HEALTH KNOWLEDGE LEVELS, BEHAVIORS, AND PERCEIVED NEEDS OF 1992 NORTH TEXAS HIGH SCHOOL GRADUATES

A DISSERTATION

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

I am submitting herewith a dissertation written by Leigh Elaine Dickens entitled "Health Knowledge Levels, Behaviors, and Perceived Needs of 1992 North Texas High School Graduates." I have examined the final copy of this dissertation for form and content, and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Health Education.

Susan E. Ward, Major Professor

We have read this dissertation
and recommend it acceptance:

Chair, Department of Health Studies

Accepted:

Dean, College of Health Sciences

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Abstract

COMPLETED RESEARCH IN HEALTH SCIENCES
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This descriptive study was conducted using 1992 graduates of three north Texas school districts. A researcher designed instrument, the Life Skills Effectiveness Survey, was completed by 168 graduates. Differences between health knowledge, behaviors, and perceived needs among graduates were examined in relationship to school district size attended, gender, and ethnicity. Additionally, an attempt was made to determine if the health needs of the graduates were consistent with the Texas Essential Elements. Descriptive statistics were used to answer research questions. Hypotheses testing was accomplished using two way analysis of variance and Pearson Product Moment Correlational procedures.

Overall results indicated that: (a) adolescents were concerned with their health, (b) many of their perceived health education needs were consistent with the Texas Essential Elements, but (c) they also identified salient needs which were not addressed by their health curriculum, and finally (d) the needs identified were representative of lifestyle choices and risk behaviors in which they were already engaged. Significant differences emerged in the following areas: (a) between metropolitan and suburban

high school graduates in health knowledge, (b) between rural and suburban high school graduates in health behaviors, (c) between ethnic groups in health knowledge, and (d) by gender classification in perceived health needs.

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CHAPTER 1

INTRODUCTION

Developmentally, the period of adolescence to young adulthood is a very dynamic time in an individual's life. During this period of time, adolescents progress from a state of dependence to actively seeking peer approval, establishing autonomy, forming personal identity, accepting responsibility, and developing social skills (Crockett & Petersen, 1993; Erikson, 1968; Erikson, 1977; Kaplan, 1980). The remainder of an adolescent's life is likely to be affected by personal decisions on issues and behavioral choices made during this period of time.

Historically, while the literature presented noteworthy examples that health education curricula sometimes developed as a result of adolescents' self-reported knowledge, attitudes, and behaviors (American School Health Association, Association for the Advancement of Health Education, & Society for Public Health Education, 1988; Boyd & Glover, 1989; Byler, Lewis, & Totman, 1969; Glynn, 1989; Goodstadt, 1989; James, 1983; Kolbe, 1990; Portnoy & Christenson, 1989; Ross, Caudle, & Taylor, 1989; Trucano, 1984), the more common pattern of curriculum development was based on what parents; and other adults, particularly health professionals, teachers, and college professors, perceived as necessary or important (DeFriese, Crossland, MacPhail-Wilcox, & Sowers, 1990; Pinch, Heck, &

Vinal, 1986; Price, Desmond, & Ruppert, 1990). In the few instances when the actual perceived health education needs of adolescents were examined in the development of health education programs, research indicated that: (a) adolescents were concerned with health issues, (b) concerns were sometimes different from those of teachers and other adults (Akwar, 1990), (c) concerns were sometimes different from those that made the greatest contribution to morbidity and mortality (Giblin & Poland, 1985; Pinch, et al., 1986; Sobal, 1985 and 1987), and (d) health topics of concern did not coincide with prevalence of those problems in adolescents (Giblin & Poland, 1985; Pinch, et al., 1986; Sobal, 1985 and 1987).

Statement of the Problem

Often current high school health curricula are not based on adolescent perceived needs or concerns. In the state of Texas, health curricula are based on the Texas Essential Elements for health and science, which were developed primarily by teachers and university professors rather than with student input. This study first measured the health knowledge, behavior, and perceived needs of north Texas adolescents who had recently graduated from high school. In addition, the difference in samples from three geographic locations were analyzed, and compared by gender and ethnicity.

Purposes of the Study

The primary purpose of this study was to determine the health knowledge levels, health behavioral practices, and perceived health needs of recent graduates of

three north Texas school districts. A secondary purpose of this study was to determine if a relationship existed between health knowledge levels and health behavioral practices of north Texas high school graduates. The study also examined differences in health knowledge, health behavioral practices, and perceived health needs by gender and ethnicity, and between high school post graduates of a major metropolitan, a suburban, and a rural school system. Finally, it was determined if the perceived health education needs of the high school graduates were consistent with the Texas Essential Elements' requirements.

Research Questions

The following research questions were answered:

1. What is the level of health knowledge of 1992 north Texas high school graduates;

2. What are the self-reported health behaviors of 1992 north Texas high school graduates;

3. What are the perceived health needs of 1992 north Texas high school graduates;

4. Are the perceived health needs of 1992 north Texas high school graduates consistent with the Texas Essential Elements?

Hypotheses

The following sixteen hypotheses were tested:

1. There is no significant difference in the health knowledge level of 1992

high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas;

2. There is no significant difference in the health behaviors of 1992 high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas;

3. There is no significant difference in the perceived health needs of 1992 high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas;

4. There is no significant difference in the health knowledge level of 1992 north Texas high school post graduates by ethnicity;

5. There is no significant difference in the health behaviors of 1992 north Texas high school post graduates by ethnicity;

6. There is no significant difference in the perceived health needs of 1992 north Texas high school post graduates by ethnicity;

7. There is no significant difference in the health knowledge level of 1992 north Texas high school post graduates by gender;

8. There is no significant difference in the health behaviors of 1992 north Texas high school post graduates by gender;

9. There is no significant difference in the perceived health needs of 1992 north Texas high school post graduates by gender;

10. There is no significant difference in the health knowledge level of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity;

11. There is no significant difference in the health behaviors of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity;

12. There is no significant difference in the perceived health needs of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity;

13. There is no significant difference in the health knowledge level of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender;

14. There is no significant difference in the health behaviors of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender;

15. There is no significant difference in the perceived health needs of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender;

16. There is no significant relationship between health knowledge and health behaviors of 1992 north Texas high school post graduates.

Definition of Terms

Terms operationally defined for the purposes of this study were:

1. Adolescence. The developmental phase of a person's life between the ages of puberty and adulthood, with that age range being 13 to 20 years.

2. Health behavior. Any action, purposefully engaged in which is either directed toward the protection or improvement of health or which results in some direct effect on health, synonymous with health behavioral practices. For the purposes of this study, the Life Skills Effectiveness Survey questionnaire was used to assess health behaviors in the following areas: mental health, nutrition, personal health, sexually transmitted disease, substance use or abuse, and safety.

3. Health knowledge The understanding of health concepts or health information gained through study or experience. In this study the Life Skills Effectiveness Survey questionnaire was used to assess health knowledge in the following areas: first aid and emergency care, consumer health, personal health, environmental health, human disease (chronic and communicable), sexually transmitted disease, aging, mental health, substance abuse, human body function, and growth and development.

4. Life Skills Effectiveness Survey. An instrument based on the requirements of the Texas Essential Elements for high school health curricula, which was designed by the researcher for the purposes of this study to measure the health knowledge level, health behavioral practices, and perceived health needs of adolescents.

5. Metropolitan high school. A high school within a public school district located in a metropolitan, urbanized area of north Texas, which met the following criterion for a Primary Metropolitan Statistical Area (PMSA) as defined by the United States Department of Commerce's (USDC) census glossary: a census designated place with a minimum population of 1,000,000 (USDC, 1992). The metropolitan school district chosen for this study was located inside the central city of the metropolitan area, where the central city population was 1,006,877 (USDC, 1992), and graduated approximately 4,800 to 5,100 high school students annually.

6. Perceived health need. An individual's impression that a condition or situation is required or wanted for the improvement or protection of health. In this study the Life Skills Effectiveness Survey questionnaire was used to assess perceived health need in the following areas: first aid and emergency care, consumer health, personal health, environmental health, human disease (chronic and communicable), sexually transmitted disease, aging, mental health, substance abuse, human body function, and growth and development.

7. Rural high school. A high school within a public school district located in a north Texas, non-metropolitan community, which met the following criteria for non-metropolitan, as defined by the USDC's census glossary: (a) census designated place with a population of fewer than 50,000, (b) census designated place excluded from the non-rural territory of extended cities (USDC, 1992). The rural school district chosen

for this study was located in a community of approximately 15,000, and graduated approximately 150 to 200 high school students annually.

9. Suburban high school. A high school within a public school district located in a north Texas metropolitan, urbanized area, which meets the following criteria: (a) a community which is part of a census bureau defined Consolidated Metropolitan Statistical Area (CMSA), (b) community located contiguous to a census bureau defined PMSA (USDC, 1992), (c) census designated place of at least 50,000, but less than 1,000,000. The school district chosen for this study was located in a community of 66,270 (USDC, 1992), and graduated approximately 500 to 600 high school students annually.

10. Texas Essential Elements. Information identified by the Texas Education Agency to be covered in the curriculum of all students. For the purposes of this study, references to essential elements refer to health related information required for coverage in the health or science curriculum (Texas Education Agency, 1992).

Limitations and Delimitations

Limitations identified for this study included:

1. Generalizability to other geographic populations and school systems will be limited because the study considered only high school graduates from three north Texas high school systems; and

2. Study results could have been influenced by both the response rate to the mail out survey and the type of individual who responded to such instruments.

The following delimitations were imposed:

1. The sample population was restricted to three high school systems (one major metropolitan, one suburban, and one rural) located in the north Texas geographic area; and

2. Only 1992 graduates from the selected north Texas high school systems were considered for inclusion in the study.

Assumptions

For this study, the following assumptions were made:

1. Post graduation acquisition of additional knowledge and experience may have occurred;

2. Subjects would respond honestly to the mail out survey;

3. The survey instrument was designed at an appropriate readability level to make reading comprehension possible for the respondents; and

4. Health instruction provided students by health teachers was based on the Texas Essential Elements.

Background and Significance

Evidence exists that obtaining and using self-reported knowledge, behaviors and attitudes increases the likelihood that the health curriculum will meet the perceived needs of adolescents (Byler, Lewis, & Totman, 1969; Trucano, 1984).

However, curriculum developers in Texas may have failed to obtain information about local adolescents' knowledge, attitudes, and behaviors as they formulated curriculum.

Health and behavioral theories, such as Freire's Empowerment Model and Rosenstock and Hochbaum's Health Belief Model (HBM), document well the need for individual involvement in and ownership of health problems. According to HBM the decision to change behavior is dependent at least in part on the individual's belief that he or she has some degree of susceptibility to the particular problem (Rosenstock, 1990). Exclusion of adolescent input from the development of health education curriculum may also mean exclusion of those health problems by which the adolescent feels most threatened. Also, the goals of knowledge and healthy lifestyle behavior acquisition may be subverted.

Empowerment is considered "the process by which individuals or communities take control over their lives and their environment" (Minkler, 1990, p. 269). Proponents of the empowerment process feel that organization and change are unlikely to take place until the problems or needs of the individual or groups concerned have identified them. While knowledge gained from this study will not directly empower adolescents to participate in the development of curricula or its implementation processes, it may provide insights to curriculum developers for the inclusion of adolescents in these processes. Otherwise, it may be reasonable to expect continued health education program failures until the programs address the same needs that the target populations embrace.

Behavior choices of adolescents have been related to other factors as well. Differences in involvement in risk behaviors, particularly substance use, alcohol use, and sexual activity have been related to gender differences (Novacek, Raskin, & Hogan, 1991; Matiska-Tyndale, 1991; Perlstadt, Hembroff, & Zonia, 1991) and to cultural and ethnic differences (Bass & Kane-Williams, 1993; Earls, 1993; Maddahain, Newcombe, & Bentler, 1985).

Regardless of the common perception of the rural community as a sage and sheltered haven, research indicated that unhealthy lifestyle prevalence was not restricted to urban areas (Bloch, Crockell, Vicary, 1991; Sarvela & McClendon, 1987a). In fact some research indicated that involvement in risk behavior by rural adolescents was approaching that of urban adolescents (Gibbons, Wylie, Echterling, & French, 1986).

There is need to measure and report the health knowledge, health behaviors, and actual perceived health needs of adolescents; this research provides insight into those areas. Through recognition of trends in adolescent lifestyle and by determination of differences in priorities for health education between adolescents and adults who plan health education programs and curricula, health educators may gain a better understanding regarding the success or failure of future health education programs and curricula.

CHAPTER 2

REVIEW OF LITERATURE

Inclusion of adolescents' perceived needs in the planning of their health education curriculum may positively affect curriculum and project outcomes. In the past a few attempts have been made to determine the knowledge, behaviors, attitudes, interests and needs of students; however, our society has experienced radical changes since most of these studies were conducted (Perry, Kelder, & Komro, 1993). There is a need to establish whether or not the health concerns of today's students are consistent with previous findings. This review begins with an overview of general health and developmental characteristics of adolescents, follows with an examination of the literature related to adolescent health knowledge, health behavior, attitudes, and perceptions, and parental and teacher concerns regarding the development of health education programs and curriculum. Also discussed are adolescent differences related to gender, ethnicity, and type of high school attended. The theories of empowerment and Health Belief Model are used to substantiate the potential for positive health education outcomes when adolescent concerns are considered. The chapter concludes with a brief discussion of the need for consideration of adolescents' perceived health needs in the development of health education programs and curriculum.

General Health and Development of Adolescents

In order to determine if the perceived health education needs of high school students are being met by the high school health curriculum, an understanding of the lifespan group and its general health problems must first be developed. According to Hechinger (1992), adolescents do not represent a homogeneous group, however, the similarities that do exist make the lifespan group more understandable.

Developmental Factors

The period of adolescence to young adulthood (the period between 13 and 20 years) is a very dynamic time in an individual's life. During this transition period between childhood and adulthood, individuals are in the midst of change and experimentation (Crockett & Petersen, 1993; Grossman, 1991). Developmentally, during the period of adolescence, individuals move from a state of dependence to the active search for peer group approval, the establishment of autonomy, the formation of personal identity, the acceptance of responsibility, and the development of social skills and graces (Crockett & Petersen, 1993; Erikson, 1968; Erikson, 1977; Kaplan, 1980). Not only are these cognitive and psychosocial changes occurring, but a myriad of biological changes occur as well. Physical and sexual maturity are achieved. Educational and occupational decision making during this time molds adolescents' future careers. These changes provide many opportunities for individuals to make decisions on issues and engage in behaviors that are likely to affect the rest

of their lives. Their decisions may place them at risk or help them develop healthy lifestyle patterns (Crockett & Petersen, 1993).

Similarities in Health Problems

Research tended to show that adolescents and young adults shared similar health problems and issues, with the three leading causes of preventable mortality consisting of unintentional injury (including motor vehicle accidents), homicide, and suicide (Center for Disease Control [CDC], 1989, United States Department of Health and Human Services [USDHHS], 1992). According to Kolbe (1990), much of the acute and chronic morbidity occurring in this age group also resulted from these causes. Health problems for this group fell into two major categories: violent injury or accident and the formation of lifestyle behavior patterns (USDHHS, 1992). Additionally, behavioral factors such as alcohol and drug use and precocious sexual activity were thought to have contributed substantially to the increased incidence of unintended pregnancy and to morbidity and mortality statistics, such as infant mortality and sexually transmitted disease (Kolbe, 1990).

Leading causes of mortality were shown to be the result of diseases of the heart and malignant neoplasms (CDC, 1989). Several behavioral factors were cited as contributing significantly to these causes: tobacco use, level of activity or exercise, and dietary practices. Although these mortality "causes" were not recognized as specific to the adolescent lifespan group, their contributory behavioral practices were

generally thought to be established in adolescence and young adulthood (Crockett & Petersen, 1993; Kolbe, 1990; Millstein, 1989; USDHHS, 1992).

Millstein (1989) reiterated the reported similarities in adolescent health problems. She also reported that little research had been done on examining the beliefs of adolescents on health and illness, on adolescent decisions making with regard to compliance, to beliefs regarding the health care system, nor to determining the meaning of risk behavior from the adolescent perspective.

Adolescent Health Concerns

Historically, health curricula developed largely from what parents, health professionals, teachers, and college professors perceived as necessary or important, from risk behavior statistics, and occasionally from the results of adolescents' self-reported knowledge, attitudes, behaviors, and perceptions of health. When the opinions of adolescents were considered, they were generally restricted to specific health topics previously determined by curriculum developers, rather than to health topics adolescents might identify as important.

Health Knowledge, Attitudes, and Behaviors

Many studies explored the areas of adolescent health knowledge (Portnoy & Christenson, 1989), health attitudes (Ross, Caudle, & Taylor, 1989), and health behaviors (Boyd & Glover, 1989; Glynn, 1989; Goodstadt, 1989; James, 1983; Kolbe, 1990; Portnoy & Christenson, 1989). Generally, the literature considered specific health topics (e.g., tobacco, alcohol or other substance abuse, cancer, sexual

behaviors), identified risk behavior, and described the varying degrees of success programs developed to address identified deficiencies in knowledge, or unhealthy lifestyle attitudes and behaviors had realized.

As children, individuals generally are dependent on parents or other adult guardians to identify and manage potential health problems and risks for them. During the period of adolescence and young adulthood, individuals are faced with the tasks of socialization and integration into the whole of adult society and the development of personal identity and independence. These tasks may not always have analogous or compatible concerns. According to Ackwar (1990) in her study of Central and South American adolescents in Houston, health behavioral practices of adolescents had definite similarities, one of which was that they were seldom approved of by the parents of the adolescents.

Health Perceptions

Research has also documented perceptions of teachers and health education professionals (DeFriese, Crossland, MacPhail-Wilcox, & Sowers, 1990; Goodstadt, 1989; Price, Desmond, & Ruppert, 1990), parents, and students (Giblin & Poland, 1985; Metropolitan Life Foundation, 1988; Pinch, Heck, and Vinal, 1986; Sobal, 1985, 1987). Teachers and health education professionals were generally in agreement that the responsibility for education was not theirs alone, but required the cooperation of the community, parents, and political systems to change the behavior of the adolescents. This type of collaborative approach formed one of the premises

upon which comprehensive school health education was based (Killip, Lovick, Goldman, & Allensworth, 1987).

Current comprehensive school health literature indicated that successful program implementation was dependent on cooperative efforts (Allensworth & Kolbe, 1987; Cortese, 1993; English, Sancho, Lloyd-Kolkin, & Hunter, 1990; Jonas, James, & Manigold, 1993; Killip, Lovick, Goldman, & Allensworth, 1987; Lavin, 1993; Shultz, Glass, & Kamholtz, 1987). Student support for and participation in health education programs were also identified as important to program success (Allensworth, 1993; English, Sancho, Lloyd-Kolkin, & Hunter, 1990; Jonas, James, & Manigold, 1993). The goals of the comprehensive health education programs included adolescent participation, compliance, and behavior change (Lohrmann, Gold, & Jubb, 1987). Yet, less research existed addressing the importance of inclusion of students in the planning and development phase of health education programs (English, Sancho, Lloyd-Kolkin, & Hunter, 1990), than in the implementation phase (Allensworth, 1993; Jonas, James, & Manigold, 1993; Shultz, Glass, & Kamholtz, 1987).

With the exception of the Metropolitan Life Foundation study (1988), which assessed the interest level and usefulness of health education for students, input from adolescents was based solely on the assessment of self-reported data in the areas of behaviors, attitudes, and knowledge (Defriese, Crossland, MacPhail-Wilcox, &

Sowers, 1990; Goodstadt, 1989; Kolbe, Kann, & Collins, 1993; Metropolitan Life Foundation, 1988; Price, Desmond, & Ruppert, 1990).

In a few earlier studies the actual expressed health concerns and needs in adolescents were examined (Brunswick, 1969; Byler, Lewis, & Totman, 1969; Giblin & Poland, 1985; Pinch, et al., 1986; Sobal, 1985, 1987; Trucano, 1984). From these earlier studies, results indicated: (a) adolescents were concerned with health issues (Brunswick, 1969; Byler, Lewis, & Totman, 1969; Giblin & Poland, 1985; Pinch, et al., 1986; Sobal, 1985, 1987; Trucano, 1984), (b) concerns were sometimes different from those of teachers and other adults (Brunswick, 1969; Sobal, 1985, 1987) (c) concerns were sometimes different from those that research indicated made the greatest contribution to morbidity and mortality (Brunswick, 1969; Sobal, 1985, 1987); and (d) health topics of concern did not necessarily coincide with prevalence of those problems in adolescents (Giblin & Poland, 1985; Sobal, 1985, 1987).

Adolescent Differences

Gender

Behavioral choices of adolescents have been related to many factors, for example, pleasure seeking, coping, or developing identity. Also, the reasons given by adolescents for their involvement in risk behavior is likely to have been different from those of adults and from those who did not engage in risk behavior (Novacek, Raskin, & Hogan, 1991). Involvement in risk behavior also appeared to be different relative to gender. Findings cited gender differences in the risk behavior areas of

drug use (Novacek, et al., 1991), sexual activity (Maticka-Tyndale, 1991), and alcohol use (Perlstadt, Hembroff, & Zonia, 1991). In addition to the identification of gender differences in risk behavior involvement, other reseachers suggested addressing gender differences in the development of health education programs and interventions (Abraham, Sheeran, Abrams, Spears, & Marks, 1991; Novacek et al., 1991).

Ethnicity

Cultural/ethnic background and norms provided the developing adolescent with another area for exploration, comparison and contrast with those of their peers. According to Earls (1993), the degree to which the adolescent accepts or challenges his/her own culture will probably have a bearing on the extent to which they assimilate into the majority culture.

Research on the existence of differences in health behavioral practices between ethnic groups and within ethnic groups was noted. Consistent differences were reported in the prevalence of substance abuse behavior and the types of risk behavior involvement between ethnic groups (Bass & Kane-Williams, 1993; Maddahian, Newcomb, & Bentler, 1985 and 1986; Welte & Barnes, 1987).

However, researchers (Bass & Kane-Williams, 1993; Earls, 1993) recommended cautious consideration of findings related to ethnicity. Often the findings were the result of biased data collection methods or may have failed to take into consideration language differences, social practices, or cultural values. Earls

(1993) advocated the use of adolescent focus groups and advisory boards in the development of adolescent health promotion efforts, feeling that inclusion of adolescents in the planning process would be a powerful incentive for behavior change and acceptance of responsibility.

Size of Community of Residence

Urban areas have tended to be the setting for much research on adolescent health (Giblin & Poland, 1985; Huizinga, Loeber, & Thornberry, 1993; Maddahian, Newcomb, & Bentler, 1986; Maticka-Tyndale, 1991). However, the prevalence of unhealthy lifestyles was not isolated in urban areas, and the existence of differences in risk factors between rural and urban populations was suggested (Bloch, Crockett, & Vicary, 1991; Sarvela & McCLendon, 1987a). Several studies documented the finding that adolescent residents of rural communities were actually "catching up" with their urban counterparts in terms of engaging in risk behavior (Bloch, Crockett, & Vicary, 1991; Gibbons, Wylie, Echterling, & French, 1986; Sarvela & McClendon, 1987b). Gibbons and associates (1986) recommended that health education programs take into account environmental differences between urban and rural areas, and adapt them accordingly to rural populations, rather than merely duplicating urban programs.

Health Education Curricula/Programs

Most of the research reviewed concerning adolescent health education curricula and programs (Glynn, 1989; Goldberg & Gorn, 1982; Goodstadt, 1989; Perry &

Murray, 1992; Ross, Gold, Lavin, Errecart, & Nelson, 1991; Sleet & Dane, 1985) was consistent with the research which considered adolescent health problems and risk behavior. Rarely were the actual perceptions of the adolescents themselves considered.

The common thread throughout the research of health problems and concerns was the preventability of most of the behavioral factors contributing to their causes. Kolbe (1990) suggested agencies direct their health promotion attentions to modifiable risk behaviors and to their surveillance for prevalence over time. However, according to Healthy People 2000 (U. S. Department of Health and Human Services, 1992), if the objectives for the nation were to be met and improvement in adolescent health status achieved, programs must center not only on health risk modification and education, but should also include in-depth counseling and support.

Perry and Murray (1992) documented the importance of considering both the present, as perceived by the adolescent, and the developmental changes that the adolescent would experience from the present to healthy adulthood. Greater successes in achieving health behavior goals were realized in adolescent health curricula/programs which addressed "both environmental influences on the adolescent and personal influences related to individual differences" (p. 307). Even though the importance of adolescent perceptions was addressed by Perry and Murray, the selection of health education topics was predetermined by program developers.

Arborelius and Bremberg (1988) noted that while long term behavioral change was crucial, most health education curricula and programs dealt with knowledge acquisition or with future effects of behavior, and many students did not perceive the traditional approach as relevant. They argued for a student-centered approach to school health education in which health issues would actually be defined by the students themselves.

Roth and Hendrickson (1991) recommended a collaborative effort between school and community organizations, indicating that school-based adolescent health education efforts could be only partially successful, due to limitations inherent in school structures. They suggested that the development of healthy lifestyle behaviors and successful transition to adulthood would be hindered by the classroom setting, lecture format, lack of confidentiality, and deficiency in training of teachers to deal with sensitive subject matter.

Health and Behavior Theory

Defined by Crockett and Petersen (1993), the role of adolescent health promotion is "to facilitate the development of young people who are healthy, happy, and prepared to assume their place as adults in society" (p. 13).

Although the Health Belief Model (HBM) was developed with a disease prevention focus, its components are also applicable in the health promotion setting. The HBM dimension of perceived susceptibility addressed the individual's perception of risk of contracting a particular health condition (Rosenstock, 1990). Adolescents

who do not perceive themselves to be at risk of contracting sexually transmitted diseases or becoming pregnant are not likely to find educational programs related to these issues relevant, nor are they likely to change behaviors which they do not perceive as threatening.

Empowerment is considered "the process by which individuals or communities take control over their lives and their environment" (Minkler, 1990, p. 269). Proponents of the empowerment process believe that organization and change are unlikely to take place until the problems or needs of the individual or groups concerned have identified them. If true, it may be reasonable to expect continued health education program failures, until the target population embraces the same problems as those the programs address.

When adolescents were allowed to identify their own problems, success in health education programs utilizing empowerment education was realized. The New Mexico ASAP (Alcohol Substance Abuse Program) Program sought to reduce mortality and morbidity among middle and high school students by empowering students to make decisions for healthier lifestyles, reduce risk behavior, and play an active role in community education and change. Although long-term results of decreased mortality and morbidity were not yet reported, participants did report significant changes in attitudes toward substance abuse, engagement in risk behaviors, and ability to control their own lives and influence the lives of others (Wallerstein & Berstein, 1988).

Summary

Some of the earlier research done with adolescent health concerns has been discussed. Findings from these studies revealed that health education programs for adolescents have generally developed as a result of the assumptions of teachers, parents, and other health professionals based on results of research in the area of adolescent health knowledge, attitudes, and behaviors. However, other studies revealed that adolescents may not operate with the same agenda for health concerns and needs as those of teachers, parents, or other health professionals. Still other research indicated that ownership of or control over the health problem and perceived influence over others to change may positively impact health behavior.

Because health knowledge does not necessarily translate into attitudinal or behavioral change, exploration of the health concerns or needs adolescents express as necessary, important, or relevant may warrant consideration by health educators. Determining a relationship between the relevance or importance of a health need and motivation for change could provide a new direction for health education and intervention.

CHAPTER 3

METHODOLOGY

A mail out survey approach was utilized to collect data for this descriptive, non-experimental study. The specific methodology followed in this study is discussed in relation to population and sample selection, protection of human subjects, procedures, instrumentation, and treatment of the data.

Sampling

The population for this study ($\underline{N}$ = 1133) consisted of students who graduated from three north Texas school districts in 1992. The research has shown that the perceived health needs and concerns of adolescents differ from those of adults; therefore, the opinions of participants who were not very far removed from the high school health education setting, but who had also been exposed to real life adult experiences were sought. For these reasons, recent graduates of the school districts were selected for study rather than high school students.

Differences between graduates of different size school districts were also explored. School districts were selected by the researcher for inclusion in the study based first, by the size of the graduating class, second, on the willingness of the district to allow the research to take place, and last, on their ability to furnish the names and addresses of 1992 graduates. The most recent permanent home address of

all graduates from the districts selected for inclusion in the study were obtained. A meeting with school officials outlining the purpose of the study and procedures for data collection in each of the three selected school systems was held, and written consent to conduct the study obtained (see appendix A).

Three samples of convenience were utilized, consisting of post graduates from a major metropolitan, a suburban, and a rural school district. The total number of high school students who graduated from the rural school district (n = 147) was invited to participate in the study. The total number of graduates from the suburban high school district (n = 493) was also to be invited to participate in the study. From the metropolitan district, graduates equal to the number included in the suburban school district sample, selected randomly, were asked to participate in the study (n = 493). Addresses of several of the graduates were incomplete making their inclusion in the sample impossible. After exclusion of those individuals, the population for the study consisted of 1115 graduates, and was comprised of 146 graduates from the rural school district, 485 from the suburban school district, and 484 from the metropolitan school district. The three samples consisted of those who responded to the survey, with the total sample (N = 168) including 23 graduates from the rural district, 82 graduates from the suburban district, and 63 graduates from the metropolitan district. Demographic characteristics of graduates who participated in the study are found in Table 1.

Table 1.

Demographic Characteristics of Participants

Participant Variables	Number of Participants (%)[a]	
Total number of participants	168	(100.0)
Age		
Below 18 years	0	(0.0)
18-19 years	134	(79.8)
20-21 years	33	(19.6)
Over 21 years	1	(0.6)
Gender		
Female	110	(65.5)
Male	58	(34.5)
Ethnicity		
African American	31	(18.5)
Asian or Oriental	3	(1.8)
Caucasian	109	(64.9)
Hispanic	18	(10.7)
Native American	5	(3.0)
All other ethnic groups	2	(1.2)
Employment		
Employed full-time	43	(25.6)
Employed part-time	69	(41.1)
Presently unemployed	52	(31.0)
Never employed	4	(2.4)
Education		
Full-time student	99	(58.9)
Part-time	28	(16.7)
Not attending school	41	(24.4)

[a] Percentages do not always total 100% due to rounding.

Protection of Human Subjects

The study met all regulations set forth by the Human Subjects Review Committee of Texas Woman's University. Review was completed by the committee and permission to conduct the survey granted (See appendix B). Additionally, during the development of the survey instrument, permission was granted by the University of North Texas (UNT) Human Subjects Review for the use of UNT undergraduates in the instrument's reliability testing (See appendix C).

Completion and return of the survey instrument indicated participant consent for inclusion in the study. Anonymity was assured for every individual who participated in the study. No names or identifying code numbers were used in the reporting of data. Results of the survey were reported only in the form of group data using demographic information.

Participants were advised in writing (see appendix D) of the purpose of the study. Participants were also informed that participation in the survey was voluntary, and that without penalty they could opt to withdraw from the study at any time.

Procedures

Coded Life Skills Effectiveness Survey questionnaires (see appendix E) with pre-paid return envelopes were mailed to the 1115 graduates selected from the three previously described north Texas school districts. An introductory cover letter defining the purpose of the study and participant expectations was also included in the mailing.

A second mailing to those participants who did not respond to the initial mailing followed two weeks after the first round mail out. Participants who received the second mailing were instructed to complete and return the questionnaire within two weeks of its receipt. Data analysis was begun three weeks after the second mailing in order to allow additional time for late survey returns. Only those questionnaires received prior to the commencement of data analysis were included in the study.

Instrumentation

The Life Skills Effectiveness Survey was the only instrument utilized in this study. This survey instrument was initially developed by the researcher at the request of a school system in the North Texas area to determine if their health education curriculum was meeting the state's "Essential Elements" criteria. Three subscales, based on the Texas Essential Elements' health requirements, addressed health knowledge, self-reported health behaviors, and perceived health needs. The eleven content areas from the Essential Elements assessed by the instrument were: first aid and emergency care, consumer health, personal health, environmental health, human disease (chronic and communicable), sexually transmitted disease, aging, mental health, substance abuse, human body function, and growth and development.

The health knowledge sub-scale was composed of 14 multiple choice items, each with four distractors. Eleven multiple choice items made up the health behavior sub-scale, with four or five behaviors ranked from least to most desirable on each

item. Five items assessed demographic information. The perceived health needs Likert-type subscale was composed of forty items.

Item construction resulted from the cooperative effort of a panel of health educators. The experts included: (a) a university professor, whose area of expertise was school health; (b) a master's prepared biology teacher; (c) two health educators, one from a metropolitan area who worked in the area of adult education, and the other an instructor in health science education; (d) one registered nurse; and (e) an exercise physiologist.

For the knowledge subscale, each consultant prepared questions in their area of expertise and submitted them to the panel for discussion. Items covered all of the eleven content areas from the Texas Essential Elements. The decision to include submitted items was made by consensus of the panel. In its early draft form, the knowledge subscale included items which tested both lower and higher level learning. In its final format, an attempt was made to use only items which required the participants to utilize higher level learning concepts by applying health knowledge to specific situations. Fourteen items were selected for inclusion.

The 11 items included in the behavior subscale addressed risk behavior. Participants were asked to self-report their behaviors in several topic areas. The topics included: cigarette smoking, alcohol and substance abuse, seatbelt safety, diet, weight, and sexual behavior.

Originally, the perceived health need sub-scale was developed by the panel, but was modified in order to provide topics and concerns identified by adolescents themselves. Information obtained from an elicitation questionnaire, administered to a group of undergraduate college students in an introductory personal health class, resulted in the final modification of the perceived need subscale. Students were provided with the eleven topic areas covered in the Texas Essential Elements, and were asked to list the five most and the five least important health needs or concerns they had in these areas. If they did not have personal concerns or experience in the area, they were asked to provide five topics they felt were important to receive coverage in high school health education and five they felt could be eliminated. The responses for both most important and least important concerns were analyzed in terms of frequency of occurrence for each of the eleven content areas. In eight of the eleven areas, the four responses occurring most frequently for most important health concern were included in the perceived need subscale. In the remaining three categories, responses were so varied, that only three concerns in each area were clearly identifiable. The final result of the elicitation questionnaire was a 40 item Likert type scale developed from student response, but still based on the Essential Elements.

Content validity was tested using a panel of expert consultants from the health education field. These consultants included two registered nurses, one statistician, three university professors, the director of research for a north Texas suburban school

district, and a master's prepared health educator. Each consultant was provided with a copy of the instrument and its cover letter (see appendixes D and E). They were asked to review the instrument and letter and to submit their suggestions for change in writing. Recommendations from the panel resulted in modification of the wording of several items, but no major changes in content were recommended.

Readability and clarity were accomplished in two ways. First, a computerized assessment using the Flesch-Kincaid program (Wampler & RSI Software Engineering, 1989) resulted in determination of a sixth grade reading level for the instrument. Additionally, instrument field testing was done using a group of three north Texas high school students, who after instrument administration were asked to provide recommendations regarding instrument item clarity.

For the purposes of testing reliability of the instrument's content, a test-retest pilot study was conducted using 60 self-selected undergraduate college students from a north Texas coeducational university. Students involved in the pilot testing were sophomore level or above in order to control for the possibility of including students in both the instrument pilot testing and the final research project. The students were provided with written instructions for completion of the Life Skills Effectiveness Survey (see appendix F), and were instructed to return it no later than ten days after its receipt. Fourteen days following initial administration, the Life Skills Effectiveness Survey instrument was redistributed to the 30 students who had completed and returned the initial questionnaire. A Pearson Product Moment

correlation was computed for the overall instrument and for the health behavior and the perceived health needs subscales. A correlation of 0.70, considered to be moderately high by Porter and Hamm (1986), was sought by the researcher for the test. A strongly positive correlation of 0.82 was found between test and retest scores on the health behavior subscale. Between the perceived health needs subscale pretest and posttest scores a positive correlation was also found ($r = 0.74$). The overall instrument test-retest correlation was found to be 0.75. For the health knowledge subscale, a t-test was used to determine if a difference existed between the pretest and posttest means. No significant difference at the level of 0.05 existed between the pretest and posttest scores ($t = 1.41$, $p = 0.169$, $n=30$). A correlation of pre and posttest knowledge scores was not appropriate due to the limited variance in individual pretest scores.

Post hoc Cronbach's alpha was run to check the internal consistency of the perceived needs subscale. An alpha of 0.95 resulted.

Treatment of the Data

Descriptive statistics (frequencies and percentages with cross tabulations) were used to profile demographic data and to report the results of research questions one through three. Frequencies and percentages were also used to report the results of research question four, after the content of the individual responses was reviewed and categorized.

Scoring for the Life Skills Effectiveness Survey varied for each sub-scale. Correct responses from the health knowledge sub-scale were summed, with the range of scores possible being zero to fourteen. Each item in the health behavior sub-scale represented ranked behaviors. The less desirable behavior received a score of zero, with most desirable behaviors having a score of one. Behavior item scores were summed with possible scores ranging from zero to eleven. Item scores were summed for each of the eleven subsections in the perceived health needs sub-scale.

A Pearson Product Moment correlational procedure was used to determine if a relationship existed between the knowledge and behavior of 1992 north Texas high school graduates (hypothesis 16). Two-way ANOVAs were used to test hypotheses numbers one through 15.

Summary

The health knowledge, health behavioral practices, and perceived health needs of adolescents, who graduated from the selected rural, suburban, and metropolitan school districts in North Texas were surveyed. The Life Skills Effectiveness Survey was completed by 168 subjects. The data collected were analyzed utilizing both descriptive and inferential statistics.

CHAPTER 4

FINDINGS

This descriptive study was conducted using 1992 graduates of three north Texas school districts to assess the health knowledge, behaviors, and perceived needs of adolescents in north Texas. Relationships between their health knowledge and health behaviors were explored. Differences in health knowledge, behavior, and perceived needs between school district size attended, gender, and ethnicity were also examined. Finally, the study determined if the perceived health needs of the high school graduates were consistent with the Texas Essential Elements' requirements for health. Analysis of the data was accomplished using SPSS-X (1988) statistical computer package. Missing data were handled using the SPSS-X statistical computer package, and were included in all analyses, but were excluded from table representations of the data.

Descriptive Characteristics of the Sample

The sample for this study ($\underline{N}$ = 168) consisted of 1992 post graduates from a major metropolitan, a suburban, and a rural school district who completed and returned the Life Skills Effectiveness Survey instrument by the time specified. Responses of those individuals who returned questionnaires after the specified return date were excluded from data analyses. Included in the sample were 23 graduates

Table 2

Ethnic Composition by School District Size

	Number of Participants (%)			
Ethnicity	Rural	Suburban	Metropolitan	Total[a]
Caucasian	22 (95.7)	67 (81.7)	20 (31.7)	109 (31.7)
African American	0	6 (7.3)	25 (39.7)	31 (18.5)
Hispanic	0	5 (6.1)	13 (20.6)	18 (10.7)
All Others	1 (4.3)	4 (4.8)	5 (8.0)	10 (16.7)

[a] N = 168.

Table 3

Participant Age by School District Size

	Age by District			
Age	Rural	Suburban	Metropolitan	Total[a]
Below 18 years of age	0	0	0	0
18-19 years of age	20	67	47	134
20-21 years of age	3	14	16	33
Over 21 years of age	0	1	0	1

[a] N = 168.

part-time, the metropolitan school districts had the largest percentage of respondents (41.3) who were not attending school at all.

Determination of employment status was made with regard to part-time or full-time employment status. Type of occupation or profession was not explored. Fifty-six of the survey respondents (33.4%) were unemployed, while 26% of the remaining 72 respondents were employed full-time. By school district size, unemployment was highest in the metropolitan district (41.3%), while the rural district reported the lowest unemployment (17.3%). Full-time employment was highest in the rural district and lowest in the suburban district.

Table 4

Educational Status by School District Size

	Number by District (%)			
Educational enrollment	Rural	Suburban	Metropolitan	Total[ab]
Full-time student	15 (65.2)	59 (72.0)	25 (39.7)	99 (58.9)
Part-time student	5 (21.7)	11 (13.4)	12 (19.0)	28 (16.7)
Not attending school	3 (13.0)	12 (14.6)	26 (41.3)	41 (24.4)
Total	23 (99.9)	82 (100.0)	63 (99.0)	168 (100.0)

[a] N = 168.

[b] Rounding of percentages prevented school district totals from equalling 100%.

Research Question Results

Data generated from the Life Skills Effectiveness Survey were used to answer the following research questions:

1. What is the health knowledge of 1992 north Texas high school graduates;
2. What are the health behaviors of 1992 north Texas high school graduates;
3. What are the perceived health needs of 1992 north Texas high school graduates; and
4. Are the perceived health needs of 1992 north Texas high school graduates consistent with the Texas Essential Elements?

Research Question One

Frequencies, percentages, and mean scores were used to determine the health knowledge level of study participants. Scores on the 14 item knowledge subscale ranged from 3-14 correct responses. The mean score for the knowledge subscale was 12 correct responses. Although the range of correct response scores was slightly different for each school district the mean score differed by less than one (rural = 11.8; suburban = 12.2; metropolitan = 11.3). Of the total number of survey respondents (64.2%) answered with better than 85% accuracy.

The eleven content areas from the Texas Essential Elements were covered by the knowledge subscale. Seven of the 14 items on the knowledge subscale were answered with 90% accuracy or better. Respondents scored with 60% accuracy or less on three items. When given a situation asking them to identify the appropriate

procedures for a choking emergency, only 46.4% were able to do so. Only 39.9% were able to correctly identify the best way to reduce their risk for sexually transmitted disease. When asked to identify characteristics of elderly adults, 38.6% of respondents viewed the elderly as either sick or disabled, physically inactive, or set in their ways.

Research Question Two

Frequencies, percentages, and cross tabulations were used to determine the health behavioral practices of the study participants, specifically the health risk behaviors of participants. Behavioral practices relating to tobacco use, drug and alcohol use, drinking and driving, seatbelt use, dietary practices, body weight, and sexual activity were explored. The 11 items on the behavior subscale were coded either most desirable or less desirable. Of the total number of study participants, only two (3.2%) reported that they did not engage in any of the forms of risk behavior identified on the survey, while 52.4% reported that they either were or had been in the past involved in six or more of the identified risk behaviors.

Cigarette smoking. Eighty percent of the respondents surveyed reported that they had never smoked cigarettes. Smoking a pack or more per day was reported by three female and three male survey respondents. Although the number of men who reported smoking this amount was equal to that of women, this number represented a larger percentage of male respondents (5.1%) than female respondents (2.7%).

Smoking behaviors of respondent by school district size is indicated in Table 5. The rural school district reported the highest percentage of individuals (21.6%) who either currently smoked cigarettes or who had smoked in the past.

Table 5

Reported Cigarette Smoking by School District Size

	Number by District (%)			
Use of Cigarettes	Rural	Suburban	Metropolitan	Total[a]
≥ Pack per day	1 (4.3)	2 (2.4)	4 (6.3)	7 (3.6)
≤ Pack per month	1 (4.3)	5 (6.1)	6 (9.5)	12 (7.1)
Ex-smoker	3 (13.0)	7 (8.5)	3 (4.8)	13 (7.7)
Never smoked	17 (73.9)	68 (82.9)	50 (79.4)	135 (80.4)
Total	22 (95.5)	82 (99.9)	63 (100.0)	167 (97.8)

[a] Totals and percentages do not equal 100% due to the exclusion of missing data values from the table.

Smoking prevalence by ethnic group is indicated in Table 6. Sixty-four percent of those who reported that they smoked were Caucasian. Overall, a larger percentage of Caucasians reported they currently smoked (11.8%) than any other ethnic group, but smoking a pack or more per day was reported most frequently in the Hispanic group

(5.5%). Smoking was least prevalent in the African American group, with 90.3% reporting never having smoked, and 3.2% reporting being ex-smokers.

Table 6

Reported Cigarette Smoking by Ethnic Group

	Number by Ethnic Group (%)				
Use of Cigarettes	Caucasian	African American	Hispanic	All Others	Total[a]
≥ Pack per day	4 (3.6)	1 (3.2)	1 (5.5)	0 (0.0)	6 (3.6)
≤ Pack per month	9 (8.2)	1 (3.2)	1 (5.5)	1 (10.0)	12 (7.1)
Ex-smoker	11 (10.0)	1 (3.2)	1 (5.5)	0 (0.0)	13 (7.7)
Never smoked	84 (77.0)	28 (90.3)	15 (83.3)	8 (80.0)	135 (80.4)
Total	108 (98.8)	31 (99.9)	18 (99.8)	9 (90.0)	166 (98.8)

[a] Totals and percentages do not equal 100% due to exclusion of missing data values from the table.

Alcohol use. While only one survey respondent was 21 years of age or older, 75 of the total number of respondents (44.6%) reported that they consumed alcohol to some degree. More men (55.1%) than women (38.1%) reported some degree of alcohol consumption.

Alcohol consumption by ethnic group is indicated in Table 7. Alcohol consumption of any kind, as well as the highest reported intake of alcohol, occurred among Caucasians. Alcohol consumption was reported by 47.6% of this group. The consumption of two or more alcoholic drinks per week was reported by 20.1% of Caucasian respondents. The lowest occurrence of alcohol consumption occurred within the African American group, with 64.5% of this group reporting never having used alcohol. The least amount of alcohol consumed was also reported in African Americans. Of the 35.4% in this group who reported that they did consume alcohol, 3.2% reported drinking two or more drinks per week, and 32.2% drank two or fewer drinks per month.

Table 7

Alcohol Consumption by Ethnic Groups

	Alcoholic Drinks Consumed				
Ethnicity	≥2 daily	≥2 weekly	≥2 monthly	No alcohol	Total
Caucasian	0	22 (20.1)	30 (27.5)	56 (51.3)	108 (98.9)
African American	0	1 (3.2)	10 (32.2)	20 (64.5)	31 (99.9)
Hispanic	0	1 (5.5)	6 (33.3)	11 (61.1)	18 (99.9)
All Others	0	2 (20.0)	2 (20.0)	6 (60.0)	10 (100.0)
Total	0	26 (15.5)	48 (28.6)	93 (55.4)	167 (99.5)

Note. Rounding of totals prevented percentages from equalling 100%.

As was true with smoking behavior, alcohol consumption was highest in the rural school district. Fifteen (65.2%) respondents in the rural school district reported some degree of alcohol consumption, as compared with 36 (43.9%) in suburban and 23 (36.5%) in the metropolitan groups.

Recreational drug use. Eighty-two percent of all respondents (138) reported never having used drugs for recreational purposes. The types of drugs used were not investigated. Of the 30 respondents (17.3%) who reported they had used drugs, 20 (66.7%) reported that they no longer used drugs for recreational purposes. A slightly larger percentage of the male participants in the study (5.2%) reported current recreational drug use than female participants (4.5%) in the study. More participants from the rural district reported having ever used recreational drugs (21%), than from the suburban district (15.8%) or from the metropolitan district (17.4%). The rural school district also reported the highest current drug use (8.6%) as compared with the reported 4.8% and 3.1% in the suburban and metropolitan groups respectively. Among ethnic groups, the percentage of respondents who reported never having used drugs for recreational purposes ranged from 80.7% in the Caucasian group to 88.8% in the Hispanic group. Reported recreational drug use of any frequency was higher among Caucasian respondents than among any other ethnic group. Reported current drug use was highest among Caucasians (5.5%) and Hispanics (5.5%).

Alcohol and driving. Respondents were asked to indicate if they had ever driven while under the influence of alcohol or been in a car with someone who was

under the influence of alcohol. Fifty (29.8%) of the 168 respondents indicated that they had not driven while drinking alcohol or been in the car with someone who had been drinking. Of the 118 who reported participation in this behavior, 39 (33%) indicated the behavior had occurred many times.

The occurrence of drinking and driving behaviors was reported more often among graduates of the rural school district than among graduates of either the suburban or metropolitan school districts. Reporting that they had engaged in the drinking and driving behavior many times in the past occurred more than twice as often among graduates of the rural school district (47.8%) than it did among graduates of the suburban school district (20.7%) and nearly three times as often as graduates of the metropolitan school district (17.4%).

Nearly an equal percentage of men (29.3%) and women (30.0%) reported that they had never participated in drinking and driving behaviors. However, when these behaviors were reported, a larger percentage of male respondents (44.0%) reported participating many times in drinking and driving behaviors than did female respondents (27.2%). Drinking and driving behaviors by ethnic group are indicated in Table 8. The occurrence of drinking and driving behaviors was reported more often among the Hispanic (83.3%) and the Caucasian (71.4%) groups than for the other two groups. Even though a larger percentage of the Hispanic group reported the occurrence of drinking and driving behaviors, the behavior was reported to have occurred with greater frequency in the Caucasian group. Within the Caucasian group,

25.6% reported that they had driven while drinking or been with someone who had "many times," as compared with 11.1% of Hispanics.

Table 8

Frequency of Drinking and Driving Behaviors by Ethnic Group

	Number by Ethnic Group (%)				
Drinking and Driving Behaviors	Caucasian	African American	Hispanic	All Others	Total[ab]
Many times in the past	28 (25.6)	6 (19.3)	2 (11.1)	3 (30.0)	39 (23.2)
Only once or twice in the past	50 (45.8)	12 (38.7)	13 (72.2)	4 (40.0)	79 (47.0)
Never	31 (28.4)	13 (41.9)	3 (16.6)	3 (30.0)	50 (29.8)
Total	109 (99.8)	31 (99.9)	18 (99.9)	10(100.0)	168(100.0)

[a] Rounding of percentages prevented totals from equalling 100%.

[b] N = 168.

Seatbelt use. When asked how often seatbelts were worn, 121 (72.0%) of all study participants indicated that they wore a belt whenever they were in an automobile, while only 8 (4.8%) indicated that they never wore a belt. However, when seatbelt use was explored based upon school districts from which subjects had graduated, only eight (34.8%) participants from the rural school district reported that

they wore seatbelts whenever they were in an automobile. Thirteen percent indicated that they never wore a seatbelt. By comparison, 79.3% of respondents from the suburban school district reported wearing seatbelt all of the time, while 2.4% indicated that they never used seatbelts. Reported seatbelt use among respondents from the metropolitan district more closely resembled that of the suburban school district than the rural school district with 4.8% of respondents reporting no seatbelt use and 76.2% of respondents reporting seatbelts used whenever they were in an automobile.

Seatbelt use was reported with greater frequency among women than men. Only 2.7% of all female respondents reported never wearing a seatbelt, while 8.6% of males reported no seatbelt use. Likewise, 76.3% of females responding to the survey reported that they always wore seatbelts, while only 63.7% of males reported the same behavior.

Reported seatbelt wear within ethnic groups closely approximated that of the sample as a whole, with two exceptions. Within the all other ethnic origins groups, only 50% of participants reported wearing a seatbelt all of the time, while 20% reported never wearing seatbelts. The percentage of Caucasians, who reported never wearing seatbelts, was 2% less than for the sample as a whole.

Dietary practices. Dietary practices by school district size and ethnic group are indicated in Table 9 and 10 respectively. Participants in the study were asked to indicate their dietary composition. One hundred and seventeen of the 167 study

participants (69.6%) indicated that their diet consisted mostly of all food groups, which was the most desirable item response. Other responses were coded as less desirable and included meat and potatoes, snacks and junk food, or many fruits and vegetables.

Table 9

Dietary Practices by School District Size

	Number by District Size (%)[a]			
	Rural	Suburban	Metropolitan	Total
All Food Groups	15 (65.2)	59 (71.9)	42 (66.7)	116 (69.0)
Meat and Potatoes	1 (4.3)	3 (3.6)	3 (4.8)	7 (4.2)
Snacks and Junk Foods	4 (17.4)	7 (8.5)	10 (15.9)	21 (12.5)
Fruits and Vegetables	3 (13.0)	12 (14.6)	8 (12.7)	23 (13.7)
Total	23 (99.9)	81 (98.6)	63 (100.0)	167 (99.4)

[a] Totals and percentages may not equal 100% due to round and to the exclusion of missing data.

Table 10

Dietary Practices by Ethnic Groups

	Number by Ethnic Group (%)[a]									
	Caucasian		African American		Hispanic		All Others		Total	
All Food Groups	76	(69.7)	19	(61.3)	14	(77.7)	7	(70.0)	116	(69.0)
Meat and Potatoes	5	(4.6)	1	(3.2)	1	(5.6)	0		7	(4.2)
Snacks and Junk Foods	14	(11.9)	4	(12.9)	2	(11.1)	1	(10.0)	21	(12.5)
Fruits and Vegetables	13	(11.9)	7	(22.6)	1	(5.6)	2	(20.0)	23	(13.7)
Total	108	(98.1)	31	(100.0)	18	(100.0)	10	(100.0)	167	(99.4)

[a] Totals and percentages do not always equal 100% due to exclusion of missing data.

Physical Activity. Survey respondents were asked to assess how often they participated in vigorous physical activity. The most desirable response for this category was participation in physical activity three or more times weekly, and the least desirable was no participation in physical activity. Of the 168 survey respondents, 13 (7.7%) indicated that they never participated in vigorous physical activity, while by contrast 66 (39.3%) indicated they participated three or more times

weekly. Participation in vigorous activity once or twice weekly was reported by 30.4% of respondents, with participation less than once weekly reported by 22.0% of respondents. Inactivity was reported with greatest frequency in the metropolitan school district (15.9%), and vigorous activity three or more times weekly was reported least often in this district. The suburban district reported the least amount of inactivity (2.4%), while the rural and suburban districts were nearly equal in reports of vigorous activity three or more times weekly (47.8% and 47.6% respectively). While the males reported a higher percentage of inactivity (8.6%) than that of the females (7.3%), when they did engage in physical activity the frequency with which they participated was greater. Thirty-four of the 58 males responding to the survey (58.6%) reported that they participated in physical activity three or more times weekly, while only 32 of the 110 female respondents (29.0%) reported the same level of activity. Within ethnic groups, Hispanics reported the highest level of inactivity. Only 16.7% reported participation in vigorous physical activity three or more times weekly, while 50.1% reported either no participation in physical activity or participation less often than once weekly. Caucasians and the all other ethnic group reported higher levels of physical activity within their groups than did the other two ethnic groupings. Forty percent of the all other ethnic origins group and 45.9% of the Caucasian group reported participation in vigorous physical activity at least three or more times weekly.

Body Weight Proportion to Height. Participants in the survey were asked to assess whether their body weight was just right for their height, too light for their height, or too heavy for their height. They were allowed to record a response of unknown if they were unsure what their body weight should be in relation to their height.

Overall, 79 of the 168 respondents felt their weight was right for their height. A higher number of men than women reported this result. Of the 58 males in the survey, 51.7% reported that their weight was right for their height. Slightly fewer women (44.5%) felt their weight was right for their height.

Twenty-six percent of all respondents felt they were too heavy for their weight, while 9.5% felt they were too light. Of all women responding to the survey, 33.6% felt that they were too heavy for their height, while only 12.1% of men indicated feeling the same way.

Twenty-eight of the 168 survey respondents (16.7%) indicated they did not know what their body weight should be. A larger percentage of men than women were uncertain of what their weight should be, 20.7% as compared with 14.5% respectively.

Table 11 reports the participants' weight in relation to height by ethnic groups. Findings were consistent between ethnic groups with regard to reporting weight as right for height, with the exception of the "all others" group. More African

Table 11

Weight in Relation to Height by Ethnic Group

Weight in Relation to Height	Number by Ethnic Groups (%)[a]				
	Caucasian	African American	Hispanic	All Others	Total
Weight right for height	51 (46.8)	14 (45.2)	8 (44.4)	6 (60.0)	79 (47.0)
Weight too light for height	12 (11.0)	2 (6.4)	2 (11.1)	0 (0.0)	16 (9.5)
Weight too heavy for height	27 (24.8)	10 (32.2)	6 (33.3)	1 (10.0)	44 (26.2)
Do not know what weight should be	18 (16.5)	5 (16.1)	2 (11.1)	3 (30.0)	28 (16.7)
Total	108 (99.1)	31 (99.9)	18 (99.9)	10 (100.0)	167 (99.4)

[a] Totals and percentages do not always equal 100% due to rounding of percentages and exclusion of missing data.

Americans and Hispanics reported their weight as too heavy for their height than did the other two groups.

Sexual Activity. Risk behavior relative to sexual activity was explored in this item. Participants were asked to indicate if they had multiple sexual partners, only one sexual partner, no partner currently, or never been sexually active. Because

sexual activity places individuals at risk for sexually transmitted disease, the decision was made to code abstinence from sexual behavior as the most desirable behavior. Of the 168 respondents to the survey, 75.0% reported that they were now or had been sexually active in the past. Of the 75.0% who indicated sexual activity, 4.6% indicated that they had multiple sexual partners and 63.2% indicated a monogamous relationship. The remainder indicated that they had no current sexual partner. Two female respondents did not report their sexual behaviors. About the same percentage of men and women reported that they had never had a sexual partner (22.4% and 24.5% respectively). Reports of multiple sexual partners also resulted in similar findings (4.4% and 4.8% respectively) among men and women.

The highest percentage of sexual activity with multiple partners came from the rural school district (10.5%), as compared with 6.5% for the metropolitan school district and 1.6% for the suburban school district. The lowest percentage of abstinence was also reported by respondents from the rural school district. Only 13.0% of all respondents from this district, as compared with 25.3% in the metropolitan and 25.6% from the suburban school districts, reported that they had never had a sexual partner.

Reported sexual activity by ethnic groups is indicated in Table 12. Hispanics reported a higher frequency of multiple sexual partner activity than the other three ethnic groupings. African Americans reported the lowest frequency of abstinence of all the ethnic groupings.

Table 12

Sexual Activity by Ethnic Group

Partner Relationships	Number by Ethnic Groups (%)[a]				
	Caucasian	African American	Hispanic	All Others	Total
Sex with multiple partners	4 (3.7)	1 (3.2)	1 (5.6)	0 (0.0)	6 (3.6)
Sex with only one partner	30 (27.5)	2 (6.4)	4 (22.2)	3 (30.0)	39 (23.2)
No current sex partner	49 (45.0)	21 (67.7)	6 (33.3)	5 (50.0)	81 (48.2)
Never had a sex partner	25 (22.9)	6 (19.4)	7 (38.9)	2 (20.0)	40 (23.8)
Total	108 (99.1)	30 (96.7)	18 (100.0)	10 (100.0)	166 (98.9)

[a] Totals and percentages do not always equal 100% due to rounding of percentages and exclusion of missing data.

Length of Sexual Relationship. Participants were asked to indicated how long they had been involved in a sexual relationship with the same sexual partner. Responses to this item on the behavior subscale were contradictory to both the preceding and following items. In coding these items, the researcher noted that participants sometimes indicated that they did not have a "current" sexual partner in

the preceding item, and followed by answering that they had never had intercourse in the succeeding item.

Involvement in sexual activity, either currently or in the past, was reported by 75% of respondents. Of those who reported current sexual activity, over half (53.1%) reported they had been in their present sexual relationship one year or less. Responses for male and female participants closely resembled those of the whole sample. While responses from the metropolitan and suburban school districts closely mirrored the results of the total sample, the same was not true for participants from the rural school district. Of these respondents, 60% reported sexual relationship lengths of over one year.

Relationship lengths within ethnic groups were similar to that of the total sample with the exception of the Hispanic group. For Hispanic respondents, 50% indicated that they had been involved in a sexual relationship with the same partner for less than 6 months.

Condom Use. This item asked the participant to indicate the consistency with which condoms were used during sexual intercourse. As was true for the previous two items, contradiction in responses was also noted in this item. In item coding, it was noted that respondents would sometimes answer that they had never had a sexual partner, but would indicate that condoms were used during intercourse.

Findings on previous items indicated that 75.0% of respondents indicated that they had been or were now sexually active and 53.1% indicated that they had been in

their current relationship less than one year. However, less than one-fourth of all respondents (23.8%) reported using condoms whenever intercourse took place, and 9.5% reported that they never used condoms during intercourse. Both of these findings were reported slightly more often among female respondents, with 25.4% reporting the use of condoms whenever intercourse occurred and 10.9% reporting that condoms were never used. The use of condoms whenever intercourse occurred was reported by 20.7% of male survey participants, and no condom use was reported by 6.8%.

Participants from the metropolitan school district reported the highest frequency (14.9%) of intercourse without condom use. Five percent of participants from the rural school district and 13.3% of those from the suburban school district reported that they never used condoms during intercourse. The use of condoms whenever intercourse took place was reported with nearly equal frequency among participants from the rural, suburban, and metropolitan school districts (35.0%, 38.3%, and 36.2% respectively).

Of the sexually active Hispanics who responded to the survey, 9.1% indicated that they used condoms whenever intercourse occurred. The percentage of the other ethnic groups for this category ranged from 37.5% to 41.7%. While 27.3% of Hispanics respondents indicated that they never used condoms during intercourse, the percentage range for this category between the other ethnic groups was 10.7% to 12.5%.

Research Question Three

The perceived health needs subscale consisted of a 40 item Likert-type scale which was divided into eleven subsections based on content areas from the Texas Essential Elements. These areas included: first aid and emergency care, consumer health, personal health, environmental health, human disease (chronic and communicable), sexually transmitted disease, aging, mental health, substance abuse, human body function, and growth and development. Participants were asked to rate items in terms of how important they felt coverage of the topics was in high school health class. Possible response choices included: 1 = not important, 2 = slightly important, 3 = no opinion, 4 = moderately important, 5 = very important. Frequencies, percentages, and mean scores were used to determine the perceived health needs of participants in this study. Scores for each of the eleven content areas were summed. A range and mean score were obtained for each subsection.

Subsections for the scale did not contain equal numbers of items; therefore, the results have been reported in the form of mean scores on a five point Likert scale. Figure 1 represents the subsection ranks according to mean score on the five point Likert scale. The mean Likert score for the total perceived needs subscale was 4.0. The overall range of subsection mean likert scores was 3.5 to 4.8.

First Aid and Emergency Care. This subsection dealt with items related to the importance of knowing and possessing skill in first aid and emergency procedures. The mean score on the five point Likert scale for this subsection equalled 4.5.

Consumer Health. This subsection contained items related to truth in advertising, and health product and service selection. The mean score on the five point Likert scale for this subsection was 4.1.

Personal Health. Personal health items were related to hygiene practices, choice of physical activities, and nutrition and diet choices. The mean subsection score was 4.1.

Environmental Health. The environmental health subsection yielded one of the lower subsection scores (mean = 3.6). This subsection included items related to environmental hazard, recycling, and pollution control.

Human disease. Items related to chronic and communicable disease were included in this subsection. The mean score on the Likert scale was 4.0.

Sexually transmitted disease. The sexually transmitted disease subsection yielded the highest subsection score (mean = 4.8). This section addressed knowledge of sexually transmitted diseases, as well as their transmission and prevention.

Aging. This subsection addressed the aging process, effects of diet and exercise on aging, and diseases associated with aging. The aging subsection was ranked lowest in importance of all subscales, with a mean score of 3.48 on the five point Likert scale.

Mental health. Items in this subsection addressed self-esteem, depression, stress, and communication. The mean score on the five point Likert scale was 4.32.

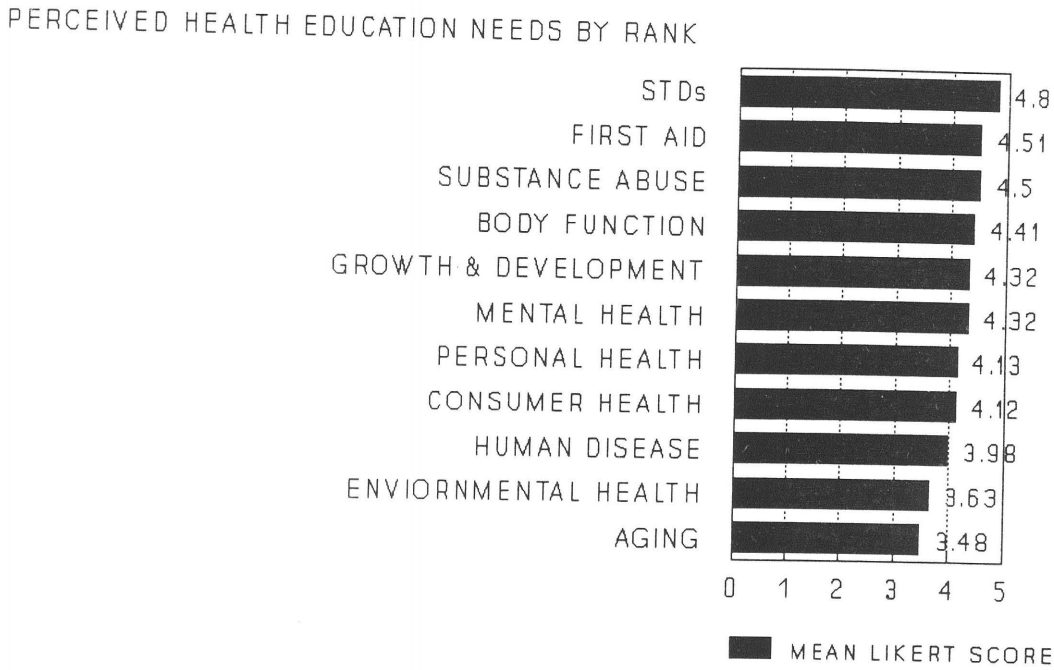

Figure 1

Mean Likert Scores of
Ranked Perceived Needs

Substance Abuse. The importance of knowing the effects of drugs, alcohol, and tobacco on the body was explored in this subsection, as well knowing where to seek help for substance abuse problems. This subscale was ranked third in importance with a mean subscale score of 4.50.

Human body function. The human body function subsection dealt with the importance of understanding basic human physiology. Items addressed heart function and the diseases affecting it, effects of exercise on the body, and the function of contraceptive methods in preventing pregnancy. The mean Likert score for this subsection was 4.41.

Growth and development. Growth and development addressed both physical and psychological growth and development This section included items regarding body changes during the life stages and the development of parenting skills. A mean Likert score of 4.32 was reported for this subsection.

Research Question Four

In order to determine if the perceived health needs of survey participants were consistent with the Texas Essential Elements, a final section was added to the Life Skills Effectiveness Survey which encouraged the participants to indicate any additional health content areas they felt should receive coverage in high school health classes. They were not limited in the number of allowable responses or suggestions. For this item, content in the responses was reviewed and categorized. Frequency counts were tabulated for reoccurring responses.

Of the 168 survey participants, 58 (34.5%) responded to this item on the questionnaire. From these 58 respondents, 151 comments or suggestions related to high school health were received. The result of responses to this item indicated that high school post graduates were interested in health and did perceive needs that were not addressed in their high school health class. Table 13 represents the frequency with which responses to particular health content areas occurred.

Comments, rather than actual topic suggestions were sometimes given, and deserved notation. For example, one comment indicated "High school health was a blow off; it should be addressed at the junior class level, rather than freshman, so

Table 13

Frequency of Perceived Needs by Content Areas

Area of Perceived Need	Frequency of Reporting
Sexually Transmitted Disease	28
Sex Education	34
Pregnancy	10
Substance Abuse	21
Mental Health	15
Consumer Health	9
Relationships	6
Preparation for Adult Life	5
Race Relations and Violence	5
Child Care and Child Rearing	4
Time Management	4
Nutrition and Food Preparation	4
Death Education	2
Women's Health	2
Environmental health	1
Basic hygiene	1
Total	151

serious issues can be addressed in more depth...with more mature students." Other comments indicated that health should focus on "prevention," and should be more specific and in-depth, rather than" a few films of a pregnant woman or an old person

running and a lot of reading that never gets put into practice." Some comments represented a more conservative philosophy and indicated that health was "about staying well through diet and exercise," but was not about "how to put on a condom."

Although the intent of this survey item was to elicit topics not already addressed in high school health classes, many of the responses could be categorized into one of the eleven content areas from the Texas Essential Elements. The content areas from the Essential Elements, which repeatedly surfaced in this item, dealt with sex education and sexually transmitted disease, pregnancy, substance abuse, mental health, and consumer health.

Sexually Transmitted Disease.

The issue of sex education and sexually transmitted disease is covered by both science and health in the Texas essential elements. While four of the 26 suggestions received relating to sexually transmitted disease dealt with the prevention of sexually transmitted disease in general, HIV/AIDS was the most reoccurring theme among responses to this item. Twenty-two of the 58 respondents indicated that HIV/AIDS should be covered in high school health. Additionally, respondents indicated that the topic should be covered in more depth and with attention to all modes of transmission and prevention.

Sex Education. Suggestions from respondents in this category related largely to human sexuality, sexual orientation, and contraception. Respondents indicated the need for more in-depth coverage of contraceptive methods. Not all study participants

indicated that contraception should be emphasized. The issue of abstinence education was addressed by five respondents.

Coverage of issues related to homosexuality, homophobia, and other alternative lifestyles was mentioned with equal frequency by those who opposed it and those who desired it. The need for coverage of issues related to abortion was also equally divided. Participants indicated a need for developing decision making skills related to becoming sexually active, and asked for coverage of topics related to "inappropriate and appropriate touching."

The latter request could also be related to the topic of sexual abuse. Coverage of sexual abuse, particularly date rape, and child abuse and molestation were suggested.

Pregnancy. Pregnancy is addressed in the content areas of growth and development and in body function in the Texas Essential Elements. It receives coverage in both health education and in life science. Respondents suggested that instruction be given with regard to the consequences of teen pregnancy or unwanted pregnancy, particularly the financial and emotional consequences.

Mental Health. Fifteen responses in the area of mental health issues were recorded. Specific needs related to self-esteem development, self respect, and self-discipline. Needs for peer counseling skills and strategies for dealing with peer pressure were indicated. Coverage of depression, suicide prevention, crisis management, stress management were also mentioned.

Substance Abuse. Suggestions related to substance abuse overwhelmingly were in the favor of teaching refusal skills and abstention from drugs, alcohol, and tobacco. The suggestion to cover "what to do to prevent intoxication" occurred only once.

Consumer Health. In the area of consumer health, coverage of topics related to knowledge of all types of insurance, community health resources, and physician patient communication were reported most often. Also recommended for coverage in health classes was skill development in self examination, critical thinking, and identifying health fraud.

Suggestions for coverage of content areas not directly addressed by the Texas Essential Elements were also recorded. Those suggestions have been categorized into the following areas: child care and child rearing, relationships, preparation for adult life, time management, race relations and violence, nutrition and food preparation, death education, women's health, and basic hygiene. A discussion of those which occurred most frequently follows.

Child Care and Child Rearing. Related to the topic of pregnancy was that of child care and child rearing. Respondents addressed the need for parenting education, instruction related to childhood disease prevention, and for the provision of child care so that teens with children could continue their education.

Relationships. Several respondents expressed the need for knowledge and skill development in dealing with parent child relationships, relationships with the opposite

sex, and relationships with the elderly. One respondent wanted the issue of "hormones on interactions with others" addressed.

Preparation for Adult Life. This category addressed those recommended topics that might better prepare the respondent for adult life. Respondents recorded the need for skill development in setting and achieving goals, for information in securing financial aid for college, for knowledge of financial planning and advisement in preparing for a future career. One participant recommended the use of speakers in health classes, who had overcome problems and obstacles in their own lives to serve as motivation for high school students.

Time Management. In addition to the development of general time management skills, improvement of study skills and test taking ability were also needs recorded in the area of time management. One respondent recommended that mentorships be established for "slow learners."

Nutrition and Food Preparation. The effect of diet on the body, and the need for "proper diet" was recorded. Also recorded was the need for instruction in food preparation in order to prevent food poisoning. This suggestion may have surfaced in view of the recent national news coverage of deaths of children related to food poisoning from e coli contamination.

Race Relations and Violence. These issues were addressed by several respondents. The need to address prejudice, racial problems, gang violence, and street violence in general were recorded.

Testing of Hypotheses

Data generated from the Life Skills Effectiveness Survey were used in the testing of all hypotheses. Two way analyses of variance (ANOVA) were used to determine the main effects of school district size on knowledge, behavior, and perceived needs (hypotheses one through three) and on the main effects of ethnicity (hypotheses four through six) and gender (hypotheses seven through nine) on knowledge, behavior, and perceived needs. Interaction effects between school district size and ethnicity on health knowledge, behavior and perceived needs (hypothesis 10 through 12) and between school district size and gender on health knowledge, behavior, and perceived needs (hypotheses 13 through 15) were also determined by two way ANOVA. The significance level of $p \leq 0.05$ was held for all hypotheses testing and post hoc comparisons.

Hypotheses One:

There is no significant difference in the health knowledge level of 1992 high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas. The study used a 3 X 2 factorial design with school district size as one variable and gender as the other. The results of the analysis of variance indicated that there was a significant difference in knowledge level scores between school district sizes ($F = 4.433$, $df = 2/162$, $p = .013$). A comparison of group means using the Tukey-HSD post hoc comparison revealed that a significant difference existed between

the knowledge levels of graduates from the metropolitan (mean knowledge score = 11.40) and suburban school districts (mean score = 12.23).

Hypothesis Two:

There is no significant difference in the health behaviors of 1992 high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas. A 3 X 2 factorial design with school district size as one independent variable and gender as the other was used to determine if a significant difference existed in the health behaviors of graduates by school district size. A significant difference was found in health behaviors between school district size ($F = 3.988$, $df = 2/162$, $p = 0.020$). In order to determine the difference in health behaviors between the three school district sizes, the Tukey-HSD post hoc comparison procedure was used. An examination of groups means revealed a significant difference in the health behaviors of graduates from the rural (mean = 4.56) and the suburban (mean = 5.99) school districts.

Hypothesis Three:

There is no significant difference in the perceived health needs of 1992 high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas. No significant difference was found in the perceived health needs of graduates by school district size ($F = 2.576$, $df = 2/162$, $p = .079$) using the previously described 3 X 2 factorial design.

Hypothesis Four:

There is no significant difference in the health knowledge level of 1992 north Texas high school post graduates by ethnicity. A 3 X 4 factorial design using the two independent variables of school district size and ethnicity was employed to determine if significant differences existed in the health knowledge level of the graduates by different ethnic group. A significant difference was found between ethnic groups in health knowledge ($F = 8.777$, $df = 3/158$, $p = 0.000$). Significant differences in the mean health knowledge scores resulted between the African American (10.61) and Caucasian scores (12.35) and between the Caucasian and all other ethnic group (11.00) scores using the Tukey-HSD post hoc comparison procedure.

Hypothesis Five:

There is no significant difference in the health behaviors of 1992 north Texas high school post graduates by ethnicity. No significant difference in the health behaviors of 1992 high school graduates by ethnic group was found using a 3 X 4 factorial design, where school district size and ethnicity comprised the independent variables ($F = 0.217$, $df = 3/158$, $p = 0.885$).

Hypothesis Six:

There is no significant difference in the perceived health needs of 1992 north Texas high school post graduates by ethnicity. No significant difference in the perceived health needs of 1992 north Texas high school graduates by ethnic group

was found using a 3 X 4 ANOVA with school district size and ethnicity as the independent variables ($F = 0.984$, $df = 3/158$, $p = 0.402$).

Hypothesis Seven:

There is no significant difference in the health knowledge level of 1992 north Texas high school post graduates by gender. When a 3 X 2 ANOVA using school district size and gender as the independent variables was employed, no significant difference was found in the health knowledge levels of 1992 north Texas high school graduates by gender classification ($F = 476$, $df = 1/162$, $p = 0.491$).

Hypothesis Eight:

There is no significant difference in the health behaviors of 1992 north Texas high school post graduates by gender. No significant difference in the health behaviors of 1992 north Texas high school graduates was found using a 3 X 2 factorial design, where school district size and gender comprised the independent variables ($F = 0.429$, $df = 1/162$, $p = 0.514$).

Hypothesis Nine:

There is no significant difference in the perceived health needs of 1992 north Texas high school post graduates by gender. When a 3 X 2 ANOVA was employed using school district size and gender as the independent variables, a significant difference in the perceived health needs of the 1992 graduates by gender classification resulted ($F = 4.266$, $df = 1/162$, $p = 0.040$). The mean score for males equalled 158.05 and the mean score for females equalled 166.63.

Hypothesis 10:

There is no significant difference in the health knowledge level of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity. Interaction effects between school district size and ethnicity on health knowledge were determined by the use of a 3 X 4 factorial design. No significant interaction effects were found between these two independent variables ($F = 1.004$, $df = 4/158$, $p = 0.710$).

Hypothesis 11:

There is no significant difference in the health behaviors of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity. A 3 x 4 ANOVA was employed to determine interaction effects between school district size and ethnicity on health behaviors. No significant interaction resulted between these variables ($F = 4.812$, $df = 4/158$, $p = 0.416$).

Hypothesis 12:

There is no significant difference in the perceived health needs of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity. No significant interaction ($F = 0.717$, $df = 4/158$, $p = 0.581$) was found between the independent variables of school district size and ethnicity on the perceived health needs of 1992 north Texas high school graduates, when a 3 X 4 ANOVA was employed.

Hypothesis 13:

There is no significant difference in the health knowledge level of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender. When a 3 X 2 factorial design was employed to test for interaction effects between the independent variables of school district size and gender, no significant interaction effects resulted ($F = 1.654$, $df = 2/162$, $p = 0.195$).

Hypothesis 14:

There is no significant difference in the health behaviors of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender. Interaction effects between school district size and gender were determined using a 3 X 2 factorial design. No significant interaction effects ($F = 1.770$, $df = 2/162$, $p = 0.174$) results between gender and school district size.

Hypothesis 15:

There is no significant difference in the perceived health needs of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender. When a 3 X 2 ANOVA was employed to test the interaction effects between school district size and gender on perceived health needs, no significant interaction effects resulted between the two ($F = 0.343$, df 2/162, $p = 0.710$).

Hypothesis 16:

There is no significant relationship between health knowledge and health behaviors of 1992 north Texas high school post graduates. A Pearson Product Moment Correlation was calculated. A correlation of 0.1822 resulted, indicating a significant but not meaningful relationship between health knowledge scores and perceived health needs.

CHAPTER 5

CONCLUSIONS, DISCUSSION, IMPLICATIONS, AND RECOMMENDATIONS

Historically, health education curricula have been developed most often as a result of what parents, teachers, college professors, and other health professionals deemed necessary and important, and from the examination of health risk behaviors. Much less research actually examined the perceived health needs adolescents expressed. Nightingale and Wolverton (1988) recommended restructuring the current school curriculum, because many young adults found the current educational system inadequate to prepare them for responsibilities that came after graduation.

According to Roth and Hendrickson (1991):

> In general, adults do not regard teenagers as having very much interest in shaping the world they are going to inherit. Furthermore, few opportunities exist for teenagers to develop skills and knowledge that would allow them to participate actively in shaping public policy. Instead they are usually fretted over, coddled, or ignored. Only rarely are adolescents viewed as a source of insight into the reasons some of their peers deliberately place their health and futures at risk. ...given a forum to air their concerns about harmful choices they have seen

> friends and neighbors make, teenagers will work diligently and cooperatively to counter the self-destructive tendencies of their peers. (p. 622)

Determining if the perceived health needs and concerns of today's adolescents are consistent with those of the past is necessary for the development of relevant health education curriculum. Yet, even though evidence indicates that inclusion of young people in the planning and implementation of health education could have positive effects on outcomes in terms of knowledge, behavioral, and attitudinal change (Institute for Responsive Education, 1983; Roth & Hendrickson, 1991; Wallerstein & Berstein, 1988), adolescents are still excluded from the curriculum development process.

By the use of survey research, in an attempt to determine the current health knowledge, health behaviors, and perceived health needs of adolescents, the results of 168 north Texas high school post graduates' responses to the Life Skills Effectiveness Survey were studied. Differences in health knowledge, behaviors, and perceived needs among graduates were examined in relationship to school district size attended, gender, and ethnicity. Additionally, an attempt was made to determine if the health needs of the graduates were consistent with the Texas Essential Elements.

Conclusions

Hypotheses testing was accomplished using two way analysis of variance and Pearson Product Moment Correlational procedures. When significant differences

emerged, Tukey-HSD post hoc comparison procedures were employed to identify group differences. The following 16 null hypotheses were tested at the 0.05 significance level.

1. There is no significant difference in the health knowledge level of 1992 high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas. Hypothesis one was rejected.

2. There is no significant difference in the health behaviors of 1992 high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas. Hypothesis two was rejected.

3. The third hypothesis, there is no significant difference in the perceived health needs of 1992 high school post graduates who attended a rural, suburban, or metropolitan high school in north Texas, was not rejected.

4. There is no significant difference in the health knowledge level of 1992 north Texas high school post graduates by ethnicity. Hypothesis four was rejected.

5. There is no significant difference in health behaviors of 1992 north Texas high school post graduates by ethnicity. This hypothesis was not rejected.

6. Hypothesis six, there is no significant difference in the perceived needs of 1992 north Texas high school post graduates by ethnicity, was not rejected.

7. There is no significant difference in the health knowledge level of 1992 n orth Texas high school post graduates by gender. This hypothesis was not rejected.

8. There is no significant difference in the health behaviors of 1992 north Texas high school graduates by gender. This hypothesis was not rejected.

9. There is no significant difference in the perceived health needs of 1992 north Texas high school post graduates by gender. Hypothesis nine was rejected.

10. There is no significant difference in the health knowledge level of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity. This hypothesis was not rejected.

11. There is no significant difference in the health behaviors of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity. This hypothesis was not rejected.

12. There is no significant difference in the perceived health needs of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by ethnicity. Hypothesis 12 was not rejected.

13. There is no significant difference in the health knowledge of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender. This hypothesis was not rejected.

14. There is no significant difference in the health behaviors of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender. This hypothesis was not rejected.

15. There is no significant difference in the perceived health needs of 1992 north Texas high school graduates who attended a rural, suburban, or metropolitan high school by gender. Hypothesis 15 was not rejected.

16. There is no significant relationship between health knowledge and health behavior of 1992 north Texas high school post graduates. Hypothesis 16 was rejected.

Discussion of the Findings

The Sample

The sample for this study was derived from mailing lists of 1992 tentative graduates provided by each of the school districts invited to participate in the study. For the rural district, the tentative list was matched with the names of actual commencement participants. No such records were available for the other two districts. Findings in the study do not account for the possibility that names appearing on the tentative list may not reflect the student's actual graduation status.

An overall response rate of 15% was achieved after the second survey mailing, but was not representative of the population in terms of gender, ethnicity, or number of graduates by school district size. While a proportional sampling method would have been ideal, it was impossible due to the limitations inherent in mail out survey research.

Proportionally, the percentage of men to women nationally is 48 to 51 (U.S. Department of Commerce, 1992). This study's sample produced an over representation of females with the percentage of men to women being 34 to 66.

The methods used to determine ethnicity from census population statistics is not consistent among those who collect data, making comparisons of research findings between ethnic groups extremely difficult. This is particularly true in the case of Spanish or Hispanic origin. Some researchers designated a separate category for Hispanics, while others use the Hispanic origin "of any race" categorization. Taking into consideration the inconsistencies in categorization, the ethnic composition of this study seemed to indicate an over representation of African Americans both nationally and statewide, while under representing to varying degrees the Caucasian, Hispanic, and all other ethnic groups.

Responses from participants in the rural district accounted for 13.6% of the returned responses, while representing 15.6% of the rural graduates. The largest percentage of surveys returned (48.8%) came from participants in the suburban district, and represented 16.9% of the 1992 graduates from that district. Nearly 38% of the survey return came from participants in the metropolitan district, but represented only 13% of that sample.

The definitive reason for the large number of respondents from the suburban district is unknown. However, because of the frequency with which research is

conducted by the two state universities located in that community, it may be due to the sensitization of the respondents to educational research.

The limited response rate may have been due to the timing of the survey mail out. While an attempt was made to mail the surveys during the summer school break period, uncompleted surveys were returned by parents of several participants indicating that the students had left for college and would be unable to participate in the survey. While this may have had some bearing on the sample composition by excluding those who were attending college out of the north Texas area, that portion of the sample did not go unrepresented, as only 24% of respondents indicated they were not continuing their education or training post high school graduation.

Health Knowledge

Analysis of the health knowledge of these adolescents one year post graduation revealed a significant difference between the mean scores of the metropolitan and suburban school districts. However, this difference may be inconsequential, because the mean score for correct responses was 86% overall, and differences between the mean scores of the two districts was less than one.

That a significant difference was found between ethnic groups may be of greater consequence. Percentage of accuracy scores differed by 13% between Caucasians and African Americans and by 10% between Caucasians and the "all other" ethnic group. The reason for the difference between these groups is questionable. However, due to the small number of items in the subscale, a small

difference in the number of correct responses accounts for what seems like a large difference in percentage of accuracy. Health knowledge level appeared to be unaffected by gender differences.

Although 90% accuracy or better was achieved for seven of the 14 knowledge subscale items, respondents scored with 60% accuracy or less on three subscale items. These items included information pertaining to emergency care procedures, risk reduction for sexually transmitted disease, and facts related to aging. Interestingly, the items dealing with risk reduction for sexually transmitted disease and first aid/emergency care were answered incorrectly most often by respondents, while the these subsections of the perceived needs scale received the two highest mean Likert score respectively, indicating that participants considered their coverage in high school health highly important. While knowledge may not be the determining factor in health behavior change, its importance should not be overlooked.

Behavioral Practices

The analysis of data generated from the Life Skill Effectiveness Survey revealed that the prevalence of smoking among adolescent who participated in the study was less than for the state of Texas (Texas Department of Health, 1991) as well as for the nation as a whole (United States Department of Health and Human Services [USDHHS], 1992). The analysis also found that the national objective of preventing the initiation and prevalence of cigarette smoking to 15% for all children and youth as outlined in Healthy People 2000: National Health Promotion and Disease Prevention

Objectives (USDHHS, 1992) had been met for this group. These findings might lead one to the premature assumption that efforts aimed at smoking prevention and cessation have been effective in the north Texas area studied; in reality, causation should not be presumed. While these efforts have most likely been contributory to this outcome, other factors such as decreasing social acceptability and public restrictions should also be considered.

The study results indicated that the rural district held the highest percentage of participants who had ever smoked, while the highest frequency of current cigarette smoking was reported in metropolitan district. Research indicated that segmentation in current tobacco industry marketing efforts strongly targets youth, women, and minorities (Basil & Schooler, 1990), and reported that African Americans had the highest percentage of smokers nationwide (USDHHS, 1992). Yet results of this study indicated that cigarette smoking remained highest among the Caucasians and was evenly distributed between males and females.

The legal age to purchase alcohol in the state of Texas is 21 years, as it is for the remainder of the United States. Yet according to baseline data from Healthy People 2000 (USDHHS, 1992), 33% of all high school seniors have engaged in heavy alcohol consumption in the past month. Injuries sustained in motor vehicle crashes account for half of all accidental deaths, the majority of which are alcohol related. The problem of adolescent alcohol use is compounded, inasmuch as accidents account for the majority of adolescent mortality.

The prevalence of alcohol use among adolescents studied was well above the baseline for the nation for all ethnic groups, in all district sizes, and with regard to gender. Over 40% of those adolescents studied reported current use of alcohol, with only one participant being of legal drinking age.

Results of drinking and driving behavior also presented reason for concern. Seventy percent of participants indicated that drinking and driving behavior occurred with one-third of those respondents reporting this as a frequently occurring pattern of behavior. Drinking and driving behavior was reported much more often in the rural district than any other school district.

Related to driving and drinking behavior is that of seatbelt use. Overall, reported participant seatbelt use was relatively high, however, only 65% of respondents from the rural district indicated they wore a seatbelt whenever they were in an automobile, while reporting both the highest use of alcohol and the highest frequency of drinking and driving behavior.

Reported drug use was less than 20% for all respondents, which was consistent with the Healthy People 2000 baseline statistics (USDHHS, 1992). Women reported recreational drug use with greater frequency than did men. The heaviest amount of drug use was reported among Caucasians and Hispanics. The highest frequency of both ever having used recreational drugs and also of current drug use was reported in the rural district.

Again it was interesting to note that the topic of substance abuse was ranked third on the perceived need subscale, indicating that respondents consider it important for coverage in high school health. Furthermore, elicited responses on the final subsection of the perceived needs scale in relation to substance use and abuse were overwhelmingly in favor of prevention education. Nonetheless, inconsistencies between the respondents' reported behaviors and both their level of knowledge and desire for coverage of the topic of substance abuse in high school health curriculum were clearly evident in the study results.

The impact of dietary practices, activity level, and weight on health cannot be overlooked. Eating practices, physical activity levels, and weight patterns developed in childhood and adolescence may persist into adult life. High levels of dietary fat, sedentary lifestyles and obesity are thought to have a deleterious effect on cardiac health (Trowbridge & Collins, 1993; USDHHS, 1992).

Some results related to diet and physical activity were encouraging. A large percentage of respondents reported that they consumed what is considered a balanced diet, and were involved in vigorous activity often enough to maintain cardiorespiratory fitness. However, more than one-fourth of participants felt their weight was too great for their height, and over one-third of the female participants perceived their weight as too great for their height. In view of the consistent research findings which report an overestimation of body-weight by females (Fowler, 1989) and adolescents (Desmond, Price, Gray, & O'Connell, 1986), and their

misperceptions regarding desirable body image and ideal body size (Fowler, 1989; Storz & Green, 1983), one may need to question the validity of this study's results, because results are representative of self-reported data rather than actual physical measurements. Had survey items more directly addressed the issue of actual fat consumption, body fat composition, eating disorder behaviors, or over-exercising behaviors, the results may have been more meaningful in terms of identifying actual health risk behavior and in targeting curriculum development to adolescents' needs.

Reported sexual activity among all respondents was high. Seventy-five percent of respondents reported that had been sexually active at some point in time, with 68% indicating current sexual activity. These findings, coupled with the high frequency in reporting of short relationship length and the low frequency in reporting of consistent condom use, were disturbing. In fact, with the increased diagnosis of HIV/AIDS among adolescents and young adults, these findings were almost alarming. No differences with regard to gender were apparent in the findings related to reporting of sexual activity.

With regard to ethnicity and the reporting of sexual behavior, results of the Hispanic group were most noteworthy. Although a larger percentage of Hispanics than other ethnic groups indicated that they had never had a sexual partner, when they were sexually active, a larger percentage of multiple partner sexual activity was reported. When involvement in a monogamous relationship was reported, the length

of relationship was much shorter than for other ethnic groups. The use of condoms consistently with every act of intercourse was also lowest in this group.

A disparity in the responses of several participants was noted on items related to sexual activity. For example, some respondents would indicate never having been sexually active in one item, and later indicate that condoms were used with every act of intercourse. Responses to the condom use item may have been a reflection of behavioral intention rather than actual practice. Nevertheless, the formation of conclusions based on such contradictions may be inappropriate.

Perceived Needs

The overall mean score for the perceived health needs subscale of 4.0 indicated that respondents considered the topics "moderately important" for coverage in high school health class. Since the eleven subsections of the subscale were based on the Texas Essential Elements for health, these findings may also indicate that respondents considered the high school health coverage they received relevant to them.

The topics of sexually transmitted disease, first aid, and substance abuse received the highest rankings of the perceived health needs, and yet, inconsistencies in both knowledge and behavior occurred in these areas. Likewise, the topics of human disease, environmental health, and aging ranked lowest of the perceived health needs. Both of these findings may be explainable by the sense of invulnerability that adolescents tend to possess. Most have not realized their own mortality, and

therefore, may be less concerned with such farsighted issues as the effects of their current behavior on the acquisition of disease, changes in the global climate, or the aging process.

When considering whether the perceived health needs of respondents were consistent with the Texas Essential Elements, results of the study indicated a qualified affirmative. In this sample, the need for more in-depth coverage of the issues related to substance abuse, human sexuality, sexually transmitted, disease, self-esteem, and peer pressure were voiced repeatedly. While the respondents tended to express those needs that were covered by the Essential Elements, other insightful, realistic, and timely needs were also communicated by respondents which may not be addressed in the essential element curriculum. These issues seemed to address the consequences of lifestyle choices that they may have already made, such as unplanned pregnancy, alcohol and drug use, poor relationship skills, prejudice and violence. For example, respondents expressed a need for instruction and skill development in interpersonal relationships, particularly parental and opposite sex relationships; child care and childrearing; goal setting and future career preparation; and violence prevention.

District Size

While the rural community may sometimes be equated with a more tranquil, healthier, safer, and less risky environment, the results of this study depicted rural living in a much different manner. Respondents from the rural school district had a higher incidence of smoking, and higher prevalence of alcohol and drug use. They

were less likely to be sexually abstinent, and when they were sexually active, they were more likely to engage in unprotected, multiple partner sexual activity. These findings are consistent with other research (Gibbons, Wylie, Echterling, & French, 1986; Novecek, et al., 1991; Sarvela & McClendon, 1987a; Sarvela & McClendon, 1987b) and may indicate a need for educators and curriculum developers to explore and consider the reasons for the high prevalence of these risk behaviors in planning health education. The timing of the introduction of education programs and interventions may also need consideration in light of the high number of adolescents already engaged in risk behavior.

Gender

Relatively few gender-related differences were noted in the study. A significant difference in the perceived health needs of females as compared to males was revealed. Physical and emotional development occur at different rates for males and females during adolescence (Crockett & Petersen, 1993). Because females reach developmental maturity earlier than males, that considerable importance was placed on health by the female participants in the study may be understandable.

Implications

Although many of the results reported in this study were consistent with those of state and national statistics, the sample size for this study was small and the possibility exists that it may be unrepresentative of the population. Therefore, caution is recommended in the generalization of these implications to other populations.

This research seems to indicate that: (a) adolescents are concerned with their health, (b) they share many of the same concerns as educators, but (c) they are also able to identify salient needs which are not addressed by their health curriculum. These needs are based on behaviors, in which they are already engaged.

These findings may hold several implications for the health educator and health education curriculum developer. They can be encouraged by the high level of health knowledge demonstrated by the respondents. They can also feel satisfied that many of the health concerns covered in the high school health curriculum were shared by the respondents, and by indications that their efforts in many areas may have been effective in the prevention and reduction of some risk behaviors. However, the evidence in this and other studies clearly establishes inconsistencies in the health knowledge, behaviors, and the expressed needs of adolescents.

The idea that substance abuse, sexual activity, unplanned pregnancy, sexually transmitted disease (particularly HIV/AIDS), and the consequences associated with them are uncommon foe for adolescents and health educators is unlikely. Preventability is the common denominator for all of the leading causes of morbidity and mortality associated with adolescence. In the face of staggering statistics correlating the prevalence of risk behavior with the occurrence of health problems in adolescents (Crockett & Petersen, 1993; Kolbe, 1990; Millstein, 1989; USDHHS, 1992), effective prevention education is absolutely essential, but may fall short and be ineffective for those adolescents whose lives have already been effected by the

problems. These individuals also may need instruction and direction to help them regain what is likely to be the common goal for educators and adolescents alike - optimum health.

It may be remiss of educators and curriculum planners to continue the development high school health education curricula based only on those areas which demonstrate need through lack of knowledge or through examination of risk behavior. Educators may need to accept and confront the task of developing curricula which fuses those needs with the actual needs of the population targeted, no matter how difficult or controversial.

This research primarily examined the health knowledge, behaviors, and perceived needs of individuals, while including some group comparisons. However, the burden of lifestyle change cannot be placed solely on the individual. Therefore, high school health education efforts may need to be aimed at both risk behavior reduction efforts and at increased cognizance of environmental influences which affect adolescent lifestyle choices.

This research seemed to confirm the mission of comprehensive school health education, and in addition to health curriculum development, may also hold implications for community development and policy change. Students do not learn in a vacuum, and can not be taught in one. A shift of attention to those environmental factors affecting risk behavior, such as availability and sale of substances to minors,

glamorization of risk behavior by media, and enforcement of public restrictions to name but a few, may also warrant consideration.

Recommendations

Recommendations for further research extend into the areas of assessment and curriculum development. Discussion of possible avenues for exploration in each area follows.

Assessment

A portion of the Life Skills Effectiveness Survey generated data to describe the risk behavior of adolescents in north Texas. However, the survey instrument did not include items concerning behavioral practices related to unintentional and intentional injury. Further instrument development is indicated to incorporate these areas, and any other areas of risk behavior targeted by Healthy People 2000 (USDHHS, 1992), particularly in view of the evidence ranking these behaviors as leading causes of adolescent morbidity and mortality (Kolbe, Kann, & Collins, 1993).

The contradictory nature of some responses on the behavioral subscale of this instrument indicate that additional clarification of item meaning and response choice is in order to help make the results more quantifiable and to improve clarity. Better quantification of response choice may result in the two-fold benefit of improvement in determination of actual adolescent risk behaviors and identification of achievement of the national health objectives.

Because of the extremely high prevalence of risk behavior in the rural community examined in this study, a need may exist to explore further whether or not these findings are consistent with rural areas in other geographic locations. Also of interest would be research which directly addresses or compares differences in the curriculum/program needs and outcomes between rural, suburban, and metropolitan areas.

Some comparative research to determine if the behaviors and perceived needs of ethnic groups are consistent across geographic areas has been done. For example, the Youth Risk Behavior Surveillance System has examined the risk behavior of adolescent "subpopulations" across the nation (Kolbe, Kann, & Collins, 1993). However, comparisons of research findings would be much more meaningful if the same parameters for ethnic derivation were utilized consistently by researchers. Of interest would be both formative and summative research of curricula/programs which incorporated these findings in their development and implementation.

One major limitation of this study lies in the recognition that high school drop-outs were not investigated. In order for education efforts to meet the needs of this population, and hopefully circumvent their early departure from the system information about the behaviors and needs of drop-outs is essential. Replication of this or other similar study within that population is suggested.

Curriculum Development

Research has indicated that students, who were actively involved in the planning and implementation of their own health education, developed a sense of empowerment (Wallerstein & Berstein, 1988), and were motivated to understand and practice what they advocated for others (Institute for Responsive Education, 1983). However, the intention of this research was never to imply that inclusion of adolescents in the development of curricula would result in empowerment of adolescents nor change their perceptions relative to health barriers, susceptibility to or severity of health problems. Rather, the idea of curricula based on the constructs of theories such as empowerment or HBM was introduced more to garner evidence for the possibility of increased positive outcomes from high school health curricula, when they personalized their agenda/goals to those of the adolescents included in their planning and implementation. Future research which more directly explores the outcomes and effectiveness of health education programs and curricula based on constructs of theories, such as empowerment and HBM may be useful.

Much research has been done in the area of comprehensive school health programs, particularly with regard to program implementation and effectiveness. However, the reults of this study indicate a possible need for comparative studies examining the outcomes and effectiveness of high school health curriculum which included adolescents in the planning and development phase, with traditional high school health curriculum.

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APPENDICES

Appendix A

CONSENT FROM SCHOOL DISTRICTS TO CONDUCT STUDY

DISTRICT CONSENT TO CONDUCT THE STUDY

The conditions of mutual consent are as follows:

1. I have reviewed the survey instrument and considered the proposed research study as outlined. I (grant) (~~do not grant~~) Ms. Dickens access to the names and addresses of all 1992 high school graduates from the Gainesville school district for use in this research study.

2. The school system (may) (~~may not~~) be identified in the final results of the research study.

3. The district (will) (~~will not~~) allow the completed research to be circulated through interlibrary loan.

4. The district (would) (~~would not~~) like a copy of the completed research.

2-9-93
Date

Leigh Dickens
Signature of Student

Eddie F. Moore
District Authorization
Signature and Title

DISTRICT CONSENT TO CONDUCT THE STUDY

The conditions of mutual consent are as follows:

1. I have reviewed the survey instrument and considered the proposed research study as outlined. I (grant) (do not grant) Ms. Dickens access to the names and addresses of all 1992 high school graduates from the Denton Independent School District for use in this research study.

2. The school system (may) (may not) be identified in the final results of the research study.

3. The district (will) (will not) allow the completed research to be circulated through interlibrary loan.

4. The district (would) (would not) like a copy of the completed research.

March 31, 1993
Date

Leigh Dickens
Signature of Student

Ray E. Roswell - Executive Director
District Authorization
Signature and Title

DISD

July 13, 1993

Ms. Leigh E. Dickens
1114 Frame Street #6
Denton, Texas 76203-3857

Dear Ms. Dickens:

Your request to conduct a research study entitled, **A comparison of the Health Knowledge Level, Health Behavior Practices, and the Perceived Health Needs of 1992 North Texas High School Graduates,** has been studied by the Research Review Committee and given their approval. You will at all times follow the policies of the Dallas Independent School District, and work closely with my designee as you proceed with your study.

Best wishes for success in this endeavor. My office should receive a copy of your final paper.

Sincerely,

William J. Webster

William J. Webster
Division Executive
Planning and Evaluation Services

c: Sandra Malone

Dallas Independent
School District

Marvin Edwards
General Superintendent

3700 Ross Avenue
Dallas, Texas 75204-5491
(214) 824-1620

Appendix C

CONSENT TO CONDUCT STUDY

UNT HUMAN SUBJECTS REVIEW COMMITTEE

University of North Texas

Office of Research Administration

March 26, 1993

Leigh Dickens
KHPR
University of North Texas

Dear Ms. Dickens:

Your proposal entitled "Pilot Test - Life Skills Effectiveness Survey Instrument," has been approved by the IRB and is exempt from further review under 45 CFR 46.101.

If you have any questions, please contact me at (817) 565-3946.

Good luck on your project.

Sincerely,

Peter Witt, Chair
Institutional Review Board

PW/tl

P.O. Box 5396 • Denton, Texas 76203-5396
817/565-3940 • FAX 817/565-2141 • INTERNET: RESEARCH@VAXB.ACS.UNT.EDU

Appendix D

LETTER TO STUDY PARTICIPANTS

20 August, 1993

Dear Participant:

My name is Leigh Dickens, and I am a doctoral candidate in Health Studies at Texas Woman's University. I am conducting a study concerning the perceived health needs of adolescents. You have been specially selected from a large group of people who have attended high school in the North Texas area. I would like you to participate in the study.

Your participation in this study will help other health teachers understand more about the health needs and practices of adolescents. With this understanding, better high school health education programs may be developed for students.

You will be asked to answer some questions about your health needs and practices. You will not be asked to write your name on the survey. Your name will never be used in reporting of survey results. Your answers will be reported in the study only as grouped data. Answering the questions should take about 20 minutes.

Your permission to be included in the study will be implied if you complete and return the survey. You are not required to participate in the study, and you may change your mind about participation without penalty at any time by notifying Ms. Dickens. If you do change your mind, the code number appearing on your questionnaire or return envelope will allow for removal of your responses from the study.

If you choose to participate in the study, no risk of injury is expected. No medical service or compensation is provided to subjects by Texas Woman's University as a result of injury from participation in this research.

If you have additional questions about the study and your participation in it, or if you would like a copy of the final results, call Ms. Dickens at (316) 832-1062. If you have concerns about the way this research has been conducted, contact Texas Woman's University Office of Research and Grants Administration at (817) 898-3375.

Thank you,

Leigh Dickens, R.N., M.S.
Doctoral Candidate

Appendix E

LIFE SKILLS EFFECTIVENESS SURVEY

LIFE SKILLS EFFECTIVENESS SURVEY

DIRECTIONS: Please respond to each of the following questions. Circle the letter corresponding to the correct response. Circle only one letter for each question. Please do not leave any items unanswered.

1. You find your two year old son sitting on the floor in front of the kitchen sink, with an empty bottle of furniture polish in his hand. You feel certain that he drank the furniture polish. You should:

   A. Call poison control immediately for instructions.
   B. Spank him for doing something so stupid.
   C. Do nothing; it probably won't hurt him.
   D. Stick your finger down his throat to induce vomiting.

2. While frying chicken for dinner, you splash hot grease on your hand. The area forms large blisters immediately and causes you intense pain. Before you go to the doctor or hospital for help you should first:

   A. Smear butter or Crisco all over your hand as quickly as possible.
   B. Rinse your hand with cool water.
   C. Pop all the blisters and put a bandage on your hand.
   D. Put burn ointment on your hand, and wait until signs of infection are seen later.

3. While eating dinner at a local restaurant, the woman sitting next to you grabs her throat and begins to choke. You should do all of the following **EXCEPT**:

   A. Squeeze rapidly and forcefully with the thumb side of your fist against her abdomen (above the navel) until the food is dislodged.
   B. Ask her if she can speak.
   C. Leave her alone, if she is coughing.
   D. Slap her on her back.

4. Your mother has just been informed that she will need to purchase a hearing aid for her progressive hearing loss. She would like you to help her in making a decision regarding the purchase of the device. Which of the following is a definite consideration before purchasing this medical device?

   A. The device has been endorsed by celebrities.
   B. The device's method of action has been kept a "top secret."
   C. The device has been marketed through the use of discount coupons or telemarketing campaigns.
   D. The device has been endorsed by medical experts.

5. If you purchased a product that did not work as it was intended or caused a health problem to develop as a result of its use, you should:

   A. Contact the person/company who is directly responsible for the problem.
   B. Complain to your family and friends about the product.
   C. Not bother to complain; no one will listen anyway.
   D. Take out an advertisement in the newspaper to inform the public that the company is dishonest.

6. Your father has heart disease and had coronary bypass surgery last year. You have invited him out to lunch. Identify the "heart healthy" menu choice from those listed below.

   A. Cheeseburger with lettuce, tomato and mayonnaise, curly fries, and fried apple pie.
   B. Chicken enchiladas in cheese sauce with guacamole and sour cream, refried beans, rice, sopapillas with honey and butter.
   C. Grilled chicken, baked potato, steamed broccoli, green salad with vinegarette dressing and fresh fruit.
   D. Sweet and sour pork, chinese vegetables in soy sauce and ginger, fried rice, egg drop soup, and almond cookies.

7. All of the following demonstrate a positive concern for the environment **EXCEPT**:

   A. Writing on one side of the notebook paper only.
   B. Participating in the paper and aluminum can recycling effort at your school.
   C. Putting raked leaves in a compost pile.
   D. Bringing a refillable mug to use for liquid beverages at lunch time.

8. Which of the following would be the best way to decrease your risk for heart disease?

   A. Salting your food prior to tasting.
   B. Watching health films.
   C. Daily participation in a neighborhood walking club.
   D. Working in a high stress job.

9. You could reduce your risk for acquiring sexually transmitted diseases by:

   A. Postponing sexual intimacy until you have found a lifetime partner.
   B. Making sure you know the sexual history of your partner.
   C. Having a physical exam by a physician on a regular basis.
   D. Having a drink to help you relax on the first date.

10. Identify the following **TRUE** statement about elderly adults.

   A. Old age is a time of sickness and disability.
   B. Most older Americans live in their own homes.
   C. Not being physically active is a natural part of growing older.
   D. Old people are set in their ways and can't change.

11. Your grandmother has been attending a water exercise program three days each week for the past two months. She might expect to see all of the following changes **EXCEPT**:

A. Lowered blood pressure
B. Depression
C. Higher self esteem
D. Greater strength and flexibility

12. A positive alternative to substance use is involvement in a rigorous exercise routine, taking up a hobby like sailing, mountain climbing or cycling and:

A. Drinking and partying.
B. Working all the time.
C. Recreating with family and friends.
D. Smoking pot only occasionally

13. Which of the following activities would benefit your heart and lungs?

A. Putt Putt golf
B. Lifting weights
C. Jogging
D. Reading

14. Sally is a married, 21 year old college student, who wants to delay childbearing until her education is completed and her career established. Besides birth control pills, which method of birth control would be the most effective for her?

A. Diaphragm with spermicidal jelly
B. The rhythm (calendar) method
C. Douching after sex
D. Sterilization

WHICH OF THE FOLLOWING DESCRIBES YOU BEST? CIRCLE THE LETTER OF YOUR RESPONSE.

15. A. I am employed full-time.
    B. I am employed part-time.
    C. I am not employed at the present.
    D. I have never been employed.

16. A. I am a full-time student.
    B. I am a part-time student.
    C. I no longer attend school.

17. A. I am male.
    B. I am female.

18. A. I am African American.
    B. I am Asian or Oriental.
    C. I am Caucasian.
    D. I am Hispanic.
    E. I am Native American.

19. A. I am younger than 18 years of age
    B. I am 18-19 years old.
    C. I am 20-21 years old.
    D. I am older than the age of 21.

20. A. I smoke a pack or more cigarettes daily.
    B. I smoke less than a pack of cigarettes per month.
    C. I am an ex-smoker.
    D. I have never smoked cigarettes.

21. A. I drink more than 2 alcoholic drinks per day.
    B. I drink more than 2 alcoholic drinks per week.
    C. I drink more than 2 alcoholic drinks per month.
    D. I don't drink alcohol.

22. Other than alcohol, I use drugs for recreational purposes:

A. Daily
B. Weekly
C. Monthly
D. I no longer use recreational drugs.
E. I have never used recreational drugs.

23. I have driven with a person who has been drinking alcohol or have driven myself after drinking alcohol:

A. Many times in the past.
B. Only once or twice in the past.
C. Never.

24. I wear a seatbelt:

A. Never.
B. Occasionally.
C. Only when I am driving.
D. Whenever I am in an automobile.

25. My diet consists mostly of...

A. All food groups.
B. Meat and potatoes.
C. Lots of snacks and junk food.
D. Lots of fruits and vegetables.

26. I engage in vigorous physical activity for at least 20 minutes:

A. Three or more times weekly.
B. Once or twice a week.
C. Less than once a week.
D. Never.

27. My body weight is:

A. Just right for my height.
B. Too light for my height.
C. Too heavy for my height.
D. I do not know what my body weight should be.

28. I have intercourse with:

A. Multiple sex partners.
B. I do not currently have a sex partner.
C. Only one sex partner.
D. I have never had a sex partner.

29. I have engaged in sex with the same partner for:

A. Less than 6 months.
B. Less than 1 year.
C. Less than 2 years.
D. Less than 5 years.
E. I do not have a sex partner.

30. When I have intercourse:

A. Condoms are never used.
B. Condoms are rarely used.
C. Condoms are usually used.
D. Condoms are always used.
E. I do not have intercourse.

Please think about the health classes you had while you were in high school. Based on your experience, use the scale provided below to show how important you believe it is to cover each of the following topics in a high school health class.

1 = not important 2 = slightly important 3 = no opinion
4 = moderately important 5 = very important

Please circle the number which applies to the level of importance.

31. Being able to perform CPR. 1 2 3 4 5

32.	Being able to stop someone from choking.	1 2 3 4 5
33.	Being able to provide first aid care for bleeding.	1 2 3 4 5
34.	Knowing what to do in the event of shock.	1 2 3 4 5
35.	Being able to read and understand a product label.	1 2 3 4 5
36.	Being able to judge the truth of advertisement claims.	1 2 3 4 5
37.	Knowing how to find a doctor.	1 2 3 4 5
38.	Understanding the effectiveness of vitamins and food supplements.	1 2 3 4 5
39.	Having a knowledge of good nutrition practices.	1 2 3 4 5
40.	Being able to choose the right physical activity for you.	1 2 3 4 5
41.	Understanding healthy personal hygiene practices	1 2 3 4 5
42.	Understanding how to recycle.	1 2 3 4 5
43.	Knowing causes of pollution.	1 2 3 4 5
44.	Knowing what you can do to control pollution.	1 2 3 4 5
45.	Understanding the danger of second hand smoke.	1 2 3 4 5
46.	Understanding cancer and what you can do to prevent it.	1 2 3 4 5

47.	Knowing how the common cold is spread and how to take care of it.	1	2	3	4	5
48.	Understanding normal childhood diseases like measles or chicken pox.	1	2	3	4	5
49.	Understanding of the types of sexually transmitted diseases (STDs).	1	2	3	4	5
50.	Understanding how STDs are transmitted.	1	2	3	4	5
51.	Understanding how to prevent STDs.	1	2	3	4	5
52.	Knowing about Alzheimer's disease.	1	2	3	4	5
53.	Understanding the process of aging.	1	2	3	4	5
54.	Understanding the effect of diet on getting old.	1	2	3	4	5
55.	Understanding the effect of exercise on getting old.	1	2	3	4	5
56.	Knowing how to deal with stress in your life.	1	2	3	4	5
57.	Knowing how to improve your self-esteem.	1	2	3	4	5
58.	Being able to communicate and get along with others.	1	2	3	4	5
59.	Knowing how to combat depression.	1	2	3	4	5
60.	Understanding the effects of drugs on your body.	1	2	3	4	5
61.	Knowing how alcohol can affect your body.	1	2	3	4	5
62.	Understanding the dangers of tobacco use.	1	2	3	4	5

63.	Knowing how and where to get help for substance abuse problems.	1	2	3	4	5
64.	Knowing how our body reproduces.	1	2	3	4	5
65.	Understanding the heart and diseases that effect it.	1	2	3	4	5
66.	Understanding the benefit of exercise for your body.	1	2	3	4	5
67.	Learning how to be a good parent.	1	2	3	4	5
68.	Knowing how your body changes as you grow up.	1	2	3	4	5
69.	Understanding the changes that occur during pregnancy.	1	2	3	4	5
70.	Learning how to prevent pregnancy.	1	2	3	4	5

Please list any other topics you feel are important to cover in high school health class (use the back of the page if necessary)._____

_____

_____

_____

_____

Appendix F

INSTRUCTIONS TO PILOT STUDY GROUP

INSTRUCTIONS

Thank you for volunteering to participate in the pilot testing of the Life Skills Effectiveness Survey instrument. The results from this study will be used to help determine the instrument's reliability.

1. Please write your birthdate (e.g., 00/00/00) in the top right hand corner of this survey. These numbers will not be used for the purpose of determining your identity. Your participation in this project requires that you complete the following survey twice. The number you enter for your birthdate will be used for coding purposes in the matching of the response from your first survey with the responses from your second.

2. Please complete the attached Life Skills Effectiveness Survey completely, and return it to Leigh Dickens in PEB 205L by Friday April 23, 1993.

3. You will be contacted and asked to complete the second survey form in about two weeks.

INSTRUCTIONS

This is the second administration of the Life Skills Effectiveness Survey. Please follow the same instructions you were given with the first administration.

1. Please write your birthdate (e.g., 00/00/00) in the top right hand corner of this survey. These numbers will not be used for the purpose of determining your identity. Your participation in this project requires that you complete the following survey twice. The number you enter for your birthdate will be used for coding purposes in the matching of the response from your first survey with the responses from your second.

2. Please complete the attached Life Skills Effectiveness Survey completely, and return it to Leigh Dickens in PEB 205L no later than Friday May 7, 1993.

Thank you again for agreeing to participate in this pilot study. If you would like the results of the pilot study, you may leave your name and address with Ms. Dickens, and she will mail them to you when they are reported.