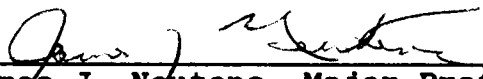
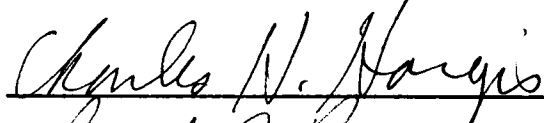


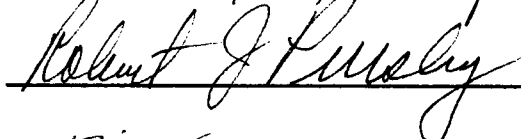
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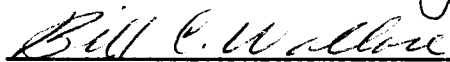
I am submitting herewith a dissertation written by Joyce Anne Cook entitled "Health Risk Factors of Hearing-impaired Adolescents." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Health Education.


James J. Neutens, Major Professor

We have read this dissertation
and recommend its acceptance:

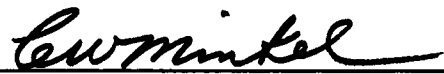

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HEALTH RISK FACTORS
OF HEARING-IMPAIRED
ADOLESCENTS

A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee, Knoxville

Joyce Anne Cook

August 1988

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Dedicated to my Aunts:

Ernestine Galloway

Cecile Johnston

Maxine Perkins

ACKNOWLEDGEMENTS

The author is deeply grateful to the many individuals who contributed time and expertise toward making this project one of meaningful research.

While contributing as a team to the total effort, each committee member also served a unique role. As Major Professor, Dr. James J. Neutens was consistent in his attention to methodology and his willingness to read and reread many drafts of this manuscript. Dr. Robert J. Pursley introduced the author to the potential of computerized health risk appraisals and spent many hours discussing their use with adolescents and special populations. Dr. Bill C. Wallace insisted on clarity in writing and prodded the author to stay on task during difficult times. Dr. Wendell P. Liemohn's research and enthusiasm in working with special populations inspired this investigation. Dr. Charles C. Hargis supervised the revision of the instrument; his Graduate Assistant, Deborah Green, drafted the first revision of the health risk appraisal and the advisory messages.

The cooperation of the directors of the four hearing-impaired programs in Tennessee, their staff, and the administrators, faculty, parents, and students in their districts made this study possible. Faculty and staff at the Tennessee School for the Deaf gave invaluable support.

Ms Elaine Alexander had an important role in designing the personal data sheet and consent forms and in organizing the pilot studies. Mr. Troy Hayden and Mr. Robert Matthews worked with the revision of the instrument. Mrs. Carolyn Williams and Ms Sharon Brown conducted the pilot studies.

Fellow and former graduate students encouraged and constructively criticized appropriately. Friends listened tirelessly, yet understood when space was needed. Family members remained constant in their belief in the fruition of this project. A loving heavenly Father provided wisdom, patience, and stamina.

ABSTRACT

The purpose of this study was to determine the relationship between selected variables of hearing-impaired adolescents and health risk factors. In order to plan appropriate health education for special populations, it is necessary to know the nature of their health risks.

A computerized health risk inventory was used to measure self-reported attitudes, behaviors and knowledge which have the potential of affecting future health status, and to compute a health risk factor score. School records were used to obtain information regarding degree of hearing loss, percentage of aided speech discrimination, reading achievement level, age of onset of hearing loss, and system of communication used in the educational setting.

Since reading achievement scores for hearing-impaired students are below norms for hearing peers, it was necessary to revise the instrument with carefully controlled syntactic structures and vocabulary. The first pilot study was conducted in sign language which led to slight changes in wording and format of several questions.

The subjects of this study were 69 hearing-impaired students age 13-20 with a hearing loss of at least 50 decibels in the better ear and a reading level of at least 2.0 and enrolled in grades 7-12. When signed parental consent forms had been returned, teachers established an

identity code for each student, completed the personal data sheet from school records, and administered the health risk inventory to the students.

Spearman rank-order correlations, the Kruskal-Wallis analysis of variance test, and the Mann Whitney U test were performed to answer the research questions. The findings of this study led to the following conclusions regarding the hearing-impaired adolescents sampled in this investigation.

1. Hearing-impaired students tend to have poor exercise habits, safety practices, and knowledge of the consequences of sexual activity.

2. Students with profound hearing loss are not at greater risk of developing negative health behaviors than students with moderate hearing loss.

3. Students with low speech discrimination percentages are not at greater risk of developing negative health behaviors than students with high speech discrimination.

4. Students with low reading levels are at greater risk of developing negative health behaviors than students with high reading levels.

5. Students in this study with a hearing loss at birth are not at greater risk of developing negative health behaviors than students whose hearing loss occurred later.

6. Hearing-impaired students taught in the total system of communication are not at greater risk of developing negative health behaviors than students in the oral system.

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CHAPTER I

INTRODUCTION

The longitudinal High School and Beyond Study included demographic data on handicapped students, who were found to constitute about 10% of the adolescent population in the United States (Plisko & Owings, 1982). In this national survey there was a greater percentage of males and a greater percentage of high school dropouts among the handicapped students than among the nonhandicapped students. Stratified probability sampling revealed that there were also significantly more handicapped students among non-Asian minorities, low socio-economic groups, low ability students, and those with low post-secondary expectations. Over one-third of the hearing-impaired students surveyed in 1985-1986 were from minority backgrounds, predominantly Black and Hispanic (Center for Assessment and Demographic Studies, 1985/1986).

An estimated 281,000 students (or 1.3-1.5%) of ages 12-17 in the United States had a hearing handicap in 1966-70 (National Center for Health Statistics, 1975). Males had greater hearing losses at the higher frequencies than did females. Poorest hearing occurred among the lowest income brackets and among students whose parents had the least amount of education. In addition, adolescents living in the South were found to have slightly greater hearing losses

than those in other parts of the country. A more recent census, however, revealed that the geographical distribution of the severe and profound losses was similar to the average population of school age youth (Karchmer, 1984). Information about hearing-impaired Blacks, Hispanics, and other minorities is limited, negligible, and nonexistent, respectively (Moore, 1978).

Hearing loss ranges from mild to profound. Although mild and moderate hearing impairment in children is more common, more than twice as many students in the severe and profound groups receive services (DeConde, 1984). Excluding the multihandicapped, in the school year 1982-83 about 75,000 students (ages 3-21) under the categories of "hard of hearing" and "deaf" participated in support services. Since this population did not include the unserved hearing-impaired students, it was estimated that there are 75,000-90,000 children and youth in the United States with hearing losses sufficient to warrant some kind of additional educational support (Karchmer, 1984). During the 1984-85 school year, there were 26,175 adolescents (those of ages 12-20) enrolled in programs tailored to their hearing handicap (Schildroth, 1987).

About 30% of hearing-impaired students attend residential schools, while the majority attend day schools which range from private classes to total integration with the hearing (Quigley & Kretschmer, 1982). Because of the

specialized nature of educating hearing-impaired students, class size is small. In the elementary grades, a student-to-teacher ratio of six to one is average. Even secondary school classes are usually no larger than 12 or 14 (Moore, 1978).

Hearing-impaired students are often multihandicapped. Quigley & Kretschmer (1982) found that 20% of hearing-impaired students had additional handicaps. The 1981-82 Annual Survey of nearly 52,000 hearing-impaired students reported 30.6% with at least one educationally significant handicap in addition to hearing loss. In this group, 9.6% had two or more additional handicaps. Mental retardation, specific learning disabilities, and emotional/behavioral problems were the most prevalent coexisting disabilities. Other common additional handicaps were visual defects and, less commonly, epilepsy and orthopedic problems. A disproportionately large number of Blacks were among the multihandicapped hearing-impaired students, particularly with relation to mental retardation (Karchmer, 1985).

STATEMENT OF THE PROBLEM

The problem of this study was to determine the relationship between selected variables of hearing-impaired adolescents and health risk factors.

RESEARCH QUESTIONS

This study attempted to answer the following questions:

1. What are the most common health risk factors among these adolescents?
2. Is there a significant relationship between level of hearing loss and total health risk score?
3. Is there a significant relationship between speech discrimination and total health risk score?
4. Is there a significant relationship between reading achievement level and total health risk score?
5. Do students differ significantly on total health risk score according to age of onset of hearing loss?
6. Do students differ significantly on total health risk score according to communication system used in the school?

SIGNIFICANCE OF THE PROBLEM

The Education for All Handicapped Children Act of 1975 assures the right of all children to a free and appropriate education. Currently there is much debate on the best methods for accomplishing this task with hearing-impaired youth (Northern & Downs, 1979). Some experts advocate auditory/verbal training, while others strongly prefer visual/oral methods. Differences also exist in defining "the least restrictive environment" as specified by law and in assessing how well "mainstreaming" is working.

Tennessee law dictates that a free public education with special education services sufficient to meet the needs and maximize the capabilities of handicapped children be available to the hearing-impaired child of ages 3-21 (Special Education Act of 1983). According to the latest figures released by the U.S. Department of Education, during the school year 1984-85, 1,630 hearing-impaired children in Tennessee received special services related to their hearing loss; 506 of these students were ages 12-17, and 102 were ages 18-21 (Division of Innovation and Development, 1987).

In order to plan effective health education/promotion activities, it is necessary to know the frequency and extent of health risk behaviors (Siegel, 1987). In cooperation with the Centers for Disease Control, the Tennessee Department of Health and Environment conducted a statewide

assessment of adult health risk factors in 1982 as a baseline for measuring future preventive health care changes ("Health Risk Behaviors," 1984). During 1986-87, The Health Promotion Section of the Tennessee Department of Health and Environment collected data on the current health risk factors of hearing adolescents to provide a focus for future health education efforts (Fortune, 1988). Since data on the health risk factors of hearing-impaired adolescents did not exist, it was important to conduct this study. "Successful health education programming for the handicapped must have a means of assessing the needs and interests of the students that are participating in the program" (Noland, Riggs, & Hall, 1985/1986, p. 36). Data generated in this health needs assessment could lead to recommendations for priorities in health instruction among hearing-impaired adolescents and be the first step in designing a health risk appraisal as an intervention tool for health promotion activities with hearing-impaired adolescents. This study should also contribute to other investigations whose purpose is to assess the health risk behaviors of special populations of adolescents.

LIMITATIONS

This study was limited by:

1. The willingness of the principals of the individual schools to allow data-gathering in their schools;
2. The willingness of parents to allow their children to participate;
3. The availability and accuracy of information in school records for completion of the personal data sheet;
4. The ability and willingness of the students to complete the questionnaire.

DELIMITATIONS

The major delimitations of this study were as follows:

1. Those factors assessed in the "Teen Wellness Check" defined the health risk score;
2. Participants were hearing-impaired adolescents with a hearing loss of at least 50 dB in the better ear, a reading level of at least 2.0, and enrolled in grade 7-12 in one of four Tennessee programs;
3. All information for the personal data sheet came from student records kept at the school and available to the researcher.

ASSUMPTIONS

For the purpose of this investigation, the following were assumed:

1. The subjects understood the questions and answered them honestly;
2. Information obtained from school records was accurate;
3. Testing conditions were uniform for all students;
4. The "Teen Wellness Check" is a valid health risk evaluation instrument.

DEFINITION OF TERMS

The following terms were defined as they relate to this investigation:

Adolescence: ages twelve through twenty.

Health risk factors: attitudes, behaviors, and knowledge which have the potential of affecting one's future health status as indicated by the total health risk score.

Hearing-impaired students: students with an average hearing loss of 50 decibels or greater in the better ear.

Personal data: information obtained from school records including: degree of hearing loss, percentage speech discrimination, reading achievement level, age of

onset of hearing loss, and communication system used in the educational setting.

Speech discrimination: percentage of speech perception ability when employing amplified residual hearing and lipreading (Pronovost, 1978).

Teen Wellness Check (TWC): computerized program developed by the Rhode Island Department of Health to assess self-reported health risks.

Communication systems (Bess & McConnell, 1981):

Manual: any combination of sign languages and finger spelling.

Oral: emphasis on the use of speechreading and hearing (with individual and group aids).

Total communication: any combination of the manual and oral systems.

SUMMARY

This chapter introduced the study to assess the health risk factors of hearing-impaired adolescents. Demographic characteristics of hearing-impaired students were described. Research questions were listed. The significance of the problem was stated in terms of the right of all children to

an appropriate education and of the need for data on health risk factors. Limitations, delimitations, and assumptions were stated. Significant terms were defined as they relate to this study.

CHAPTER II

REVIEW OF RELATED LITERATURE

This chapter contains a review of the literature related to the study of health risk factors among hearing-impaired adolescents. The first section summarizes the following characteristics of hearing-impaired people: language development as it relates to learning and socialization; special health needs; and health education, including aspects of health knowledge, attitudes, and practices in the areas of mental health, suicide, sexuality, substance abuse, and physical fitness. The second section examines teen health risk appraisals. The third section discusses research conducted with hearing-impaired people and related in methodology.

CHARACTERISTICS OF HEARING-IMPAIRED PEOPLE

LANGUAGE DEVELOPMENT

Language development occurs as young children pass through the stages of cognitive development (Boothroyd, 1982). The critical period of language acquisition may end by the age of 6 or 7 (Rampp, 1979). Without intensive language instruction, the typical 5-year-old child who was hearing-impaired at birth understands less than 25

vocabulary words whereas the average hearing peer knows about 2000 words (Meadow, 1980). Although language deprivation does not imply impaired cognitive functioning, deficits are observed where understanding depends on language (Hogg & Sebba, 1986).

Nonverbal performance IQ scores of hearing-impaired children fall within the normal range although the mean is slightly lower than that of hearing peers (Meadow, 1980). Academic performance, however, does not generally equal mental capability. Whether the major difficulty is essentially a language problem or actual cognitive deficits is unknown (Crandall, 1978). The performance of 40 hearing and 40 hearing-impaired preschool children showed comparable cognitive development for the two groups at each age (Bond, 1987). In any event, difference in some cognitive areas does not imply inferiority in cognitive, linguistic, and educational development (Quigley & Paul, 1984).

Academic achievement, especially reading proficiency, varies according to school setting (integrated with or separated from hearing peers). The two types of programs differ by parental hearing status, degree of hearing loss, age at onset, socioeconomic levels, and multihandicapping conditions. Each of these variables has some relationship to academic achievement (Kampfe, 1984). Mainstreamed students typically have higher scores than segregated

students, with the more fully integrated students receiving the highest scores.

Reading achievement scores for hearing-impaired students are below norms for hearing peers. In 1916, Pinter and Patterson reported median reading scores for hearing-impaired students 14 to 16 years old to be the same as norms for hearing students 9 years old. Of the 5300 hearing-impaired students between the ages of 10½ and 16½ tested on the Metropolitan Achievement Test in 1959, less than 10% read at the fourth grade level (Wrightstone, Aranow, Moskowitz, 1963). In analyzing that data, Furth (1966) noted that the average gain in reading grade level was less than 0.2 per year in school. On the Columbia Vocabulary Test, average scores for 15-year-old hearing-impaired students were less than those of 9-year-old hearing students (Myklebust, 1964).

Longitudinal studies conducted by the Office of Demographic Studies of Gallaudet College support the earlier studies previously cited (Quigley & Paul, 1986). Testing of a stratified random sample of nearly 7000 hearing-impaired students led to the development and national standardization of a Special Edition of the 1973 Stanford Achievement Test. Half of the students at any age from 10 to 20 scored below grade 4.5 in reading (Trybus & Karchmer, 1977).

Some researchers feel that even the relatively low reading levels estimated for hearing-impaired students are

actually inflated. Walter (1978) compared 227 hearing children with 199 hearing-impaired children in their ability to understand words on a frequency based vocabulary test. Hearing-impaired 14-year-olds were correctly reading even the most common words with only 50-60% accuracy whereas hearing peers were functioning at 95-97% accuracy.

Despite the difficulty most hearing-impaired children have with reading the English language (King & Quigley, 1985), comparative studies revealed that reading is the most efficient method of transmitting information (Rodda & Grove, 1987). Several factors may account for the low test scores and call for further research: test format may cause a variation in scores; a low comprehension score may actually reflect a low sight vocabulary; understanding abstract ideas may be hindered by complex syntax; hearing and hearing-impaired students differ in strategies used to answer reading test questions; and tests are often based on short sentences which do not allow for contextual support seemingly needed by the hearing-impaired students.

SPECIAL HEALTH NEEDS

Hearing-impairment has an impact on other health needs (Chapman, 1975). Regular monitoring of the hearing loss and counseling about hearing conservation is important but not typical. Since dental caries and improper bite can cause ear pain and affect the shape of the ear canal and

Eustachian tube, early and regular dental checkups are necessary. Nutrition also affects the health of teeth and gums.

Several factors complicate the delivery of health care to hearing-impaired teens (Miner, 1984). Public health advertising in the mass media has had little impact on the hearing-impaired teen. Many cannot read well enough to understand directions for such things as medications and contraceptive devices. Most hearing-impaired adolescents have little knowledge of their own medical history because they cannot easily communicate with their parents unless they also sign.

Lack of skilled interpreters and the difficulties inherent in writing notes or lip reading hinder communication between nurse or physician and patient. Since sign language is public and a few interpreters often serve one hearing-impaired community, there has been reluctance on the part of some to involve interpreters even when available, especially in emotional and family problems (Nemon, 1980).

Basic information about anatomy, body systems, and sexuality are often lacking. One hearing husband said that his hearing-impaired wife "was 'like someone from an isolated tribe' in her current limited information and ideas about health" (Nemon, 1980, p. 22).

HEALTH KNOWLEDGE, ATTITUDES, AND PRACTICES

Mental health

Since many psychological tests used with hearing-impaired people were designed for the hearing, the language and contextual situations are inappropriate and thus the results often have no meaning (Garrison & Tesch, 1987). Currently few instruments applicable to hearing-impaired children or adults are available to use with research on personality, intelligence, or psychological impairment. Loeb & Sarigiani (1986), however, used well-chosen tests and had an interpreter for those not in the oral/aural program. The hearing-impaired children (ages 8-15) had significantly lower self-esteem scores than the visually impaired and those without sensory handicaps. Hearing-impaired children reported that they were unpopular, had a hard time making friends, and were infrequently chosen as playmates.

The behavior of significant others which is not caused by the hearing loss itself may hinder social/emotional development, thus compounding the assessment of the adjustment of hearing-impaired children (Moores, 1978). Based on a sample of 58 children ages 5-11 with hearing losses from severe to profound but without additional handicaps, Warren and Hasenstab (1986) found that parental child-rearing practices were the best predictors of self-esteem in the hearing-impaired children. In another study, hearing-

impaired adolescents with hearing parents had lower self-esteem scores than hearing-impaired adolescents with hearing-impaired parents (Yachnik, 1986).

Additional impairments not inherent in the hearing loss itself may also affect development, depending on the etiology of the deafness (Moores, 1978). The hearing-impaired population is complex and diverse; it is not a single unit with all members having the same stereotypical characteristics (Bond, 1981). Despite methodological problems, the rates of serious emotional disturbances are higher (perhaps three to six times higher) among hearing-impaired children than among the normal-hearing (Meadow & Trybus, 1979). The majority of hearing-impaired children, however, have neither behavioral nor psychiatric disorders (Freeman, 1979). As with other handicapping conditions, many interacting variables affect psychological adjustment so that severity of loss alone cannot predict it (Diller, 1972). Kennedy (1973) advocated improved guidance and counseling of hearing-impaired children and their parents and teachers to combat the increased likelihood of mental health problems associated with deafness.

According to educators, counselors, and researchers in the field of deafness, many hearing-impaired adolescents and adults appear socially immature and encounter social difficulties (Emerton, Hurwitz, & Bishop, 1979). White (1982) reported that educators from six schools for hearing-

impaired students ranked these competencies as those their students most needed to improve: accepting responsibility for one's actions; awareness of one's values, strengths, weaknesses, interests, and goals; and the ability to make sound decisions. Dixon (1983) found that both residential and day students attending a school for the hearing-impaired possessed adaptive behavior skills necessary for independent living. Residential students, however, exhibited more rebellious and untrustworthy behavior than day students. Mean scores of 40 middle-class hearing-impaired students on the Missouri Children's Picture Series were similar to those of children with behavior problems involving aggression and physical complaints (Davis, Elfenbein, Schum, & Bentler, 1986).

Few hearing-impaired adults totally integrate with hearing friends and thus turn to the hearing-impaired community for most social experiences (Emerton, Hurwitz, & Bishop, 1979). On the other hand, during a research interview in a mainstreamed setting, a hearing-impaired student said, "I like being in hearing classes because the hearing students are more mature" (Rittenhouse, 1987, p. 25).

Compared to the residential student, the mainstreamed hearing-impaired child may face additional barriers at home and school (Rosen, 1986): lack of TDD's (electronic telecommunication devices); little captioned television; no visual signals for phones and doorbells; communication

difficulties with parents, siblings, and peers; and few hearing-impaired role models. The culturally different hearing-impaired child may also encounter additional disadvantages, especially in the areas of parental attitude toward hearing-impairment, parent-child communication, and educational strategy (Yacobacci-Tam, 1987).

Researchers gave conflicting reports regarding the relationship between hearing loss and juvenile delinquency. Some found no connection between the two problems (Rainer, Altshuler, & Kallman, 1963). Others have found that hearing problems were significantly more prevalent among juvenile delinquents and prison inmates than in the general population (Penner, 1982). Since socioeconomic status was an uncontrolled but possibly important variable in the latter studies, future work may reveal that hearing loss is an intervening variable between socioeconomic status and juvenile delinquency.

Suicide

Suicide is the third leading cause of death among teens and young adults, and rates continue to increase in those age groups (Healthy People, 1979). Two recent studies reported the first research on suicide rates among hearing-impaired adolescents. The Columbus Task Force surveyed 125 residential and day schools and 71 mental health centers serving hearing-impaired people; suicide attempt rates increased over 100% during 1978-1982. The task force

concluded that hearing-impaired teens need suicide prevention programs as much as normal-hearing teens. An educational guide based on the Madison (1978) suicide prevention model and a film using American Sign Language were subsequently developed (Sheridan, 1987).

The California School for the Deaf initiated the development of a suicide intervention program when survey results indicated suicide rates for hearing-impaired teens were as high as those of hearing peers (Critchfield, Morrison, & Quinn, 1987). All pre-college programs in the country with at least 100 students and a sample of the larger post secondary programs received questionnaires. Within the preceding twelve months 1.7% of the students had made a suicidal attempt, 3.7% had verbalized suicide intentions, and 0.86% had been hospitalized for a suicidal or depressive episode.

Since hearing-impaired children have high rates of behavioral problems as well as educational difficulties, they are at increased risk of suicide (Greenberg, Kusche, Gustafson, & Calderon, 1984). Critchfield, Morrison, & Quinn (1987) cited these suicidal risk factors which may be related to hearing loss: self-acceptance; unclear expectations; alienation from family and peers; an institutional environment; and lack of support systems.

Sexuality

Accepting one's own sexuality and respecting personal sexual needs and that of others is one of the tasks of adolescence (Lewis, 1982). The hearing-impaired and other handicapped are people with sexual needs very much like the nonhandicapped (Fitz-Gerald, Fitz-Gerald, & Williams, 1978), although they may be delayed in their psycho-social development (Baugh, 1984).

Sex education is often nonexistent, even for the nonhandicapped child. In 1984, Kirby reported that less than 10% of normal-hearing public school children received a formal course in sex education. In an interesting survey, Tennessee legislators, State Board of Education members, and local school board chairs perceived sex education as one of the least important of the health content areas (Mitchell, 1982). In another study in the same state, students chose sex education as being one of the areas they were most interested in studying (Hamrick, 1973).

While two-thirds of the residential facilities for the hearing-impaired reported a formal program of sex education, the quality varied greatly, and many appeared to be crisis-oriented rather than comprehensive (Fitz-Gerald & Fitz-Gerald, 1976). Whether planned or not, however, there is a sex education program in every residential school because peers inform one another (Kline, 1968). A comparative study of 75 hearing-impaired adults and 75 normal-

hearing adults found that the hearing-impaired adults were three times more likely to identify peers as significant sources of childhood sex information than were hearing adults (Fitz-Gerald & Fitz-Gerald, 1987).

Science teachers representing 326 programs serving hearing-impaired students described the adequacy of sex education in their respective curricula. Their responses indicated that 42% felt it was poor while only 16% believed it was excellent (Lang & Propp, 1982). The majority of teacher-training programs for deaf education did not offer a course in sex education or even general health education (Flinn, 1982). Most British teachers of the hearing-impaired also had little background for teaching health or sexuality courses (Lewis, 1982). Parents, however, were overwhelmingly in favor of including human sexuality in the secondary curriculum (Love, 1983; Pearson, 1979).

According to Schlesinger and Meadow (1972), the hearing-impaired child enters adolescence with an incomplete resolution of the previous Eriksonian developmental stages: the development of trust; the development of autonomy versus shame and doubt; and the development of a sense of initiative with a feeling of purpose and self (Schlesinger, 1978). Language deprivation and lack of opportunity for developing mature friendships with the opposite sex hinder learning about interpersonal relations. Since it is quite likely that the 21-year-old hearing-impaired person could leave

school without ever having had a date, the natural progression of emerging sexuality may be thwarted by the residential setting (Cohen, 1978).

Residential schools for hearing-impaired students have traditionally restricted interactions between members of the opposite sex. One survey of high school residential students found that 61% had no significant dating experience (Rainer, Altshuler, & Kallman, 1963). Of those who eventually married, 30% had no special boy or girl friend prior to their spouse.

Homosexual activity was reported among some residential hearing-impaired students (Rainer, Altshuler, & Kallman, 1963). Zakarewsky (1979) found homosexual hearing-impaired people were generally fearful that their sexual preference would be exposed. Since hearing-impaired people tended to hold traditional/stereotypical views of social behavior (Kolvitz & Ouellette, 1980), homosexuality imposed an additional burden on the youth who usually already had communication difficulties and a lack of factual sexual information (Phaneuf, 1987).

Misinformation may be as great a problem as lack of information for many who are hearing-impaired. In a study reported by Grossman (1972), hearing-impaired students at Gallaudet University believed more sexual myths and had more frequent sexual activity than hearing peers. Cohen (1978) reported on a 15-year-old girl who believed she was pregnant

because she had been kissed by a boy. McGinnis (1981) was concerned about the results of a sex education lecture on two major types of venereal disease (VD); one teen was certain a fellow student had VD because of a rash on his elbow. Lewis (1982) told of 16-year-olds who believed that: pregnancy without marriage meant going to the devil at death and having the child turn into a wolf; birth control pills cause the body to turn hairy all over; and that intercourse cannot lead to pregnancy if the girl is still a teen.

While mass media are potentially educational, they can also transmit sexual values out of perspective. It is sometimes difficult for the hearing-impaired child to realize that the attention-getting crimes, X-rated movies and sexist advertising are not normal patterns for the majority of adults (Miller, 1973). Sendelbaugh (1978) reported that hearing-impaired students watched television nearly 37 hours a week as compared to the normal-hearing student who watched 20 hours a week.

While baseline data are not available for hearing-impaired adolescents, anecdotal evidence suggested that they are as sexually active as their hearing peers (Fitz-Gerald & Fitz-Gerald, 1984). These teens are at a particular risk for pregnancy and sexually transmitted diseases because of lack of information and lack of access to health care services. Miner (1984) reported that it was common to find older teens who have never seen any contraceptive devices.

Adolescent parenting posed the additional risk of violence. Miner (1987) reported that her small sample of adolescent hearing-impaired mothers was undereducated, unemployed, socially isolated and lacking in knowledge and skills necessary for proper parenting; thus, at risk for abusing their children.

Although little data are available, experts in child abuse prevention and special education believe that handicapped children are at high risk for abuse (Morgan, 1987). Disabled children have little access to physical/sexual protection and prevention programs (Krents, Schulman, & Brenner, 1987). A task force in the Minneapolis-St. Paul area found a significant number of hearing-impaired people involved in spouse abuse, child abuse, or child neglect (Egley, 1982).

Substance use and abuse

Using and abusing alcohol and other drugs has been increasing among teens (Healthy People, 1979). Research suggests that handicapped people may be at even higher risk for substance abuse than nonhandicapped peers (Hepner, Kirshbaum, & Landis, 1980/1981). Estimates are that 15-30% of the disabled population as a whole are substance abusers (Steitler, 1984). In addition, 25-30% of the hearing-impaired people diagnosed as mentally ill may actually be suffering from substance abuse. Isolation, communication barriers, and increased stress levels possibly predispose

the hearing-impaired adolescent to higher risk for substance abuse. Because of these same factors hearing-impaired youth are less likely to be identified in the early stages (Klein & Acevedo, 1987).

Locke (n.d.) reported the incidence of substance abuse among eleventh and twelfth graders at a senior high school for hearing-impaired students. The majority of respondents (57%) indicated that they usually drank alcoholic beverages. Five reported prior arrests for traffic violations involving alcohol. Of the current users of drugs other than alcohol (33%), all were 14 years old or younger when they first began the drug use.

While many secondary schools have substance abuse prevention programs for nonhandicapped students, few schools have programs designed for hearing-impaired students. In 1983, a substance abuse curriculum was developed at the Kansas School for the Deaf (Kapp, Clark, Jones, & Owens, 1984).

Even in treatment, resistance and relapse rates are worse for the hearing-impaired individual (Kusche, Greenberg, Calderon, & Gustafson, 1987; Wentzer, 1986). Reasons for these poor rates include: belief in old myths that deny the disease concept; lack of appropriate services with qualified interpreters in the local community; lack of background information/vocabulary as a basis for learning

new concepts; mistrust of hearing professionals; and high cost of services.

Physical fitness

A random sample of 50 freshmen hearing-impaired students entering Gallaudet University performed at a "fair to average" level based on standard 1½ and 2 mile runs. Results of a test asking for definitions of 35 fitness-related terms showed that the freshmen had only minimal understanding of basic fitness concepts. While lack of a comparable sample limited the study, average fitness levels for hearing-impaired postsecondary students did not differ significantly from hearing peers. General knowledge of fitness concepts, however, was very low among hearing-impaired students, significantly lower than that of hearing peers on a similar test (Minter & Wolk, 1987).

TEEN HEALTH RISK APPRAISALS

Health risk appraisals were introduced in the 1950's as a health promotion tool for physicians who could inform patients of their calculated risk of dying within a certain time span unless specific hazardous behaviors were changed (Robbins & Hall, 1970). While health risk appraisals in their current developmental state have some flaws, they have widespread use and popularity in research and have been effective in increasing both knowledge and behavior change

(Fielding, 1982). Health departments, universities, and health businesses such as hospitals, insurance companies, and representatives of health-related products have found the health risk appraisal useful for risk assessment and health promotion (Hyner & Melby, 1985). Health risk appraisals, however, should be considered as only one part of an educational strategy (Petosa, Hyner, & Melby, 1986). A comprehensive program should immediately follow the assessment (Wagner, Beery, Schoenbach, & Graham, 1982).

Several factors contribute to the popularity of health risk appraisals: 1) They provide a useful aid to teaching; 2) They are relatively simple and inexpensive to administer; 3) They combine state-of-the-art technology with epidemiological data; 4) Their emphasis is on the currently popular theme of self-responsibility; 5) Microcomputer use has meant the involvement of commercial interests (Wagner, et al., 1982).

Since most risk factor values depend on data derived from middle-age, middle-class, white subjects, adult health risk appraisals may be inappropriate for use with teens (Neutens & Pursley, 1985). In addition, health risk appraisals focusing primarily on physiological measures do not accurately assess school-age children and adolescents who generally show normal physiological parameters, but often practice behaviors that could eventually contribute to physical problems (Petosa, Hyner, & Melby, 1986).

The first health risk appraisal for adolescents began when the National 4-H Council gave the Florida Cooperative Extension Service funds to develop a program for teens in four rural, medically underserved counties. The project "4-H FOR LIFE" (Lifestyle Improvement for Everyone) had construction of a teen health hazard appraisal model as the major goal. Consultants from the Bureau of Health Education, the Society of Adolescent Medicine, and the Society of Prospective Medicine worked together to improve the original model. They converted the concept of health risk age to a scoring system based on a 100 point scale where lifestyle behaviors dictated the addition or subtraction of points. Factors out of personal control were not penalized. The resultant Computerized Health Risk Profile was subsequently administered at middle and high schools in two counties and at the local extension offices in two other counties. The Health Profile served as a tool to create interest in health and as a needs assessment on which to base a health education curriculum (Moody & Rienzo, 1981).

In 1981 the Center for Health Promotion and Education at the Center for Disease Control began cooperative work with the National 4-H to develop a health risk appraisal for teens. Based on the "Health Profile" piloted in Florida, the revised "Teen Health Risk Appraisal" underwent some field testing in Florida and Georgia. While the printout is on a seventh grade reading level, the survey is appropriate

for ages 12-18. The program also has the capacity for more sophisticated messages and for adding age and sex-specific or sensitive questions (Pursley, 1987c). One researcher found that the appraisal aided experimental students in identifying positive and negative behaviors influencing health, but limited funds put further development of the "Teen Health Risk Appraisal" on hold (Phillipp, 1985).

"I'm a Health Nut" is an adolescent health risk appraisal developed by the St. Paul Division of Public Health and the St. Paul Public Schools. Designed primarily for students in grades seven and eight, the instrument has also been used with older teens and in various settings (Goulding & Peterson, 1983). Responses to the questions on family and personal health, lifestyle, feelings, and locus of control yield a health appraisal age. The computer printout portrays the lifestyle assessment of an adult of forty years based on the teen's current health behaviors (Office of Disease Prevention and Health Promotion, 1986; Pursley, 1987a).

The "Teenage Health Risk Inventory" was developed by Healthtech Industries of Wakefield, Rhode Island. Designed for adolescents in grades 9-12, the instrument consists of 10 demographic questions and 40 health risk questions with the option for the user to provide an additional 10 questions. Each respondent receives an individualized printout with advisory messages and a health score of 0-100. Both

keyboard input and card reader versions are available (Pursley, 1987b).

"TEEN WELLNESS CHECK"

In this study, the health risk inventory of choice was the "Teen Wellness Check." Developers of the "Wellness Check," an adult health risk appraisal, created this teen version for use with adolescents in grades 7-12. In 1979, the Office of Health Promotion of the Rhode Island Department of Health began experimenting with different health risk appraisals as a tool for health assessment and promotion. Frustrated by the amount of time it took to get feedback to participants, they enlisted the aid of a computer specialist to work on a new program. This led to the incorporation of a scanning method, running the answer card through an optical mark reader for an immediate printout, with a type-in version as a backup. The format included capabilities for making profiles and cross tabulations. Referenced by page number on the individualized printouts, The Way to Wellness and The Way to Wellness for Teens provided more information about risk factors which threaten health. Due to demand from over fifty organizations, the "Wellness Check" became available commercially in December of 1982. More than 33,000 citizens of Rhode Island have completed the "Wellness Check" (Marciano, 1983).

The "Teen Wellness Check" includes questions on demographics, nutrition, drug use, exercise, and safety. An individualized printout gives each participant advisory messages and a health score (Rhode Island Department of Health, 1985). Over 14,000 students in at least 55 settings have taken the "Teen Wellness Check" to assess self-reported health risks (Marciano, 1985). Researchers gathering data for statewide adolescent health needs assessment have also used the instrument (Siegel, 1987; Fortune, 1988).

Computed on the basis of assigned weights to each answer, points on the "Teen Wellness Check" begin with base scores of 76 for females and 77 for males. Demographics and all but one of the female-only questions are not included in the calculations. Responses to the other questions range in value from +3 to -6. For example, in answer to the question "How many days in a typical week do you eat breakfast?" possible responses and their weights are: everyday (+1); 5 or 6 days a week (0); 2 to 4 days a week (-1); 1 day or none (-1). The total score places the participant in one of four health risk categories: excellent, fair, risky, and hazardous.

Finding agreement between two different measurements of the same variable is the basis for saying an instrument has validity (Kidder, 1981). Content validation involves making a judgment about the representativeness of the questions. Face validity, one aspect of content validity, is concerned

with whether an instrument measures what it purports to measure (Phillips, 1972). This logical validation comes naturally from carefully defining the index being measured and choosing appropriate test items (Goode & Hatt, 1952). Evaluating face validity is a subjective process (Kidder, 1981), but in some decisions of whether to accept or reject an index of measurement, the face validity judgment is the greatest factor (Stephens, 1968). The "Teen Wellness Check" appears to have face validity (Pursley & Dewey, 1988).

RELATED METHODOLOGY

A questionnaire administered in sign language assessed the health knowledge, attitudes, and practices of hearing-impaired adults in New Orleans (Lass, Franklin, Bertrand, & Baker, 1978). Due to sampling procedures, the population studied seemed to be younger and better educated than a random sample would have been. The majority of respondents knew how and where to get medical care and were satisfied with the services. The major problem was difficulty communicating with their physician as indicated by 44% of those sampled. Less than half were able to give correct definitions for common medical terms. Most (94%) did not know the easiest time of the month for a woman to become pregnant. Only 24% knew the normal body temperature. Almost all had recent contact with a physician, but only 28% had seen a

dentist within the last year while 29% reported never having visited a dentist.

Using a nonprobability, accidental sampling method, Locke (n.d.) determined the incidence of substance abuse at a senior high school for hearing-impaired students. All respondents were able to read and write. The substance abuse section in this chapter describes findings of this study.

Pahz (1980) developed a questionnaire to determine teachers' perceptions of the health status of their hearing-impaired students. Health concerns did not differ between teachers of public residential and public day students. Results indicated that students lacked information in subject areas such as "understanding the body" and "sex education." Only about a third of the teachers had any training regarding the special health needs of hearing-impaired children.

Two investigations used questionnaires revised for hearing-impaired persons. Loeb & Sarigiani (1986) chose a children's locus of control scale shortened and linguistically simplified for special use with hearing-impaired children. Mowry (1985) adapted three measures of psychological well-being previously used with hearing persons so the majority of hearing-impaired adults could understand the items. After a small pilot study (N=7), a larger sample (N=49) completed the revised questionnaire. Mowry assumed

that the language of standard tests was not appropriate for adults hearing-impaired from a young age. During data collection, the administrator used some sign language in explaining directions, but respondents answered test items using pencil and paper.

Three investigations used reading achievement as a criterion for participating in the study or as a variable for correlation with another measure. Tackett (1985) simply had the language teacher exclude those students she felt were deficient in reading and language skills necessary for participation. To minimize reading level differences between hearing and hearing-impaired populations, Yachnik (1986) chose students from colleges with similarly high admission standards. A pilot study revealed that the hearing-impaired population sampled had adequate understanding of the questionnaire content and format. Although developed with the hearing, the self-esteem instrument used was felt appropriate for the investigation because responses of hearing-impaired students were only compared with responses of other hearing-impaired students, and group results were not compared to norms established with the hearing. Hagborg (1987) correlated sociometric ratings and reading achievement as determined by the Stanford Achievement Test-Hearing Impaired Edition (SAT-HI, 1974).

This section reviewed research describing methodology similar in some aspect to that used in the current study.

Three investigations looked at health status, knowledge or practices of the hearing-impaired. Two researchers found it necessary to revise their instrument into the language and syntax of hearing-impaired people. Three other studies were similar in the use of the reading achievement level.

CHAPTER III

METHODOLOGY

The problem of this study was to assess health risk factors of hearing-impaired adolescents. Data were collected using a revised version of a computerized teen health risk inventory and a personal data sheet. The "Teen Wellness Check" was completed by the students and personal data were obtained from school records. The nonparametric data were tabulated, calculated and analyzed to answer the research questions.

SUBJECTS

The population for this study included all hearing-impaired students enrolled in four Tennessee programs who met the following criteria: age 12-20; in grades 7-12; a hearing loss of at least 50 decibels in the better ear; and a reading level of at least 2.0. These four programs serving the majority of hearing-impaired adolescents in the State were the Tennessee School for the Deaf (TSD), Memphis City, Metro Nashville, and Hamilton County. They were estimated to serve 200 students that were eligible to participate in this study.

INSTRUMENTATION

This section describes the personal data sheet, adaptation of the "Teen Wellness Check" for hearing-impaired teens, and two pilot studies used to test the instrument.

PERSONAL DATA SHEET

After consulting with three university professors (of special education and adapted physical education) and TSD faculty, the researcher designed a personal data sheet which was completed from school records. The questionnaire asked for information regarding the following: degree of hearing-impairment; age of onset of hearing loss; reading achievement level; percentage of aided speech discrimination; and system of communication used in educational instruction. (See Appendix A).

ADAPTING THE "TEEN WELLNESS CHECK"

Three preliminary meetings with TSD supervising teacher of Health, Physical Education, and Driver Education and two specialists in deaf education at the University of Tennessee revealed that the "Teen Wellness Check" ("TWC") in its present form could not be understood by the majority of hearing-impaired adolescents. Consideration was given to videotaping sign language; that idea was discarded because of the variations in signing (e.g., some schools use

American Sign Language and some use Signed Exact English) and that some schools use no manual communication at all. The consensus was that a pilot tested instrument written with carefully controlled syntactic structures and vocabulary would be understood by the majority of the subjects.

A professor of deaf education and one of his graduate assistants wrote the first revised draft of the "TWC." Two TSD instructors experienced in revising standard English for hearing-impaired adolescents completed the second draft. This draft was sent back to the professor for minor changes and became the revised version for the pilot study (See Appendix B).

The graduate assistant also revised the introduction to the individualized printout and the 30 possible advisory messages. (See Appendix C.) Revision was done according to levels 1-4 on the scope and sequence chart for the language handicapped child (Hargis, 1984).

In cooperation with Healthtech Industries of Wakefield, Rhode Island, a computer program was designed to incorporate the personal data sheet and revised advisory messages with the original "TWC." While the keyboard entered information did not affect health risk scores, the set up allowed for statistical procedures to be run on data from both questionnaires.

PILOT STUDIES

A Home Economics class at TSD consisting of eight students with reading levels 2.0-2.9 as determined by the Stanford Achievement Test-Hearing Impaired Edition (SAT-HI, 1974) were chosen to test readability of the instrument. Since most of the students lived in dormitories on campus, the TSD Director of Instruction mailed consent forms to the parents. After the consent forms with appropriate signatures had been received, the researcher met with the teacher to explain the purpose and procedures for the pilot study.

Using sign language, the instructor gave the students a brief introduction to the "TWC" and explained that the purpose of the pilot study was to determine if students could understand what each of the questions was asking. She encouraged them to be critical of anything they could not understand.

The students read and answered questions 1-6 without assistance. When all had completed those questions, the instructor signed each question and possible answer. She asked if the students agreed with that interpretation of the question, noting any problems they had with the written format. When questions 1-6 had been signed, the students completed another section of the survey and then discussed it as they had the first six questions. Seven students completed the first pilot study which took approximately three class periods spread out over several days. Their

scan forms were run through the optical mark reader to be certain students were able to correctly complete them.

The first pilot study led to slight changes in the wording of several questions. The original statement, "If you have sex with many people, you will probably get VD." was changed to "A person has sex with many people. The person will probably get VD." so it was clear that the question did not ask about what they planned to do. "I play sports" was expanded to "I dance, bowl, golf, or play tennis or other sports" so that team sports was not implied. "I lost five pounds in the past few months and I did not diet" was turned around to be "I did not diet and I lost five pounds in the past few months." "Did you get shots to stop measles?" became "Did you get shots to prevent measles?"

The pilot study also led to a few changes in possible responses to the questions. The format of one response set was changed: Height was listed in inches first (e.g., 58 inches), followed by feet and inches (4'10") to be consistent with currently used health texts. Several other responses were slightly changed: "None" was added to "I do not smoke cigarettes"; "Usually" was changed to "most of the time"; "Sometimes" became "Less than three times a week"; "Few" was substituted with "Not often."

The following vocabulary was predictably difficult: stroke, diabetes, high blood pressure, and blood clot. Since these words were understood when signed and no easier

synonyms could be found, they were left unchanged. Two questions had also been predicted as troublesome: "What is the highest grade you plan to complete?" and "Have you received shots to protect against measles and German measles?" These questions were also left (in their revised form) since they had already been translated into the easiest possible language and the weight of the first was 0 and the second only 1.

A TSD health physical education instructor conducted the second pilot study with four students having a reading level of 3.0-3.9. She gave the instructions in sign language but asked the students to complete the questions on their own as much as possible. Some asked for an explanation of these more difficult vocabulary words: hitchhiker, detector, hysterectomy, menstruation, and marijuana. Questions 5, 16, 30, and 39 were difficult for some to understand but easily explained. It took the students about 20 minutes to complete the survey. The Director of Instruction completed personal data sheets on the four students. The personal data and the "TWC" were run together to be certain the computer program was properly set. The program was sent back to Healthtech Industries for slight modifications.

PROCEDURES

After the pilot studies had been completed, the three additional program directors were contacted by mail followed with a telephone call a week later. (See Appendix D for letter). Each district had a slightly different protocol for conducting research, but all agreed to participate. One director asked that all materials be sent directly to her for distribution to the teachers in the schools in that program. Another director requested that the teachers in the district be contacted directly and provided the names.

The third program director had forwarded the initial letter to the district Department of Research and Evaluation. After evaluating the instruments and consent form, the coordinator of that program sent a packet of materials to each principal with her own cover letter approving the project. The packet contained: a letter to the teacher explaining in detail what would be required if participation was requested; copies of the "Revised Teen Wellness Check," personal data sheet and parental consent forms; directions for administering the "TWC"; purpose of the study; a form requesting materials for those who chose to participate and a self-addressed, stamped envelop. (See Appendix D for letter to teachers and request for materials form.)

Survey forms with complete instructions were given or mailed to program directors or teachers as requested. The general procedures were as follows:

1. School personnel sent parental consent forms home to be signed and returned (See Appendix E for Parental Consent Form.)

2. The teacher, program director or audiologist completed the personal data sheets from school records, establishing a confidential identity code number for each student.

3. Students were given a brief introduction to the "Teen Wellness Check." The teacher gave this introduction from a written copy (See Appendix F) in the manner of communication customarily used in that school. Students were encouraged to be honest so their individual printouts would be of value to them.

4. Students were given the revised "Teen Wellness Check" and coded scan forms.

5. Completed scan forms and personal data sheets were given or mailed to the researcher.

ANALYSIS OF THE DATA

Statistical treatment of the data was designed to assess the health risk factors of hearing-impaired adolescents. Data from the personal information sheet and the "TWC" were tabulated, calculated and analyzed to answer the research questions.

Mean health risk scores were presented by age, gender, race, and combined totals. Other variables such as socio-economic status that might impact on health risk scores were not measured. Individual responses were presented to show the most common health risk factors among these adolescents. Graphs were used to depict frequencies of subscores in seven categories.

Nonparametric tests of significance were used. Spearman rank-order correlations were calculated to analyze the relationships between level of hearing loss, reading level, and speech discrimination and total health risk scores. The Kruskal-Wallis one-way analysis of variance H test was used to determine if significant differences existed in the total health risk scores according to age of onset of hearing loss. The Mann Whitney U test was calculated to indicate significant difference in total health risk scores according to system of communication used in the educational instruction.

SUMMARY

The chapter described methodology used to assess the health risk factors of hearing-impaired adolescents. The subjects were described as hearing-impaired students enrolled in grades 7-12 in Tennessee schools. Instrumentation consisted of a personal data sheet designed by the researcher and the "Teen Wellness Check". The "TWC" was adapted for the hearing-impaired and pilot tested using manual communication to verify the written format. School records provided information for the personal data sheet. Teachers introduced the "TWC" and students completed the scan forms. Statistical treatment of the data consisted of percentages, frequencies, Spearman rank-order correlations, the Kruskal-Wallis one-way analysis of variance, and the Mann Whitney U Test.

CHAPTER IV

ANALYSIS OF THE DATA

This chapter presents and analyzes data to determine the relationship between selected variables of hearing-impaired adolescents and health risk factors. Data were collected from students who responded to questions on the "Revised Teen Wellness Check" and from faculty or staff who completed a personal data sheet on each student.

This chapter is organized into four sections. The first section describes the subjects. The second section clarifies the meaning of the health risk scores, summarizes the subjects by total health risk scores, and then answers the first research question by addressing student responses in the following categories: diet; dental health; exercise; drugs; safety; mental health; sexuality; and female-only. The third section addresses the research questions concerning the relationship of level of hearing loss, speech discrimination, and reading achievement level to total health risk score. The fourth section treats the two research questions regarding difference in total health risk score by groups according to age of onset of hearing loss and communication system used in the educational setting.

DESCRIPTION OF THE SUBJECTS

The sample consisted of 69 students, 39 males (56.5%) and 30 females (43.5%). There were 43 white students (62.3%), 25 black students (36.2%), and one Asian (1.4%). The students were enrolled in grades 7-12; only 4 students, however, were in grade 12. The students ranged in age from 13-20. The majority (89.7%) were between the ages of 15 and 20. Only 7 students were 13 or 14 years old. The age of one student was unknown. Table I presents a summary description of the subjects according to gender, race, age, and grade. Socio-economic status and other demographic variables which might affect health risk factors were not measured.

Subjects were enrolled in one of four Tennessee programs serving hearing-impaired students as follows: Memphis City-34; Tennessee School for the Deaf-22; Metro Nashville-10; and Hamilton County-3. Data from 12 students were not included in the analysis because of a hearing loss in one ear less than 50dB or a reading level less than 2.0.

None of the schools used a manual-only system of communication. Total communication was used in the education of 56 students (81.2%); oral communication was used in the education of 13 students (18.8%).

Table II describes the sample in terms of reading level, hearing loss, and speech discrimination. The group's

TABLE I
CHARACTERISTICS OF STUDENTS BY
GENDER, RACE, AGE, AND GRADE

Variable	#	%*	Mean Score
Gender			
Male	39	56.5	80.5
Female	30	43.5	81.9
Race			
White	43	62.3	80.7
Black	25	36.2	82.2
Asian	1	1.4	
Age**			
13	1	1.5	61.0
14	6	8.8	80.0
15	11	16.2	82.5
16	17	25.0	82.7
17	12	17.6	81.1
18, 19, 20	21	30.9	80.4
Grade			
7	10	14.7	80.1
8	20	29.4	80.0
9	10	14.7	82.4
10	13	19.1	81.7
11	11	16.2	82.4
12	4	5.9	78.0

*Total percentages may not equal 100 due to rounding.

**Data missing from one respondent.

TABLE II
STUDENT READING LEVELS, HEARING LOSS,
AND SPEECH DISCRIMINATION

Characteristic	Mean	Median	Range	N
Reading level (Grade level)				
Total	4.2	3.5	2.0-11.8	64
Male	4.3		2.0-11.8	36
Female	4.1		2.0-7.7	28
White	4.7		2.0-11.8	38
Black	3.5		2.0-6.7	25
Hearing loss (Decibels)				
Right ear				
Total	88	92	53-120+	57
Male	82		53-120	30
Female	94		55-120	27
White	92		53-120	36
Black	81		55-120	20
Left ear				
Total	90	95	50-120	57
Male	84		50-120	30
Female	96		55-120	27
White	93		50-120	36
Black	83		50-120	20
Speech Discrimination (Percentage aided)				
Right ear	74	80	40-99	17
Left ear	66	76	4-99	16

mean reading level was 4.2 with a range of 2.0-11.8 and a median of 3.5. Hearing loss ranged from 53-120+ dB in the right ear (median=92 dB) and 50-120 dB (median=95 dB) in the left ear. Speech discrimination for the 17 students with usable data ranged from 34-99% with a mean of 71% and median of 76%.

For several reasons, data are missing in the categories of reading level, hearing loss, and speech discrimination. A few students were newly enrolled in the program and had not yet been tested for reading level or their score was given in something other than grade equivalent.

The hearing loss of 12 students was not available to the researcher in exact decibels. Their teacher reported, however, that each student had a hearing loss of at least 50 dB in the better ear.

Speech discrimination scores were particularly difficult to obtain. Percentage was not recorded in school records of some students. Data regarding speech discrimination in one school was not made available to the researcher. The measure was not valid for students who were tested and given the percentage "no response."

Hearing loss occurred before the age of 2 for 80% of the respondents whose onset age was reported. Onset age of hearing loss was at birth for 39 students, birth to 2 years

for 6 students, and age 2 or more for 11 students. Age of onset was unknown for 13 subjects.

SUMMARY OF HEALTH RISK SCORES

Computed on the basis of assigned weights to each answer, points on the "Teen Wellness Check" began with base scores of 76 for females and 77 for males. Demographics and all but one of the female-only questions were not included in the calculations. Responses to the other questions ranged in value from +3 to -6.

Health risk scores for all the subjects had a mean of 81.1 with a range from 61.0 to 93.0 and median of 82.0. The mean male score was 80.5 and the mean female score was 81.9. White students had a mean of 80.7 while black students scored an average of 82.2. Table I lists the mean scores by gender, race, age, and grade.

To make the point system more meaningful, developers of the "TWC" assigned total health risk scores to the following categories: hazardous (0-54); risky (55-69); fair (70-84); excellent (85-100). According to this structure, none of the respondents were in the hazardous range, only 4 (5.8%) fell in the risky category, 40 (58.0%) were labelled fair, and 25 (36.2%) were placed in the excellent category. No black students scored in the risky range.

QUESTION 1: What are the most common health risk factors among these adolescents?

Diet

Table III lists responses to the three diet questions. Table IV lists responses to the diet questions by gender. Daily breakfast eaters totalled 52.2% of the sample while 18.8% indicated that they ate breakfast only one day a week or less. Females (63.4%) were more likely to eat breakfast everyday than males (43.6%) and less likely than males to eat it one day a week or less. Black and white students had similar responses.

In response to the question, "How often do you eat from the four food groups?": 73.5% answered "everyday" or "5 or 6 days a week"; 77% of the males and 69% of the females responded in the same manner. More white students (66.7%) ate from the four food groups daily than did black students (48.0%).

The frequency of eating sweets had the poorest scores of the three diet questions. "Everyday" was selected by 23.2% of the students and another 39.1% indicated that they eat sweets at least 3 times a week. More males (69.2%) than females (53.3%) indicated that they eat sweets at least 3 times a week. There were no differences by race.

Figure 1 describes the distribution of scores for the diet category. A detailed explanation of scoring by

TABLE III
RESPONSES TO DIET QUESTIONS

Risk Factor	#	%*
I eat breakfast:		
[A] Every day	36	52.2
[B] 5 or 6 days a week	8	11.6
[C] 2 to 4 days a week	12	17.4
[D] 1 day or none	13	18.8
I eat foods from the four food groups:**		
[A] Everyday	41	60.3
[B] 5 or 6 days a week	9	13.2
[C] 2 to 4 days a week	13	19.1
[D] 1 day or none	5	7.4
How often do you eat sweets?		
[A] Everyday	16	23.2
[B] At least 3 times a week	27	39.1
[C] Less than 3 times a week	25	36.2
[D] Never	1	1.4

*Total percentages may not equal 100 due to rounding.

**Data missing from one respondent

TABLE IV
DIET RESPONSES BY GENDER*

Risk Factor	% of Males	% of Females
I eat breakfast		
[A] Every day	43.6	63.4
[B] 5 or 6 days a week	12.8	10.0
[C] 2 to 4 days a week	18.0	16.7
[D] 1 day or none	25.6	10.0
I eat foods from the four food groups:**		
[A] Everyday	59.0	62.1
[B] 5 or 6 days a week	18.0	6.9
[C] 2 to 4 days a week	18.0	20.7
[D] 1 day or none	5.1	10.3
How often do you eat sweets?		
[A] Everyday	25.6	20.0
[B] At least 3 times a week	43.6	33.3
[C] Less than 3 times a week	28.2	46.7
[D] Never	2.6	0

*Total percentages may not equal 100 due to rounding.

**Data missing from one respondent

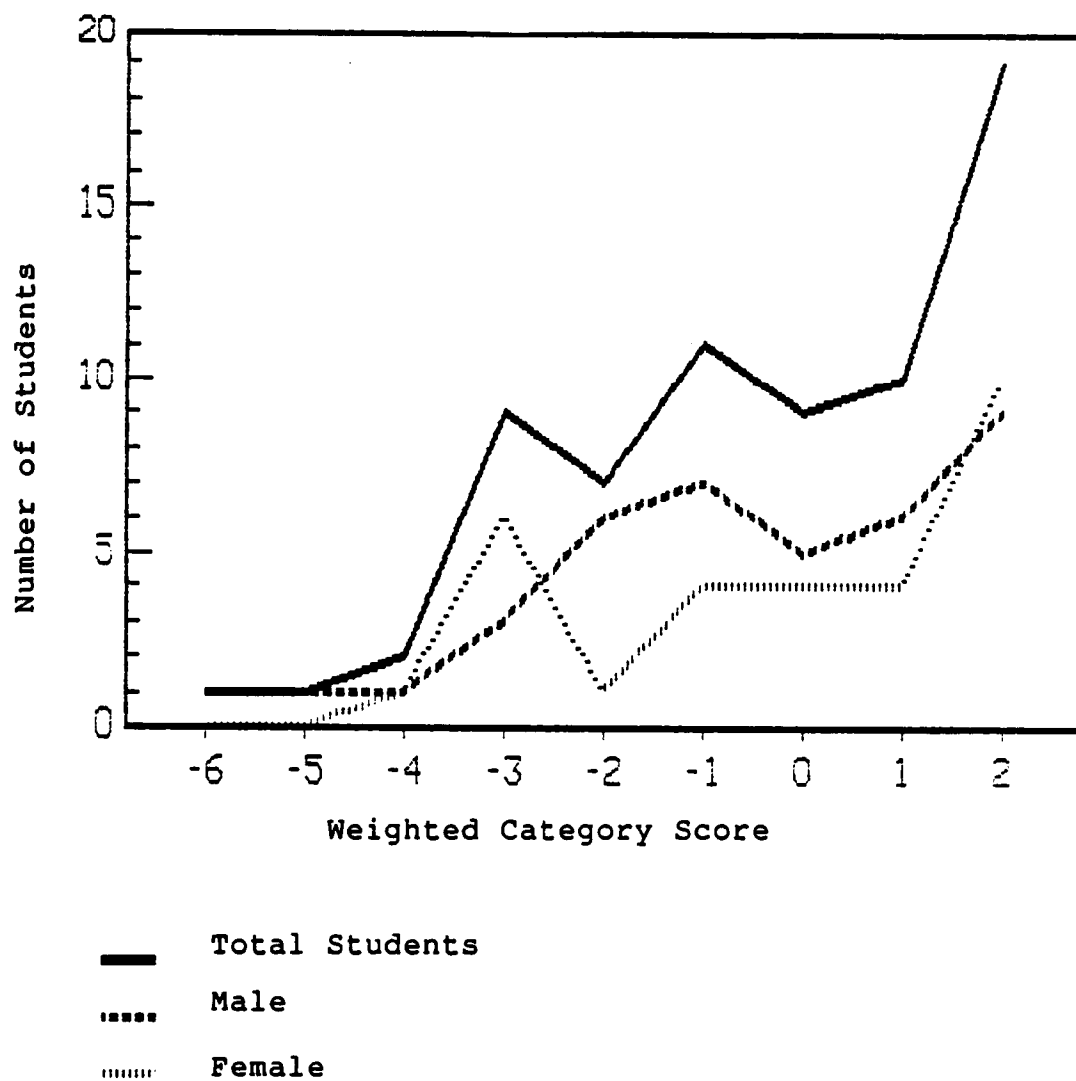


Figure 1. Frequency of total scores in the Diet category.

categories appears in Appendix H. The three questions in the diet category have a total possible score ranging from a high of +2 which represents the best possible responses, to a low of -6, the worst possible responses. A score of either +2 or +1 was received by 42.0% of the students. Only 5.8% of the respondents received the lowest points of -4 to -6 in this category.

Dental health

Table V details responses to the three dental health questions. Table VI lists responses to the dental health questions by gender. Those brushing their teeth everyday equaled 89.9% of the sample. Only 2 students (2.9%) indicated that they brushed their teeth less than three times a week. Females (96.7%) were more likely to brush their teeth everyday than were males (84.6%). There were no differences between black and white students.

Almost half (44.9%) of the students indicated that they never flossed their teeth. Only 7 students (10.1%) reported flossing everyday. "Never" was the chosen response of more males (53.9%) than females (33.3%). More blacks (40.0%) than whites (25.6%) flossed at least 3 times a week.

The majority of both males (76.9%) and females (80.0%) of both races indicated that they had gone to the dentist in the past year.

Figure 2 describes the distribution of dental health scores. The three questions in the dental health category

TABLE V
RESPONSES TO DENTAL HEALTH QUESTIONS

Risk Factor	#	%*
I brush my teeth:		
[A] Everyday	62	89.9
[B] At least 3 times a week	5	7.2
[C] Less than 3 times a week	2	2.9
[D] Never	0	0
I use dental floss:		
[A] Everyday	7	10.1
[B] At least 3 times a week	14	20.3
[C] Less than 3 times a week	17	24.6
[D] Never	31	44.9
I went to the dentist last year.		
[A] Yes	54	78.3
[B] No	15	21.7

*Total percentages may not equal 100 due to rounding.

TABLE VI
RESPONSES TO DENTAL HEALTH QUESTIONS BY GENDER*

Risk Factor	% of Males	% of Females
I brush my teeth:		
[A] Everyday	84.6	96.7
[B] At least 3 times a week	12.8	0
[C] Less than 3 times a week	2.6	3.3
[D] Never	0	0
I use dental floss:		
[A] Everyday	5.1	16.7
[B] At least 3 times a week	15.4	26.7
[C] Less than 3 times a week	25.6	23.3
[D] Never	53.9	33.3
I went to the dentist last year.		
[A] Yes	76.9	80.0
[B] No	23.1	20.0

*Total percentages may not equal 100 due to rounding.

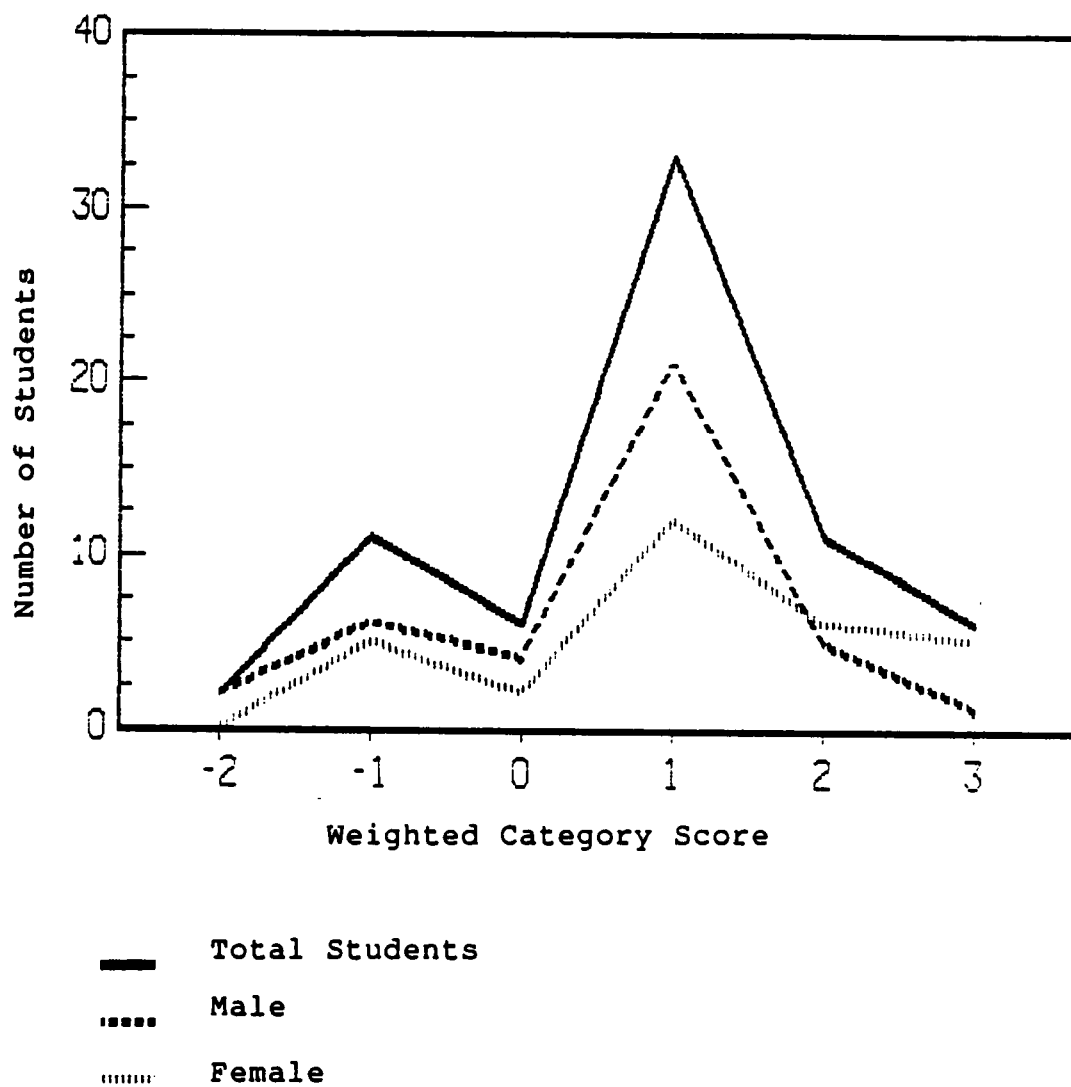


Figure 2. Frequency of total scores in the Dental Health category.

have a total possible score ranging from a high of +3 to a low of -3. Students' scores fell along the entire range of possibilities, but 63.7% received a score of either +1 or +2. Male and female scores were similar.

Exercise

Table VII presents the responses to the three exercise questions. In answer to the question, "How often do you walk a mile or more without stopping?": 21.7% chose "every-day" or "3 or more days a week"; 66.7% responded "sometimes" and 11.6% selected "never." A majority of males (64.1%) and females (70.0%) said that they "sometimes" walk a mile or more without stopping. Table VIII details responses to the exercise questions by gender. More white students (25.6%) than black students (12.0%) indicated that they walk "every-day" or "3 or more days a week."

Only 28.0% of the students indicated that they engaged in aerobic exercises either daily or 3 or more times a week. "Sometimes" was the answer most often chosen by both males (56.4%) and females (44.8%). "Never" was the response given by 7.4% of the respondents, all white students.

Those who reported dancing, bowling, golf, playing ball or other sports either "daily" or "3 or more times a week" totalled 46.3% of the total respondents, males 51.3% and females 40.0%. The most common response was "sometimes" given by 40.6% of the students. Black students (48.0%) played "daily" more than white students (20.9%).

TABLE VII
RESPONSES TO EXERCISE QUESTIONS

Risk Factor	#	%*
I walk one mile without stopping:		
[A] Everyday	8	11.6
[B] 3 or more days a week	7	10.1
[C] Sometimes	46	66.7
[D] Never	8	11.6
I do aerobic exercises:**		
[A] Everyday	11	16.2
[B] 3 or more times a week	8	11.8
[C] 1 or 2 times a week	9	13.2
[D] Sometimes	35	51.5
[E] Never	5	7.4
I dance, play tennis, ball or other sports:		
[A] Everyday	21	30.4
[B] 3 or more times a week	11	15.9
[C] 1 or 2 times a week	7	10.1
[D] Sometimes	28	40.6
[E] Never	2	2.9

*Percentages may not equal 100 due to rounding.

**Data missing from one respondent.

TABLE VIII
RESPONSES TO EXERCISE QUESTIONS BY GENDER*

Risk Factor	% of Males	% of Females
I walk one mile without stopping:		
[A] Everyday	15.4	6.7
[B] 3 or more days a week	10.3	10.0
[C] Sometimes	64.1	70.0
[D] Never	10.3	13.3
I do aerobic exercises:**		
[A] Everyday	18.0	13.8
[B] 3 or more times a week	12.8	10.3
[C] 1 or 2 times a week	7.7	20.7
[D] Sometimes	56.4	44.8
[E] Never	5.1	10.3
I dance, play ball or other sports:		
[A] Everyday	33.3	26.7
[B] 3 or more times a week	18.0	13.3
[C] 1 or 2 times a week	5.1	16.7
[D] Sometimes	41.0	40.0
[E] Never	2.6	3.3

*Percentages may not equal 100 due to rounding.

**Data missing from one respondent.

Figure 3 describes the placement of scores in the exercise category. The three questions in the exercise category have a total possible score ranging from a high of +4 to a low of 0. While scores fell in all possible categories, 68.1% were in either 0 or +1, the lowest possible. Only 5 students received the the highest score of +4. Male and female scores followed similar patterns of distribution.

Drugs

Table IX lists responses to the six questions regarding drugs (tobacco, alcohol, and other drugs). Table X lists responses to the drug questions by gender. The majority of the sample (87.0%) indicated that they did not smoke cigarettes. Males and females had similar answers. Six white students and one black student said they had quit smoking. The 2 white smokers indicated they planned to quit at some point in the future. Only one respondent reported use of snuff or chewing tobacco.

Of the students surveyed, 82.6% said they did not drink alcohol. Only one student reported drinking more than one or two drinks a day. Only one student indicated that she ever used alcohol with other drugs. While 92.8.% of the respondents reported "never" driving under the influence of alcohol or riding in a car when the driver was drunk, five white students indicated that they "sometimes" or "very seldom" did this. Other responses did not differ by race.

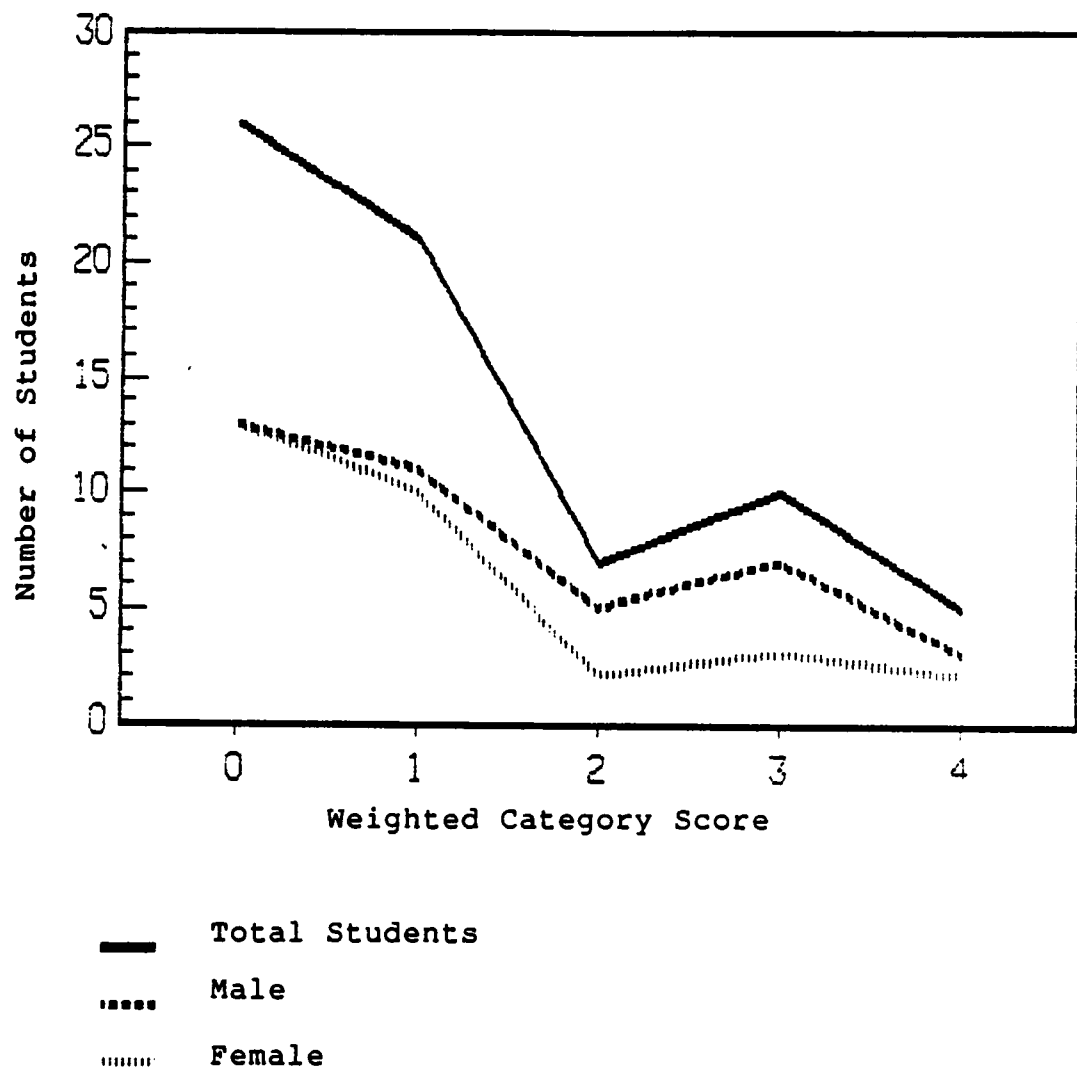


Figure 3. Frequency of total scores in the Exercise category.

TABLE IX
RESPONSES TO DRUG QUESTIONS

Risk Factor	#	%*
How many cigarettes do you smoke?		
[A] None.	60	87.0
[B] I quit smoking cigarettes.	7	10.1
[C] Not more than one pack a week.	0	0
[D] Less than one pack a day.	1	1.4
[E] One pack a day.	1	1.4
[F] Between one and two packs a day.	0	0
[G] Two or more packs a day.	0	0
Will you try to quit smoking?		
[A] I do not smoke.	66	95.7
[B] I do not want to quit.	0	0
[C] I will quit soon.	1	1.4
[D] I will quit before I finish h. s.	0	0
[E] I will quit before I turn 21.	1	1.4
[F] If I get sick, I will quit.	1	1.4
How much alcohol do you drink?		
[A] I do not drink.	57	82.6
[B] I drink one or two drinks a day.	11	15.9
[C] I drink 3 or 4 drinks a day.	0	0
[D] I drink 5 or 6 drinks a day.	1	1.4
[E] I drink 7 or 8 drinks a day.	0	0
[F] I drink 9 or 10 drinks a day.	0	0
[G] I drink more than 11 drinks a day.	0	0
Do you use snuff or chewing tobacco?		
[A] Yes	1	1.4
[B] No	68	98.6
Do you use alcohol with other drugs?		
[A] No, I don't	68	98.6
[B] Yes, often	0	0
[C] Yes, sometimes	1	1.4
[D] Yes, but very seldom	0	0
Do you drive under the influence or do you ride in a car if the driver is drunk?		
[A] No, I don't	64	92.8
[B] Yes, often	0	0
[C] Yes, sometimes	4	5.8
[D] Yes, but very seldom	1	1.4

*Percentages may not equal 100 due to rounding.

TABLE X
RESPONSES TO DRUG QUESTIONS BY GENDER*

Risk Factors	% of Males	% of Females
How many cigarettes do you smoke?		
[A] None.	92.3	80.0
[B] I quit smoking cigarettes.	5.1	16.7
[C] Not more than one pack a week.	0	0
[D] Less than one pack a day.	0	3.3
[E] One pack a day.	2.6	0
[F] Between one and two packs a day.	0	0
[G] Two or more packs a day.	0	0
Will you try to quit smoking?		
[A] I do not smoke.	94.9	96.7
[B] I do not want to quit.	0	0
[C] I will quit soon.	2.6	0
[D] I will quit before I finish h. s.	0	0
[E] I will quit before I turn 21.	0	3.3
[F] If I get sick, I will quit.	2.6	0
How much alcohol do you drink?		
[A] I do not drink.	79.5	86.7
[B] I drink one or two drinks a day.	20.5	10.0
[C] I drink 3 or 4 drinks a day.	0	0
[D] I drink 5 or 6 drinks a day.	0	3.3
[E] I drink 7 or 8 drinks a day.	0	0
[F] I drink 9 or 10 drinks a day.	0	0
[G] I drink more than 11 drinks a day.	0	0
Do you use snuff or chewing tobacco?		
[A] Yes	2.6	0
[B] No	97.4	100
Do you use alcohol with other drugs?		
[A] No, I don't	100	96.7
[B] Yes, often	0	0
[C] Yes, sometimes	0	3.3
[D] Yes, but very seldom	0	0
Do you drive under the influence or do you ride in a car if the driver is drunk?		
[A] No, I don't	92.3	93.3
[B] Yes, often	0	0
[C] Yes, sometimes	5.1	6.7
[D] Yes, but very seldom	2.6	0

*Percentages may not equal 100 due to rounding.

The six questions in the category of drugs have a total possible range of +7 to -36. The lowest score received by any student in this category was -17, and the next lowest score was -6. The scores of 8 students (11.4%) ranged from 0 to +5. The two highest scores, +6 and +7, were received by 85.5% of the respondents. Male and female score patterns were similar. Figure 4 shows the distribution of scores for the drug category.

Safety

Table XI records responses to the eight questions on safety habits. Table XII lists answers to the safety questions by gender. Half (49.3%) of the students reported "always" wearing their seat belt. More females (63.3%) than males (38.5%) always wore a seat belt. More white students (55.8%) than black students (36.0%) chose the response of "always." Eight respondents, indicated that they "not often" or "never" wore one.

In response to the question, "Do you drive faster than the speed limit?": 27.5% answered that they never or rarely drove faster; 30.4% indicated that they sometimes or often drove faster; and 42.0% said they did not drive (more females than males). More white students (55.8%) than black students (16.0%) reported a non-driving status.

Regular helmet wearers constituted 18.8% of the sample. Most of the students (66.7%) indicated that they never ride

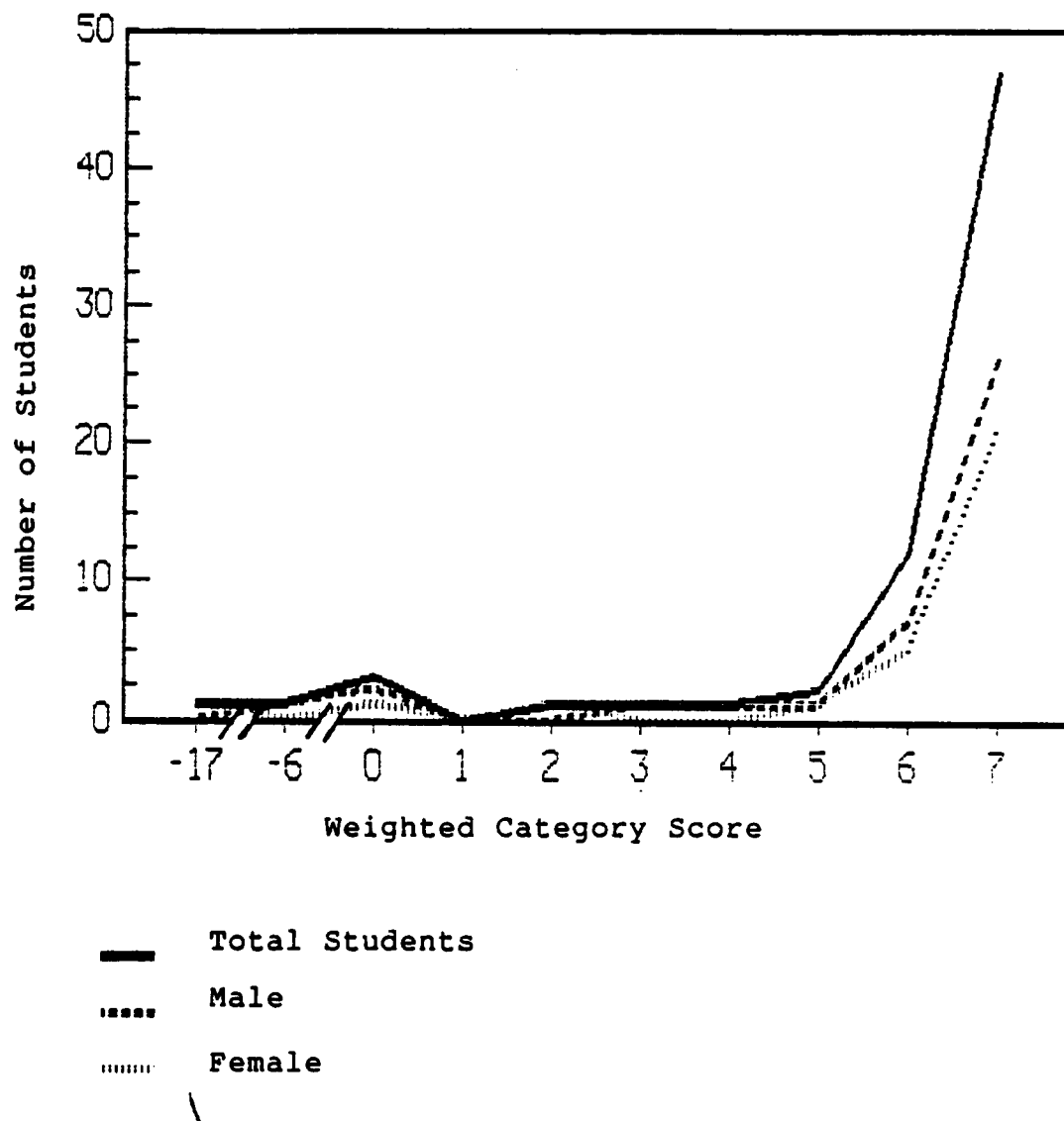


Figure 4. Frequency of total scores in the Drugs category.

TABLE XI
RESPONSES TO SAFETY QUESTIONS

Risk Factor	#	%*
I use my seat belt?		
[A] Always	34	49.3
[B] Sometimes	27	39.1
[C] Not often	4	5.8
[D] Never	4	5.8
Do you drive faster than the speed limit?		
[A] I don't drive.	29	42.0
[B] I never drive faster.	12	17.4
[C] I rarely drive faster.	7	10.1
[D] I sometimes drive faster.	19	27.5
[E] I often drive faster.	2	2.9
Do you wear a helmet?		
[A] I don't ride a motorcycle or moped.	46	66.7
[B] I never wear a helmet.	3	4.3
[C] I rarely wear a helmet.	2	2.9
[D] I sometimes wear a helmet.	5	7.2
[E] I always wear a helmet.	13	18.8
Which side of the road do you walk on?		
[A] I walk on the left side.	10	14.5
[B] I walk on the right side.	14	20.3
[C] I walk on either side.	45	65.2
I wear reflective clothing at night:		
[A] No	9	13.0
[B] Yes, sometimes	26	37.7
[C] Yes, often or always	10	14.5
[D] I don't walk/jog/bike after dark	24	34.8
Do you have a smoke detector in your home?		
[A] No	20	29.0
[B] Yes, and I'm sure that it works	37	53.6
[C] Yes, but it may not work	4	5.8
[D] I don't know	8	11.6
Do you hitchhike or pick up hitchhikers?		
[A] No	63	91.3
[B] Yes, often	1	1.4
[C] Yes, sometimes	4	5.8
[D] Yes, but very seldom	1	1.4
Can you swim or float in deep water?		
[A] Yes	49	71.0
[B] No	20	29.0

*Percentages may not equal 100 due to rounding.

TABLE XII

RESPONSES TO SAFETY QUESTIONS BY GENDER*

Risk Factor	% of Males	% of Females
Do you use your seat belt?		
[A] Always	38.5	63.3
[B] Sometimes	41.2	30.0
[C] Not often	7.7	3.3
[D] Never	7.7	3.3
Do you drive faster than the speed limit?		
[A] I don't drive.	30.8	56.7
[B] I never drive faster.	15.4	20.0
[C] I rarely drive faster.	18.0	0
[D] I sometimes drive faster.	33.3	20.0
[E] I often drive faster.	2.6	3.3
Do you wear a helmet?		
[A] I don't ride a motorcycle or moped.	61.5	73.3
[B] I never wear a helmet.	7.7	0
[C] I rarely wear a helmet.	2.6	3.3
[D] I sometimes wear a helmet.	10.3	3.3
[E] I always wear a helmet.	18.0	20.0
Which side of the road do you walk on?		
[A] I walk on the left side.	18.0	10.0
[B] I walk on the right side.	20.5	20.0
[C] I walk on either side.	61.5	70.0
Do you wear reflective clothing at night:		
[A] No	5.1	23.3
[B] Yes, sometimes	51.3	20.0
[C] Yes, often or always	15.4	13.3
[D] I don't walk/jog/bike after dark	28.2	43.3
Do you have a smoke detector in your home?		
[A] No	30.7	26.7
[B] Yes, and I'm sure that it works	51.3	56.7
[C] Yes, but it may not work	7.7	3.3
[D] I don't know	10.3	13.3
Do you hitchhike or pick up hitchhikers?		
[A] No	87.2	96.7
[B] Yes, often	2.6	0
[C] Yes, sometimes	10.3	0
[D] Yes, but very seldom	0	3.3
Can you swim or float in deep water?		
[A] Yes	79.5	60.0
[B] No	20.5	40.0

*Percentages may not equal 100 due to rounding.

a motorcycle or moped. Data regarding race is inconclusive due to the small number of riders.

Walking on either the wrong side or on either side of the road was reported by 85.5% of the students. Patterns were similar for both genders and races.

Reflective clothing was "often or always" worn at night by 14.5% of the students while 34.8% indicated that they did not walk, jog, or bike after dark. More females (43.3%) than males (28.2%) said they did not walk, jog, or bike after dark. More black students (88.0%) than white students (30.2%) wore reflective clothing.

A working smoke detector was reported to be in the homes of 53.6% of the students. Eight students (11.6%) did not know whether or not they had a smoke detector, and 20 (29.0%) knew that they did not have one. The distribution of responses was similar for both races.

Hitchhiking or picking up hitchhikers was not done by 91.3% of the respondents. One male reported that he did this often. There were no differences by race.

The ability to swim or float in deep water was indicated by 71.0% of the students. More males (79.5%) than females (60.0%) had the ability and more white students (81.4%) than black students (56.0%).

The eight safety questions have a total possible score ranging from +7 to -21. Both male and female scores were distributed along the entire range. Scores of +1, +2, or +3

were received by 42.0% of the students. Figure 5 describes the distribution of safety scores.

Mental health

Table XIII lists responses to the four mental health questions. Table XIV details the responses by gender. In an effort to find students with eating disorders, the question was asked, "Have you lost five pounds in the past few months without dieting?". Nineteen respondents (27.5%) answered "yes" to this question. Response patterns were similar by gender and race.

Fifteen students (21.7%) reported feeling tired every-day when they woke up. More males (30.8%) than females (10.0%) felt that way. Responses were similar for black and white students.

Three students (4.4%) said that "most of the time" they felt that they did not want to live but wanted to die. "Never having these feelings" was the response chosen by 48.8% of the males and 58.6% of the females. Response patterns did not differ by race.

"Most of time" having family or friends to ask for help was reported by 46.4% of the students. More females (56.7%) than males (38.5%) had this support system. More white students (51.2%) than black students (36.0%) answered "most of the time" to this question.

Figure 6 depicts the range of scores from the questions concerning mental health. The four questions comprising the

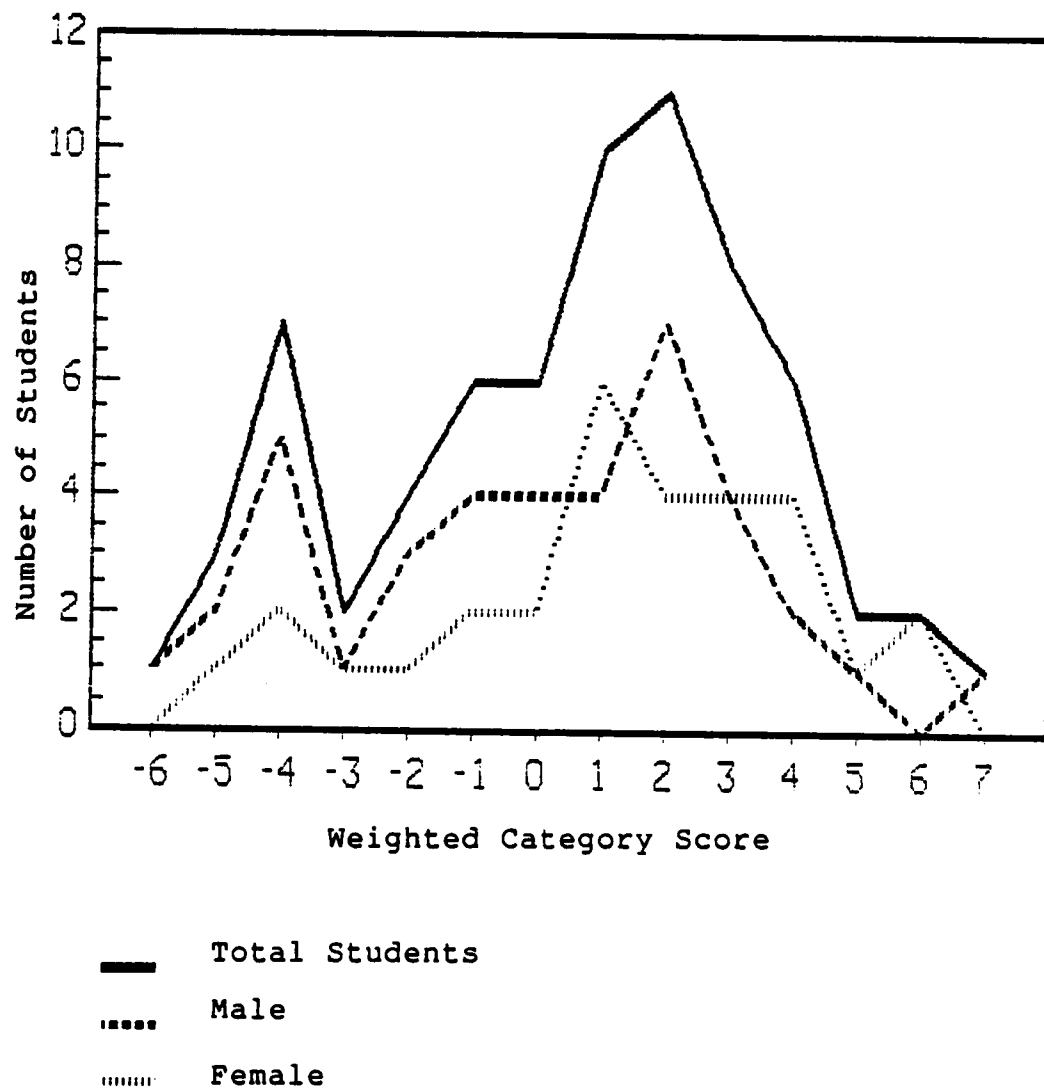


Figure 5. Frequency of total scores in the Safety category.

TABLE XIII
RESPONSES TO MENTAL HEALTH QUESTIONS

Risk Factor	#	%*
I lost five pounds in the past few months without dieting.		
[A] Yes	19	27.5
[B] No	50	72.5
When I wake up in the morning, I feel tired.		
[A] No, never	6	8.7
[B] Yes, sometimes	48	69.6
[C] Yes, everyday	15	21.7
I do not want to live. I want to die.*		
[A] This is how I feel most of the time.	3	4.4
[B] This is how I feel sometimes.	11	16.2
[C] I do not have these feelings often.	18	26.5
[D] I never have these feelings.	36	52.9
If you have a big problem, can you ask your friends or family for help?		
[A] Yes, most of the time	32	46.4
[B] Yes, sometimes	34	49.3
[C] No	3	4.3

*Data missing from one respondent.

TABLE XIV
RESPONSES TO MENTAL HEALTH QUESTIONS BY GENDER*

Risk Factor	% of Males	% of Females
I lost five pounds in the past few months without dieting.		
[A] Yes	28.2	26.7
[B] No	71.8	73.3
When I wake up in the morning, I feel tired.		
[A] No, never	12.8	3.3
[B] Yes, sometimes	56.4	86.7
[C] Yes, everyday	30.8	10.0
I do not want to live. I want to die.**		
[A] This is how I feel most of the time.	7.7	0
[B] This is how I feel sometimes.	12.8	20.7
[C] I do not have these feelings often.	30.8	20.7
[D] I never have these feelings.	48.8	58.6
If you have a big problem, can you ask your friends or family for help?		
[A] Yes, most of the time	38.5	56.7
[B] Yes, sometimes	56.4	40.0
[C] No	5.1	3.3

*Percentages may not equal 100 due to rounding.

**Data missing from one respondent.

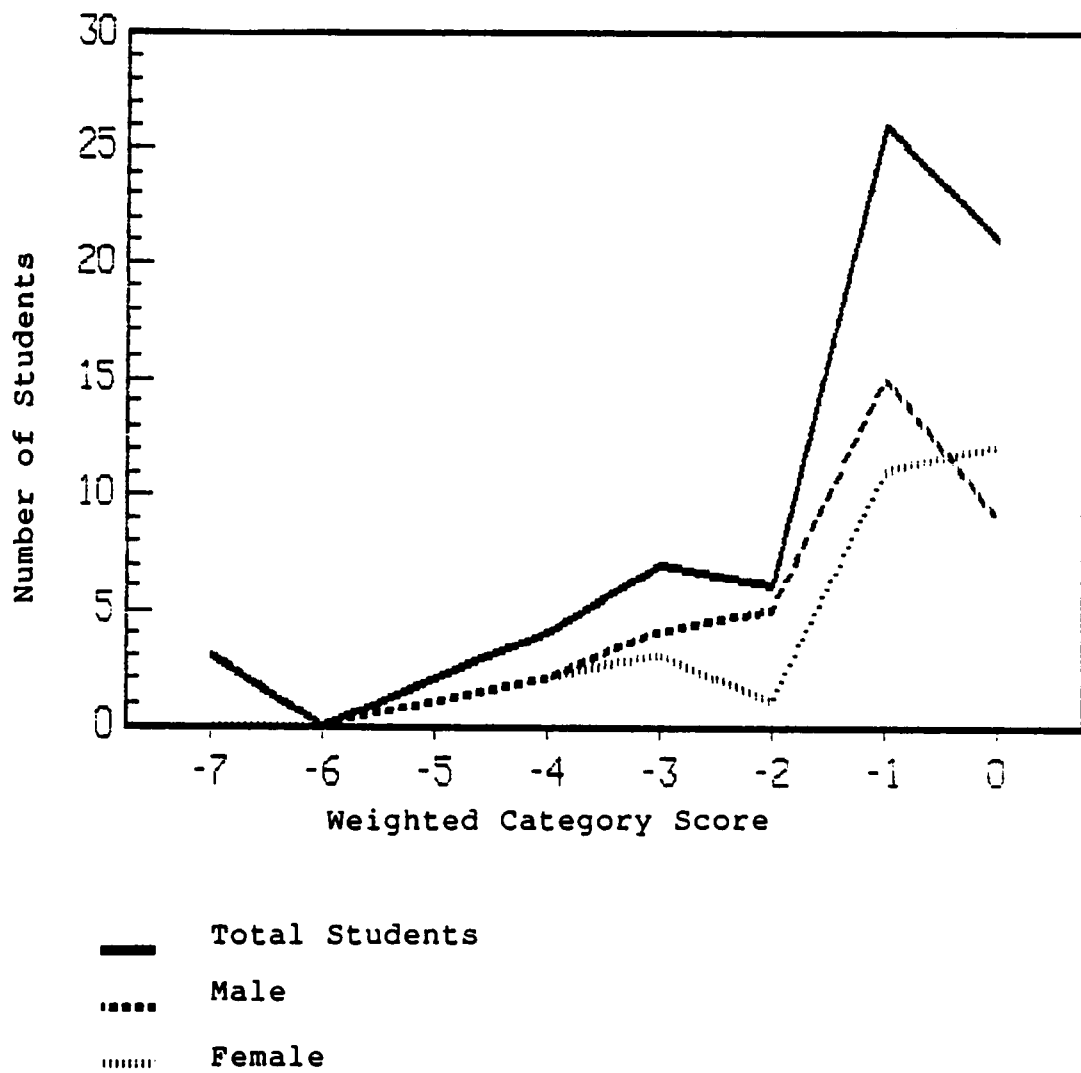


Figure 6. Frequency of total scores in the Mental Health category.

mental health section range in total value from 0 to -10. The lowest score in this sample was -7, received by 3 students. A score of either -1 or 0, the highest possible score, was recorded by 47 students (68.1%). Male and female patterns of distribution were similar.

Sexuality

Table XV shows responses to the two sexuality knowledge questions by number and percent. Table XVI lists the answers by gender. The first question asked if a person could become pregnant from having unprotected intercourse just once. Only 40.3% of the students answered this correctly. More males (44.7%) than females (34.5%) gave the correct response. Response patterns were similar for black and white students.

The second question asked if sex with many people would probably cause a person to contract VD. Males and females gave similar responses; 51.5% of all students correctly answered "yes." Black students (45.8%) were more likely than white students (14.0%) to answer "no."

Figure 7 shows the distribution of scores in the sexuality category. The knowledge questions about sexuality range in total value from 0 to -2. A score of 0 indicates that both responses were accurate; -2 indicates that the student chose either the inaccurate response or the "I'm not sure" response to the two questions. Only 31.9% of the students knew the correct answer to both questions. The

TABLE XV
RESPONSES TO SEXUALITY QUESTIONS

Risk Factor	#	%*
If you have sex one time without birth control, then you can get pregnant.**		
[A] Yes	27	40.3
[B] No	29	43.3
[C] I'm not sure	11	16.4
If a person has sex with many people, the person will probably get V.D.***		
[A] Yes	35	51.5
[B] No	18	26.5
[C] I'm not sure	15	22.1

*Percentages may not equal 100 due to rounding.

**Data missing from two respondents.

***Data missing from one respondent.

TABLE XVI
RESPONSES TO SEXUALITY QUESTIONS BY GENDER*

Risk Factor	% of Males	% of Females
If you have sex one time without birth control, then you can get pregnant.**		
[A] Yes	48.4	34.5
[B] No	42.1	44.8
[C] I'm not sure	13.2	20.7
If a person has sex with many people, the person will probably get V.D.***		
[A] Yes	47.4	56.7
[B] No	34.2	16.7
[C] I'm not sure	18.4	26.7

*Percentages may not equal 100 due to rounding.

**Data missing from two respondents.

***Data missing from one respondent.

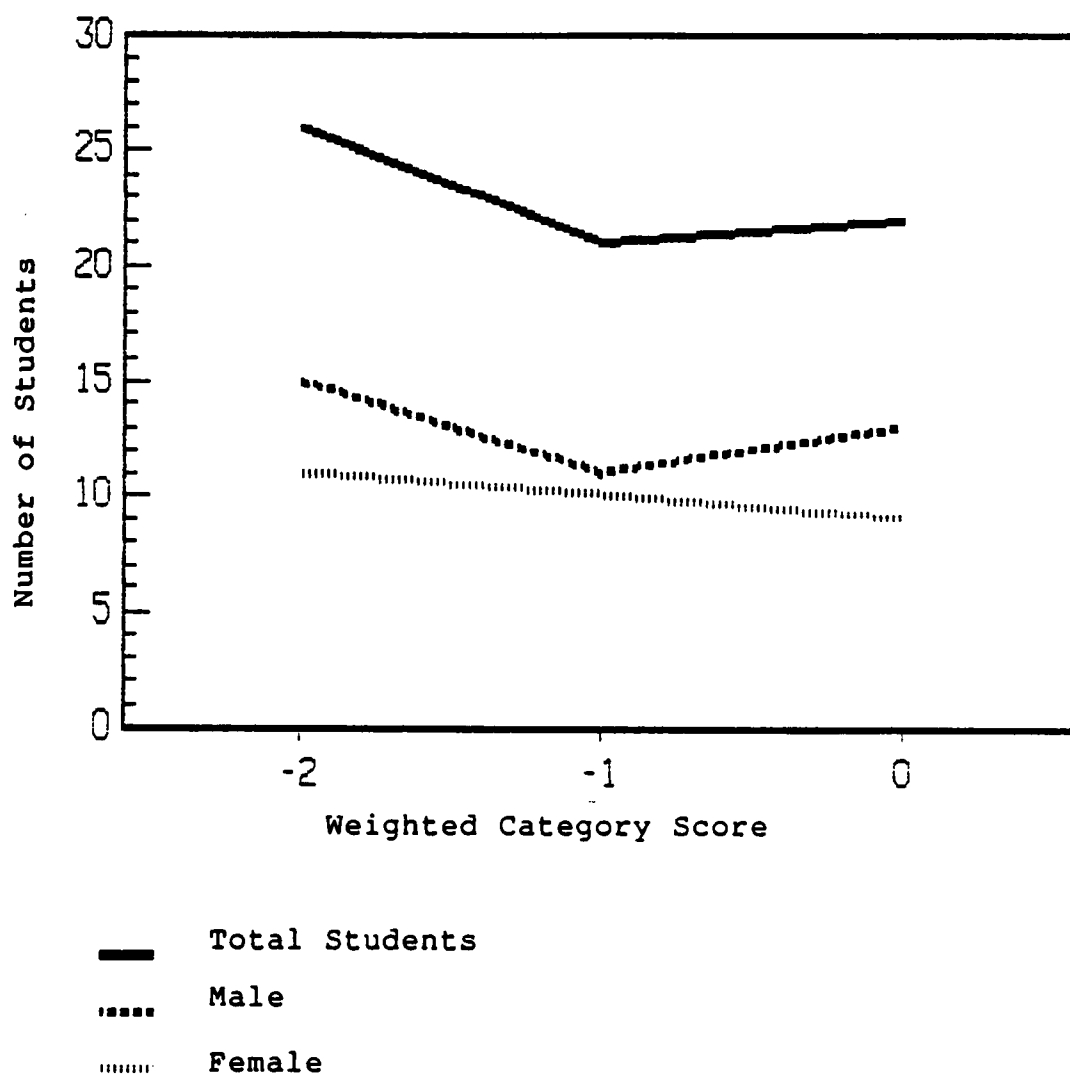


Figure 7. Frequency of total scores in the Sexuality category.

distribution of scores was similar for males and females.

Female-only questions

Table XVII lists responses to the female-only questions. Only one question, breast self-exam, had weight that entered into the total health risk score. Nearly half the females (46.7%) reported that they do not check their breasts monthly.

RESEARCH QUESTIONS OF RELATIONSHIP

Three research questions asked if there is a significant relationship between total health risk score and one other variable. Spearman rank-order correlations were calculated to determine the relationships between level of hearing loss, speech discrimination, and reading achievement level and total health risk score. Calculations were performed using SAS at the University of Tennessee Computing Center. Table XVIII lists the results.

QUESTION 2: Is there a significant relationship between level of hearing loss and total health risk score?

The Spearman rank-order correlation between hearing loss in the right ear and total health risk score resulted

TABLE XVII
RESPONSES TO FEMALE-ONLY QUESTIONS

Risk Factor	#	%*
Do you check your breasts monthly?		
[A] Yes	16	53.3
[B] No	14	46.7
My mother or sister had an operation on her breast or had a breast removed.**		
[A] Yes	5	17.2
[B] No	21	72.4
[C] I don't know	3	10.3
My mother or sister had a hysterectomy.		
[A] Yes	9	30.0
[B] No	13	43.3
[C] I don't know	8	26.7
Do you menstruate for more than 10 days?**		
[A] I do not menstruate.	4	13.3
[B] Yes, sometimes.	6	20.0
[C] No.	20	66.7
Do you know what caused you to menstruate for more than 10 days?		
[A] I do not bleed for more than 10 days or I do not menstruate.	17	58.6
[B] Yes	4	13.8
[C] No	8	27.8
A woman who takes birth control pills and smokes is at risk of a blood clot?		
[A] Yes	8	26.7
[B] No	2	6.7
[C] I don't know	20	66.7

*Total percentages may not equal 100 due to rounding.

**Data missing from one respondent.

TABLE XVIII
CORRELATIONS BETWEEN TOTAL HEALTH RISK SCORE
AND HEARING LOSS, SPEECH DISCRIMINATION
AND READING ACHIEVEMENT LEVEL

Variable	r_s	N
Hearing loss		
Right ear	-0.16	57
Left ear	-0.16	57
Speech discrimination		
Right ear	-0.23	17
Left ear	-0.03	16
Reading achievement	0.25*	69

*Significant at the .05 level.

in a value of $r_s = -0.16$. This correlation was not significant at the .05 level.

The Spearman rank-order correlation between hearing loss in the left ear and total health risk score likewise yielded a nonsignificant value of $r_s = -0.16$.

QUESTION 3: Is there a significant relationship between speech discrimination and total health risk score?

The Spearman rank-order correlation between speech discrimination with the right ear and total health risk score resulted in a value of $r_s = -0.23$. This correlation was not significant at the .05 level.

The Spearman rank-order correlation between hearing loss in the left ear and total health risk score likewise yielded a nonsignificant value of $r_s = -0.05$.

QUESTION 4: Is there a significant relationship between reading achievement level and total health risk score?

The Spearman rank-order correlation between reading achievement level and total health risk score resulted in a value of $r_s = 0.25$. This correlation was significant at the .05 level.

RESEARCH QUESTIONS OF DIFFERENCE

Two research questions asked if there is a difference in total health risk score by groups according to age of onset of hearing loss or system of communication used in the educational setting. To answer these questions, the Kruskal-Wallis one-way analysis of variance by ranks test and the Mann Whitney U test were performed; SPSSX was used in doing these analyses.

QUESTION 5: Do students differ significantly on total health risk score according to age of onset of hearing loss.

The Kruskal-Wallis analysis of variance test indicated that there was no significant difference at the .05 level on total health risk score according to age of onset of hearing loss ($X^2=0.157$, $df=2$). Table XIX presents the mean total health risk score and number of students in each of the three categories.

QUESTION 6: Do students differ significantly on total health risk score according to communication system used in their educational setting?

Table XX presents the mean values and number of students according to two communication systems. Initially it

TABLE XIX
AGE OF ONSET OF HEARING LOSS
AND HEALTH RISK SCORES

	At Birth	Before Age 2	Age 2-10
N	39	6	11
Mean Score	80.7	82.2	81.5
Mean rank	28.1	30.9	28.6

Kruskal-Wallis $X^2=0.157$, $df=2$.

TABLE XX
SYSTEM OF COMMUNICATION AND HEALTH RISK SCORES

	Oral	Total
N	13	56
Mean Score	83.2	80.6
Mean Rank	41.8	33.4
U		276
Z_0		-1.36

was thought that the hearing-impaired students might fall into one of three systems of communication used in educational settings: oral, manual or total. No respondents, however, were being taught in the manual-only method. For this reason, the Kruskal-Wallis rank test defaulted to the Mann Whitney U test which is appropriate when there are only two groups.

The standard normal deviate z resulting from the Mann Whitney U test had a value of -1.36 . This was not significant at the $.05$ level. Student total health risk score did not significantly differ according to communication system used in their educational setting.

SUMMARY

This chapter presented the analysis of data on 69 hearing-impaired students in Tennessee schools who completed the "Revised Teen Wellness Check." Means of their total health risk scores were described by gender, race, age, grade, age of onset of hearing loss, and system of communication used in the educational setting. Subscores and individual responses for eight categories were presented to show the most common health risk factors among these adolescents. Spearman rho was performed on three relationships with the following results: there was not a significant

difference between level of hearing loss and total health risk score; the difference between speech discrimination and total health risk score was not significant; the difference between reading achievement level and total health risk score was significant at the .05 level. The Kruskal-Wallis analysis of variance test indicated that there was no significant difference on total health risk score according to age of onset of hearing loss. The Mann Whitney U test showed that total health risk scores did not significantly differ according to type of communication used in the educational setting.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The purpose of this study was to determine the relationship between selected variables of hearing-impaired adolescents and health risk factors. In order to plan appropriate health education for special populations, it is necessary to have data on their health risk behaviors. This information, however, has been lacking for hearing-impaired adolescents.

A computerized health risk inventory, "Teen Wellness Check," measured self-reported attitudes, behaviors and knowledge which have the potential of affecting future health status. A total health risk score was computed for each student. A personal data sheet completed from school records asked for information regarding degree of hearing loss, reading achievement level, percentage of aided speech discrimination, and system of communication used in the educational setting.

Since reading achievement scores for hearing-impaired students are below norms for hearing peers, it was necessary to revise the instrument with carefully controlled syntactic structures and vocabulary likely to be understood by the

majority of hearing-impaired adolescents in Tennessee. The first pilot study was conducted in sign language; this resulted in slight changes in the wording and the format of several questions. Since students in the second pilot study were able to complete the questionnaire without difficulty, no further changes were made.

The subjects of this study were 69 hearing-impaired students ages 13-20 with a hearing loss of at least 50 decibels in the better ear, a reading level of at least 2.0, and enrolled in grades 7-12. Seven of the eight schools in four Tennessee programs chose to participate. When signed parental consent forms had been returned, teachers established an identity code for each student, completed the personal data sheet from school records, and administered the health risk inventory to the students.

Spearman rank-order correlations were calculated to analyze the relationships between level of hearing loss, reading level, and speech discrimination and total health risk scores. The Kruskal-Wallis one-way analysis of variance H test was used to determine if significant differences existed in the total health risk scores according to age of onset of hearing loss. The Mann Whitney U test was performed to indicate if significant differences existed in the total health risk scores according to system of communication used in educational instruction.

FINDINGS

HEALTH RISK FACTORS

The following findings are based on the analysis of the data collected from the "Revised Teen Wellness Check" completed by 56 hearing-impaired adolescents.

1. According to the questions and point system of the "TWC," females scored higher as a group than males. Black students had a higher average score than white students. Respondents ages 15-16 scored better than those ages 17-20.

2. Diet scores were skewed in a positive direction for males and females. Females tended to score slightly higher than males on all three questions. The majority of students ate breakfast at least 5 or 6 days a week. Most students also indicated that they ate from the four food groups daily. Only 23.2% reported eating sweets daily.

3. Overall dental health scores were good and similar for males and females. Most students (89.9%) brushed their teeth daily. The majority had been to the dentist in the past year. Using dental floss, however, was a daily habit of only 10.1% of the students; 53.9% of the males and 33.3% of the females never flossed their teeth.

4. Exercise scores for males and females were skewed in a negative direction. Only a fourth or less of the students walked a mile or did aerobic exercise 3 or more

days a week. Less than half reported dancing, bowling, or playing golf, tennis, ball or other sports 3 or more times a week.

5. Most students (85.5%) had low health risk behaviors in the drug category. The majority reported no use of tobacco or alcohol. Less than 10% of the sample drove under the influence of alcohol or rode with someone who was under the influence.

6. Safety scores were widely distributed along the range. While half of the students always wore their seat belts, females did so more than males. Over one-fourth of the students sometimes or often drove faster than the speed limit. Only 56.5% of the motorcycle or moped riders reported rarely or never wearing a helmet. The majority of respondents walked on either the wrong side of the road or on either side. Less than one-fourth of those students who walk, jog, or bike after dark reported always or often wearing reflective clothing. Only 53.6% of the respondents knew they had a working smoke detector at home; a third did not know if they had one or not. The majority of students did not hitchhike or pick up hitchhikers. One-fourth of the students said they could not swim or float in deep water; more females than males and more blacks than whites could not swim or float.

7. In general, students scored well in the area of mental health. Most students (72.5%) had not lost weight

unintentionally. While 86.7% of the females said they "sometimes" felt tired upon awakening in the morning, more males than females indicated they felt this way "everyday." Half of the respondents reported never having the feeling that they wanted to die. Not quite half of the students (46.4%) indicated that they generally had friends or family to turn to for help with a problem; more females (56.7%) than males (38.5%) and more white students (51.2%) than black students (36.0%) felt they had this help available most of the time.

8. Sexuality scores were the poorest of all the categories on the "TWC." Only 40.3% of the students knew that even one act of intercourse without birth control can result in pregnancy; more males than females gave the correct answer to this question. Nearly half of the students (48.5%) either didn't know or weren't sure that having sex with many people would probably lead to VD.; more blacks than whites did not know this.

9. Over half of the females (53.3%) reported regular breast self-exams.

RELATIONSHIP BETWEEN VARIABLES OF HEARING-IMPAIRED ADOLESCENTS AND HEALTH RISK FACTORS

The following findings are based on the analysis of data collected from the total health risk score, computed

from responses to the "TWC," and the personal data sheet. Significance was determined at the .05 level.

1. There was not a significant relationship between level of hearing loss and total health risk score.

2. There was not a significant relationship between speech discrimination and total health risk score.

3. There was a significant relationship between reading achievement level and total health risk score. As reading levels increased, total health risk scores improved.

4. There was no significant difference on total health risk score according to age of onset of hearing loss.

5. There was no significant difference on total health risk score according to communication system used in the educational setting.

CONCLUSIONS

The findings of this study led to the following conclusions regarding the hearing-impaired adolescents sampled in this investigation.

1. Hearing-impaired students tend to have poor exercise habits, safety practices, and knowledge of the consequences of sexual activity.

2. Students with profound hearing loss are not at greater risk of developing negative health behaviors than students with moderate hearing loss.

3. Students with low speech discrimination percentages are not at greater risk of developing negative health behaviors than students with high speech discrimination percentages.

4. Students with low reading levels are at greater risk of developing negative health behaviors than students with high reading levels.

5. Students in this study with a hearing loss at birth are not at greater risk of developing negative health behaviors than students whose hearing loss occurred at a later age.

6. Hearing-impaired students taught in the total system of communication are not at greater risk of developing negative health behaviors than students taught in the oral system of communication.

RECOMMENDATIONS

The following recommendations are based on the findings and conclusions of this research.

1. Expand health education efforts for hearing-impaired adolescents in the areas of exercise, safety, and sexuality.

2. Provide greater opportunity for aerobic exercise within the school program.

3. Target health education efforts towards specific high risk behaviors:

- a. Develop safety awareness programs for males.
- b. Provide males opportunity for developing social skills.
- c. Give females opportunity to learn and practice breast self-exam.
- d. Provide greater opportunity and incentive within the school program for blacks and females to take swimming lessons.

4. Increase health education efforts for those age 16 and younger to reinforce positive health behaviors before the negative ones begin.

5. Recognize that those students with low reading achievement levels may be at increased risk of developing negative health behaviors. Make extra effort to reinforce their positive behaviors, monitor progress, and be alert to early warning signs of negative behaviors. Develop age-appropriate health instructional materials for low ability readers.

6. Conduct further research to discover why and how reading achievement level affects health behaviors.

7. Conduct similar research on a broader scale to determine if health risk factors differ by system of communication used in the educational setting. There was some indication that this might be so.

8. Develop a health risk appraisal with questions addressing the particular health risk factors of hearing-impaired children, adolescents, and adults.

CHAPTER VI

EPILOGUE

This study demonstrated several things: a health risk appraisal designed for the average population of adolescents could be successfully adapted and used with a special population; hearing-impaired adolescents have health risk factors which deserve study separate from other groups; and research can be hindered by unexpected delays which can affect the quality of the findings.

REVISING THE INSTRUMENT

Technological advances in computer software and hardware have opened many new and exciting possibilities for research in health education. The health risk appraisal seems especially appropriate as a tool for data collection, program planning, and a springboard for health promotion activities. Most HRA'S, however, are designed and normed for the majority population. Special populations, whether minority by race, culture, or handicap, are generally neglected. This blanket approach, while necessary, perhaps, in the early years of HRA development, has caused us to miss some important differences in minority groups.

Minority health risks are missed in research and therefore not addressed in follow-up. This unfortunate happening begins with the language of the instrument. Many minority groups have low reading achievement levels when based on standard English. Long forms with difficult phrasing, while appropriate for a non-handicapped, white middle-class populace, are neither attractive nor understandable to many other groups of people. Health educators must find ways to conduct research and health promotion that is language-appropriate.

One method of matching vernacular and instrument is the virtual translation of the instrument as was done in this study. While time-consuming, the main requirement for revising the "TWC" was having a group of experts experienced in deaf education who cared enough about the project to carefully analyze each question and response. A similar process of revision could be followed for other groups: language-delayed such as learning disabled or mentally retarded; culturally different for whom English is an awkward second language; and low academic achievers such as exist in many of our rural, low-income counties.

With the many changes in wording, the question of validity is raised: Does this instrument still measure what it purports to measure? Since the intent of each question remained the same in this revision of the "TWC," content

validity stood. In retrospect, it seems it would have been better to change the content of a few questions. This would have eliminated questions that were known to be easily misunderstood and thus affect the scoring system anyway. In their place, questions particularly applicable for hearing-impaired teens could have been inserted since (a) the scoring of the "TWC" is based on a 100 point scale, (b) the scoring does not depend on complicated algorithms based on hard epidemiological data, and (c) the group was not compared against norms established by normal-hearing teens. It is this writer's opinion that nothing would have been lost while some worthwhile information would have been gained had the latter change been made.

RISK FACTORS OF HEARING-IMPAIRED TEENS

Results of this study indicate that hearing-impaired students in Tennessee have health risks in the areas of exercise, safety, and sexuality. While the average American adolescent does not receive adequate exercise, it was a surprise to the researcher to find that the majority of these students were also inactive. Some of the students had multiple handicaps which preclude exercise, but that still does not account for the nearly 75% who did not engage in aerobic exercise at least 3 times a week.

As a group, these students seemed several years behind hearing peers in the development of negative health behaviors such as smoking and drinking. The advantage to this is an extended period of time to reinforce positive behaviors. The disadvantage is that knowledge level may lag behind as well. This is especially evident in the sexuality category of questions. Anecdotal evidence suggests that hearing-impaired adolescents are as sexually active as hearing peers. It seemed quite incredible to the researcher that only 34.5% of the females knew that even one act of unprotected intercourse can result in pregnancy. One teacher told the writer that she had taught her students about this, but they just did not believe it. Perhaps myths exist in the deaf culture that need further exploration so appropriate health education strategies can be developed.

While safety is an issue that concerns everyone, many adolescents feel that their youth is invincible. Accidents, however, are the leading cause of death for this age group. Moreover, habits developed at a young age are likely to be carried into adulthood. Since their hearing is impaired, the teens in this study may be at special risk of motor vehicle accidents whether they are walking or riding a bike or moped. It seems to the writer that they should try to compensate for the hearing loss by being 100% careful in what they can do: using a seat belt; driving the speed limit; wearing reflective clothing at night; facing the

traffic when walking; and wearing a helmet while riding a motorcycle or moped.

EXPECTING THE UNEXPECTED

Although begun with enthusiasm and eager anticipation, this research was met with delays at every step--and there were many steps beginning with the revision of the instrument and design of the personal data sheet to the receipt of data from the last school. The pre-dissertation life of the graduate student who does library work, writes papers, and studies for exams on a predetermined schedule affected primarily by her own actions (or lack thereof) is far different from the life of the dissertation student who continually depends on other people to meet appointments, keep commitments, and properly complete forms.

School-based research has its own set of built in difficulties with the need to obtain district, principal, teacher, and parental permission before beginning. Since each school system has its own protocol, additional letters had to be written, phone calls made, and forms developed. It seemed that the experience in one school district had no relationship to the experience in any other. With so many links in the chain of communication, it was inevitable that some would break down, causing unfortunate delays. Time became an important variable in this investigation as the

final weeks of the school year meant extra duties for teachers and less time for follow-up activities.

Individualized printouts with ID numbers were sent back to the teachers with an explanation of the printout (See Appendix G). While teachers were encouraged to use the printout as a basis for health education activities, that step was not part of this study. Since analysis of the data was not possible until near the end of the school year, the researcher could not return findings, conclusions, and recommendations to program directors, principals, and teachers until the summer months.

IN THE FUTURE

Much work needs to be done to expand future follow-up of the "TWC." Further refinement of the printout would make it more meaningful to this population. The Way to Wellness for Teens, a pamphlet keyed to go with the printout of the original "TWC," could be revised to be language-appropriate for this group. A supplementary section concerning health habits particularly important to hearing-impaired teens would make the pamphlet even more worthwhile.

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APPENDICES

APPENDIX A

PERSONAL DATA SHEET

PERSONAL DATA SHEET

Name of School _____

Confidential student ID number _____

(This number must match the student's scan card.)

Gender:

_____ Male

_____ Female

Date of birth _____

Type of communication used in the school:

_____ Oral

_____ Manual

_____ Total

Puretone average hearing loss in dB:

R _____

L _____

Reading achievement level in grade equivalent _____

as measured by _____

(SAT-HI if possible)

Speech discrimination (Percentage Aided) _____

Age of onset of hearing loss:

_____ At birth

_____ 6-7

_____ Before age 2

_____ 8-9

_____ 2-3

_____ 10-11

_____ 4-5

_____ 12 or older

APPENDIX B

**TEEN WELLNESS CHECK
ORIGINAL AND REVISED VERSIONS
AND SCAN FORM**

TEEN WELLNESS CHECK

PLEASE ANSWER EVERY QUESTION

MARK ANSWERS ON CARD

1. Are you
Male () Female ()
2. Your age is
13 or under () 14 () 15 ()
16 () 17 () 18 or over ()
3. What do you consider your race/ethnic group to be?
(A) White (non-Hispanic origin)
(B) Black (African American origin)
(C) Hispanic (D) Asian or Pacific Islander
(E) Native American Indian or Alaskan native (F) Other
4. What grade are you in now?
7th () 8th () 9th ()
10th () 11th () 12th ()
5. What is the highest grade you plan to complete?
7th () 8th () 9th () 10th ()
11th () 12th () College ()
6. Has a blood relative (parent, grandparent, brother, or sister) had either a heart attack, a stroke, high blood pressure, or diabetes before the age of 60?
(A) Yes (B) No (C) Don't know
7. How would you describe your body frame?
(A) Largeboned (B) Average (C) Smallboned
8. How tall are you, with shoes — one inch heels?
(A) 4'9" or under (B) 4'10" - 4'11" (C) 5' - 5'1"
(D) 5'2" - 5'3" (E) 5'4" - 5'5" (F) 5'6" - 5'7"
(G) 5'8" - 5'9" (H) 5'10" - 5'11" (I) 6' - 6'1"
(J) 6'2" - 6'3" (K) 6'4" - 6'5" (L) 6'6" or over
9. What is your weight? (wearing indoor clothes)
(A) 89 lbs. or less (B) 90 to 99 (C) 100 to 109
(D) 110 to 119 (E) 120 to 129 (F) 130 to 139
(G) 140 to 149 (H) 150 to 159 (I) 160 to 169
(J) 170 to 179 (K) 180 to 189 (L) 190 to 199
(M) 200 to 209 (N) 210 to 219 (O) 220 to 229
(P) 230 lbs. or more
10. How many days in a typical week do you eat breakfast?
(A) Every day (B) 5 or 6 days a week
(C) 2 to 4 days a week (D) 1 day or none
11. How many days in a typical week do you eat foods from each of the four food groups?
The four food groups are:
1) Fruits and vegetables.
2) breads, grains and/or cereals
3) milk or milk products
4) meat, fish, or plant proteins?
Eat something from each of these four food groups
(A) Every day (B) 5 or 6 days a week
(C) 2 to 4 days a week (D) 1 day or none
12. How often do you snack on foods like pastries, candy, sweets, soft drinks, or other sugary foods?
(A) Daily (B) At least 3 times a week
(C) Seldom (D) Never
13. How often do you brush your teeth?
(A) Daily (B) At least 3 times a week
(C) Seldom (D) Never
14. How often do you use dental floss on your teeth and gums?
(A) Daily (B) At least 3 times a week
(C) Seldom (D) Never
15. Have you had your teeth checked and/or cleaned at a dentist's office or clinic in the past 12 months?
Yes () No ()
16. Have you been immunized (received shots) to protect you against measles and German measles (rubella)?
(A) Yes, both (B) Yes, one (C) Neither (D) I don't know
17. How often do you walk at least one mile without stopping?
(A) Daily (B) At least 3 times a week (C) Seldom (D) Never
18. Aerobic exercise is any physical activity that greatly increases both heart rate and breathing. Aerobics can include exercising, jogging, swimming, jumping rope, cross-country skiing, brisk walking, or other strenuous activities. How often do you get at least 20 minutes of non-stop aerobic exercise?
(A) Daily (B) At least three times a week (C) Once or twice a week
(D) Seldom (E) Never
19. How often do you participate in recreational activities — such as bowling, golf, tennis, basketball, softball, dancing, or similar activities?
(A) Daily (B) At least three times a week (C) Once or twice a week
(D) Seldom (E) Never
20. How many cigarettes (tobacco) do you smoke?
(A) None, I have never smoked (B) None, I quit smoking
(C) A pack or less per week
(D) More than a pack per week but less than a pack per day
(E) 1 pack per day (F) Between 1 and 2 packs per day
(G) 2 or more packs per day
21. If you are a cigarette smoker, do you plan on quitting some day?
(A) I do not smoke
(B) No, I do not plan on quitting
(C) Yes, I plan to quit today or in the very near future
(D) Yes, I plan to quit before I get out of high school
(E) Yes, I plan to quit before I turn 21 years old
(F) I will only quit if forced to by illness or disease
22. Does marijuana smoke contain more cancer-causing agents than tobacco smoke?
Yes () No ()

23. In a typical week, what is the most alcohol you drink in any one day? (A drink of alcohol is either 12 oz. of beer, a 5 oz. glass of wine, or a 1 1/2 oz. shot of hard liquor). In a typical week, the most I drink in any one day is:

(A) None, I do not drink (B) 1 or 2 drinks in one day
(C) 3 or 4 drinks in one day (D) 5 or 6 drinks in one day
(E) 7 or 8 drinks in one day (F) 9 or 10 drinks in one day
(G) 11 or more drinks in one day

24. Is the abuse of alcohol (a depressant) or any other drug dangerous?

Yes () No ()

25. Do you ever use alcohol with other drugs?

(A) No I don't (B) Yes, often
(C) Yes, sometimes (D) Yes, but very seldom

26. Do you ever drive under the influence of alcohol or drugs — or ride with a driver who is?

(A) No I don't (B) Yes, often
(C) Yes, sometimes (D) Yes, but very seldom

27. How often do you use seatbelts when you drive or ride in a car?

(A) Always or nearly always (B) Sometimes (C) Seldom (D) Never

28. When driving a car, do you ever exceed the speed limit by more than 10 miles per hour?

(A) Not driving yet
(B) Never exceed speed limit by 10 mph
(C) Rarely exceed speed limit by 10 mph
(D) Sometimes exceed speed limit by 10 mph
(E) Often exceed speed limit by 10 mph

29. If you ride a motorcycle or moped, do you wear a helmet?

(A) Don't ride a motorcycle, moped (B) Never wear a helmet
(C) Rarely wear a helmet (D) Sometimes wear a helmet
(E) Always wear a helmet

30. When walking or jogging on a road, which side of the road do you walk or jog on?

(A) Facing on coming traffic
(B) In same direction as traffic
(C) Either side

31. When walking, jogging, or riding a bike after dark, do you wear light-colored or reflective clothing or have reflectors on your bike?

(A) No (B) Yes, sometimes
(C) Yes, often or always (D) I don't walk, jog/ride a bike after dark

32. Do you have a smoke detector in your home or apartment?

(A) No (B) Yes, and I'm sure that it works
(C) Yes, but it may not work (D) I don't know

33. Do you ever hitchhike or pick up hitchhikers?

(A) No (B) Yes, often
(C) Yes, sometimes (D) Yes, but very seldom

34. Do you know how to swim or stay afloat in water that is over your head?

Yes () No ()

35. Have you lost more than five pounds in the past few months without dieting?

Yes () No ()

36. Do you usually get enough sleep and feel rested in the morning?

(A) Yes, usually (B) Yes, sometimes (C) No

37. In the past six months, have you had feelings that life wasn't worth living?

(A) Yes, often (B) Yes, sometimes
(C) Yes, rarely (D) No I haven't

38. Do you have friends or relatives that you can turn to for help when something is troubling you?

(A) Yes, usually (B) Yes, sometimes (C) No

39. Can sexual intercourse even once, without effective birth control, result in pregnancy?

(A) Yes (B) No (C) I'm not sure

40. Will sexual activity with several partners increase a person's chances of getting sexually transmitted diseases (STD's)? Sexually transmitted diseases are sometimes called venereal diseases (VD).

(A) Yes (B) No (C) I'm not sure

MALES STOP! You have completed the appraisal. Thank you.

FEMALES please continue.

FEMALES ONLY SHOULD ANSWER THESE LAST SIX QUESTIONS

41. Do you examine your breasts each month to detect lumps?

Yes () No ()

42. Has your mother or sister had a breast removed or an operation on her breast?

(A) Yes (B) No (C) I don't know

43. Has your mother or sister had a hysterectomy (uterus removed)?

(A) Yes (B) No (C) I don't know

44. If you've started having menstrual periods, do they ever last for more than 10 days at a time?

(A) I've not started having periods yet
(B) Yes, my periods have lasted for more than 10 days
(C) No, I've not had a period last for more than 10 days

45. Do you know what caused your period to last more than 10 days?

(A) Does not apply (B) Yes (C) No

46. Are women who take birth control pills and smoke cigarettes at an increased risk of blood clotting?

(A) Yes (B) No (C) I don't know

You have completed the Wellness Check health risk assessment questionnaire. **THANK YOU!**

State Form 11214
38-05-13a
12-88

*AC2-HEB

WELLNESS CHECK was developed by the Rhode Island Department of Health

REVISED TEEN WELLNESS CHECK

PLEASE ANSWER EVERY QUESTION.
MARK YOUR ANSWERS ON THE CARD.

1. I am a:
[M] Boy [F] Girl
2. How old are you?
13 [] 14 [] 15 []
16 [] 17 [] 18, 19, 20 []
3. Are you
[A] White [B] Black [C] Hispanic
[D] Asian
4. What grade are you in?
7th [] 8th [] 9th []
10th [] 11th [] 12th []
5. How long will you stay in school?
7th [] 8th [] 9th []
10th [] 11th [] 12th [] college []
6. Did someone in your family have a heart attack or a stroke or high blood pressure or diabetes? If they did, then were they less than 60 years old?
[A] Yes [B] No [C] Don't know
7. My body is:
[A] Large
[B] Average
[C] Small
8. How tall are you?
[A] 57 inches or less (4'9" or less)
[B] 58 or 59 inches (4'10" to 4'11")
[C] 60 to 61 inches (5' to 5'1")
[D] 62 to 63 inches (5'2" to 5'3")
[E] 64 to 65 inches (5'4" to 5'5")
[F] 66 to 67 inches (5'6" to 5'7")
[G] 68 to 69 inches (5'8" to 5'9")
[H] 70 to 71 inches (5'10" to 5'11")
[I] 72 to 73 inches (6' to 6'1")
[J] 74 to 75 inches (6'2" to 6'3")
[K] 76 to 77 inches (6'4" to 6'5")
[L] 78 inches or more (6'6" or taller)

9. How much do you weigh?
- | | | |
|----------------------|----------------|----------------|
| [A] 89 lbs. or less | [B] 90 to 99 | [C] 100 to 109 |
| [D] 109 to 119 | [E] 120 to 129 | [F] 130 to 139 |
| [G] 140 to 149 | [H] 150 to 159 | [I] 160 to 169 |
| [J] 170 to 179 | [K] 180 to 189 | [L] 190 to 199 |
| [M] 200 to 209 | [N] 210 to 219 | [O] 220 to 229 |
| [P] 230 lbs. or more | | |
10. I eat breakfast:
- | | |
|------------------------|------------------------|
| [A] Every day | [B] 5 or 6 days a week |
| [C] 2 to 4 days a week | [D] 1 day or none |
11. The four food groups are:
1. Fruits and vegetables
 2. Breads, grains, and/or cereals
 3. Milk or milk products
 4. Meat, fish, or plant proteins
- I eat foods from the four food groups:
- | |
|------------------------|
| [A] Everyday |
| [B] 5 or 6 days a week |
| [C] 2 to 4 days a week |
| [D] 1 day or none |
12. How often do you eat cakes, cookies, candies, ice cream sodas or other sugary foods?
- | |
|------------------------------|
| [A] Everyday |
| [B] At least 3 times a week |
| [C] Less than 3 times a week |
| [D] Never |
13. I brush my teeth:
- | |
|------------------------------|
| [A] Everyday |
| [B] At least 3 times a week |
| [C] Less than 3 times a week |
| [D] Never |
14. I use dental floss:
- | |
|------------------------------|
| [A] Everyday |
| [B] At least 3 times a week |
| [C] Less than 3 times a week |
| [D] Never |
15. I went to the dentist last year.
- | | |
|---------|--------|
| Yes [] | No [] |
|---------|--------|
16. Did you get shots to prevent measles or rubella (German measles)?
- | | |
|---------------------------|-------------------------|
| [A] Yes, I got both shots | [B] Yes, I got one shot |
| [C] I didn't get a shot | [D] I don't know |

17. How often do you walk one mile or walk more than one mile and not stop?
[A] Everyday [B] 3 or more days a week
[C] Sometimes [D] Never
18. Jogging, swimming, jumping rope, skiing and fast walking are aerobic exercises. I do aerobic exercises:
[A] Everyday [B] 3 or more times a week
[C] 1 or 2 times a week [D] Sometimes
[E] Never
19. I dance, bowl, golf, or play tennis, ball or other sports:
[A] Everyday [B] 3 or more times a week
[C] 1 or 2 times a week [D] Sometimes
[E] Never
20. How many cigarettes do you smoke?
[A] None. I do not smoke cigarettes.
[B] I quit smoking cigarettes.
[C] I do not smoke more than one pack a week.
[D] I smoke more than one pack a week but I don't smoke one pack a day.
[E] I smoke one pack a day.
[F] I smoke one or two packs a day.
[G] I smoke 2 packs or more than 2 packs a day.
21. If you smoke cigarettes, then will you try to quit smoking?
[A] I do not smoke.
[B] I do not want to quit.
[C] I will quit today or I will quit soon.
[D] I will quit before I finish high school.
[E] I will quit before I turn 21 years old.
[F] If I get sick or if I get a disease, then I will quit.
22. Is it easier to get cancer from marijuana than from cigarettes?
Yes [] No []
23. 1 can or bottle of beer is the same as 1 drink of alcohol.
1 glass of wine is the same as 1 drink of alcohol.
1 shot glass of liquor is the same as 1 drink of alcohol.
[A] I do not drink.
[B] I drink one or two drinks a day.
[C] I drink 3 or 4 drinks a day.
[D] I drink 5 or 6 drinks a day.
[E] I drink 7 or 8 drinks a day.
[F] I drink 9 or 10 drinks a day.
[G] I drink more than 11 drinks a day.

24. Do you use snuff or chewing tobacco?
Yes [] No []
25. Do you use alcohol with other drugs?
[A] No, I don't [B] Yes, often
[C] Yes, sometimes [D] Yes, but very seldom
26. Do you drunk drive or do you ride in a car if the driver is drunk?
[A] No, I don't [B] Yes, often
[C] Yes, sometimes [D] Yes, but very seldom
27. I use my seat belt?
[A] Always [B] Sometimes
[C] Not often [D] Never
28. Do you ever drive faster than the speed limit?
[A] I don't drive.
[B] I never drive faster than the speed limit.
[C] I rarely drive faster than the speed limit.
[D] I sometimes drive faster than the speed limit.
[E] I often drive faster than the speed limit.
29. If you ride a motorcycle or moped, do you wear a helmet?
[A] I don't ride a motorcycle or moped.
[B] I never wear a helmet.
[C] I rarely wear a helmet.
[D] I sometimes wear a helmet.
[E] I always wear a helmet.
30. Which side of the road do you walk?
[A] I walk on the left side.
[B] I walk on the right side.
[C] I walk on either side.
31. I walk, jog or ride a bike at night. I wear white clothes.
[A] No
[B] Yes, sometimes
[C] Yes, often or always
[D] I don't walk or jog or ride a bike after dark
32. Do you have a smoke detector in your home or apartment?
[A] No
[B] Yes, and I'm sure that it works
[C] Yes, but it may not work
[D] I don't know
33. Do you hitchhike or do you pick up hitchhikers?
[A] No [B] Yes, often
[C] Yes, sometimes [D] Yes, but very seldom

34. Can you swim or float in deep water?
Yes [] No []
35. I did not diet and I lost five pounds in the past few months.
Yes [] No []
36. I wake up in the morning. I feel tired.
[A] No, never
[B] Yes, sometimes
[C] Yes, everyday
37. I do not want to live. I want to die.
[A] This is how I feel most of the time.
[B] This is how I feel sometimes.
[C] I do not have these feelings often.
[D] I never have these feelings.
38. If you have a big problem, can you ask your friends or family for help?
[A] Yes, most of the time
[B] Yes, sometimes
[C] No
39. You have sex one time. You don't use birth control, then you can get pregnant.
[A] Yes [B] No [C] I'm not sure
40. A person has sex with many people. The person will probably get V.D.
[A] Yes [B] No [C] I'm not sure
- BOYS ARE FINISHED ANSWERING QUESTIONS.
GIRLS HAVE SIX MORE QUESTIONS TO ANSWER.**
41. Do you check your breasts for lumps each month?
Yes [] No []
42. My mother or sister had an operation on her breast or had a breast removed.
[A] Yes [B] No [C] I don't know
43. My mother or sister had a hysterectomy (had her uterus removed).
[A] Yes [B] No [C] I don't know
44. You menstruate. Do you sometimes bleed for more than 10 days.
[A] I do not menstruate.
[B] Yes, sometimes I bleed for more than 10 days.
[C] No, I do not bleed for more than 10 days.

45. Do you know why you bleed for more than 10 days?
[A] I do not bleed for more than 10 days or I do not menstruate.
[B] Yes
[C] No
46. A woman takes birth control pills and smokes cigarettes. She will probably get a blood clot?
[A] Yes [B] No [C] I don't know

**YOU ARE FINISHED WITH THE WELLNESS CHECK HEALTH RISK
ASSESSMENT QUESTIONNAIRE. THANK YOU!!!**

WELLNESS CHECK was developed by the Rhode Island Department of Health.

TEEN WELLNESS CHECK

Please mark answers clearly and press firmly with your No. 2 pencil. Thank you.

MARK ANSWERS BELOW

1	B	F		
2	13	14	15	
	16	17	18	
3	A	B	C	
	D	E	F	
4	7th	8th	9th	
	10th	11th	12th	
5	7th	8th	9th	
	10th	11th	12th	COLLEGE
6	A	B	C	
7	A	B	C	
8	A	B	C	D
	F	G	H	I
	J	K	L	M
9	A	B	C	D
	F	G	H	I
	J	K	L	M
	P			
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	YES	NO		
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D
	F	G		
21	A	B	C	
	D	E	F	
22	YES	NO		
23	A	B	C	D
	F	G		
24	YES	NO		
25	A	B	C	D
26	A	B	C	D
27	A	B	C	D
28	A	B	C	D
29	A	B	C	D
30	A	B	C	D
31	A	B	C	D
32	A	B	C	D
33	A	B	C	D
34	YES	NO		
35	YES	NO		
36	A	B	C	
37	A	B	C	D
38	A	B	C	
39	A	B	C	
40	A	B	C	
FOR FEMALES ONLY				
41	YES	NO		
42	A	B		
43	A	B		
44	A	B		
45	A	B		

APPENDIX C

INTRODUCTION TO PRINTOUT AND ADVISORY MESSAGES

ORIGINAL AND REVISED VERSIONS

TEEN WELLNESS CHECK ADVISORY MESSAGES

Your score on the health risk appraisal is _____ out of 100 points.

Your score places you in the following health risk category:

Excellent	(85-100)
Fair	(70-84)
Risky	(55-69)
Hazardous	(0-54)

You scored well in the following areas of the questionnaire:

Criteria for printing (S13 means score for question 13). See scored questionnaire.

Diet	$S10 + S11 = 2$
Dental Health	$S13 + S14 + S15 = 3$
Immunization	$S3 = 1$
Exercise	$S17 + S18 + S19 = 2$
Smoking	$S20 + S21$ greater than 1
Alcohol	$S23 + S25$ greater than 0
Auto Safety	$S26 + S27 + S28 + S29 + S30 + S31 + S32$ greater than 5
Hazardous activities	$S33 + S34 = 1$

You should be proud of the way you take care of yourself in these categories. If you would like information to help you to maintain or further improve these good health habits, please refer to "The Way To Wellness For Teens" booklet you received.

No matter how you answered the questions about drugs and sexuality, everyone is receiving the following messages, (messages 9, 11, 24, 25 and 30 (females only) are printed here.)

(Any of the following messages may be printed. The criteria are listed in the questionnaire given in the previous section.)

1. Your responses to the health risk appraisal questions indicate that the following are the areas of greatest danger to your health:
 - * Close relatives of yours have had one or more of the following before age 60:
 - Heart Attack
 - Stroke
 - High Blood Pressure
 - Diabetes

This family history increases your chances of developing the same condition. Eliminating the risk factors you can control becomes even more important for you.

2. * You may be over your ideal weight. You would probably look and feel better if you ate sensibly and exercised regularly. Since you may still be growing, don't try to lose weight without consulting a doctor or your school nurse.

3. * You would definitely benefit from a more healthful diet. Try to eat regular meals, eat a variety of foods from the four food groups, and maintain your ideal weight.
4. * Try to avoid sugary foods if you are overweight or if you tend to get cavities.
5. * By neglecting the care of your teeth you place yourself at an increased risk of tooth decay and gum disease. Teeth are particularly prone to cavities during the teen years and gum disease is the major cause of tooth loss beyond the middle years. You should brush your teeth and use dental floss everyday.
6. * Your immunization record is incomplete. You may, therefore, be susceptible to tetanus, diphtheria, measles or rubella. Proper immunization would protect you against these diseases.
7. * Maybe you already play sports or do other kinds of exercise. To protect your health, choose exercise that gives your heart a good workout. Exercise non-stop for at least 20 minutes three times a week or more. Enough of the right kind of exercise--like swimming, jogging, cross-country skiing, aerobic dancing or biking--could protect you against heart disease as you get older. And it will help you look and feel better.
8. * By smoking you are increasing your chances of a heart attack, lung cancer, or emphysema as you get older. Quit now before irreparable damage is done.
9. * Besides marijuana's cancer-causing agents, you should know that marijuana use can affect your thinking, memory, concentration; it can lower male hormones in boys and female hormones in girls which may affect your physical or sexual development; it can interfere with driving ability and coordination.
10. * If you continue to drink alcoholic beverages at your present rate you may become an alcoholic even at your age. You are also more likely to encounter physical and social problems associated with alcoholism, like trouble relating to people, trouble concentrating in school, lower resistance to infection.
11. * You should know that alcohol can be a dangerous drug. You should also know that abuse of many kinds of drugs can lead to permanent physical and mental damage and/or addiction. Overdoses of some drugs can and do kill. Sniffing or inhaling substances is especially damaging and deadly. Illegal drug users can never be sure of the "quality" of drugs they are using. Drug abuse results in loss of self-control.
12. * Alcohol, when combined with other drugs can be fatal. Alcohol and barbiturates or tranquilizers together can slow down breathing and heartbeats to the point of death. When alcohol is combined with stimulants the effects of either one may be dangerously increased. Combining alcohol and marijuana can cause more problems than either alone, especially when driving.

13. * Driving under the influence of alcohol or drugs greatly increases your risk of causing a life-threatening auto accident. Riding with drivers who are under the influence places you at greater risk of being involved in a life-threatening auto accident.
14. * By wearing a seat belt, your chances of being injured in an auto accident would be considerably reduced.
15. * By driving no faster than the speed limit and driving defensively, your chances of being involved in an auto accident would be considerably reduced.
16. * Riding a motorcycle without a helmet places you at increased risk of serious injury or death in the event of an accident.
17. * When walking on a road with no sidewalks, always walk on the left, where you can see the oncoming traffic.
18. * When jogging or walking after dark, on streets with no sidewalks, always wear light clothing, preferably a reflective vest. You may see car headlights after dark, but with no reflector, the driver cannot see you until you may be too close to avoid an accident.
19. * Be sure your bicycle is equipped with visible reflectors for riding after dark or wear a reflective vest. You may see car headlights after dark, but with no reflector, the driver cannot see you until you may be too close to avoid an accident.
20. * Hitchhiking is a dangerous practice that can result in kidnapping, injury, murder and rape. Picking up hitchhikers places you at the same risks.
21. * If you spend time in or near the water, you should learn proper water safety precautions.
22. * An unintentional loss of weight or appetite may be caused by stress and anxiety or may be the result of a physical problem. You should probably see a physician to find out.
23. * Your own moods and stresses may be endangering your overall health. Prolonged stress is associated with illnesses such as high blood pressure, heart disease, gastric ulcers, alcoholism and mental or emotional illness. Find healthy ways to relax, like exercising.
24. * You should know that sexual intercourse without effective birth control will lead to pregnancy. You should also be aware that a condom with foam or jelly is an effective method of birth control and can protect against venereal disease.
25. * You should know that persons who are sexually active with different partners should be checked for sexually transmitted diseases (STD) frequently so that they can be treated, if necessary. A person may have a sexually transmitted disease and not know it until permanent damage is done.
26. * You are not taking proper precautions against breast cancer. By practicing breast self-examination, your risk from this disease would be greatly reduced.

27. * Although breast cancer is extremely rare in women your age, you may be at a greater risk if your mother or sister had breast cancer. Be sure to get in the habit of breast self-examination.
28. * Although cancer of the uterus is extremely rare in women your age, you might be at a greater risk if your mother or sister had her uterus removed. Be sure to check with your doctor about how often you should have a Pap test, which detects cancer early while it can be cured.
29. * Bleeding for long periods of time may be a signal of some disorder. See your doctor to identify the problem.
30. * You should know that smoking can result in constriction of blood vessels and poor circulation. When combined with possible clotting effects of the pill, the result can be a stroke. If you are taking the pill, you have a special reason to not smoke.

TEEN WELLNESS CHECK REVISED EXPLANATION OF SCORES

Your score is ____ out of 100 points.

Your score means that you are in one of these health risk categories:

Excellent	85-100
Fair	70-84
Risky	55-69
Hazardous	0-54

You scored well in these areas of the questionnaire:

You should be proud. You take good care of your body in these areas.

1. Someone in your family had a heart attack, a stroke, high blood pressure, or diabetes. They were less than 60 years old. Because people in your family had these diseases, you may have a heart attack, a stroke, high blood pressure, or diabetes. If you take good care of your body, then you may prevent these diseases.

2. You may be overweight. If you eat right and exercise, you would look better and feel better. Your body is growing. First talk to your doctor or school nurse, then try to lose weight.

3. You need to eat healthy foods. Try to eat foods from each of the four food groups. Try to eat good food every day. Try not to be overweight or underweight.

4. Try not to eat sugary foods. If you are overweight, then sugary foods are very bad for you to eat. Sugary foods are bad for your teeth.

5. You do not take good care of your teeth. If you do not take good care of your teeth, then you will get cavities or gum disease. Teenagers can get cavities and gum disease. Gum disease makes your teeth fall out. You should brush your teeth every day. You should use dental floss every day.

6. You can get tetanus, diphtheria, measles, or rubella (German measles). Shots can stop these diseases. Your doctor can tell you if you need these shots.

7. If you are not exercising or playing sports now, then you need to start exercising or playing sports. Choose exercises that are good for your heart. Exercise 20 minutes and do not stop three times each week. Swimming, jogging, skiing, aerobic dancing, and biking are good exercises. Exercising helps you stay healthy. You will look better and feel better.

8. You smoke cigarettes. You can have a heart attack. You can get cancer. You can get emphysema. You need to quit smoking. If you stop smoking soon, then your body can get healthy. If you do not stop smoking, then your body and health will not get better.

9. Marijuana can cause cancer. Marijuana is bad for your thinking, memory and concentration. Marijuana can lower

hormones in boys and girls. This is bad for your physical and sexual development. Do not smoke marijuana and drive. Marijuana makes it hard to drive and hard to control your body.

10. If you drink a lot of alcoholic drinks, then you may become an alcoholic. Alcoholics have problems with people. They have trouble concentrating in school. They have a greater chance of getting sick than people who do not drink.

11. Alcohol is a drug. Alcohol can cause permanent physical and mental damage. If you overdose on some drugs, then you can die. Sniffing or breathing in drugs is very bad for you. You don't know what you are buying. When you buy drugs, people will sell you cheap drugs. These drugs can kill you. If you use a lot of drugs, then you can lose your self-control.

12. Do not drink alcohol and take other drugs. Alcohol and drugs do not mix. They can kill you. If you use alcohol and some drugs together, then your heartbeat and breathing will slow down. You could die. If you use alcohol and other drugs, your heart will speed up. You could die. Alcohol and marijuana do not mix. Do not drink and drive. Do not take drugs.

13. If you drunk drive, then you may have an accident. You could die. If you take drugs and drive, then you can have an accident. You can die. You could kill someone who is in

the other car. If you ride with someone who is driving drunk, then you can die in a car accident.

14. If you wear a seat belt and you are in a car accident, then you may not be hurt as bad as if you do not wear your seat belt.

15. If you do not speed, then you are safer than other people. If you drive defensively, then you are safer than other people.

16. If you ride a motorcycle and you do not wear a helmet, then you have a greater chance of dying in an accident. You have a greater chance of being hurt very badly in an accident.

17. If you are walking on a road with no sidewalks, then always walk on the left. Walk so that you can see the cars. The headlights of the cars should face you.

18. If you jog or walk at night, then wear light colored clothing. Wear clothing that reflects light. If you wear dark clothing, then drivers cannot see you at night. Wear light colored clothing and help drivers see you.

19. Put reflectors on your bike. If you ride at night, then wear a special reflecting vest. Help drivers see you at night.

20. Hitchhiking is dangerous. If you hitchhike, then you can be kidnapped or raped or murdered. Hitchhikers can kidnap or rape or murder you.

21. If you go in the water or near the water, then you should know good water safety rules.

22. If you lose weight and you are not dieting, or if you lose your appetite, then you may have a problem. Stress and worrying about things can make you lose weight or lose your appetite. You should go to a doctor.

23. Stress may be bad for your health. Stress can lead to high blood pressure or heart disease, ulcers, alcoholism, or mental illness. Find healthy ways to relax. Exercise is a good way to relax.

24. If you have sex and do not use good birth control, then you can get pregnant. The condom is a good form of birth control if you use it with foam or jelly. Condoms also help to protect you from sexually transmitted diseases (VD).

25. If you have sex with many different people, then you can get sexually transmitted diseases (VD). You can have a sexually transmitted disease and not know that you have it. You should be checked often for sexually transmitted diseases. Sexually transmitted diseases can cause big problems.

26. You need to help prevent breast cancer. You need to check your breast for lumps. If you find a lump, then go see a doctor. You can reduce your chances of getting breast cancer.

27. Breast cancer is rare in teenagers. But if your mother or sister had breast cancer, then you may get breast cancer. Check your breast for lumps.

28. Cancer of the uterus is rare in teenagers. But if your mother or sister had her uterus removed, then you may have problems with your uterus. You need to ask a doctor how often you need a Pap test. A Pap test can find cancer early when it can be cured.

29. When you bleed for a long time, it can mean that you have a problem. If you bleed for a long time, then you need to see a doctor.

30. Smoking can make your blood vessels get smaller. Smoking can hurt your blood circulation. The pill can make your blood clot more. If you smoke and take the pill, then you can have a stroke. If you take the pill, then please do not smoke.

APPENDIX D

LETTERS TO PROGRAM DIRECTORS AND TEACHERS

February 29, 1988

Mrs. Deborah Harris
Colonial Hearing Evaluation Center
1360 Colonial Road
Memphis, Tennessee 38117

Dear Mrs. Harris:

As a doctoral student in Health Education at the University of Tennessee, I am conducting research on the health risk factors of hearing-impaired adolescents in Tennessee. If at all possible, I would like for your hearing-impaired students in grades 7-12 to participate.

In cooperation with Tennessee School for the Deaf and Dr. Hargis of the University of Tennessee, a teen health risk questionnaire has been revised for hearing-impaired adolescents. Used successfully with over 14,000 hearing students nationwide, the Teen Wellness Check was also administered in Tennessee schools last year as a tool for health promotion and basis for curriculum planning. The purpose of my study is to determine the relationship between health risk factors and level of hearing loss, age of onset of loss, speech discrimination, and reading achievement.

As a result of participating in this study:

- a. Your students will receive individualized computer printouts with advisory messages based on self-reported health risk factors.
- b. You will receive summary data of students in your program by grade level and gender.
- c. You will receive a concluding report of this research study.

Just as student responses are completely confidential so is your participation completely voluntary. I will be contacting you by phone within the next week or so to set up an appointment to explain further details if you are interested in having your students participate in this health risk survey.

Thank you very much for your consideration.

Sincerely,

Joy Cook

March 29, 1988

Dear Teacher:

As a doctoral student in Health Education at the University of Tennessee, I am conducting research on the health risk factors of hearing-impaired adolescents in Tennessee. If at all possible, I would like for your hearing-impaired students in grades 7-12 to participate.

In cooperation with Tennessee School for the Deaf and Dr. Hargis of the University of Tennessee, a teen health risk questionnaire has been revised for hearing-impaired adolescents. Used successfully with over 14,000 hearing students nationwide, the Teen Wellness Check was also administered in Tennessee schools last year as a tool for health promotion and basis for curriculum planning. (One Nashville high school participated as part of a random sample.) The purpose of my study is to determine the relationship between health risk factors and level of hearing loss, age of onset of loss, speech discrimination, and reading achievement.

As a result of participating in this study:

- a. Your students will receive individualized computer printouts with advisory messages based on self-reported health risk factors.
- b. You will receive summary data of students in your program.
- c. You will receive a concluding report of this research study.

Just as student responses are completely confidential so is your participation completely voluntary. If you are interested in having your students participate in this health risk survey, please complete the "Request for Materials" sheet and return it to me in the envelop provided as soon as possible.

Please refer to the enclosed materials for the specifics of the study. Thank you very much for your consideration.

Sincerely,

Joy Cook

DIRECTIONS FOR TEACHERS

In order to participate in this research study, each student must have a hearing loss of at least 50 dB in the better ear, a reading level of at least 2.0, and be age 13-20 in grades 7-12.

- 1) Obtain a signed parental consent form from each student meeting the above criteria.
- 2) Assign a confidential ID number to each student that is the same as the number on the student's Personal Data Sheet. Place this number on the back of the scan card. (No names appear on either the scan cards or the Personal Data Sheets.) Keep a record of this ID number so an individualized computer printout may be given to each student at a later date.
- 3) Administer the "Teen Wellnes Check." Students place their answers on the computer scan card.
- 4) Complete a Personal Data Sheet for each student.
- 5) Return the completed forms to the researcher (by the end of April if at all possible).

REQUEST FOR MATERIALS

(Please return in the envelop provided as soon as possible)

I am willing to participate in the "Teen Wellness Check" research study. Please send me the following materials: parental consent forms, student copies of the "Revised Teen Wellness Check," computer scan cards, and Personal Data Sheets.

I have approximately _____ students who meet the criteria: a hearing loss of at least 50 dB in the better ear, a reading level of at least 2.0, age 13-20 in grade 7-12.

(Signature)

Print name, school, and address

APPENDIX E

PARENTAL CONSENT FORM



TENNESSEE SCHOOL FOR THE DEAF
and
EDUCATIONAL RESOURCE CENTER FOR THE HEARING IMPAIRED
P.O. Box 886
Knoxville, Tennessee 37901

Dear Parent:

As a doctoral student in Health Education at the University of Tennessee, I am conducting significant research on the health risk factors of hearing-impaired adolescents in Tennessee. I would like for your child to participate in this study.

In cooperation with Tennessee School for the Deaf, a teen health risk questionnaire has been revised for use with hearing-impaired students. The original "Teen Wellness Check" has been used successfully with over 14,000 hearing students nationwide. The "Teen Wellness Check" was also administered in Tennessee schools last year as a tool for health promotion and basis for curriculum planning.

This research is important in gathering information about the health risks of hearing-impaired students. As a result of participating in this study, your child will receive an individualized computer printout with advisory messages based on self-reported health risk factors. Student responses are completely confidential, identified only by number. The results will not be included in your child's school record.

Participation is completely voluntary and students may withdraw at any time. There are no anticipated risks involved. Nonparticipation is without penalty.

If you are willing for your child to participate in this survey of health risk factors, complete the form below and ask you child to return it to his/her homeroom teacher. Please contact me if you have any questions. Thank you for your cooperation.

Sincerely,

Joy Cook

Joy Cook

Approved:

Elaine Alexander

Elaine Alexander,
Director of Instruction

My child (Print Child's Name) _____ may
participate in the "Teen Wellness Check" as described.

(Parent Signature)

(Date)

APPENDIX F

STUDENT INTRODUCTION TO THE TEEN WELLNESS CHECK

ADMINISTERING THE TEEN WELLNESS CHECK

Before administering the Teen Wellness Check, assign a confidential ID number to each student that is the same as the number on the student's Personal Data Sheet. Place this number on the back of the scan card. (No names appear on either the scan cards or the Personal Data Sheets.) Keep a record of this ID number so an individualized computer printout may be given to each student at a later date.

PLEASE READ THE FOLLOWING TO YOUR STUDENTS:

You are about to begin a Health Risk Appraisal designed to help you think about your own health habits and to suggest areas in which you might be able to improve your health status and reduce your health risks.

Your answers are confidential. Please respond honestly so that the computer can accurately calculate your true health risks.

Please consider each question carefully. Then fill in the appropriate circle on the answer card with a number 2 pencil. Fill in only one answer per question.

For example:

Question 5. How long will you stay in school?

7th [] 8th [] 9th []
10th [] 11th [] 12th [] college []

If you want to answer, 12th, fill in the circle on the right-hand side of 12th [] on your answer card.

10th [] 11th [] 12th [X] college []

APPENDIX G

**STUDENT INTRODUCTION TO PRINTOUT
AND SAMPLE PRINTOUT**

PLEASE READ TO YOUR STUDENTS BEFORE RETURNING THE PRINTOUT

THE TEEN WELLNESS CHECK PRINTOUT

You recently completed the "Revised Teen Wellness Check," a computerized health risk inventory designed for adolescents in grades 7-12. Today you will receive your own individualized printout which has a score and messages based on responses you gave to questions about health behaviors and knowledge.

Your score is based on a 100 point scale. Starting with an average score, points were added or subtracted according to your answers. For example, take the question "How often do you eat breakfast?" If you answered "everyday," you received +1. If you answered "never," you received -1. Your total score placed you in one of four health risk categories: excellent, fair, risky, or hazardous.

Your printout tells you three other things. It lists what areas you did well in. Then, no matter how you answered the questions, it gives a few important messages about drugs and sexuality. Last and possibly most importantly, the printout lists individualized special concerns or possible dangers you might have later because of your present health habits.

Your answers to the "Teen Wellness Check" and your printout are confidential. You are not required to show anyone else your printout if you do not want to. Please ask you teacher, counselor, or school nurse about anything on the printout that you do not understand or that you would like help with.

 * WELLNESS CHECK FOR TEENAGERS *

* * * * YOUR SCORE ON THE HEALTH RISK APPRAISAL IS 73
 OUT OF A POSSIBLE 100 POINTS.
 * * * * YOUR SCORE PLACES YOU IN THE FOLLOWING HEALTH RISK
 CATEGORY: ---->> FAIR <-----

YOU SCORED WELL IN THE FOLLOWING AREAS ON THE QUESTIONNAIRE:

* --> SMOKING <-- *

You should be proud. You take good care of your body in these areas:

---->> NO MATTER HOW YOU ANSWERED THE QUESTIONS ABOUT
 DRUGS AND SEXUALITY, EVERYONE IS RECEIVING THE FOLLOWING MESSAGES: <-----

Marijuana can cause cancer. Marijuana is bad for your thinking, memory and concentration. Marijuana can lower hormones in boys and girls. This is bad for your physical and sexual development. Do not smoke marijuana and drive. Marijuana makes it hard to drive and hard to control your body.

Alcohol is a drug. Alcohol can cause permanent physical and mental damage. If you overdose on some drugs, then you die. Sniffing or breathing in drugs is very bad for you. You don't know what you are buying. When you buy drugs, people will sell you cheap drugs, then you can lose your self-control.

If you have sex and do not use good birth control, then you can get pregnant. The condom is a good form of birth control if you use it with foam or jelly. Condoms also help to protect you from sexually transmitted diseases (STD).

If you have sex with many different people, then you can get sexually transmitted diseases (STD). You can have a sexually transmitted disease and not know that you have it. You should be checked often for sexually transmitted diseases. Sexually transmitted diseases can cause big problems.

* * YOUR IDENTIFIED HEALTH RISK FACTORS * *

YOUR RESPONSES TO THE HEALTH RISK APPRAISAL
 QUESTIONS INDICATE THAT THE FOLLOWING ARE THE AREAS OF GREATEST DANGER
 TO YOUR HEALTH:

Someone in your family had a heart attack, a stroke, high blood pressure, or diabetes. They were less than 60 years old. Because people in your family had these diseases, you may have a heart attack, a stroke, high blood pressure, or diabetes. If you take good care of your body, then you may prevent these diseases.

Try NOT to skip breakfast - it is the MOST important meal of the day. Your body needs the energy to get you through each day.

You need to eat healthy foods. Try to eat foods from each of the four food groups.

ps. Try to eat good food every day. Try not to be overweight or underweight.

Try not to eat sugary foods. If you are overweight, then sugary foods are very bad to eat. Sugary foods are bad for your teeth.

You do not take care of your teeth. If you do not take good care of your teeth, then you will get cavities or gum disease. Teenagers can get cavities and gum disease. Gum diseases make your teeth fall out. You should brush your teeth every day. You should use dental floss every day. You should have your teeth checked by a dentist or oral hygienist at least once a year.

You can get tetanus, diphtheria, measles, or rubella (German measles). Shots can stop these diseases. Your doctor can tell you if you need these shots. If you are not exercising or playing sports now, then you need to start exercising or playing sports. Choose exercises that are good for your heart. Exercise 20 minutes and do not stop three times each week. Swimming, jogging, skiing, aerobic dancing, and biking are good exercises. Exercising helps you stay healthy. You will look better and feel better.

Do not drink alcohol and take other drugs. Alcohol and drugs do not mix. They can kill you. If you use alcohol and some drugs together, then your heartbeat and breathing will slow down. You could die. If you use alcohol and other drugs, your heart will speed up. You could die. Alcohol and marijuana do not mix. Do not drink and drive. Do not take drugs.

If you wear a seat belt and you are in a car accident, then you may not be hurt as bad as if you do not wear your seat belt. If you are walking on a road with no sidewalks, then always walk on the left. Walk so you can see the cars. The headlights of the cars should face you.

If you jog or walk at night, then wear light colored clothing. Wear clothing that reflects light. If you wear dark clothing, then drivers cannot see you at night. Wear light colored clothing and help drivers see you. Put reflectors on your bike. If you ride at night, then wear a special reflecting vest. Help drivers see you at night. Properly installed and working smoke detectors in the home can warn your family of a fire while there is still time to get to safety.

APPENDIX H

SCORING OF THE TEEN WELLNESS CHECK BY CATEGORIES

DIET

I eat breakfast	
[A] Every day	+1
[B] 5 or 6 days a week	0
[C] 2 to 4 days a week	-1
[D] 1 day or none	-2
I eat foods from the four food groups:	
[A] Everyday	+1
[B] 5 or 6 days a week	0
[C] 2 to 4 days a week	-2
[D] 1 day or none	-4
How often do you eat sweets?	
[A] Everyday	-1
[B] At least 3 times a week	0
[C] Less than 3 times a week	0
[D] Never	0

DENTAL HEALTH

I brush my teeth:	
[A] Everyday	+1
[B] At least 3 times a week	0
[C] Less than 3 times a week	-1
[D] Never	-1
I use dental floss:	
[A] Everyday	+1
[B] At least 3 times a week	0
[C] Less than 3 times a week	-1
[D] Never	-1
I went to the dentist last year.	
[A] Yes	+1
[B] No	-1

EXERCISE

I walk one mile without stopping:	
[A] Everyday	+1
[B] 3 or more days a week	+1
[C] Sometimes	0
[D] Never	0
I do aerobic exercises:	
[A] Everyday	+2
[B] 3 or more times a week	+2
[C] 1 or 2 times a week	0
[D] Sometimes	0
[E] Never	0

I dance, play ball or other sports:	
[A] Everyday	+1
[B] 3 or more times a week	+1
[C] 1 or 2 times a week	0
[D] Sometimes	0
[E] Never	0

DRUGS

How many cigarettes do you smoke?	
[A] None.	+3
[B] I quit smoking cigarettes.	+2
[C] Not more than one pack a week.	-2
[D] Less than one pack a day.	-4
[E] One pack a day.	-6
[F] Between one and two packs a day.	-6
[G] Two or more packs a day.	-6
Will you try to quit smoking?	
[A] I do not smoke.	0
[B] I do not want to quit.	-4
[C] I will quit soon.	-1
[D] I will quit before I finish h. s.	-1
[E] I will quit before I turn 21.	-2
[F] If I get sick, I will quit.	-3
How much alcohol do you drink?	
[A] I do not drink.	+1
[B] I drink one or two drinks a day.	0
[C] I drink 3 or 4 drinks a day.	-2
[D] I drink 5 or 6 drinks a day.	-4
[E] I drink 7 or 8 drinks a day.	-6
[F] I drink 9 or 10 drinks a day.	-6
[G] I drink more than 11 drinks a day.	-6
Do you use snuff or chewing tobacco?	
[A] Yes	-1
[B] No	-2
Do you use alcohol with other drugs?	
[A] No, I don't	+1
[B] Yes, often	-9
[C] Yes, sometimes	-6
[D] Yes, but very seldom	-3
Do you drive under the influence or do you ride in a car if the driver is drunk?	
[A] No, I don't	+1
[B] Yes, often	-11
[C] Yes, sometimes	-6
[D] Yes, but very seldom	-3

SAFETY

- Do you use your seat belt?
- [A] Always +1
 - [B] Sometimes -1
 - [C] Not often -3
 - [D] Never -5
- Do you drive faster than the speed limit?
- [A] I don't drive. 0
 - [B] I never drive faster. +1
 - [C] I rarely drive faster. 0
 - [D] I sometimes drive faster. -2
 - [E] I often drive faster. -5
- Do you wear a helmet?
- [A] I don't ride a motorcycle or moped. +1
 - [B] I never wear a helmet. -4
 - [C] I rarely wear a helmet. -3
 - [D] I sometimes wear a helmet. -1
 - [E] I always wear a helmet. 0
- Which side of the road do you walk on?
- [A] I walk on the left side. +1
 - [B] I walk on the right side. -1
 - [C] I walk on either side. -1
- Do you wear reflective clothing at night:
- [A] No -1
 - [B] Yes, sometimes 0
 - [C] Yes, often or always +1
 - [D] I don't walk/jog/bike after dark +1
- Do you have a smoke detector in your home?
- [A] No -1
 - [B] Yes, and I'm sure that it works +1
 - [C] Yes, but it may not work 0
 - [D] I don't know 0
- Do you hitchhike or pick up hitchhikers?
- [A] No +1
 - [B] Yes, often -3
 - [C] Yes, sometimes -1
 - [D] Yes, but very seldom 0
- Can you swim or float in deep water?
- [A] Yes +1
 - [B] No -1

MENTAL HEALTH

- I lost five pounds in the past few months without dieting.
- [A] Yes -1
 - [B] No 0
- When I wake up in the morning, I feel tired.
- [A] No, never 0
 - [B] Yes, sometimes 0
 - [C] Yes, everyday -1

I do not want to live. I want to die.	
[A] This is how I feel most of the time.	-7
[B] This is how I feel sometimes.	-3
[C] I do not have these feelings often.	-1
[D] I never have these feelings.	0
If you have a big problem, can you ask your friends or family for help?	
[A] Yes, most of the time	0
[B] Yes, sometimes	0
[C] No	-1

SEXUALITY

If you have sex one time without birth control, then you can get pregnant.	
[A] Yes	0
[B] No	-1
[C] I'm not sure	-1
If a person has sex with many people, the person will probably get V.D.	
[A] Yes	0
[B] No	-1
[C] I'm not sure	-1

VITA

Joyce Anne Cook was born in Harriman, Tennessee, on September 21, 1948. After spending most of her childhood in Charleston, West Virginia, she moved to Orlando, Florida, and was graduated from Boone High School in 1966. After receiving the Associate of Arts degree from St. John's River Community College in Palatka, Florida, in December 1968, she attended Southern College of Seventh-day Adventists in Collegedale, Tennessee. In 1970 she received a Bachelor of Arts in religious studies.

For the next several years Ms Cook participated in a variety of community health education and religious education projects. She taught elementary school for seven years, including a year each in Korea and Japan.

In 1983 she completed a Master's in Health Education at the University of Florida. Ms Cook served as a graduate teaching associate for the Department of Health, Leisure, and Safety while pursuing graduate studies at The University of Tennessee. In August of 1988 she received the Doctor of Education degree with a major in Health Education and collateral emphasis in Adapted Physical Education.

After graduation, Ms Cook will be employed by the University of Nebraska at Omaha.