prevent me from continuing my athletic activities and painting. I also learned how to play the piano--and - indeed - there was time to meet friends and go on tours on the weekends.

MAY: You are still the same--you have time for everything--

FATIN: ---And now allow me, MAY, to go and greet your parents, I have missed them--

MAY: ---Don't bother yourself, they went out to visit some friends--Oh--by the way, my parents are not here-- (MAY looks at SAWSAN and LEILA)--

SAWSAN: Of course, I had almost forgotten--(she gets out her cigarette pack from her bag, and then looks at FATIN, offering her a cigarette). You must have started smoking in London since everybody smokes there, come on join us, nobody is at home--

FATIN: No, thank you, SAWSAN, I don't smoke --

SAWSAN: You are not afraid of your parents, are you?!! Don't worry, they will not know--

FATIN: I have been living away from my parents for the past two years and if smoking was of interest to me I would have smoked then--

LEILA: So, why don't you smoke?

FATIN: I have my reasons, smoking is harmful to the health and at the same time it is money consuming.

LEILA: OOOFF! -- We have heard a lot about the harmful effects of smoking. Do you really think one cigarette will hurt you?

FATIN: All smokers start with one cigarette--and very soon it becomes two and then a few packs a day.

SAWSAN: Do you mean you can't give up smoking once you start? I never thought that you have no control over yourself--

FATIN: I am still the same--but I do not like to gamble with the devil. Smoking is a habit which is difficult to stop. I know some friends in London who suffered a lot when they wanted to stop smoking.

MAY: I don't know about SAWSAN and LEILA--but as for me I am sure that I can stop smoking whenever I wish to...

FATIN: Beware, MAY--I have frequently heard this statement--beware as your habit can easily become an addiction, without you even noticing it--It is better to stop smoking now before it is too late--

MAY: --To stop--I don't know--

FATIN: Why "don't you know"?--let me ask you, why do you smoke?

MAY: Why?--I don't know--but all boys smoke, and all mature people too--so why can't we do the same?

FATIN: Does this mean that we must imitate the bad habits of others--moreover, maturity is never measured by the level of smoking...

SAWSAN: Smoking relaxes me.. Try it FATIN.

FATIN: I hope you are not worried now! (looks at MAY)
Why don't you lend SAWSAN your flute, so as to relax herself! Do you still play the flute, SAWSAN?

SAWSAN: Of course--but--let me enjoy smoking now.

FATIN: I hope that smoking has not affected your ability to play!

SAWSAN: No--but--I don't play as before--

FATIN: By the way, are you going to sing in the school's farewell party this year as usual?

SAWSAN: Oh,...No--singing is boring---

MAY: (puts off her cigarette) Why don't you tell FATIN the truth. The teacher asked SAWSAN to stop smoking after it hurt her voice, but when she did not, the teacher had to ask her to leave the singing team--

LEILA: --True--

SAWSAN: But doesn't everyone smoke in England? In the states they all do. Haven't you noticed this in their movies, LEILA?

LEILA: Yes,... Yes.

FATIN: You are mistaken. There exists a strong opposition to smoking now in the west. Many young people stopped it after its relation to lung cancer and heart attacks was shown...

SAWSAN: --Everyone is going to die when their time comes... Anyway all famous actresses smoke... Isn't that true, LEILA?

LEILA: Yes...

FATIN: I am not used to seeing you influenced by western movies and cheap propaganda. They have forbidden cigarette advertisements on T.V. in the United States--I am unhappy to see you influenced by it instead of mocking it...

MAY: Friends, let us stop this argument-- We have almost forgotten to welcome you-- How about preparing some food together?

FATIN: On one condition, No smoking--

SAWSAN: As you wish, my friend-- (she puts off her cigarette) -- and tomorrow I will try to rejoin the singing team.

FATIN: This is the real SAWSAN that we know...

APPENDIX E

OCCUPATIONAL CLASSIFICATION

Occupations included in each class are:

- Class I : Members of professions (physicians, lawyers, dentists), senior business executives.
- Class II : Lesser business executives, school teacher, nurse, higher clerical, businessman, accountant, shop owner, contractor.
- Class III : Skilled artisan, lesser clerical worker, pilot, policeman, military, writer, practical nurse.
- Class IV : Semiskilled--driver, employee, butcher, carpenter.
- Class V : Unskilled - laborer.