The Use of a Health Risk Appraisal with an Adolescent Population

by

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CHAPTER I

PROBLEM STATEMENT

Adolescence is a period during the life cycle in which health is generally considered to be good. However, the death rate in the United States for those in the 15 to 24 year age group is 117 per 100,000 (United States Department of Health, Education, and Welfare [USDHEW], 1979). This is 2.5 times the rate for children in the 1 to 14 age group. Further, while progress has been made in reducing the death rate for all age groups in the past 75 years, this progress has not been noted with the 15 to 24 year age group. Adolescents in the United States now have a higher death rate than 20 years ago (USDHEW, 1979).

In the general population, many of today's predominant health problems are related to smoking, excess drinking, faulty nutrition, overuse of medications, fast driving, and pressures to achieve (USDHEW, 1979). Many of these health problems could be substantially reduced if individuals reduced their participation in these risk taking activities. This seems particularly true of the adolescent population.

The unusually high death rate in the 15 to 24 year age group is attributable to adolescents' participation in risk taking activities (Blum, 1987). Accidents, homicides and suicides account for the majority of deaths during adolescence and young adulthood. Other threats to health in this age group include unwanted pregnancy, sexually transmitted diseases, depression, stress, poor nutrition, and substance abuse (Blum, 1987; Giblin & Poland, 1985; Marks, Malizio, Hoch, Brody, & Fisher, 1983; USDHEW, 1979; World Health Organization [WHO], 1986). Although chronic disease is not a particularly large problem during adolescence, the lifestyle choices made during this developmental time determine later susceptibility to chronic disease.

Health risk appraisals (HRAs) have been used with adults as inexpensive, noninvasive, personalized screening tools to assess the presence of health risk behaviors, promote healthy behavior and decrease health risks. Although several HRAs have been developed for adolescents, they have been used primarily for assessment purposes. HRAs could potentially be used to foster healthy behaviors in adolescents. However, this

use of HRAs has not been investigated with the adolescent population. The purpose of this study was to investigate the use of an HRA specifically designed for adolescents as a tool to promote positive health behaviors and decrease risk taking behaviors in this population.

Since adolescence is an important phase in establishing life long behaviors, it is critical that healthy lifestyles be promoted during this period (Bruhn & Cordova, 1977; USDHEW, 1979). Nurses are continually searching for new ways to foster individual participation in healthy behaviors. Effective tools to encourage adolescents to participate in healthy behaviors and reduce their participation in risk taking activities need to be discovered and integrated into the school setting. One way to influence the health of future adults is by encouraging positive health behaviors in adolescents.

The changing role of nurses in the health care system has expanded to include increased responsibility for guiding individuals towards health promoting and health protecting behaviors. These responsibilities

include activities such as the promotion of normal growth, maturation, fulfillment, and self-actualization throughout the life cycle (Pender, 1987). The school nurse role in particular includes responsibilities of health protection and health promotion.

CHAPTER II

REVIEW OF LITERATURE

The literature relevant to this study covers three major areas. Initially, an overview of the risk behaviors of adolescents are discussed. Secondly, health risk appraisals, their current use with adults and adolescents, and their potential use with adolescents are summarized. Finally, cognitive development of children and adolescents as it relates to risk taking behavior are reviewed.

Health Risk Behaviors

The social factors of lifestyle and poverty, and risk taking behaviors during adolescence contribute to the majority of morbidity for this age group (Blum, 1987). More than 77% of adolescent deaths are the result of accidents, suicides, and homicides. In addition, the primary health problems of adolescence are trauma, unwanted pregnancy, sexually transmitted diseases, depression, stress, poor nutrition, and substance abuse (Blum, 1987; Giblin et al., 1985; Marks et al., 1983; USDHEW, 1979; WHO, 1986).

Several trends are negatively influencing the current and future health of adolescents. Menarche is beginning at an earlier age, increasing the possible occurrence of such problems as unwanted pregnancy, sexually transmitted diseases, and premature parenthood (Friedman, 1985). The rapid rate of urbanization adversely affects the mental health of adolescents. Urbanization alters the type of living skills an adolescent needs to succeed in a changing environment and leads to increased stress (Friedman, 1985).

Trauma

Over 50% of mortality in adolescence is a result of accidents including motor vehicle accidents, drowning, poisonings, firearms, burns, and falls (Halperin, Bass, Mehta, & Betts, 1983; Oregon State Health Division [OSHD], 1986; United States Department of Health and Human Services [USDHHS], 1985). The consumption of alcohol is clearly implicated in most motor vehicle accidents and adolescents rarely protect themselves by using safety belts (USDHEW, 1979).

Suicide contributes significantly to teenage mortality and is raising concern in Oregon as well as

nationally. The national 1980 suicide rate for the 15 to 19 year age group was 8.5 per 100,000 (USDHHS, 1985). This represents a dramatic increase from the previous decade's rate of 5.9 (USDHEW, 1974). The Oregon rate for adolescent suicide has been consistently higher than the national rate. In 1980, the Oregon suicide rate for this age group was 15.0 per 100,000 (Oregon, 1986b). Suicide is the second leading cause of death in Oregon 15 to 24 year olds accounting for 15.3% of all deaths for this age group (OSHD, 1986). Females are more likely than males to attempt suicide, but males are three to four times as likely to complete suicide (Blum, 1987; Oregon, 1986a).

Adolescent homicide represents 13.5% of the teenage fatalities in the United States (USDHHS, 1985). This rate does not include nonfatal assaults on teenagers which are believed to be considerably more common and increasing. Assault with resulting trauma appears to be influenced by multiple factors such as socioeconomic status, substance abuse, and high population density (Blum, 1987).

Teenage Pregnancy and Sexually Transmitted Diseases

There is ample evidence that adolescents are becoming sexually active at an increasingly earlier age (Morrison, 1985; Pestrak & Martin, 1985; USDHEW, 1979). Almost 50% of all youth are sexually active and they rarely use birth control (Morrison, 1985). With this rise in sexual activity, there has been a resultant rise of 8.2% in the United States teenage pregnancy rate during the years 1974 to 1985 (Grant-Worley, 1987). Although the physical health risks associated with teenage pregnancy are now considered to be substantially less than previously believed, there are still risks of toxemia, cephalopelvic disproportion, and abruptio placentae (Blum, 1987; Hayes & Crovitz, 1979; Hollingsworth & Kreutner, 1980). There are also social factors which secondarily increase the health risks associated with teenage pregnancy. Childbearing adolescents are less likely to obtain their high school diplomas and more likely to live in poverty than their non-childbearing cohorts (Blum, 1987; Grant-Worley, 1987).

The risk of acquiring sexually transmitted diseases is closely linked to the problem of teenage sexual activity and pregnancy. Although the incidence of gonorrhea has decreased for the general population, the rate continues to be substantial among teenagers (USDHEW, 1979). There is renewed national concern about sexually transmitted diseases in adolescents with the rise in the occurrence of AIDS.

Depression and Stress

Almost half of adolescents report feeling upset or depressed at least sometime (Marks et al., 1983). Many of the problems identified by Giblin et al. (1985) in a study of health needs of adolescents in Detroit were psychosocial or psychosomatic in origin, such as depression, school problems, nervousness, headaches, stress, or fatigue. Frequently, adolescents reported worrying about their health (Giblin et al., 1985). One of the most pressing questions of adolescence continues to be "Am I normal?" (Blum, 1987).

Nutrition

Almost one-third of adolescents express concern about weight issues, with females reporting more

concerns than males (Marks et al., 1983). Approximately 30% of all adolescents are obese, placing them at increased risk for social, psychological, and physical problems (Lansky & Brownwell, 1982). Bulimia, anorexia, and obesity are associated with the adolescent years and are physiological and psychological in origin (Kimmel & Weiner, 1985).

Substance Abuse

Substance abuse is widely recognized as a major growing problem among adolescents. Six out of ten high school seniors surveyed nationally reported using illicit drugs (Egan, 1985). According to Egan (1985), the use of marijuana, cocaine, narcotics other than heroin, alcohol, and cigarettes increases during the high school years.

For non alcoholic drug use, patterns of substance abuse are diverse and vary substantially depending on the cohort in which the adolescent was raised (Kimmel et al., 1985). Marks et al. (1983) reported that 20% of students in a predominantly white, middle to upper-middle class suburban area in New York used drugs

other than alcohol and tobacco at least several times per month.

Alcohol is the substance most commonly used by adolescents. It is also the substance most often used in combination with other drugs (Egan, 1985). In 1979, the Department of Health, Education, and Welfare reported that 80% of 12 to 17 year olds have had a drink of alcohol and more than 50% reported drinking at least once a month. These figures have not changed substantially in the past decade. Certain adolescent characteristics have been associated with alcohol abuse including "higher tolerance for social deviance, lower religiosity, relative indifference to school performance, greater family tolerance for alcohol or substance use and a greater likelihood to be male" (Blum, 1987, p. 3392).

Another substance frequently abused by adolescents is tobacco. Currently there is a decrease in tobacco smoking among adolescents, particularly males. However, this decrease has been paralleled by an increase in the use of smokeless tobacco (Blum, 1987). Adolescents erroneously believe that smokeless tobacco

is less harmful than cigarettes (Guggenheimer, Zullo, Kruper, & Verbin, 1986).

There appears to be a decline in the use of some substances. However, the age of initiation of substance abuse appears to be earlier and the use of multiple illicit substances is becoming more common (Friedman, 1985). Like cigarettes, the use of most illicit substances among high school seniors appears to be on a slight decline since the late 1970's (Johnston, O'Malley, and Bachman, 1985). The current use of illicit substances has dropped from a high of 39% in 1979 to 29% in 1984 (Johnston et al., 1985). This decline is attributed primarily to a decline in the use of marijuana. Concurrently, there also has been a gradual long-term decline in use among the three major classes of psychotherapeutic drugs (amphetamines, sedatives and tranquilizers) as well as hallucinogens (Johnston et al., 1985).

Not all drugs are showing declines. Inhalant use showed an increase over the past three years, and cocaine use remained constant since 1979. Seventeen percent of high school seniors surveyed nationally used

cocaine (Egan, 1985). The use of cocaine appears to be influenced by social situations with most older adolescents reporting use with at least one or two other peers participating (Egan, 1985).

Socio-demographic factors

Participation in risk behaviors varies among adolescents and is thought to be due partially to socio-demographic factors. These factors include the age and sex of the adolescent, the marital status of the adolescent's parents, and religiosity.

Health risk behaviors appear to increase as the adolescent ages (Benn, 1987; Egan, 1985). This is perhaps due to the freedoms adolescents acquire as they achieve young adulthood. For example at the age of 16 an adolescent is eligible to take the driver's licensing examination. When adolescents receive independent use of the automobile they are exposed to new risk taking opportunities.

Although males are believed to exhibit more risk taking behaviors, the accuracy of this belief depends on which risk taking activity is examined. Males report heavier and more frequent use of alcohol (Benn,

1987; Blum, 1987). In addition, accidents to adolescents occur four to five times more frequently to males than females (Halpern, et al., 1983 in Blum, 1987). However, females are just as likely to use other substances and more likely to smoke cigarettes (Benn, 1987; Egan, 1985; Marciano, 1985a; Marks et al., 1983).

Two studies examined the marital status of parents in relation to adolescents' health risk behaviors. Saucier and Ambert (1983) examined the risk behaviors of adolescent smoking and nonuse of safety belts in relation to parental marital status. Adolescents from separated/divorced families were more likely to engage in health risk behaviors than adolescents of intact families. Data from widowed families were inconclusive. Nolte, Smith, and O'Rourke (1983) examined the adolescent health risk behaviors of smoking and obesity in relation to the presence of no parents, one parent, or two parents and also found that adolescents with no or one parent reported significantly more health risk behaviors than adolescents with both parents present.

Bernache-Baker (1987) examined the influence of a college preparatory school versus a public school on the sexual behaviors and attitudes of adolescents. Study results indicated that the preparatory school adolescents were no less likely to participate in sexual activity than their public school counterparts. Religiosity was predicted to strengthen value formation in students. However, religiosity was shown to have only minor influence on value formation with this male population; this finding supported the earlier works of McCormick, Izzo, and Folick (1985).

To summarize, adolescence is a time of participation in a variety of health risk behaviors. These behaviors appear to be influenced by the absence of one or both parents in the home environment, and the age and sex of the adolescent. The type of school attended, public versus private, or the religiosity of the adolescent do not appear to have a major influence on health risk behaviors. Health choices made during adolescence frequently remain throughout the lifetime of the individual and therefore positive health choices need to be promoted.

Health Risk Appraisals

A health risk appraisal (HRA) is a method used to compare an individual's health related behaviors and characteristics with mortality statistics and epidemiologic data for similar individuals to estimate the statistical probability (risk) of dying at some specified time (White, 1986). When developed by Robbins and Hall, the original purpose was to compliment the traditional health history by providing a way to identify potentially harmful health behaviors (Dunton, 1987). This idea was called prospective medicine, that is, looking forward by assessing the risks of future pathology due to present precursors. The health care professional thus is able to prescribe preventive actions through lifestyle changes.

The first set of actuarial tables for estimating risk were developed by Geller and Steele (1977) in 1963 using United States 1960 mortality data published by the National Center for Health Statistics. Geller and Steele recommend that these probability tables be revised every 10 years using a three year average of the mortality experience. It has been demonstrated

that HRA estimates agree rather well with estimates obtained from conventional epidemiologic approaches (Chaves, Jennings, McKinlay, & Mckinlay, 1984; Schoenbach, 1987; Smith, McKinlay, & Thorington, 1987).

Gesner (1977) states that HRAs use life contingencies to share the knowledge of risk with individuals so that they may set priorities, reduce risk, and improve their chances for living in good health. Schoenbach (1987) confirms that Gesner's "credit-debit method" of combining individual risk factors is capable of yielding risk estimates similar to those from logistic models which use data from studies such as the Framingham Heart Study or the Risk Factor Update Project by the Centers for Disease Control (CDC). Most HRAs now employ some variation of the "actuarial" approach to mortality first developed by Geller et al. (1977) and Gesner (1977).

A typical HRA asks about an individual's health related behaviors and personal characteristics, then compares these to mortality statistics, other epidemiological data or the Geller/Gesner actuarial tables (Smith, McKinlay, & Thorington, 1977; Wagner,

Beery, Schoenbach, & Graham, 1982). Some HRAs are only questionnaires, while others include physical parameters, such as complete blood count (CBC), serum cholesterol level, and stress tests. Questionnaires that focus entirely on lifestyle do so because major chronic diseases and accidents can be predicted from the well defined risk factors of tobacco use, over nutrition, excessive alcohol consumption, sedentary life style, unresolved psychosocial stress and dangerous occupations or hobbies (Hyner & Melvy, 1985).

In addition to identifying risks, there is some evidence that HRAs can initiate behavior change. Rodnick and Budd (1978) offered HRA, multiphasic screening, and two educational sessions to 292 volunteers from a community club. This primarily white, middle-class population had a mean age of 53. One year after the initial appraisals, a significant reduction was noted in systolic blood pressure, cholesterol levels in men over 40 years of age, and reported alcohol consumption by men. Significant increases were found in the amount of exercise, the percentage of time seat belts were used, and the

frequency of monthly breast self-examination by women. No change was noted in smoking, but over 80% of the participants were nonsmokers. In addition, no change in weight, fasting blood glucose or triglycerides was found.

Because using an HRA with health counseling appeared to change some health related behaviors, Rodnick (1982) repeated his study in an occupational setting with 172 men and 120 women, with a mean age 36.5 years. One year later, reductions in blood pressure, smoking, cholesterol level in men, and alcohol consumption by men were observed. Increases were found in seat belt use, exercise, and performance of breast self-examinations. The 20-24 year old male group made the most significant changes to decrease their level of health risk.

A study by Bartlett, Pegues, Schaeffer and Crump (1983) found that after the administration of an HRA, clients participated significantly more in positive health behaviors and less in risk producing behaviors than they had prior to taking the HRA. An HRA, developed by the CDC, was used with a group of elderly

individuals and it was found that the administration of this HRA served as a useful stimuli for the elders to think about their health habits and their current lifestyle as they related to risks of major causes of death (Hartley & Swank, 1983).

Numerous HRAs were developed to promote wellness and positive health choices; only one referred to the specific theory under which it was created. The underlying philosophy of the Lifestyle Assessment questionnaire for university students is the pursuit of a high level of wellness (Hettler, 1980). The philosophy of high level wellness integrates six dimensions: intellectual, emotional, physical, social, occupational, and spiritual. Each dimension must be positively enhanced for high level wellness to occur (Hettler, 1980).

Several authors have suggested frameworks to explain the health promotion phenomenon at the completion of their research. Hyner and Melby (1985) note that some HRA interpretations may agree with the negative reinforcement paradigms. Individuals

participating in an HRA with no follow up or counseling may receive only negative reinforcement.

The Health Belief Model (HBM) may explain the health promotion phenomenon (Hyner et al., 1985). The focus of the HBM is an individual's perceived threat of a specific disease. The HBM does not address those activities engaged in by an individual for the purpose of health promotion. Because the HBM is a disease oriented model several authors believed the HBM to be inadequate to explain HRA results (Muhlenkamp, Brown, & Sands, 1985; Novick, Jillson, Coffin & Freedman, 1985; Pender, 1987).

Another model proposed to explain the effectiveness of HRAs in changing behavior is the Social Network Model (Novick et al., 1985). The social network model correlates variations in preventive health behaviors to differing characteristics of the social group.

Even though HRA studies have not promoted a universal model to explain their results, several conclusions explaining the usefulness of HRAs are consistent throughout the literature. HRAs promote

positive health behaviors and decrease negative behaviors by providing information to individuals or groups about their risks. This information influences the individual to initiate changes in health practices. Since HRAs are generally filled out by the individual, the simple act of taking a HRA can stimulate behavior change. HRAs have been more successful in changing behavior when the administration is accompanied by feedback. Rodnick, Frischer, and Budd (1983) state that testing (with the HRA), giving the data back to individuals, and showing them how they compared with others are key items in initiating change.

For an HRA to be effective, the tool must be specific to the target population (Geller & Steele, 1977; Hartley & Swank, 1983; Marciano, 1985b). Numerous HRAs have been developed for the adult population and used inappropriately with adolescents. Since adult thought is only developing during the adolescent years, this development needs to be considered when using an HRA with adolescents.

While the majority of HRAs have been produced for adults, a few have been created for use specifically

with adolescents from a data base appropriate to this population. The Confidential Health Profile, sponsored by the 4-H For Life program, was produced by University of Florida. This HRA contains 92 questions with a printout of results varying from eight to ten pages. The results of the profile are intended to be used in a group setting (Weiss, 1984).

Another HRA specifically developed for early adolescence is the Know Your Body Program from the American Health Foundation of New York. The focus of this HRA is to identify chronic disease risk factors in children 11 to 14 years of age (Williams, Carger, & Eng, 1980). Most recently, the Rhode Island Department of Health created a teenage version of an HRA (RIHRA), Wellness Check. Development of the RIHRA included a review of several health risk appraisal tools used with teenagers, including the New York State Health Department, Bureau of Disease Control Health Risk Reduction Program Adolescent Survey and the 4-H For Life program. The Wellness Check Program (WCP) was developed to be used primarily as a needs assessment tool with direct

emphasis on identified risks and areas of need for both groups and individuals (Benn, 1987; Marciano, 1985a).

In summary, HRAs are effective tools for promoting health in the adult population. A few HRAs have been developed for use with adolescents. Adult cognition begins during adolescence and its development will be discussed next.

Cognitive Development

Jean Piaget, who studied the cognitive development of children, defined four stages: sensorimotor intelligence, pre-operational thought, concrete operations, and formal operations (Kimmel et al., 1985). The sensorimotor period begins at birth and lasts until about two years of age. During this period of cognitive development, infants learn to distinguish themselves from the world around them. Accomplishments of the sensorimotor period include the infant gaining awareness of object permanence and the ability to mentally represent objects.

From approximately age two to seven, the child is considered to be in the pre-operational stage of cognitive development. At this time the child begins

to think symbolically and language skills develop (Schell & Hall, 1983).

Operations refer to actions which a person performs mentally that form a coherent and reversible system (Kimmel et al., 1985). During the concrete operations stage, from about the age of seven to eleven years, a child learns to perform mental actions on objects which are physically present and on thoughts about those objects. In contrast, these children are unable to reason or formulate hypotheses about the future or non-present objects, thus children cannot anticipate the outcome of their actions. For example, these children may participate in physical activity, but do not necessarily understand the relationship between physical activity and its healthful benefits.

At approximately 11 or 12 years of age, the adolescent enters the stage of formal operations. At this stage of cognitive development, the adolescent begins to examine operations and have thoughts about things not present or things that are in the future. It is at this stage that the adolescent is able to formulate logical hypotheses and think about the

potential outcomes of behaviors. For example, adolescents are able to hypothesize outcomes of a set of actions. They can think about the relationship between their driving habits and the possibilities of being involved in an automobile accident. As adolescents mature, they refine their skills and are able to perform more complex tasks. Their awareness of knowledge increases and adolescents develop the ability to think about and conceptualize thoughts, both their own and others (Kimmel et al, 1985). The transition from concrete operations to formal operations occurs over a period of time as each individual matures.

In a further refinement of Piaget's theory, Elkind (1984) describes adolescent thinking as characterized by egocentrism in terms of two major concepts: the imaginary audience and the personal fable. The adolescents' belief that everyone else is thinking about them and is concerned with their actions and thoughts is called the imaginary audience (Elkind, 1984). The ability to think about what others are perceiving and thinking, gained through formal operations, supports the adolescents' belief in the

imaginary audience. The imaginary audience is real to adolescents and holds considerable influence over their behavior and the desire for peer group conformity (Kimmel et al., 1985).

The second characteristic of adolescent egocentrism, the personal fable, is the result of the adolescents' overemphasis and overdifferentiation of feelings and a belief in their uniqueness. Elkind (1984) believes that because of the personal fable, adolescents view themselves as special and different. Adolescents believe that phenomena and rules which apply to others do not necessarily apply to them because they are unique, special, different, and invulnerable. The personal fable contributes significantly to teenage risk taking behavior (Elkind, 1984).

The influence of the imaginary audience and the personal fable on adolescent behavior gradually diminishes at the end of the adolescent years. This occurs primarily in two ways. Through the use of formal operations, the adolescent is able to formulate and test hypotheses against reality. The perception of

the adolescent is modified by the reaction of the real audience in the testing of hypotheses. As adolescents mature and gain close personal relationships, they begin to see that others who are special have similar experiences. The realities of what has happened to others similar to themselves replace the adolescents' perception of invulnerability. Likewise, the desire for peer-group conformity begins to decrease during middle adolescence and is replaced by self-determination and adult identification (Elkind, 1984; Kimmel et al., 1985).

To summarize, adolescent cognition plays an important role in the adolescent's participation in health risk behaviors. During early adolescence, teenagers are reacting to their perception of the imaginary audience and the personal fable. The belief in their personal unique qualities and their desires to conform to group norms overwhelms the real risks associated with the behaviors. Cognitively, middle to late adolescence is a time of increased maturity in self determination and adult identification. Adolescents have the cognitive ability to examine

decisions at the level of formal operations and evaluate the consequences of their choices; however, health risk behaviors appear to increase as the adolescent ages (Benn, 1987; Egan, 1985). HRAs have been used successfully with adults for promoting wellness and decreasing health risk behaviors. Given the cognitive abilities of an older adolescent, the use of an HRA specifically designed for adolescents could produce the same benefits with adolescents.

CHAPTER III

CONCEPTUAL FRAMEWORK

The conceptual framework for this study was guided by the principles of planned change and Elkind's theory of adolescent cognitive development. According to Bennis, Benne, and Chin (1985), there are three basic strategies for planned change: empirical-rational, normative-reeducative, and power-coercive. One principle universal to all three strategies is the use of knowledge as a catalyst for modifying behaviors. The first two strategies for change were employed for this study. The third strategy for planned change was not used because the use of power and coercive activities for effecting change were not appropriate with the use of an HRA.

The empirical-rational strategy for planned change is based on the assumption that human beings are rational and will act according to their rational self-interest after it is shown to them. If change is proposed to a person and this change is in accordance with rational self-interest and personal gain, the

individual will adopt the proposed change (Bennis et al., 1985).

The normative-re-educative strategy of change proposes that human beings must be involved in their own re-education. Further, this strategy promotes the idea that changes are not just derived from rational information alone, but that the changes must be at a personal level. This takes into consideration the individuals habits and values (Bennis et al., 1985).

These concepts are congruent with Elkind's theory of adolescent cognition. According to Elkind (1984), health professionals can assist adolescents towards changing health risk behaviors by recognizing the influence of the imaginary audience and the personal fable on the adolescent's behavior and assist the adolescent to hypothesis test regarding behaviors.

The use of an HRA with an adolescent population is congruent with these principles. The HRA identifies individuals' health behaviors and offers information supporting positive health behavior changes. This rational information is proposed to participants at a personal level. Therefore, self-interest and gain is

identified for individuals, involving them in their own re-education.

Adolescents are given the opportunity to hypothesis test through the taking of the HRA. After the adolescent completes the HRA questionnaire, individual feedback is given to each adolescent offering information regarding health behaviors. This information gives adolescents more data from which they can formulate answers to their hypotheses, identify personal gains, and modify their behaviors accordingly.

There are several other variables which research suggests affects adolescents' health behaviors. These include the demographic variables of sex and grade, and the sociological variables of religiosity, living arrangements, and socioeconomic status.

The RIHRA Wellness Score provides a means to measure original health information and behaviors and the Wellness Check Program (WCP) provides feedback to the adolescent. The socio-demographic variables of the adolescent may affect the adolescent's health behaviors. The adolescent uses cognitive processes to evaluate the information and alter health

promotion/maintenance and risk taking behaviors. After processing the information from the WCP and modifying behaviors accordingly, the RIHRA Wellness Score can be used again to measure the current health knowledge and behaviors of the adolescent. Figure 1 illustrates this phenomenon.

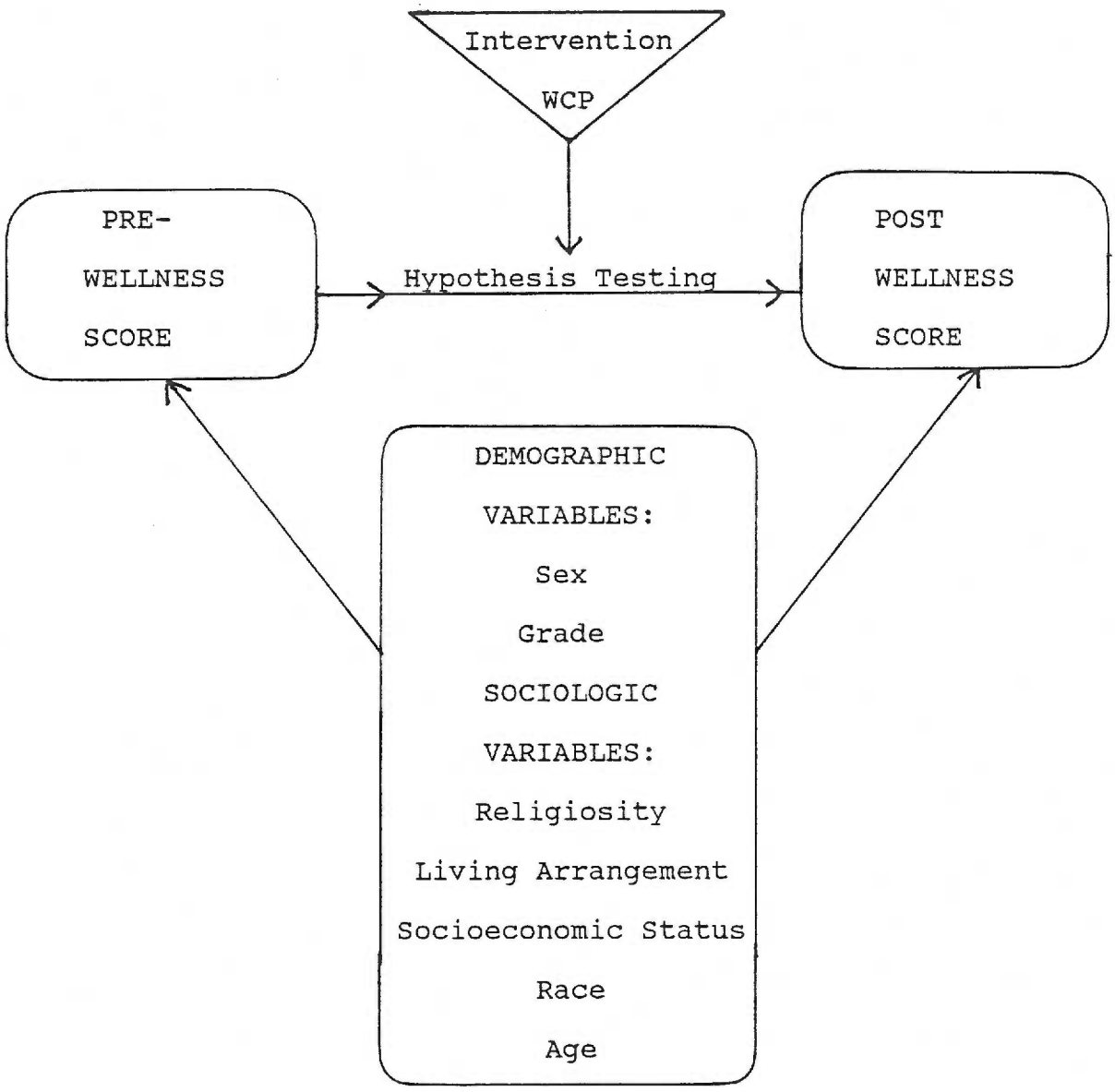

Figure 1 Conceptual Framework

Research Hypothesis

The purpose of this study was to investigate the use of an HRA specifically designed for adolescents as a tool to promote positive health behaviors and decrease risk taking behaviors in this population. The hypothesis of the study was:

> Adolescents who complete an HRA specifically designed for adolescents and receive immediate feedback will significantly improve their Wellness Scores after a six week period of time.

In addition, the following questions were addressed:

1. Which subgroups of adolescents are more likely to show improvement in Wellness Scores after a six week period of time (i.e., male vs. female; 10th, 11th, or 12th grade students)?
2. Which types of knowledge or reported behaviors are positively influenced by the Wellness Check Program?

CHAPTER IV

METHODS

Subjects and Setting

A private, coeducational, religiously affiliated metropolitan high school was used as the research setting. Since this private school is not part of a school district, the school's board of directors has given the principal the responsibility to make decisions regarding research conducted in this school. Therefore, entry to the school site was negotiated directly through the school principal (see Appendix A).

The enrollment for this 9th through 12th grade school was 210 students. However, the Rhode Island Health Risk Appraisal, adolescent version, (RIHRA) requires information about age specific behaviors (e.g., driving). Furthermore, older adolescents participate in more risk taking behaviors than younger adolescents and possess the cognitive ability to hypothesis test. Therefore, the population for the study was narrowed to include grades 10, 11, and 12, where the majority of adolescents could answer all the questions (n=173).

Because the Human Subject Review Committee (HSRC) required parent consent, introductory information letters and consent forms were sent home to parents/guardians for them to read and sign (see Appendix B). A total of 173 letters and consent forms were sent home to obtain parental consent. Consent forms were returned by 92% (n=157) of the target population. Six percent (n=10) of the parents who returned consent forms declined to participate in the study. Therefore, 84% (n=145) of the target population participated in the study.

Informed Consent

Prior to administration of the RIHRA and socio-demographic questionnaire, the study was explained to each student by one of the two investigators. The student was informed of the potential risks and benefits of participation in the study, questions were answered, and a consent form was signed by the student (see Appendix B).

The only known potentially harmful effects from the RIHRA result from the anxiety which a specific question (e.g., question 37) or a poor risk score could

produce. Anxiety about risk score results is constructive if it leads to behavior changes which improve the risk score. The possible anxiety of a person over inherited or unchangeable risks is a concern with HRA (Hyner et al., 1985). However, the majority of the risk factors measured on the RIHRA are under the control of the adolescent. The purpose of the RIHRA is to provide information on which the adolescent can base decisions toward health. Thus, the risk from anxiety produced by taking the RIHRA and receiving feedback was outweighed by the positive changes in life style which could be achieved. Even though the risks associated with the RIHRA were deemed negligible, if an incident did occur in which the student became upset because of the Wellness Score or the Wellness Check Program (WCP), the student would be referred to the school counselor.

The students were assured that the information would be treated in a confidential manner and that no information would be divulged to any other individual including parents or those within the school system. The HSRC required that students not be assigned

individual identification numbers so that individual student could not be identified. Therefore, no names appeared on the data sheets and the investigators were unable to tie specific answers to individual students.

Design and Procedures

A pre-experimental design was used to test the study hypothesis and the research questions. A pretest using the RIHRA was given to a single group of 145 students. Six weeks later the same RIHRA was administered to 141 students. All students received the pretest, but because of the Human Subjects Review Committee (HSRC) restrictions, identifying data were not recorded. Thus, the students' pre and posttest responses could not be matched.

The independent variable was the taking of the adolescent RIHRA and receiving personalized feedback about risk factors. This is referred to as the Wellness Check Program (WCP). The dependent variable was the adolescents' reported health behaviors as demonstrated by their Wellness Scores. The demographics of grade and sex were used as independent variables to address the research question "Which

subgroups of adolescents are more likely to show improvement in Wellness Scores after a six week period of time?"

The sociological variables used as controls in this study to determine whether there were differences between the two groups included religiosity, living arrangements, socioeconomic status, race, and age. Religiosity was defined by church attendance. High religiosity was characterized by weekly church attendance where as low religiosity was measured as attendance at holiday services only or not at all. Living arrangement referred to the parental structure in the home environment in which the adolescent resided. For this study, there were two categories of living arrangements 1) two parent and 2) other. A two parent living arrangement meant there were two adults parents living in the home with the adolescent (biological parents or step parents). The category of "other" included all other family structures (e.g., single parent, grandparent, guardian, emancipated minor). The surrogate used for socioeconomic status was the parents' education. The categories used to

determine mother's and father's education were 1) grade/high school, 2) college, 3) post college, and 4) don't know. Students were asked what they considered their race/ethnic group to be. There were six category choices of white (non-Hispanic origin), Black (Afro-American origin), Hispanic, Asian or Pacific Islander, Native American Indian or Alaskan native, and Other. For this study the six categories were collapsed into two, white and other. Students were asked to place their age in one of the following age groups: 13 or under, 14, 15, 16, 17, or 18 and over.

For the pretest administration of the RIHRA, each student in the study was individually called out of class or study hall, informed consent was obtained, and then the student completed the RIHRA (see Appendix C) and socio-demographic questionnaire (see Appendix D). Immediately after completing the RIHRA, the form was computer scored by one of the two investigators and the student received a Wellness Score, a written personalized risk assessment sheet (see Appendix E), a booklet of general information (The Way to Wellness For Teens) to which the personalized risk assessment sheet

referred (see Appendix F), a list of community agencies from which to seek more health information (see Appendix G), and the name of a high school counselor (on the personalized risk appraisal sheet).

After six weeks, the same procedure was repeated. The participants were asked to complete the RIHRA and socio-demographic questionnaire and received individual Wellness Scores. Normally the effects of testing from pre to post test are seen as a threat to internal validity, however in this design it was a desired outcome. The socio-demographic questionnaire was repeated to check for changes in student status from the initial data collection time.

Data Collection Instruments and Materials

Two instruments were administered to all students. The Rhode Island Health Risk Appraisal, adolescent version, (RIHRA) and a socio-demographic data questionnaire. The RIHRA was used to measure the dependant variable, Wellness Scores.

The RIHRA was developed in Rhode Island in 1982 and has been administered to more than 16,000 teenagers. Currently the tool is in use in 47 of the

50 states, Canada, West Germany, and England (Marciano, 1985b).

The RIHRA is a 40 item instrument that is filled out by the subject taking approximately 8 to 10 minutes to complete. The first five questions collect demographic information regarding the subject's sex, age, race, grade level and educational plans. Two categories of race were used, white and other. The category of "other" included: Blacks, Hispanics, Asians, Pacific Islanders, Native Americans and others.

The remaining questions from the RIHRA ask about family health, nutrition, dental habits, immunizations, exercise, smoking, drug use, driving habits, other safety practices, mental outlook, and sexual knowledge. An additional six questions are asked of females concerning breast self examination, menstrual history, and knowledge about birth control pills. After the RIHRA is completed, it can be immediately computer scored and individuals receive printouts of their Wellness Score with a personalized risk assessment sheet concerning areas of strength and areas which need improvement.

Each student begins with a base score of 76 points. Points are added to or subtracted from the base score to determine the final Wellness Score. Wellness scores can range from 0 to 100 and places the student in one of four categories. Excellent represents a score of 85 to 100; fair, 70 to 84; risky, 55 to 69; and hazardous, below 54.

The RIHRA is reported to have face and content validity (L. Marciano, personal communication, 11/86). The instrument was developed by reviewing other adolescent HRA tools. Experts in the fields of nursing, medicine, adolescence, health promotion, health education, and exercise physiology were consulted to evaluate the tool's accuracy and comprehensiveness. Since the tool is heterogeneous in content, the use of Cronbach's alpha is not appropriate (Goetz & McTyre, 1981).

The second instrument was a socio-demographic questionnaire developed for this study. Past research has identified that specific variables appear to influence adolescent participation in health risk behaviors: living arrangement, religiosity, and

socioeconomic status. Since the RIHRA does not elicit data in these areas an additional socio-demographic questionnaire was developed. Living arrangement was grouped into either two parent or "other". The "other" category included: one parent, grandparent, guardian, and emancipated minor. The religiosity categories used were defined by church attendance: weekly, once to twice a month, and holidays or never. Socioeconomic status was measured by the parents' education level. Higher parents' education level is reflective of higher socioeconomic status. Three categories of parents' education level were used: grade or high school, college, or post college education.

A booklet, The Way to Wellness For Teens, accompanied the personalized risk assessment sheet. The booklet is 32 pages in length and is divided into 13 sections: diet and nutrition, physical fitness, smoking, alcohol abuse, traffic safety, stress, marijuana and other drugs, sexuality, immunization, dental health, family history of disease, for women, and suggested readings. The booklet is designed to help adolescents better understand risk factors that

threaten their health and provides additional information on how to deal with risk factors effectively. The personalized risk assessment sheet refers to the booklet and directs the adolescent to specific readings contained in the booklet. Experts were used in the development of the booklet. The RIHRA, the individualized risk assessment sheet responses, and the booklet were field tested at three Rhode Island high schools (L. Marciano, personal communication, 11/86).

The investigators for the reported study were concerned that the booklet was too simplistic for 10th, 11th and 12th grade students, thus the booklet was piloted with a convenience sample of 20 adolescents in the 9th to the 12th grades. The majority of the adolescents who participated in the pilot were from homes with parents who are associated with the health care field. Because of this, it is assumed that these adolescents had access to more health information than the average adolescent and therefore, would be most likely to identify if the booklet was too simplistic. Twenty booklets plus a Likert-type questionnaire were

distributed and 12 questionnaires were completed and returned.

The questionnaire included demographic questions asking about sex, age, and grade. In addition, eight Likert-type statements with answer choices in a range of five possible responses, one general question "What was your general feeling about the booklet?," and a space for comments were on the questionnaire (see Appendix H). The eight Likert-type statements examined the clarity and usefulness of information in the booklet, personal reading enjoyment from the booklet, and the adolescent's perception of their peers' reactions to the booklet. The possible range of scores was from 8 to 40. A score of 16 or below was determined to reflect a negative view of the booklet.

The age range of the respondents was from 13 to 18 with a mode of 15 and 17 years; there were five males and seven females. The range of the Likert scores was 19 to 34 with a mean score of 26.5. To the question "What was your general feeling about the booklet?," nine adolescents responded positively, two were uncertain, and only one responded negatively.

The respondents were given the opportunity to offer recommendations for the booklet. The major response to this question was the request for more information. From these data, it was concluded that the booklet was satisfactory as one of the information sources to be used in this study.

Data Analysis

The data collected from the students included information on select socio-demographic variables (i.e., age, sex, race, grade level, living arrangement, religiosity, and socioeconomic status as measured by the parent's education level). Individual Wellness Scores and a group mean Wellness Score were obtained from the RIHRA. Initial analyses were made of all socio-demographic variables in the form of frequencies for each group. Chi-square analysis were used to identify significant differences between the pretest and posttest groups' socio-demographic scores.

An independent t-test was employed to test the study hypothesis "Adolescents who complete an HRA specifically designed for adolescents and receive feedback will significantly improve their Wellness

Scores after a six week period of time." A significance level of 0.05 was used. Next, to further analyze the differences, the Wellness Scores were grouped into four categories: excellent, fair, risky, and hazardous. Chi-square analysis and frequencies were used to identify differences between the pretest and posttest groups' categories of Wellness Scores.

To examine the first research question "Which subgroups of adolescents are more likely to show improvement in Wellness Scores after a six week period of time?" the pretest and posttest groups were divided into subgroups of males or females, and 10th, 11th, and 12th grades. An independent t-test was used for each subgroup to determine if there was a significant difference between the subgroups' pretest and posttest scores. A significance level of 0.05 was used.

To address the second research question "Which types of knowledge or reported behaviors are positively influenced by the Wellness Check Program (WCP)?", chi-square analysis was used to identify differences in answers to specific questions between the pretest group and posttest group.

In conclusion, chi-square and t-tests were used in the analyses to evaluate the effectiveness of the WCP in improving Wellness Scores. The analysis further identified the areas of reported differences in health knowledge and behaviors.

CHAPTER V

RESULTS

Descriptive

The pretest group included 74 male (51%) and 71 female (49%) participants for a total of 145. Ninety percent (n=131) of the students were white. The other ten percent (n=14) of the students were Black (n=1), Hispanic (n=2), Asian/Pacific Islander (n=5), Native American (n=2), and other (n=4). This racial distribution is reflective of the population in the metropolitan area.

The age of the participants in the pretest group ranged from 15 to 19 years with a mean of 16.52 years. The largest grade subgroup were the tenth grade students (n=57, 39%). The remaining grades were nearly equal in distribution. There were 43 (30%) 11th grade students and 45 (31%) 12th grade students.

The majority of the students were living with two parents and had high religiosity. Seventy-one percent (n=103) of the mothers and 78% (n=113) of the fathers had a college or postcollege education indicative of a higher than average socioeconomic status.

To be eligible for the posttest group students must have taken the pretest. However, two students transferred to another school and one student died in a traffic accident. A fourth student took the RIHRA, but the answers seemed unreliable and were not included in the posttest analysis (e.g., student asked others to assist in answering the questions). Therefore, posttest data were available for 141 students.

Chi-square analysis indicated the demographics of sex and grade and the sociological variables of religiosity, living arrangement, socioeconomic status, race, and age were not significantly different between pretest and posttest groups (Table 1 & 2). The inability to identify individuals created two difficulties with regard to analysis. First, the students with missing posttest data could not be eliminated from the analysis, thus their scores remained in the pretest pool. However, it appears that the loss did not significantly alter the composition of the posttest group. The second difficulty was the inability to match individual pretest to posttest Wellness Scores. Therefore, an independent t-test

rather than a t-test for correlated groups was applied to answer the research hypothesis.

Table 1

Frequencies and Chi-Square Findings for the Demographic Variables for the Pre and Posttest Groups

	Pretest Group n=145	Posttest Group n=141	Chi-square
Sex:			
Male	74 (51%)	71 (50%)	
Female	71 (49%)	70 (50%)	0.00
Grade:			
10th	57 (39%)	58 (41%)*	
11th	43 (30%)	42 (30%)	
12th	45 (31%)	41 (29%)	0.15

*School has accelerated program, grade level sometimes varies.

Table 2

Frequencies and Chi-Square Findings for the Sociological Variables for the Pre and Posttest Groups

	Pretest Group n=145	Posttest Group n=141	Chi-square
Living Arrangement:			
Two Parents	116 (80%)	114 (81%)	
Other	29 (20%)	27 (19%)	0.00
Religiosity (Church Attendance):*			
Weekly	104 (72%)	106 (75%)	
1-2x month	28 (19%)	24 (17%)	
Never	12 (8%)	11 (8%)	0.34
Mothers' Education:			
Grade/High	39 (27%)	35 (25%)	
College	77 (53%)	75 (53%)	
Post College	26 (18%)	24 (17%)	
Don't Know	3 (2%)	7 (5%)	0.09
Fathers' Education:			
Grade/High	23 (16%)	21 (15%)	
College	66 (46%)	61 (43%)	
Post College	47 (32%)	49 (35%)	
Don't Know	9 (6%)	10 (7%)	0.23
Race:			
White	131 (90%)	127 (90%)	
Other	14 (10%)	14 (10%)	1.14
Age:			
15	31 (21%)	27 (19%)	
16	37 (26%)	37 (26%)	
17	46 (32%)	47 (33%)	
18+	31 (21%)	30 (21%)	1.13

*Pretest group has missing data for one student.

Further description of the group indicated these students to whom this RIHRA was administered to be more healthy than the average adolescent population. Table 3 compares the frequencies of Wellness Score categories for these students at pretest time with a national group of students who have participated in the RIHRA.

Table 3

Frequencies of Wellness Score Categories Between Pretest Group and National Group

	Pretest n=145	National n=3,482
Excellent	76 (52.4%)	1137 (33%)
Fair	65 (44.8%)	1526 (44%)
Risky	4 (2.8%)	480 (14%)
Hazardous	0 (0.0%)	339 (10%)

This group's profile included characteristics not usually found in the "average" adolescent population. Some unique characteristics of the pretest group were: 100% could swim or float in water above the head, 94%

did not use alcohol, 91% never smoked and 6% had quit smoking, 81% used their seatbelts always or nearly always, and 68% ate breakfast at least five times per week. In comparison, a sample of reported behaviors from 3,482 national public school students demonstrated the following: 96% could swim or float in water above the head, 74% did not use alcohol, 79% never smoked, 14% used seatbelts always or nearly always, and only 57% ate breakfast at least five times per week (Operator's, 1985). The pretest group's wellness activities were healthier than those of the national comparison group.

Analysis of Research Hypothesis and Questions

The mean Wellness Score for the pretest group was 84.7 with a range of 58 to 99. The mean posttest group Wellness Score was 86.3 and ranged from 54 to 100. An independent t-test supported the research hypothesis that adolescents who complete the Wellness Check Program (WCP) will significantly improve their Wellness Scores after a six week period of time (t [284]=1.74, p=0.0415). Although the hypothesis was supported, the difference in the change of the Wellness Score was only

1.6 points. In addition these results need to be interpreted with caution as one assumption of the independent t-test was compromised.

At pretest time over half (n=76, 52%) of the adolescents' Wellness Scores were in the excellent category and 45% (n=65) were in the next category of fair. At posttest time there were more student Wellness Scores in the excellent category (n=87, 62%) and fewer student Wellness Scores in the fair category (n=48, 34%). However, a statistically significant difference was not found in the distribution of scores between groups for the Wellness Score categories (Table 4).

To answer the research question "Which subgroups of adolescents are more likely to show improvement in Wellness Scores after a six week period of time (i.e., male vs. female; 10th, 11th, or 12th grade students)?" the pretest and the posttest students were divided into subgroups of males and females, and grades 10, 11 and 12. Each subgroup's pretest and posttest Wellness Score means were analyzed using an independent t-test. All subgroups exhibited increases in their group mean

Table 4

Frequencies and Chi-Square Results for Wellness Score Categories Between the Pre and Posttest Groups

	Pretest	Posttest
Excellent	76 (52.4%)	87 (61.7%)
Fair	65 (44.8%)	48 (34.0%)
Risky	4 (2.8%)	5 (3.6%)
Hazardous	0 (0.0%)	1 (0.7%)

$\chi^2(3)=4.36$, $p=0.11$

Wellness Scores over the six week period of time. However, only the differences occurring with the females and grade 10 were at a significant level ($p<.05$). Results are summarized in Table 5.

To answer the research question "Which types of knowledge or reported behaviors are positively influenced by the Wellness Check Program?", pretest to posttest group differences in each of the RIHRA questions were evaluated using chi-square. The answers

Table 5

T-test Results of Wellness Scores Between the Pre and Posttest Subgroups by Sex and Grade

	Pretest Wellness Score	Posttest Wellness Score	t
Females			
N	71	70	
X	84.5	86.7	1.88*
SD	6.76	7.30	
Males			
N	74	71	
X	84.9	85.9	0.69
SD	7.60	9.09	
Grade 10			
N	57	58+	
X	85.3	87.4	1.62*
SD	7.03	7.01	
Grade 11			
N	43	42	
X	84	84.7	0.38
SD	7.33	9.80	
Grade 12			
N	45	41	
X	84.7	86.4	1.03
SD	7.31	8.00	

*p<0.05

+School has an accelerated program, grade level sometimes varies.

given to 10 of the 38 questions about health were significantly different ($p<.05$) between the pretest group and the posttest group. The differences detected were indicative of improved health practices. At posttest, the students showed an increase in health knowledge on five of the health knowledge questions and reported participating in more positive health behaviors in five of the health behavior areas sampled. The results of the chi-square analysis are described in Table 6.

In summary, the research hypothesis was supported by an independent t-test. However, only the subgroups of females and tenth grade students exhibited a significant increase in their group mean Wellness Scores. Chi-square analysis identified differences in the responses to ten RIHRA questions, indicating increased health knowledge and healthier behaviors.

Table 6

Significant Chi-Square Findings on Selected RIHRA Question Items

RIHRA Questions	Chi-square	p
Knowledge Questions:		
Relatives' health history	5.24	0.04
Immunizations	7.22	0.03
Marijuana knowledge	5.29	0.01
Contraceptive knowledge	5.78	0.03
Oral contraceptive risk	34.80	0.00
Behavior Questions:		
Snacks	2.68	0.05
Walking	3.40	0.03
Exceed speed limit	7.75	0.01
Motorcycle helmet use	3.02	0.04
Jogging safety	3.06	0.04

CHAPTER VI

DISCUSSION

The purpose of this study was to investigate the use of a Health Risk Appraisal (HRA) specifically designed for adolescents as a tool to promote positive health behaviors and decrease risk taking behaviors in this population. In this chapter, the statistical findings are discussed in relation to the research hypothesis and questions.

The analysis supports the research hypothesis that the Wellness Check Program (WCP) can be used to improve Wellness Scores with select adolescents. However, this study has several limitations and the results should be interpreted with caution. Most importantly, because of the unique characteristics of this adolescent population, the study is limited in its generalizability. Moreover, two events occurred during the six weeks between pretest and posttest which may have interacted with the intervention to strengthen the treatment effects. These events were a family life week and the death of a student.

The family life week dealt with social and health issues related to adolescent sexuality and was presented by an obstetrician/gynecologist. The student death was the result of a traffic accident. These two events could have reinforced information the adolescents had already received from the computer generated feedback and the accompanying booklet.

Although a significant increase was detected in overall group mean Wellness Scores, further analysis indicated that this difference was noted to have occurred only in the subgroups of females and tenth graders. As identified earlier in the review of literature, males and females participate in different risk taking behaviors. These results may indicate that risk taking activities in which females participate could be more readily influenced by the Rhode Island Health Risk Appraisal (RIHRA) than the risk taking activities of males. On the other hand, the RIHRA asked female students an additional six questions concerning breast self examination, menstrual history and knowledge about the use of birth control pills. However, the only posttest difference detected through

chi-square analysis in these six questions was oral contraceptive knowledge. Therefore, the significant increase in Wellness Scores for the female subgroup was probably not related to the additional six questions.

The finding of the significant increase in Wellness Scores for the tenth grade students is supported by observations made at the time of data collection. During the WCP, the tenth grade students appeared to concentrate and focus on completing the RIHRA fully and accurately. Upon receipt of the computer generated feedback, all students immediately read their results. However, the younger adolescents seemed to read the results with a more serious attitude. These observations and the tenth grade subgroup t-test results suggest that younger adolescents may be more readily influenced by the WCP to raise their Wellness Scores by acquiring knowledge and/or by participating in health promoting activities than their older counterparts.

It may be easier for adolescents to gain knowledge and raise their Wellness Scores than it is for them to alter their behaviors to raise their Wellness Scores.

The 12th grade students' pretest group mean Wellness Score was slightly lower than the 10th grade students' pretest group mean Wellness Score. Since older adolescents participate in more risk taking activities than younger adolescents, this may account for their lower pretest and posttest group mean Wellness Scores. However, the older adolescent may have already possessed more specific health knowledge required for correctly responding to knowledge questions on the pretest RIHRA. Therefore, older adolescents may need to have a stronger more individualized intervention to raise their Wellness Score. This would allow them to question and hypothesis test resulting in improved health behaviors.

The results of the chi-square analysis of specific health questions detected differences between groups with certain wellness indicators. The adolescents' responses to ten of the health questions indicated a statistically significant difference in health knowledge or reported behaviors. These questions can readily be categorized as either health knowledge or reported health behaviors with the posttest group

scores being higher. The five knowledge questions included biological relatives' health histories, the adolescent's own immunization status, the cancer causing agents in marijuana, the pregnancy risks associated with unprotected sexual intercourse, and the risks of smoking while taking birth control pills.

The WCP appears to be an effective tool for both stimulating the acquisition of health knowledge and disseminating health information to adolescents. Regarding the change in knowledge about the relative's health history and the adolescent's own immunization status, it is likely that the pretest motivated the adolescents to obtain this information from their parents. With the other three knowledge questions, the intervention itself appears to have provided the information. When a question was answered incorrectly during the pretest, the computer generated feedback included the correct information and referred the adolescent to specific pages in the booklet for additional information and clarification.

Although there were areas in which the students' knowledge did not change from pretest to posttest, the

majority of the adolescents already had the correct information at the pretest time. An example of this was found in the knowledge question "Is the abuse of alcohol (a depressant) or any other drug dangerous?" (question 24). At pretest time 96% of the adolescents gave the correct response to this question. As suggested in Table 3, the students in this study had a high overall level of wellness prior to the intervention.

In addition to increasing knowledge, the intervention appears to have prompted positive behavior changes in selected areas. At the pretest time, each adolescent's computer printout gave specific information about how behaviors could be changed to be less risky and more health promoting. In addition, the adolescent was referred to the accompanying booklet for more information in these areas. The reported behavior differences were found primarily in three areas: nutrition, exercise, and driving safety. These differences are of particular importance because the majority were life style behaviors with life long implications. For example, developing an exercise

routine may prevent or decrease the potential of future cardiovascular problems. However, since the RIHRA measures only self reported behaviors, the behavior improvements noted may indicate only an increase in knowledge of appropriate behaviors instead of actual behavior changes.

Unfortunately, the responses to several questions indicated a reported increase in risk taking behaviors in the areas of alcohol and substance abuse, cigarette use, driving under the influence, and lack of adequate sleep. However, this finding appears to be a result of students under reporting of risk taking behaviors at the time of the pretest. Students reported being more honest in answering posttest questions because neither the school nor their parents had discussed the results of the pretest with them. The students felt more assured of confidentiality at the posttest time. This type of response is supported by the works of Campanelli, Dielman, and Shope (1987). Their findings indicate that adolescents will answer sensitive questions truthfully only if they are convinced of the confidentiality of their responses. The RIHRA may have

underestimated certain risk taking behaviors which would have lowered the pretest Wellness Score. At posttest time the group mean Wellness Score improved in spite of the lower points for more truthful answers on certain questions.

It should also be noted that there may be certain behaviors over which the adolescent may have limited control, making the intervention less effective. An example of a behavior in which an adolescent may have limited control towards improvement is Question 11: "How many days in a typical week do you eat food from each of the four food groups?" This behavior may be influenced more by the type of food available in the home or by the person who plans and prepares the meals rather than by the adolescent's knowledge regarding adequate nutrition.

Since the data collection was conducted within the school building and parental consent was necessary for the adolescents to participate in the study, the adolescents assumed that both the school and their parents would have access to their answers and therefore chose to answer sensitive questions with

caution. Clearly, questions regarding alcohol and substance abuse, cigarette use, and driving under the influence would be considered sensitive questions with this population. Therefore, at the posttest time the reported increases of behaviors in these areas were probably only a reported increase and not necessarily an actual behavior change. If this RIHRA were given a third time it might be expected that adolescents would report behaviors accurately.

In summary, the WCP appears to be an effective tool for improving Wellness Scores with females and tenth grade students. The WCP provides a means for disseminating health information and appears capable of influencing selected health risk behaviors. While the overall gain in Wellness Scores was not large with this group of students, the gains in knowledge and the behavior changes have long term implications. Furthermore, the gains appear to have been underestimated by students underreporting risk behaviors at the time of pretest. In addition, this group of adolescents' reported behaviors were primarily healthy at pretest time, leaving limited room for the

Wellness Score to improve. These findings suggest that it is possible, therefore, that the WCP may be more effective with groups of adolescents who have low Wellness Scores.

CHAPTER VII

SUMMARY & RECOMMENDATIONS

This study investigated the use of a health risk appraisal (HRA) with an adolescent population. A review of literature revealed that adolescence is a time when health patterns are established and many health risk behaviors begin. HRAs have been used successfully to promote health in adult populations. Several HRAs have been developed for adolescents, but the review of literature revealed that they were primarily used as data gathering tools rather than as tools for promoting health.

The purpose of this study was to investigate the use of an HRA specifically designed for adolescents as a tool to promote positive health behaviors and decrease risk taking behaviors in this population. The following hypothesis was tested: Adolescents who complete an HRA specifically designed for adolescents and receive feedback will significantly improve their Wellness Scores after a six week period of time. In addition, the following questions were addressed:

1) Which subgroups of adolescents are more likely to show improvement in Wellness Scores after a six week period of time (i.e., male vs. female; 10th, 11th, or 12th grade students)?

2) Which types of knowledge or reported behaviors are positively influenced by the Wellness Check Program?

This study was guided by principles of change theory and Elkind's theory of adolescent cognitive development. A pretest/posttest design was used. The sample population was 145 adolescents attending a private religiously based metropolitan high school. Participants were individually called out of class and completed the Rhode Island Health Risk Appraisal, adolescent version (RIHRA), and a socio-demographic questionnaire. The RIHRA was immediately computer scored and each participant received a Wellness Score, individualized computer generated feedback, a booklet of health information, and a list of community resources. Six weeks later the process was repeated. Each participant received a new Wellness Score and individualized computer generated feedback.

The study hypothesis was supported. The posttest groups scores were significantly higher ($t=1.74$, $p<.05$) indicating that the Wellness Check Program (WCP) can be used to improve Wellness Scores with adolescents. However, further t-test analysis indicated that only the subgroups of females and tenth grade students showed a significant difference in Wellness Scores.

The results of the chi-square analysis of specific health questions demonstrate that certain wellness indicators were significantly different between the pretest and posttest groups. These questions appear to be in the areas of knowledge acquisition and reported positive health behaviors.

In summary, it appears that an HRA, specifically designed for adolescents, can be used by an adolescent to improve the Wellness Score and promote healthier behaviors. The intervention appeared to be more successful with the subgroups of females and tenth grade students.

Implications for Nursing

The RIHRA used in this study was shown to be an effective tool for improving adolescents' Wellness

Scores. The results indicate that the WCP appears to improve the health of this normally high risk age group. However, further research is needed to determine the WCP's usefulness clinically. Since adolescence is an important developmental phase in establishing life long behaviors, healthy behaviors promoted during this time period could carry on throughout adult life. This could mean improved health in future adult populations.

Although the group mean Wellness Score improved only a small amount, the knowledge and the reported behaviors which were different at posttest time are important. It appears that the reported behavior differences were life style behaviors and have life long implications. The potential ability of the WCP to influence life style behaviors enhances its clinical usefulness. Since poor health during adolescence is a primary reason for absenteeism from school, improved health could decrease absenteeism.

Although the WCP's clinical usefulness as an intervention to improve healthy behaviors and decrease risk taking activities in adolescent's remains

undetermined, the WCP as an inexpensive intervention has a variety of applications in the school and other settings where adolescents are found. The RIHRA produces a group profile identifying those risk factors which are common to the majority of the group. The school health nurse or the community health nurse could use this information as a basis for planning health promotion/protection programs for adolescents in a particular school or district. If the RIHRA were to be used in several schools, the group profile would aid in the identification of regional risk factors. Planning could then be done to develop educational or health interventions to meet specific needs. Subsequent profiles could be used for evaluating the impact of such efforts as weight control programs or stop-smoking clinics.

The RIHRA is easy to administer, making it possible to quickly establish a sizable database which could be useful to program planners or in developing health policy and legislative initiatives. For example, after 30,000 Rhode Island residents had completed an HRA the State Department of Health

discovered that only 13% of these residents wore safety belts. Using that information a bill was introduced to the Rhode Island general assembly requiring the use of safety belts (Marciano,1985b).

Recommendations for Future Research

This study had several limitations, therefore, future research should focus on eliminating or decreasing the effects of these limitations. To improve the generalizability of the study, initial future research should include adolescents from public metropolitan and rural high schools as well as adolescents from other private high schools. A high school is a convenient place to locate an adolescent population, however, other areas which attract adolescents could also be investigated as potential sights for future research.

Additional research needs to be conducted using designs with an identifying code to accommodate pretest and posttest matching of scores. This would facilitate the use of the paired t-tests and ANOVA.

The issues of confidentiality and trust are critical when conducting research with an adolescent

population. Ideally adolescents should be able to sign their own consent forms and parental consent should not be required. As indicated by this research, trust in the researchers and the adolescent's belief in confidentiality was gained by the second data collection period. Conducting this type of research in an alternative setting where adolescents congregate may increase their trust in confidentiality of their responses.

Future research may benefit from a design with additional data collection periods such as in a time series design. A design of this nature could answer the question: Is the change from this intervention sustained over time?

Several of the study limitations are related to the RIHRA as a tool. The RIHRA does not cover some topics which are important to adolescent health. Future versions of adolescent HRAs should include questions about acquired immunodeficiency syndrome (AIDS), testicular cancer, and skin problems. Additionally, more of an emphasis should be placed on the areas of nutrition, stress, and anger.

The intervention of the WCP might be strengthened in several ways. Individual counseling of each participant after the receipt of computer generated feedback could assist the adolescent to formulate a plan to participate in more health promoting activities and decrease risk taking activities. Activities could be established to assist adolescents in their individual plans such as beginning an aerobic exercise activity at school. From the group profile the intervention could be strengthened by school curriculum changes focused on the needs identified.

An HRA successfully used with one adolescent population may not be appropriate for all adolescent populations. At the pretest time the adolescents in this study were found to have high Wellness Scores indicative of an already existing active participation in health promoting activities. For them an HRA with either more specific questions or more topics covered might have been even more effective. Additional research needs to be conducted to evaluate the effectiveness of the WCP in populations with low Wellness Scores in which a greater increase might be

expected. The effectiveness of the WCP needs to be further evaluated with other subgroups (e.g., race, sex, age).

To assist in identifying small behaviors changes, each answer response on the HRA should have a different point designation. For example, the point designation for the responses to question 12, "How often do you snack on foods like pastries, candy, sweets, soft drinks, or other sugary foods?" is: (a) Daily, -1; (b) At least 3 times a week, 0; (c) Seldom, 0; (d) Never, 0. The points to each answer response could be altered to reflect more variability such as: (a) Daily, -2; (b) At least 3 times a week, -1; (c) Seldom, +1; (d) Never, +2. This would enable more variability to be evidenced in the Wellness Scores and serve as a positive reinforcer to the adolescent.

It is important that the HRA tool act as a reinforcer of existing health promoting behaviors. The RIHRA accomplishes this by identifying positive health behaviors on the computer feedback sheet prior to identification of those areas which the adolescent needs more knowledge or a change in behavior.

In this time of concern over the cost of health care all health care professionals need to be more economical in the use of available health care dollars. Decreasing risk taking behaviors in adolescents should translate into cost savings for future health care. Future research on HRAs should address this issue of health care cost containment: What level of wellness in adolescents will decrease subsequent health care costs in adults?

References

Bartlett, E. E., Pegues, H. U., Schaeffer, C. R., & Crump, W. (1983). Health hazard appraisal in a family practice center: An exploratory study. Journal of Community Health, 9(2), 135-144.

Benn, S. (1987). Connecticut teen wellness check. Connecticut Health Bulletin, 99(4), 169-172.

Bennis, W.G., Benne, K.D., & Chin, R. (1985). The planning of change (4th ed.). New York: Holt, Rinehart & Winston.

Bernache-Baker, B. (1987). The sexual attitudes and behaviors of private and public school students: A comparative study. Adolescence, 22(86), 259-269.

Blum, R. (1987). Contemporary threats to adolescent health in the United States. Journal of the American Medical Association, 257(24), 3390-3395.

Bruhn, J. G., & Cordova, F. D. (1977). A development approach to learning wellness behavior, part 1: Infancy to early adolescence. Health Values, 1(6), 246-245.

Campanelli, P.C., Dielman, T.E., & Shope, J.T. (1987). Validity of adolescents' self-reports of alcohol use and misuse using a bogus pipeline procedure. Adolescence, 22(85). 7-22.

Chaves, M. A., Jennings, S. E., McKinlay, S. M., & McKinlay, J. B. (1984). Cardiovascular risk: Differences among health hazard appraisals. Proceedings of the 20th annual meeting of the Society of Prospective Medicine. Indianapolis, IN: Society of Prospective Medicine. 25-27.

Dunton, S. (1987). Health risk appraisal: State of the art. In Worksite health promotion resource guide. Lansing, MI: Center for Health Promotion, Michigan Department of Public Health.

Egan, D. M. (1985). Part 1: Drug use among Oregon public school students. Salem, OR: Office of Alcohol and Drug Abuse Programs, Department of Human Resources.

Elkind, D. (1984). Teenage thinking. Pediatric Nursing, 10(6), 383-385.

Friedman, H. L. (1985). The Health of adolescents and youth: A global overview. World health Statistics Quarterly, 38, 256-266.

Geller, H., & Steele, G. (1977). Updating of tables of probability of dying within the next ten years. Proceedings of the 13th annual meeting of the Society of Prospective Medicine. Indianapolis, IN: Society of Prospective Medicine. 22-26.

Gesner, N. B. (1977). The credit-debit system of health hazard appraisal. Proceedings of the 13th annual meeting of the Society of Prospective Medicine. Indianapolis, IN: Society of Prospective Medicine. 4-5.

Giblin, T., & Poland, M. (1985). Health needs of high school students in Detroit. Journal Of School Health, 55, 407-410.

Goetz, A. A., & McTyre, R. B. (1981). Health risk appraisal: Some methodological considerations. Nursing Research, 30(5), 15-24.

Grant-Worley, J. (1987). Teen Pregnancy Oregon: 1985. Portland, OR: Oregon State Health Division.

Guggenheimer, J., Zullo, T. G., Kruper, D. C., & Verbin, R. S. (1986). Changing trends of tobacco use in a teenage population in western Pennsylvania. American Journal of Public Health, 76(2), 196-197.

Halperin, S., Bass, J., Mehta, K., & Betts, K. D. (1983). Unintentional injuries among adolescents and young adults: Review and analysis. Journal of Adolescent Health Care, 4, 275-281.

Hartley, W. S., & Swank, L. M. (1983). Modifying life style and health status through health promotion and risk analysis: Early evidence that short-term approach can produce change. Proceedings of the 19th annual meeting of The Society of Prospective Medicine. Indianapolis, IN: Society of Prospective Medicine. 72-76.

Hayes, K., & Crovitz, E. (1979). Adolescent pregnancy. Southern Medical Journal, 72(7), 869-874.

Hettler, B. (1980). Wellness promotion on a university campus. Family and Community Health, 3(1), 77-92.

Hollingsworth, D. R., & Kreutner, A. K. (1980). Teenage pregnancy. New England Journal of Medicine, 303, 516-518.

Hyner, G. C., & Melby, C. L. (1985). Health risk appraisals: Use and misuse. Family and Community Health, 7(4), 13-25.

Johnson, L., O'Malley, P. M., & Bachman, J. G. (1985). Use of licit and illicit drugs by America's high school students, 1975-1984. (DHHS Publication No. ADM 85-1394). Washington, D. C.: U. S. Government Printing Office.

Kimmel, D. C., & Weiner, I. B. (1985). Adolescence: A developmental transition. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Lansky, D., & Brownwell, K. D. (1982). Comparison of school-based treatments for adolescent obesity. Journal of School Health, 52(8), 384-387.

Marciano, L. A. (1985a). Prevalence of risk factors among teens. Proceedings of the 21st annual meeting of the Society of Prospective Medicine. Indianapolis, IN: Society of Prospective Medicine. 14-15.

Marciano, L. A. (1985b). Rhode Island health risk appraisal program in worldwide use. Rhode Island Medical Journal, 68(5), 227-228.

Marks, A., Malizio, J., Hoch, J., Brody, R., & Fisher, M. (1983). Assessment of health needs and willingness to utilize health care resources of adolescents in a suburban population. Journal of Pediatrics, 102(3), 456-460.

McCormick, N., Izzo, A., & Folick, J. (1985). Adolescents' values, sexuality, and contraception in a rural New York county. Adolescence, 20(78), 385-395.

Morrison, D. (1985). Adolescent contraceptive behavior: A review. Psychological Bulletin, 98(3), 538-568.

Muhlenkamp, A. F., Brown, N. J., & Sands, D. (1985). Determinants of health promotion activities in nursing clinic clients. Nursing Research, 34(6), 327-332.

Nolte, A. E., Smith, B. J., & O'Rourke, T. (1983). The relationship between health risk attitudes and behaviors and parental presence. Journal of School Health, 53(4), 234-240.

Novick, L. F., Jillson, D., Coffin, R., & Freedman, M. (1985). The Vermont health risk survey and the design of community wide preventive health programs. Journal of Community Health, 10(2), 67-80.

Operator's manual: Teen wellness check version 1.2. (1985). Providence, RI: Rhode Island Department of Health, Office of Health Promotion.

Oregon Center for Health Statistics. (1986a). Suicide and homicide. Portland, OR: Oregon State Health Division.

Oregon Center for Health Statistics. (1986b). Teenage suicide in Oregon. Portland, OR: Oregon State Health Division.

Oregon State Health Division. (1986). Oregon Vital Statistics Report: 1985. Portland, OR: Oregon Department of Human Resources.

Pender, N. J. (1987). Health promotion in nursing practice (2nd ed.). Norwalk, CT: Appleton-Century-Crofts.

Pestrak, V., & Martin, D. (1985). Cognitive development and aspects of adolescent sexuality. Adolescence, 20(80), 981-987.

Rodnick, J. E. (1982). Health behavior changes associated with health hazard appraisal counseling in an occupational setting. Preventive Medicine, 11, 583-594.

Rodnick, J. E., & Budd, K. (1978). Patient education and multiphasic screening: It can change behavior. Journal of Family Practice, 6(3), 599-607.

Rodnick, J. E., Frischer, A., & Budd, K. (1983). The common health care approach to reducing cardiovascular risks: Preliminary results of a three-year study. Proceedings of the 19th annual meeting of the Society of Prospective Medicine. Indianapolis, IN: Society of Prospective Medicine. 155-157.

Saucier, J., & Ambert, A. (1983). Parental marital status and adolescents' health-risk behavior. Adolescence, 18(70), 403-411.

Schell, R. E., & Hall, E. (1983). Developmental psychology today (4th ed.). New York: Random House. Schoenbach, V. J. (1987). Appraising health risk appraisal. American Journal of Public Health, 77(4), 409-411.

Schoenbach, V. J. (1987). Appraising health risk appraisal. American Journal of Public Health, 77(4), 409-411.

Smith, K. W., McKinlay, S. M. & Thorington, B. D. (1987). The validity of health risk appraisal instruments for assessing coronary heart disease risk. American Journal of Public Health, 77(4), 419-424.

U. S. Department of Health, Education, and Welfare. (1979). Healthy people (PHS Publication No. 79-55071). Washington, DC: U. S. Government Printing Office.

U. S. Department of Health, Education, and Welfare. (1974). Vital Statistics of the United States 1970 Vol. 2, Mortality part A (HRA 75-1101). Rockville, MD: U. S. Government Printing Office.

U. S. Department of Health and Human Services. (1985). Vital statistics of the United States (DHHS Publication No. PHS 85-1101). Washington, DC: U. S. Government Printing Office.

Wagner, E. H., Beery, W. L., Schoenbach, V. J., & Graham, R. M. (1982). An assessment of health hazard/health risk appraisal. American Journal of Public Health, 72(4), 347-352.

Weiss, S. M. (1984). Health hazard/health risk appraisals. In J. D. Matarazzo, S. M. Weiss, J. A. Herd, N. E. Miller, & S. M. Weiss (Eds.), Behavioral health: A handbook of health enhancement and disease prevention (pp. 275-294). New York: Wiley-Interscience.

White, V. K. (1986). Promoting health and wellness: A theme for the eighties. American Journal of Occupational Therapy, 40(11), 743-748.

Williams, C. L, Carter, B. J., & Eng, A. (1980). The know your body program: A developmental approach to health education and disease prevention. Preventive Medicine, 9, 371.

World Health Organization. (1986). Young people's health - a challenge for society. WHO Technical Report Series, 731, 3-117.

Appendix A

Letter of Agreement

August 25, 1987

To: Oregon Health Science University

To Whom It May Concern:

has agreed to participate in a research study that is being conducted by Delores Wright and Jill Daniels. It is my understanding that the participation of students in this project is limited to responding to a health risk appraisal questionnaire. Because the study requires only responding to a questionnaire, and students are participating on a voluntary basis, it does not seem necessary to require parental consent for the study to be conducted and a waiver for such consent is requested.

Respectfully,

Appendix B

Introductory Letter and Consent Form for Parents and Students

October 26, 1987

Dear Parent or Guardian:

has agreed to participate in a research study being conducted by two Masters degree students, Dolores Wright, R.N., M.S. and Jill Daniels, R.N., B.S.N., from Oregon Health Sciences University. Dolores and Jill are also currently instructors of nursing at Walla Walla College School of Nursing in Portland.

This study will evaluate the use of a nationally used health education program with adolescents. The health risk appraisal is a self administered questionnaire on areas of health such as nutrition, exercise, immunizations, and health related habits. Students will also be asked to complete a short personal information questionnaire. Upon completion of these two items, the student will receive a wellness score based on their responses to the questionnaire, a personalized risk assessment sheet, a booklet of information about good health practices, and a list of local community resource numbers for providers of health care services. The students will be asked to complete these questionnaires again in about two months time.

All information which individual students supply will be confidential. No names or identification will be on either of the questionnaires. Therefore, the researchers will be unable to identify questionnaires from individual students. Data supplied to will be in the form of group data only.

This is an opportunity for to receive information about the health of their students, as a group. This will enable the faculty to direct their health curriculum toward the specific needs of their own students. The goal is for all students in the 10th, 11th, and 12th grades to participate, thus producing accurate information for curriculum revision.

The University requires that we get parental consent for the students participation in this study. Attached is the consent form for your signature as well as the signature of your child. Please read the consent form, sign it, and send it back to the school with your child by Wednesday, October 28, 1987. If you have questions about this study please feel free to call Dolores or Jill at Walla Walla College School of Nursing at (503)251-6115 Monday through Friday.

Thank you for you participation.

Sincerely,

OREGON HEALTH SCIENCE UNIVERSITY
CONSENT FORM

I,_____, agree to serve as a subject in the research project concerning the use of a health risk appraisal with an adolescent population, This research is being conducted by Jill Daniels, R.N.,B.S., and Dolores Wright, R.N., M.S., under the supervision of Cecelia Capuzzi, R.N., Ph.D., Associate Professor of Community Health Care Systems.

I have been told that the purpose of this study is to better understand the potential usefulness of a health education program with adolescents. I understand that I will be asked to provide information about myself and to complete a health risk appraisal questionnaire. I understand that some of the questions are of a personal nature, such as my use of drugs. I will receive a computer generated wellness score, which will identify strong and week areas. I will receive a booklet The Way to Wellness For Teens which discusses areas of health concern to teenagers. I will also receive a list of local community health care resources with their telephone numbers so I can call if I want any further information. I understand that it will take approximately 15 minutes for me to complete the questionnaires. I know I will be asked to complete the health risk appraisal again in about two months time.

I have been told that the researchers are not aware of any known risks or discomfort that may result from the research except for the possibility that some of the questions on the questionnaires may cause me to be uncomfortable. I understand that the potential benefit to me will be to learn my wellness score and obtain more information about various health topics. This will assist me in making decisions about my own health behaviors. I understand that confidentiality will be maintained by keeping my responses anonymous. My name will not appear on any documents. The high school faculty and my parents will NOT have access to any of the answers I give to any of the questions.

The Oregon Health Sciences University, as an agent of the State, is covered by the State Liability Fund. If you suffer any injury from the research project, compensation would be available to you only if you establish that the injury occurred through the fault of the University, its officers, or employees. If you have further questions, please call Dr. Michael Baird at (503)279-8014.

Ms. Daniels and Ms. Wright have offered to answer any questions I might have.

I understand that I may refuse to participate or withdraw from this study at any time without jeopardizing my status/enrollment at this high school.

I have read the foregoing and agree to participate in this study.

Student_____ Date_____

Parent/Guardian_____ Date_____

Appendix C

RIHRA Teen Wellness Check

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 (Afro-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?

    I 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 1½ 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 (V.D.).

(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
5BH05-188
12-85

TWC 2/HE8

WELLNESS CHECK was developed by the Rhode Island Department of Health

Appendix D

Demographic Questionnaire

Demographic Questionnaire

1. Do you live with: (please check one of the following)
   ( ) Both parents
   ( ) One divorced/separated parent
   ( ) One widowed parent
   ( ) Grandparent(s)
   ( ) Guardian
   ( ) Other please specify_____

2. Which of the following is the highest grade completed by your mother? (please check one of the following)
   ( ) grade school
   ( ) high school
   ( ) college
   ( ) post college
   ( ) don't know

3. Which of the following is the highest grade completed by your father? (please check one of the following)
   ( ) grade school
   ( ) high school
   ( ) college
   ( ) post college
   ( ) don't know

4. Outside of school, how often do you attend church services? (please check one of the following)
   ( ) Never
   ( ) Holidays only
   ( ) A couple times a month
   ( ) Weekly

Appendix E

Individual Health Risk Appraisal

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**************************************************************
*                    WELLNESS CHECK FOR TEENAGERS            *
*  <TO PRINT YOUR OWN HEADING HERE GO TO OPTION #7(9) ON THE MAIN MENU>  *
**************************************************************
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* * * * YOUR SCORE ON THE HEALTH RISK APPRAISAL IS 93 OUT OF A POSSIBLE 100 POINTS.

* * * * YOUR SCORE PLACES YOU IN THE FOLLOWING HEALTH RISK CATEGORY: ——>> EXCELLENT <<——.

YOU SCORED WELL IN THE FOLLOWING AREAS ON THE QUESTIONNAIRE:

* —> EXERCISE SMOKING ALCOHOL AUTO SAFETY <— *

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: <<——

* BESIDES MARIJUANA'S CANCER-CAUSING AGENTS, YOU SHOULD KNOW THAT MARIJUANA USE CAN AFFECT YOUR THINKING, MEMORY, AND CONCENTRA TION. IT CAN LOWER MALE HORMONES IN BOYS AND FEMALE HORMONES IN GIRLS, WHICH MAY AFFECT YOUR PHYSICAL OR SEXUAL DEVELOPMENT; I CAN INTERFERE WITH DRIVING ABILITY AND COORDINATION. FOR MORE INFORMATION READ PAGE 18 OF 'THE WAY TO WELLNESS FOR TEENS.'

* ALCOHOL CAN BE A DANGEROUS DRUG. 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. READ PAGE 14 OF 'THE WAY TO WELLNESS FOR TEENS.'

* SEXUAL INTERCOURSE —EVEN ONCE— WITHOUT EFFECTIVE BIRTH CONTROL CAN LEAD TO PREGNANCY. READ PAGE 20 OF 'THE WAY TO WELLNESS FOR TEENS.'

* A PERSON MAY HAVE A SEXUALLY TRANSMITTED DISEASE (STD) AND NOT KNOW IT UNTIL PERMANENT DAMAGE IS DONE. YOU SHOULD KNOW THAT PERSONS WHO ARE SEXUALLY ACTIVE WITH DIFFERENT PARTNERS SHOULD BE CHECKED FREQUENTLY FOR SEXUALLY TRANSMITTED DISEASES. READ PAGE 20 OF 'THE WAY TO WELLNESS FOR TEENS.'

——>> 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 HEAL

* YOU SHOULD FLOSS YOUR TEETH DAILY TO PROTECT YOUR TEETH AND GUMS. NOT FLOSSING REGULARLY INCREASES THE RISK OF TOOTH LOSS AN GUM DISEASE EVEN IF YOU HAVE FEW OR NO CAVITIES.

* YOU MAY NOT BE UP TO DATE ON YOUR IMMUNIZATIONS, AND THEREBY INCREASE YOUR RISK OF GETTING MEASLES OR RUBELLA (GERMAN MEASLES CHECK WITH YOUR PARENTS, SCHOOL NURSE, FAMILY DOCTOR, OR LOCAL CLINIC.

****INFORMATION IS AVAILABLE ON HOW YOU CAN TAKE CONTROL OF YOUR HEALTH AND REDUCE YOUR IDENTIFIED RISKS****

PLEASE REFER TO THE FOLLOWING PAGES IN THE 'WAY TO WELLNESS FOR TEENS' BOOKLET:
PAGE 22 PAGE 24

TO PRINT YOUR OWN ENDING MESSAGE HERE GO TO OPTION #7(10) ON THE MAIN MENU

<< WELLNESS CHECK WAS DEVELOPED BY THE RHODE ISLAND DEPARTMENT OF HEALTH >>

T

Appendix F

The Way to Wellness For Teens

The Way To Wellness For Teens

Wellness Check 114

RIDH-hp-12/86

For use with Rhode Island Department of Health
Wellness Check Program.

Take Care of Yourself

How well we feel and how long we live depends, to a considerable extent, on how we take care of ourselves...on whether we eat properly, exercise regularly, refrain from smoking and adopt the various other habits of a healthy lifestyle.

The Way to Wellness For Teens is designed to help you better understand "risk factors" that threaten your health, so that you can deal with them effectively.

The message of this booklet is that you can make a difference in your health. It may improve your chances...and those of your family...for a long, healthy life.

A Daily Food Guide

Meat & Meat Substitute Group For Protein, Iron, Vitamins	2 moderate servings a day poultry, eggs, meat, fish, shellfish, dry beans and peas, lentils, soybeans, seeds, nuts.
Dairy Products For Calcium, Protein, Vitamins	4 daily servings for teenagers, pregnant and nursing women 3 daily servings for children 2 daily servings for adults milk, cheese, yogurt, ice cream and ice milk, and foods made with large amounts of milk, such as cream soups, custards and puddings.
Fruits and Vegetables For Vitamins, especially A and C, Fiber, Carbohydrate	4 or more servings a day Include a citrus fruit or juice daily and a dark green, leafy vegetable or orange fruit or vegetable 3 times a week.
Grains For B-vitamins, Iron, Fiber, Carbohydrate	4 or more servings a day Choose whole grain, enriched or fortified products: bread, rice, crackers, corn bread, breakfast cereals, grits, noodles, pasta products, and other grain products.

Other foods, such as butter and margarine, salad dressings, cream, pastries, cake, cookies, and condiments, add mostly calories. The amounts you use should be determined by your calorie needs.

Eating a variety of wholesome foods is the best way to insure good nutrition. If you follow the recommendations in this guide, you will get a good balance of nutrients and about 1100 calories. If your calorie requirements are higher, extra calories can be obtained from additional servings of "The Big 4" or from "Other Foods".

Personal Food Diary:

Today's Diet **Date:** _____

	Foods	Amounts	Calories	Food Group Servings
BREAKFAST				Meat/Meat Sub. _____ Dairy _____ Fruit/Veg. _____ Grains _____ Other _____
LUNCH				Meat/Meat Sub. _____ Dairy _____ Fruit/Veg. _____ Grains _____ Other _____
DINNER				Meat/Meat Sub. _____ Dairy _____ Fruit/Veg. _____ Grains _____ Other _____

Did you eat the recommended number of servings in each food group?

Did you keep your calorie intake at an acceptable level?

The Good News Is... We Can Do Something About It.

No longer are Americans victimized by such dread diseases as typhoid, tuberculosis, smallpox and cholera. No longer are our hospitals filled with children stricken by polio, scarlet fever, diphtheria and whooping cough.

Advances in medicine and public health...especially the introduction of antibiotics and vaccines...have made these diseases preventable and have virtually wiped them out. Today our health is largely threatened by ourselves...by the way we live...by a lifestyle characterized by too much to eat and drink, excessive speed on the highways and unrelieved tension in our daily routines.

We are endangered by what we do — such as smoking...and by what we don't do — such as exercise.

Slowly...and sometimes not so slowly...we seem to be killing ourselves.

The good news is that we can do something about it.

By practicing seven simple health habits, experts say, Americans could add up to 11 years to their lives:

- Eat 3 meals at regular times each day, and don't snack between meals
- Eat breakfast every day
- Get moderate daily exercise
- Sleep 7 or 8 hours a night
- Don't smoke
- Maintain your recommended weight
- Restrict your use of alcohol to moderate amounts

The way we live, then, may be the central factor in how healthy, or unhealthy, we become...and remain.

Do we take this responsibility seriously, and act accordingly, or do we continue to rely on the marvelous technology of our hospitals to rescue us...or attempt to rescue us...from illnesses and disabilities we may bring on ourselves?

That's a question we alone can answer.

How will we respond to the choices...the challenges...that confront us day after day: whether to light up that cigarette...postpone that exercise (again)...take that drink before driving home...and other decisions like them.

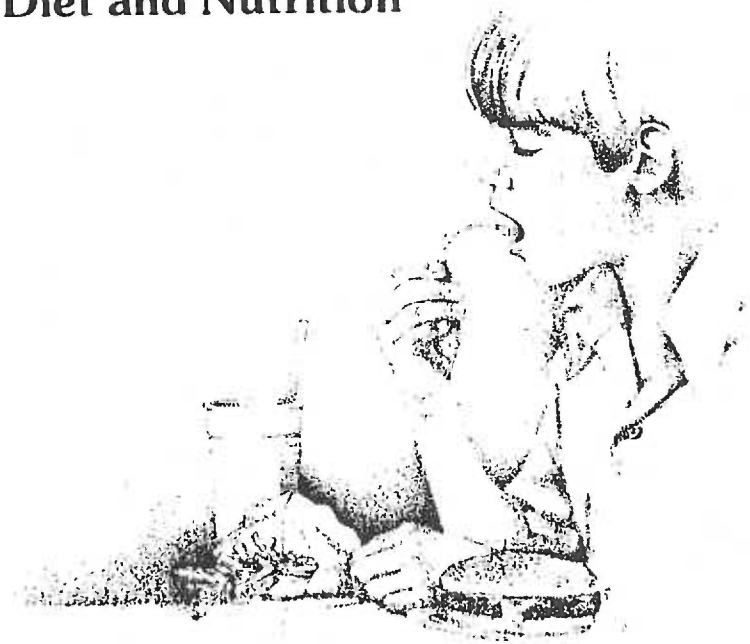
Do we believe that our decisions will really make a difference...perhaps a major difference...in our lives?

This booklet is intended to persuade you to take these choices seriously...and to make your decisions wisely, for the sake of you and your family.

The Way to Wellness For Teens provides some basic advice on how you can reduce health risks, and where to get assistance and more information if you need it.

Table of Contents

Diet and Nutrition



What you eat, and how much you eat, will make a big difference in how healthy you are -- especially as you get older.

At your age, when your body is developing so rapidly, it's especially important that you eat those foods with the nutrients you need for good health. You need to eat enough nutritious foods to develop well, but don't overdo it. Keep your weight under control; pick and choose wisely whether you eat at home or away from home.

Choosing wisely means knowing some basics about good nutrition:

- For healthy variety, eat every day from the "four basic food groups": **meats** and meat substitutes (such as peanut butter and dried beans); **dairy** pro-

ducts; **fruits** and **vegetables**; and whole **grains** (such as whole wheat bread, oatmeal and rice).

- Avoid sugary and "empty calorie" foods and drinks (such as candy, pastry, soda and alcoholic beverages), which don't provide the vitamins and minerals you need for good health. Get good nutrition value for each calorie you consume.
- Avoid foods high in fat and cholesterol, which can lead to heart disease in later life.
- Eat foods rich in starch and fiber -- such as fruits and vegetables, whole grain cereals, nuts and dried beans. They give you more energy, fewer calories; and they're good for your digestive system.
- Limit your use of salt, which can lead to high blood pressure as you get older.

Overweight and interested in losing those extra pounds? That's good, but be careful how you do it. Beware of pills, fads and gimmicks that might help you lose pounds (usually water) on a short-term basis, but can hurt your health in the long run. Remember, any good weight-loss program calls for **increased exercise**, eating a **well balanced diet** of nutritious foods, **eating less**, losing weight **gradually** (just 1-2 pounds a week). Don't lose too much weight. Being underweight is unattractive and unhealthy.

Avoid such practices as "binge" eating, self-induced vomiting and "starvation" diets. They usually cause excessive weight loss and, often, serious medical problems.

See your doctor first if you're planning to diet away more than 20 pounds, just to make sure you don't hurt yourself. Remember that we don't all have the same body frame. Some people are naturally slim and wiry; others aren't. Learn to be happy with the body frame you have, and make the best of it!

Here is the calorie count for some fast-food favorites:

	CALORIES
Arthur Treacher's (fish, chips, coleslaw)	
3 piece dinner	1100
2 piece dinner	905
Burger Chef	
Big Shef	540
French Fries	190
Shake, Chocolate	320
Skipper's Treat	605
Burger King	
French Fries	220
Shake, Chocolate	365
Whopper	605
Whaler	485
Kentucky Fried Chicken	
Original Recipe Dinner (3 pieces fried chicken, mashed potatoes, gravy, coleslaw, roll)	830
McDonald's	
Hamburger	260
Quarter Pounder	420
French Fries	210
Chocolate Shake	365
Filet O' Fish	400
Pizza Hut (cheese pizza)	
Whole 10-inch Pizza — thick crust	1020
— thin crust	900
½ of 13-inch — thick crust	900
— thin crust	850
½ of 15-inch — thick crust	1200
— thin crust	1150

See section of insert sheet on **Diet and Nutrition** for referral to local sources of additional information and assistance.

Physical Fitness

Exercise can be fun, but it's more than that. It can make you feel better, look better, work and think better...and maybe even live longer.

Whether you're athletic or not, exercise can give your body strength, endurance and flexibility. It can help you control your weight, and improve your level of energy and concentration.

If continued on a regular basis, the exercise you do today can make you healthier in later life. For example, it can help protect you against heart disease and high blood pressure.

But you won't need to wait until then to see the benefits of exercise. Right now, you'll enjoy the good feeling of knowing you're in shape.

For best results in getting into shape, all exercises are **not** equal. For fitness, pick exercises that keep your heart beating at a fast rate for at least 20 minutes straight. And do them at least three times a week.

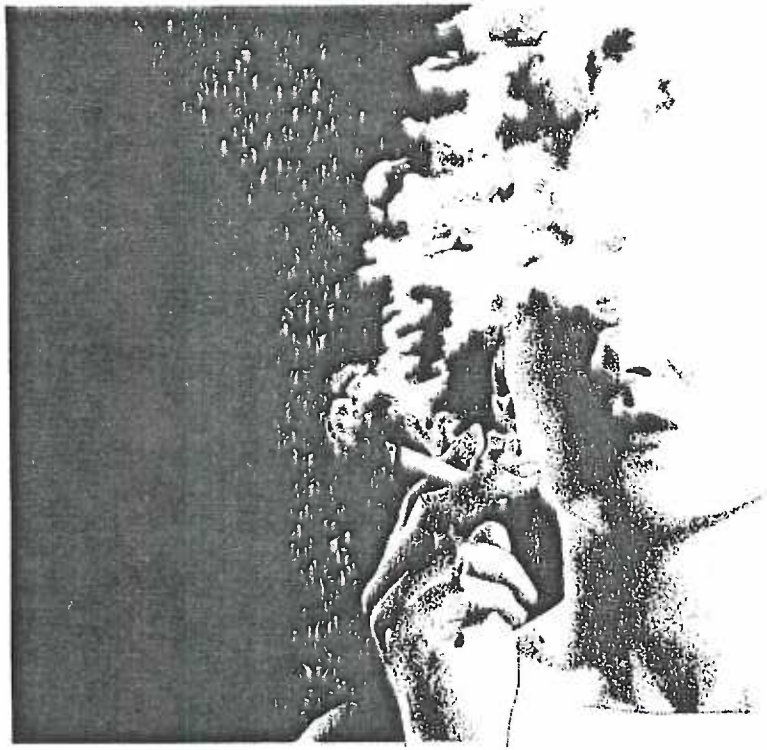
Some good examples: swimming, jogging, biking or brisk walking, aerobic dancing and cross-country skiing. (Body-building exercises like weight lifting do less to make you fit.)

It's important to choose a type of exercise you enjoy, and an exercise time that's convenient for you... so you'll stick with it long enough to see results.

Don't be discouraged by muscular aches and pains when you start. They're a sign your body's getting into shape... and they'll go away soon.

See section of insert sheet on **Physical Fitness** for referral to local sources of additional information and assistance.

Smoking



Cigarette smoking is dangerous to your health. You know that. But maybe you think it really doesn't apply to you because you're young. Besides, you can always quit later.

Young or old, you pay a price when you smoke. It narrows your blood vessels, hurting your circulation and your breathing capacity... and making you more vulnerable to lung and mouth diseases. It can start small changes in your body cells that, years later, can lead to diseases like cancer, emphysema and heart disease.

If you're a woman using birth control pills, smoking combined with the clotting effects of the pill can cause stroke, even at your young age.

Smoking during pregnancy can deprive the baby in the uterus of the oxygen it needs, sometimes resulting in an infant born so early and so small that its health is endangered. To protect the baby, it's important to quit smoking **before** pregnancy.

Some bad effects of smoking are especially immediate and obvious. It makes your fingers and teeth yellow (not to mention your lungs). It makes your breath smell... and your hair and clothes.

Also, cigarette smoke really bothers some people, and they may resent you for "sharing it" with them.

The decision about whether to smoke is yours. Don't underrate how difficult it is to quit once you start. Remember that two out of three people **don't** smoke, despite what the cigarette ads say.

If you don't smoke, don't start. If you do, make some definite plans to quit. Get some help if you need it. You can do it.

See section of insert sheet on **Smoking** for referral to local sources of additional information and assistance.

Alcohol Abuse

Drunk driving kills more teenagers than any other cause, and accounts for more than half the nation's traffic deaths each year.

Alcohol abuse isn't just something that happens to older people. It happens to teenagers, too.

Alcohol is a drug. If you're not careful, it can control you, instead of the other way around. (Mixing alcohol with other kinds of drugs can knock you out or kill you.)

Drinking too much dulls your thinking, awareness and coordination. It can make you a less likeable person... less able to do well in school, or on the job, or get along with your friends and family. Your drinking problem becomes other people's problem, too.

Alcohol abuse over a long period of time can cause serious, permanent health problems... such as liver disease and certain types of cancer.

If you're concerned that you, or perhaps someone close to you, may have a drinking problem, don't delay in doing something about it. Help is available if you need it.

Be in control. Don't allow yourself to be pressured into drinking. (And don't "apologize" for not drinking.) **Never** drive after drinking, even in moderation, and don't allow your family or friends to do so either. And don't ride with a driver who has been drinking. Instead, take a bus or a taxi, or call a friend or relative for a ride.

See section of insert sheet on **Alcohol Abuse** for referral to local sources of additional information and assistance.

Traffic Safety

Each year highway accidents injure and kill thousands of motorists, pedestrians and bicyclists. Many of these tragedies are preventable.

What can you do? Don't speed. Drive defensively; "watch out for the other guy" is excellent advice. Don't take chances. Don't show off.

Alcohol

Alcohol can be deadly. Even a little can dull your vision and reflexes, making you less able to handle highway emergency situations. If you drink and drive, you gamble on killing someone. If you ride with a driver who has been drinking, you risk your life.

Safety Belts

Wearing a seat belt can double your chances of escaping injury or death in a crash. It helps you absorb the crash impact, and prevents you from being thrown out of the vehicle, perhaps through the windshield --where chances of survival are much less.

Seat belts can also help avoid accidents. They hold you upright, lessening your chances of falling asleep at the wheel, and providing support in case you have to maneuver quickly in an emergency.

Seat belts aren't just for long highway trips. Most traffic accidents happen close to home and at relatively low speeds.

Walking and Jogging

If you're travelling on streets without sidewalks, be sure to face oncoming traffic. In case drivers don't see you, you'll see them.

At dusk or after dark, wear light colored clothing,

preferably with a reflective vest, so drivers can see you more easily.

Bicycling

The law requires that you travel in the same direction as auto traffic. That means you have to be especially careful because the drivers behind you may not be paying enough attention to you. Stay along the side of the road. Don't weave into the path of auto traffic, and be careful going through intersections. After dark, be sure your bike has a reflector or you wear a reflective vest. Go slowly and give yourself plenty of room to stop on slippery wet pavement. Watch out for car doors that may be opened into your path.

Hitchhiking

No matter how many safe experiences you may have had, hitchhiking is a bad idea. It's dangerous whether you're female or male. It has often led to kidnapping, murder and rape. Don't hitchhike; don't pick up hitchhikers -- day or night, no matter where you are.

See section of insert sheet on **Traffic Safety** for referral to local sources of additional information and assistance.

Stress

Being a teenager isn't easy. It's a time full of changes, with pressures coming from all directions --school, work, parents and friends. Sometimes you may feel these pressures are more than you can handle. If you do feel that way, don't feel you're alone. You're not.

Stress is part of life. Sometimes it can even help us perform more effectively. But we have to try to control the pressures so they don't get the best of us.

What can you do about stress in your life? First, don't be too hard on yourself. Give yourself the credit you deserve. Avoid setting goals higher than you or those around you can reasonably be expected to reach. Don't worry about tomorrow or yesterday, or things out of your control.

Exercise is a good way to relieve stress. So is talking things out with family or friends. Just doing something you enjoy can relax the tensions away.

Also, don't worry too much about being worried. It happens to the best of us.

Finally, if you feel sad and depressed, for no obvious reason, over long periods of time, don't try to carry the burden by yourself. Talk to someone you're comfortable with. There are lots of people who can help you, and want to help you.

See section of insert sheet on **Stress** for referral to local sources of additional information and assistance.

Marijuana and Other Drugs

Playing with drugs, legal or illegal, is a dangerous business. You've probably heard that before. Believe it, because it's true.

Sometimes the damage to your mind and body can be gradual; other times sudden and deadly.

Drugs make you "high" by causing abnormal changes in your body chemistry -- changes that can be dangerous.

Marijuana

Sometimes marijuana is portrayed as being pretty harmless to your health. But it isn't. It contains more cancer-causing chemicals than cigarettes do. It hurts your memory and your ability to concentrate -- and learn in school. It destroys your coordination and ability to react quickly -- which makes you a traffic hazard if you drive under the influence.

Medical studies have also shown that marijuana can disrupt the natural balance of hormones that produce healthy sexual and physical development.

Special Dangers

The quality of legal drugs is reasonably well protected by the government. That's not true with illegal drugs. Illegal drug users never can be sure the drugs are what they're claimed to be. For example, PCP ("Angel Dust") -- so lethal it's used as a horse tranquilizer -- is often sold as something else. Marijuana and other drugs sometimes have poisons mixed in with them or are stronger than claimed. The results can be frightening and unpredictable.

With illegal drugs, you have no place to complain, except the hospital emergency room.

Sniffing and Inhaling

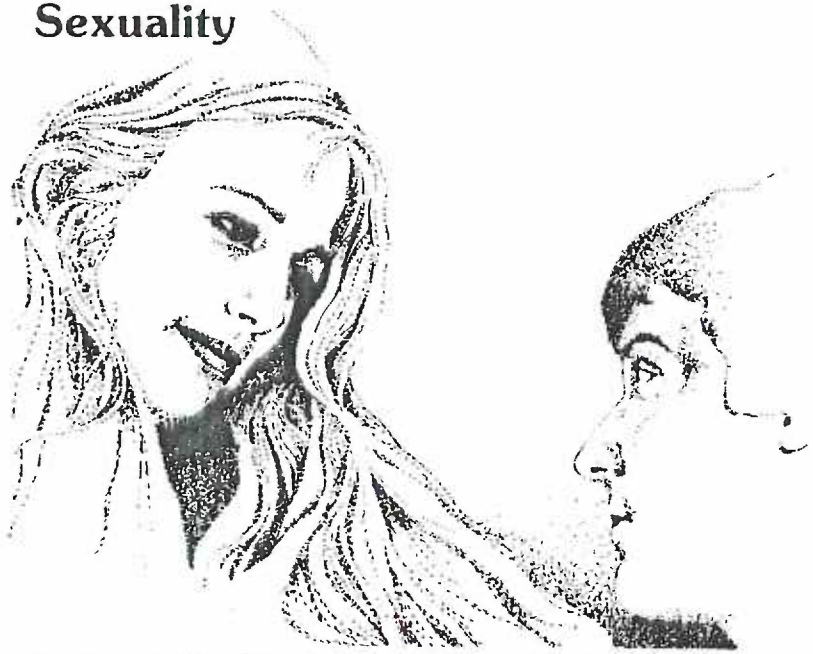
Sniffing and inhaling glue and other chemicals can prove to be deadly. It can cut off your oxygen supply, causing coma or death from suffocation. The chemical in sprays that produces the "high" is intermixed with chemicals that can destroy lungs and kill. Sniffing a spray called Freon, for example, can freeze and paralyze your larynx and lungs -- preventing you from speaking and, of course, breathing, death resulting.

Our Advice

All drugs, including the nonprescription kinds and ones you take as prescribed, are accompanied by side effects and risks. Obviously they can be very valuable in fighting disease. But use them only as prescribed, and as seldom as possible.

See section of insert sheet on **Marijuana and Other Drugs** for referral to local sources of additional information and assistance.

Sexuality



A proper attitude toward sex is important, not only to your own healthy development as a person, but also to the preservation of a healthy society.

It is essential that you protect certain basic values in your life... such as recognizing yourself and others as human beings deserving of respect. Doing so can make a permanent difference in your life.

Responsible sexual relationships require the ability to make intelligent and mature decisions. Such decisions can not be made without certain basic knowledge. You must realize that sexual intercourse... even once... without effective birth control protection can lead to pregnancy.

Virtually all the birth control methods have their advantages and disadvantages. We shall not detail them here. For more information, check with your

doctor or one of the various organizations available to advise you.

You must also understand that sexual activity, especially with a number of partners, carries the risk of "sexually transmitted diseases" (STD's)...also known as venereal diseases.

There are many types of sexually transmitted diseases. Some have very serious, permanent effects. (A woman could be left unable to become pregnant, for example).

Most types are curable. Some, like herpes, which affects hundreds of thousands of Americans each year, are not.

No vaccination against these diseases is available. Often there are no symptoms or the symptoms are difficult to detect, especially in women. If you have reason to believe you have a sexually transmitted disease, your best protection against permanent damage is to seek medical help immediately. (If you have more than one sexual partner, you should receive frequent medical check-ups).

State law guarantees your right to medical attention for such diseases on an absolutely confidential basis. In other words, nobody knows but you and the health professionals who take care of you.

Once it is determined that you do have a sexually transmitted disease, you should tell those with whom you've had sexual contact. (Even though they show no symptoms, they may already have the disease).

So you don't further infect others, refrain from sexual relations until your doctor says it is safe.

See section of insert sheet on **Sexuality** for referral to local sources of additional information and assistance.

Immunization

Not so long ago thousands of Americans were killed or crippled each year by contagious diseases that today are entirely preventable by immunization (vaccination).

The sad fact is that once dread diseases like polio are now so rare that parents no longer fear them, and therefore fail to get their children immunized.

If you're not sure whether you have been fully protected against these diseases, check with your parents or your doctor. For information on which immunizations you need, check with your doctor or state health department.

What can happen if you're not adequately immunized against these preventable diseases? Here are some examples:

- Measles can cause inflammation of the brain, mental retardation and other disorders. In extreme cases, it can cause death.
- Polio can cause permanent paralysis. It kills 10 percent of its paralyzed victims.
- Rubella is usually not dangerous to a child who contracts it. But, when a pregnant woman is infected, the result can be miscarriage or birth defects.
- Diphtheria can cause suffocation, heart failure and paralysis.
- Tetanus can cause painful convulsions and death.
- Pertussis can cause convulsions, mental retardation and other disorders. It is especially dangerous to infants.
- Mumps can cause deafness in children. The disease can be particularly serious for teenagers and adults, and can cause sterility in males.

See section of insert sheet on **Immunization** for referral to local sources of additional information and assistance.

Dental Health

It's easy to take our teeth for granted, and hard to imagine doing without them. They certainly make eating more enjoyable, and they add a lot to our smiles.

But, hard and durable as they seem, teeth don't come with a guarantee to last forever. In fact, it's estimated that one out of every five Americans lose most of their teeth by age 39.

Hopefully you'll want to continue chewing and smiling for your entire life. That means you'll have to take care of your teeth, so they can keep on taking care of you.

There's nothing complicated about good dental care. All you need to do is brush your teeth thoroughly, covering all the tooth surfaces, every single day...at least in the morning and evening. Fluoride toothpastes help strengthen your teeth. For best results, also use dental floss every day to clean the areas between your teeth, especially around the gum line.

Don't count on mouth wash to substitute for brushing and flossing. It will sweeten your breath for a while, but won't do a thing to protect your teeth or gums.

Teeth are especially vulnerable to cavities during the teen years. Regular visits to your dentist are especially important then. The dentist can detect and treat problems before they get serious.

Also, watch your diet. Too many sweets increase the chances of tooth decay.

The best dental health protection is to prevent the problems before they start. That's what you can do by daily brushing and flossing, restricting sugary foods and visiting your dentist regularly.

See section of insert sheet on **Dental Health** for referral to local sources of additional information and assistance.

Family History of Disease

You can do something about most factors affecting your health. You can decide not to smoke, for example, or to watch your weight or exercise. One thing you can't control is the "history" of medical problems in your family tree.

This history can make a difference in your health. If members of your immediate family (parents, brothers, sisters) developed certain medical problems before age 60, it's more likely that you'll develop them, too. Among the more common "hereditary" medical problems are heart disease, high blood pressure and diabetes.

Does that mean you should throw up your hands and do nothing to avoid these medical problems? On the contrary, it means you need to be extra careful now to lessen the chances you'll have these problems later on.

Do heart attack, stroke, or high blood pressure run in your family? Then you have a special reason for keeping your weight down and not smoking.

Heart atttack and stroke happen when a substance called cholesterol clogs the arteries, blocking the flow of blood to the heart or brain. What can you do? Exercise more and restrict your use of foods containing cholesterol and saturated fats... such as red meats, butter, lard and cream.

Have your blood pressure checked regularly. Then you'll know which blood pressure is "normal" for you, and you'll notice if it starts getting high.

Generally, high blood pressure is easily treatable. It is important to stay on the medication prescribed by the doctor because, untreated, high blood pressure

can be dangerous.

One last bit of advice. If it seems likely you have high blood pressure, or a strong tendency to get it, avoid salt in your diet. For some people, salt can raise blood pressure, worsening the problem.

Is there a history of diabetes in your family? That, too, tends to be an inherited disease. Try to remember common symptoms of diabetes, so you'll recognize them in yourself: frequent urination, excessive thirst, persistent hunger, weight loss, fatigue and infections that fail to heal. Obesity seems to be a factor in causing diabetes, so control your weight.

If you suspect you have diabetes, see your doctor. Only doctors can determine whether you have it. Diabetes is controllable though proper treatment.

See section of insert sheet on **Family History of Disease** for referral to local sources of additional information and assistance.

For Women

It's important that women take certain special precautions to protect their health.

One is the **Pap smear**, a simple, painless test for cancer of the cervix. The doctor collects a very small sample of cells from the uterus and cervix (the opening of the uterus) and the cells are analyzed in a laboratory. The test reveals cervical cancer before it shows any symptoms and when it's most curable.

It's recommended that women undergo Pap tests regularly once they reach age 20, or younger if they're sexually active.

While cancer of the uterus is extremely rare in women your age, you should be particularly careful if your mother or sister had to have her uterus removed. Also, if you experience abnormal bleeding or an

abnormal vaginal discharge, see your doctor promptly. Don't be afraid, however; most often the reason is nothing serious.

Another important precaution is **breast self-examination**, a simple procedure that enables early detection of breast cancer. If detected and treated early enough, breast cancers have an excellent chance of being cured.

If you notice a lump or some other unusual development in your breast, see your doctor without delay. Don't be frightened, however; most breast lumps or changes are not cancerous, especially at your age.

For more detailed information, read the American Cancer Society's publication, **How to examine your breasts**.

See section of insert sheet on **For Women** for referral to local sources of additional information and assistance.

Suggested Readings

Editors of Time-Life Books, eds. *Exercising For Fitness*. Alexandria, VA: Time-Life Books, 1981.

Editors of Time-Life Books, eds. *Wholesome Diet*. Alexandria, VA: Time-Life Books, 1981.

Fried, Peter A. *Smoking For Two: Cigarettes and Pregnancy*. New York, NY: The Free Press, 1980.

Gordon, Sol. *You*. New York, NY: Quadrangle/The New York Times Book Co., 1975 (Helps the teenager to examine himself as a person).

Nguyen, Nguyen Thanh. *Your Mouth: Oral Care For All Ages*. Radnor, PA: Chilton Book Co, 1979.

Osborn, Robert and Brown, Fred W. *Dying to Smoke*. Cambridge, MA: The Riverside Press, 1964.

Rhode Island Department of Health. *The Way To Fitness*. Providence, RI: Rhode Island Department of Health, 1981.

Rhode Island Department of Health. *The Way We Eat*. Providence, RI: Rhode Island Department of Health, 1979.

Rhode Island Department of Health. *The Way We Live*. Providence, RI: Rhode Island Department of Health, 1977.

Russell, George K. *Marihuana Today: A Compilation of Medical Findings for the Layman*. New York, NY: The Myrin Institute for Adult Education, 1978.

Willoughby, Alan. *The Alcohol Troubled Person: Known and Unknown*. Chicago, IL: Nelson-Hill, 1979.

Winter, Ruth. *The Scientific Case Against Smoking*. New York, NY: Crown Publishing, 1980.

Wurtman, Judith. *Eating Your Way Through Life*. New York, NY: Raven Press, 1979.

U.S. Department of Agriculture. Science and Education Administration. *Ideas for Better Eating: Menus and Recipes to Make Use of the Dietary Guidelines*. (Washington, DC: Government Printing Office, 1981).

Here's how to check your heart rate

First, take your pulse. It's easy. All you need is a watch with a second-hand. Place the first two fingertips of one hand against the base of the thumb of your other hand. Press lightly until you feel your pulse. Count the beats for 10 seconds. Multiply by 6 to get your minute pulse . . . or heart rate.

If you want to check whether you're getting about the right amount of exercise, check your heart rate *immediately* after exercise. For teenagers, the exercise heart rate range should be about 135-170 beats per minute. For the first 4-6 weeks, your "exercise heart rate" should be at the lower end of your range. As you progress to a higher level of fitness, your "exercise heart rate" will move toward the top of your range.

As you get older, your exercise heart rate range will drop.

Age	Exercise Heart Rate Range*	Age	Exercise Heart Rate Range*
20	135-170	45	110-145
25	130-165	50	105-140
30	125-160	55	100-135
35	120-155	60	95-130
40	115-150	65	90-125

*Beats per minute

Calorie Expenditure per Minute for Various Activities

Body Weight	90	99	108	117	125	134	143	152	161	170	178	187	193	205	213	222	231	240
Baseball	2.8	3.1	3.4	3.6	3.9	4.2	4.5	4.7	5.0	5.3	5.5	5.8	6.1	6.4	6.6	6.9	7.2	7.5
Basketball (moderate)	4.2	4.6	5.0	5.5	5.9	6.3	6.7	7.1	7.5	7.9	8.3	8.8	9.2	9.6	10.0	10.4	10.8	11.2
Bicycling (level 13 mph)	6.4	7.1	7.7	8.8	9.4	9.8	10.2	10.8	11.4	12.1	12.7	13.4	14.0	14.6	15.2	15.9	16.5	17.1
Calisthenics	3.0	3.3	3.5	3.9	4.2	4.5	4.8	5.1	5.4	5.6	5.9	6.2	6.5	6.8	7.1	7.4	7.7	8.0
Dancing (vigorous)	3.4	3.7	4.1	4.4	4.7	5.1	5.4	5.7	6.1	6.4	6.7	7.1	7.4	7.7	8.1	8.4	8.7	9.1
Racquetball	5.9	6.4	7.0	7.6	8.1	8.7	9.3	9.9	10.4	11.0	11.6	12.1	12.7	13.3	13.9	14.4	15.0	15.8
Running (7 min. mile)	9.3	10.2	11.1	12.9	13.1	13.9	14.8	15.7	16.6	17.5	18.9	19.3	20.2	21.1	22.1	23.0	23.9	24.8
Skiing (downhill)	5.8	6.4	6.9	7.5	8.1	8.6	9.2	9.8	10.3	10.9	11.4	12.0	12.6	13.1	13.7	14.3	14.8	15.4
Skiing (level, 5 mph)	7.0	7.7	8.4	9.1	9.8	10.5	11.1	11.8	12.5	13.2	13.9	14.6	15.2	15.9	16.6	17.3	18.0	18.7
Swimming (crawl, 20 yds./min.)	2.9	3.2	3.4	3.8	4.0	4.3	4.6	4.9	5.1	5.4	5.7	5.8	6.3	6.5	6.8	7.1	7.3	7.7
Tennis (recreation)	4.2	4.6	5.1	5.4	5.8	6.2	6.5	7.0	7.4	7.8	8.2	8.6	9.0	9.4	9.8	10.2	10.8	11.0
Volleyball (moderate)	3.4	3.8	4.0	4.4	4.8	5.1	5.4	5.8	6.1	6.4	6.8	7.1	7.4	7.8	8.1	8.3	8.8	9.1
Walking (4.5 mph)	4.0	4.4	4.7	5.1	5.5	5.9	6.3	6.7	7.1	7.5	7.8	8.2	8.6	9.0	9.4	9.8	10.1	10.6
Weight Training	4.7	5.4	5.7	6.2	6.7	7.0	7.5	7.9	8.4	8.9	9.4	9.9	10.3	10.8	11.1	11.7	12.2	12.6

Remember that 3500 calories equal one pound. (source: CANADIAN AIR FORCE)

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For more information about wellness check contact your local health department, or the

Rhode Island Department of Health
Office of Health Promotion
103 Cannon Building
75 Davis Street
Providence, R.I. 02908

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Appendix G

List of Community Agencies

FOR MORE INFORMATION

Diet and Nutrition	
Oregon Dairy Council	229-5033
Oregon Dairy Products Commission	229-5034
Oregon Diatetic Association	796-1300
Oregon State University Extension Service	
Multnomah County	254-1500
Clakamas County	655-8634
Dental Health	
Multnomah Dental Association	223-4731
Oregon Dental Association	620-3230
Physical Fitness	
Boys and Girls Clubs of Portland	775-1549
Portland Parks Recreation Program	796-5793
Young Men's Christian Association	
(see local listings in the telephone book)	
Young Women's Christian Association	
(see local listings in the telephone book)	
Smoking	
American Cancer Society, Or. Division Inc.	295-6422
American Heart Association, Or. Affiliate	226-2575
Oregon Lung Association	224-5145
Traffic Safety	
Department of Transportation	
Road Conditions	238-8400
Motor Vehicle Division, Central Inquiry	286-9675
Travel Information Council	229-5275
Tri-Met Information	233-3511
Special Needs Transportation	238-4852
Immunization	
Clakamas County Health Division	655-8567
Multnomah County Health Division	248-3816
Oregon State Health Division	229-5534
Pap Test and Breast Self Exam	
American Cancer Society, Or. Division Inc.	295-6422
Planned Parenthood	775-0861
Heart Attack and Stroke	
American Heart Association, Or. Affiliate	226-2575
Diabetes	
American Diabetes Association	228-3100
General Health Information	
Clakamas County Health Division	255-8471
Consumer Information Center	(303)948-3334
Multnomah County Health and Dental	248-3816
National Health Information Clearing House	1-800-336-4797
Tel-Med (taped Health Information)	248-9855

Other Health Information Numbers Listed on
TEEN SOURCE

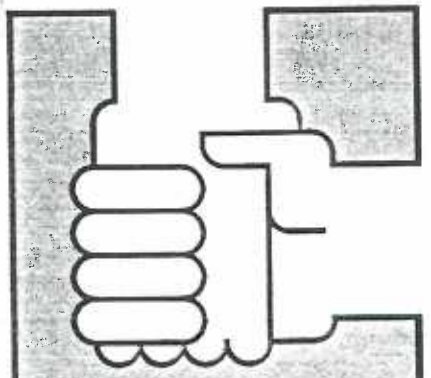
WARNING SIGNS OF DEPRESSION AND SUICIDE

- Major loss (of loved person, home, possessions, status, achievement), especially if preceeded by other losses.
- Neglect of appearance.
- Noticeable change in school performance or attendance.
- Withdrawal from friends and social situations.
- Change in eating or sleeping patterns.
- Self criticism, poor self-esteem.
- Staying away or running away from home.
- Irritability and restlessness.
- Frequent crying; angry outbursts at home or at school.
- Increased use of drugs or alcohol.
- Sudden onset of self-destructive behavior, like fast driving.
- Intense feelings of being trapped and helpless, without any hope of changing the situation.
- References to suicide, either verbal or written.
- Prior suicide attempts.
- Sudden euphoria following long depression.
- Giving away prized possessions.

WHAT TO DO

- Trust your feelings. If you sense that something is wrong, it probably is.
- Listen, and show that you care. A major cause of suicidal feelings is feeling alone.
- If you suspect suicidal thoughts, don't be afraid to talk openly with the person. You will not cause more trouble, or give the person ideas, by asking directly about suicide.
- Find out the level of risk. Is there a specific plan? Does the person have the means to carry out the plan? Have any steps been taken to carry out the plan? Does the person have any friends or family who are supportive? The more specific the plan, and the fewer the supports, the greater the suicidal risk.
- Stay with the person if you feel there is any danger, or find someone else who can stay with them.
- Don't be afraid to get help from a trusted adult, or crisis intervention service.

METRO CRISIS - 24 HOURS - 223-6161



TEEN SOURCE

Multnomah County
Department of Human Services

G-158 4/87

WHERE TO GO FOR HELP

SUICIDE AND CRISIS INTERVENTION

Emergency	911 *
Metro Crisis	223-6161 *

POISON

Poison Control Center	225-8968 *
Outside Portland (In Oregon)	1-800-452-7165 *

ALCOHOL/DRUG SERVICES

Adolescent Care Unit	226-3636 *
Mainstream Youth Program	777-4141
CODA (Comprehensive Options for Drug Abusers)	239-8400
Al-Anon/Alateen	292-1333
Helpline - Oregon Council on Alcoholism	232-8083
Oregon Toll Free	1-800-621-1646 *

SEXUAL ABUSE (Rape, Incest)

Women's Crisis Line	235-5333 *
Parents United (Incest)	236-7092

CHILD ABUSE (Physical, Sexual, Neglect)

Child Abuse Hotline	238-7555 *
Parents Anonymous	238-8818
National Child Abuse Hotline	1-800-422-4453 *

EMERGENCY SHELTER/ RUNAWAY

Harry's Mother	281-9900 *
Boys and Girls Aid Society	654-0025 *
Greenhouse,Salvation Army	223-2997
Youth Shelter	274-8558
Outside In	223-4121
National Runaway Hotline	1-800-231-6946 *

***24 HOUR ANSWERING SERVICE**

COUNSELING AND REFERRAL

Metro Crisis	223-6161 *
Multnomah County Info and Referral	248-3816
United Way Info and Referral	222-5555
Women's Crisis Line	235-5333 *
Youth Service Centers	
North Portland	285-0627
Northeast	280-2600
Southeast	231-9578
Outer East	294-3322
Westside	245-4441

FAMILY PLANNING/ PREGNANCY COUNSELING

Planned Parenthood	775-0861
Birthright	249-5801
Outside In Clinic	223-4121
Multnomah County Health Services	248-3816

LEGAL INFORMATION

Legal Aid	224-4086
Lawyer Referral Service	224-6580

Appendix H

Likert-type Questionnaire

Male Female (circle one)

Age _____

Grade _____

Please read each of the following statements and check the column which best describes your feelings.

	Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1. The Booklet is written so that I can understand what I've read.					
2. The language in the booklet is too simple.					
3. I felt the information was too detailed.					
4. The information in the booklet is useful to me.					
5. The booklet should have given more information.					
6. I would share this booklet with my friends.					
7. My friends would think the booklet is silly.					
8. I enjoyed reading the booklet.					

What was your general feeling about the booklet? Positive Uncertain Negative (circle one)

Please feel free to comment:

Thank you for your participation---Please return to Jill Daniels or Dolores Wright as soon as possible.

Abstract

Title: The Use of a Health Risk Appraisal with an Adolescent Population.

Authors: Daniels, J.A., & Wright, D.J.

Type of Study: Pre-experimental

Approved: [redacted]

Advisor

This study evaluates use of the Rhode Island Health Risk Appraisal, adolescent version, (RIHRA) as a tool to promote healthy behaviors and decrease adolescent participation in risk taking activities. The sample consisted of 145 students from the 10th, 11th, and 12th grades enrolled in a private, metropolitan school. All students completed the RIHRA and a socio-demographic questionnaire and received immediate computerized feedback concerning their individual health risks, a booklet of information, and a list of community agencies. After six weeks, the students completed the same instruments. Independent t-test analysis found that there were significant differences between the pre and posttest group mean Wellness Scores with the posttest mean score being higher ($t=1.74$, $df=284$, $p=0.0415$). Further analysis found that only the

subgroups of female and tenth grade students had significantly higher posttest group mean Wellness Scores. The results of the chi-square analysis of specific health questions demonstrated that five health knowledge and five health behavior questions were significantly different between the pretest and posttest groups. This study is limited in generalizability because of the unique characteristics of the sample and events which occurred during data collection. Although the group mean Wellness Score improved only a small amount, the potential ability of the Wellness Check Program to influence life style behaviors enhances its clinical usefulness.