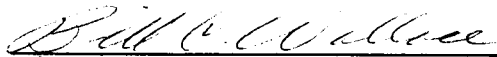


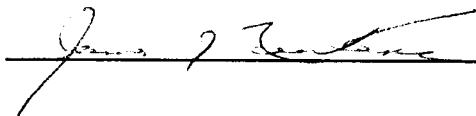
To the Graduate Council:

I am submitting herewith a dissertation written by Sandra McMillan Neal entitled "The Assessment of the Reliability and Validity of A Health Risk Appraisal for A College Population." I have examined the final copy this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Health Education.



Bill C. Wallace, Major Professor

We have read this dissertation  
and recommend its acceptance:



Accepted for the Council:



Associate Vice Chancellor  
and Dean of The Graduate School

THE ASSESSMENT OF THE RELIABILITY  
AND VALIDITY OF A HEALTH RISK  
APPRAISAL FOR A COLLEGE  
POPULATION

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

Sandra McMillan Neal

May 1992

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## ABSTRACT

The purpose of the study was to assess the reliability and validity of a health risk appraisal for a college population. The health risk appraisal examined by this study was the College Wellness Check, developed by the Rhode Island Health Department.

The data were collected using a computerized health risk appraisal questionnaire. The sample consisted of 168 male and female college students in a General Education Psychology course at Middle Tennessee State University. The College Wellness Check program was used to obtain the descriptive statistics relating to gender, race and percentages of specific health risk factors. The statistical package SPSSx was used to determine the Pearson Product-Moment Correlation Coefficient for the reliability test-retest. To determine content validity a survey questionnaire was sent to a jury of 30 health professionals. Twenty-one of thirty were returned and a percentage of agreement method was used to determine content validity.

The major findings in the study include: (1) the instrument was found to have a high reliability coefficient of .92; (2) the instrument was found to have a high level (96.2%) of content validity.

The following conclusion was drawn from the findings of the study: (1) the Health Risk Appraisal instrument College

Wellness Check is a valid and reliable instrument to use with a college population.

The significance of the study is that this research is a major step toward establishing reliability and validity on a Health Risk Appraisal.

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## CHAPTER I

### INTRODUCTION

The Health Risk Appraisal (HRA) had its beginning in the early 1960's and has continued to grow in popularity. During the last decade the HRA has been used in almost every avenue of the health community. Industry, educational sites, hospitals, community health centers and more are finding a need for the HRA. Laszlo (1977) stated that the HRA is emerging as a major tool for promoting improved health and lifestyles.

It is now accepted that the best method for achieving a healthy lifestyle is prevention. One of the major problems facing health professionals today is implementation of what is known about prevention. Foege (1979) stresses that more individual participation is needed. Utilization of the HRA promotes individual participation that will influence behavior and reinforce existing healthy behavior (Cioffi, 1979).

As technology advanced, the use of computers increased the opportunity for individual participation. Petosa (1986) stated, "Another educational innovation, the microcomputer, enhanced the use of HRAs by classroom teachers." Today HRAs are typically inexpensive and noninvasive, and easily administered with the assistance of a microcomputer. Therefore, many HRAs have been developed targeted toward classroom use.

With the growth in popularity of the HRA, health professionals must be concerned with the reliability and validity of the instruments. Even though the HRA is now approaching thirty years of age, research on the reliability and validity of HRA's is almost nonexistent. The establishment of these two measures on available HRA's will be a major step in solidifying their role in the health field.

### I. STATEMENT OF THE PROBLEM

The purpose of this study was to determine the reliability and content validity of the Health Risk Appraisal, College Wellness Check.

### II. RESEARCH QUESTION

The study specifically sought to address the following research questions:

1. What is the test-retest reliability (correlation coefficient) of College Wellness Check?
2. What is the content validity of College Wellness Check?

### III. NEED FOR THE STUDY

The Health Risk Appraisal is a very popular and appealing tool for promoting healthful living. Two important aspects of the Health Risk Appraisal are reliability and validity. While, reliability insures that data obtained through the HRA

process are as accurate as possible, validity insures that we are truly assessing the health risks of a particular population.

However, many health professionals have expressed concern about the lack of verifiable research to document the high expectations for these instruments. Reliability of the HRA has been questioned by Sacks, Krushat and Newman (1980) who states that previously reported successes with HHA/HRA's in achieving their goals of stimulating risk reduction may simply reflect the variation in responses (and therefore outcome measures) when an individual takes the questionnaire twice.

Reliability is essential because of the many possible effects of the Health Risk Appraisal. Cioffi (1979) views the HRA as a stimulus to change. Health educators, for many years, have seen that having the knowledge about healthy lifestyles does not necessarily lead us to healthy lifestyles. However, through the HRA, individuals may see that their lifestyle choices do directly affect their quality and longevity of life and may make choices based on statements from the HRA regarding identified risks. It is, therefore, important that the instrument be reliable (Alexy, 1984).

Another effect of the HRA is its ability to accumulate baseline data. There is a great need for an extensive research base under health education and the use of the HRA is one way to collect these data. Using HRA's with high

reliability would insure that the data obtained through the HRA process would be as accurate as possible (Doerr, 1984).

The HRA can also bridge the gap between health education and the activities of the traditional providers. DuVal (1979) states that one of the conflicts health professionals face is that at times the medical community feels a territorial threat. The HRA could help diminish this concern by acting as a tool to integrate health education with the activities of traditional providers.

By making the Health Hazard Appraisals available to patients, within the patient care setting, we can capitalize on the credibility of medical practitioners and vest the Risk Appraisal with an authority that will help instill motivation in the subject (DuVal, 1979).

However, reliability and validity would have to be established in order to convince the medical community to implement the HRA into their practice.

If these positive effects are to materialize, the Health Risk Appraisal must stand on solid ground. Reliability and validity must be established on these instruments. Health Educators must always look for any opportunity to open the door to improving health habits. Finding a valid and reliable health risk appraisal will be a step towards this goal.

One widely used HRA is the College Wellness Check (CWC) (see Appendix A). It was developed by the Rhode Island Health Department. Research of the current literature was used to determine those questions to be included in the CWC. There is no reliability or validity research on this instrument.

Therefore, the results of this study will provide information appropriate to use when considering the use of the CWC with a college population.

#### IV. ASSUMPTIONS

The following assumption was made regarding the study:

1. The subjects would respond honestly to the questionnaire.

#### V. DELIMITATION

The study had the following delimitations:

1. The subjects were all college students at Middle Tennessee State University.
2. The subjects were all enrolled in a general education Psychology course in the Spring semester, 1992.

#### VI. LIMITATIONS OF THE STUDY

The study was bound by the following limitations:

1. Only those students present both days the questionnaire was administered were included in the study.
2. Only those students willing to participate did so.

#### VII. DEFINITIONS

For the purpose of this study, the following terms were defined.

Health Risk Appraisal - A method to describe a person's chances of death or illness within a defined period of time as compared to a group of persons of the same age and sex (Hutchins, 1991). The Health Risk Appraisal is also referred to as a Health Hazard Appraisal (HHA).

Risk Factors - Those factors and behaviors that are known detriments to health.

#### VIII. SUMMARY

The study consists of five chapters. Chapter I introduces the study by providing background information, purpose of the study, research questions, need for the study, assumptions, delimitation and limitation of the study, definition of terms, and summary.

Chapter II contains a review of literature pertaining to Health Risk Appraisals, and to establishing reliability and content validity on test instruments.

Chapter III describes the methodology, procedures of the study, and includes statistical procedures.

Chapter IV contains the analysis and discussion of data.

Chapter V presents the findings, conclusions and implications.

## CHAPTER II

### REVIEW OF RELATED LITERATURE

This chapter consists of a review of literature related to this study. Part I is a review of literature related to an overview of health risk appraisals. Part II is a review of literature related to test reliability and validity.

#### I. HEALTH RISK APPRAISALS

##### The History of Health Risk Appraisals

The primary work for the Health Risk Appraisal (HRA) was done by Dr. Lewis Robbins and Dr. Jack Hall. Their work began with the Framingham study and was reported in their book How to Practice Prospective Medicine (Robbins and Hall, 1970). The statistical basis of the HRA was based on two tables. One table was developed by biostatistician Harvey Geller, Ph.D., and the other by an expert life insurance actuary, Norman Gesner. The two tables were combined and originally used by Robbins and Hall. These tables were known as the Geller/Gesner Tables (Dunton, 1981). According to Dunton:

The tables make it possible to describe in numerical terms the degree of risk that a given precursor represents to an individual at the time that person's data are collected, and to indicate in quantitative terms the degree to which the person's precursors deviate from the average (1981, p. 3).

## Health Risk Appraisals

One of the most significant advancements in prospective medicine has been the development of the health appraisal instrument (Richardson, 1985). Utilization of these instruments has allowed health facilitators to gain insights into the nature of the client populations with whom they work and plan programs in accordance to identified needs. Richardson (1985) goes on to say that computerized HRA's make it feasible to assess large numbers of people economically and efficiently.

Health Risk Appraisals are both a measure and a message. As a measure, they obtain data on the health status of the individual and, as a message, they can put the issue of lifestyle and personal health in perspective as well as educate and motivate (Cioffi, 1979).

The HRA looks at risk factor values and mortality statistics for people in groups of similar age, sex, and race (Safer, 1982, p. 31). All HRA's have some components in common. First, they gather personal health information. This can be done through a written questionnaire, a personal interview, or a computer terminal. Once collected, the data are processed by hand or computer and the individual's information is compared with a national mortality data base. By use of a mathematical formula this information gives us the probabilities that the individual will die within a future period (usually 10 years) in the form of a person's "risk"

age. The findings are then returned to the individual in the form of a personal health profile with suggestions as to how to improve their "risk" age (Dunton, 1981).

The achievable probability is calculated similarly. The achievable age is the age that person could reach if the high risk factors were reduced (Safer, 1982, p. 31). The HRA contains information regarding the probability of future risks of dying from disease, and recommendations for personal actions to reduce those risks (Cioffi, 1979).

The HRA brings attention to the fact that prevention is important to future health status by focusing on personal choices. Alternative behaviors are available (Peterson, 1979; Gesner, 1977). According to Gesner (1977), "The exposure of precursors is designed to educate and motivate the individual to reduce his risks and increase his chances for life, and for health as well."

#### Future of the HRA

Although the HRA can be considered a stand alone program most health professionals consider it a tool for motivating people to enter risk reduction programs (Stelling, 1979). Fullarton (1977) suggests that it is not reasonable to expect information alone to change high risk behaviors. She further states that currently the Health Hazard Appraisal, "represents a stimulus to action, with action dependent on readiness of the individual to act and on the availability of effective interventions."

For the future of the HRA to be secure, these instruments must be reliable and valid. Many different HRA instruments for various populations have been developed without this in mind. The emphasis now must be on establishing these two important factors on the HRA'S.

The College Wellness Check is among those HRA'S available which have no established reliability or validity. It is being used in many settings outside the research arena; over 500 copies have been sold. One university that uses the CWC is The University of Rhode Island, where it has been used on all incoming freshman since 1988. The Roger Williams College in Bristol, Virginia also uses it in their program.

### Reliability

Reliability refers to the degree of consistency with which an instrument measures the attribute that it is supposed to be measuring. The less variation an instrument produces in repeated measures, the higher its reliability (Doerr and Hutchins, 1981). Doerr and Hutchins go on to state that "if an instrument is not reliable in obtaining data from the individual, the most sophisticated algorithm is virtually useless."

Reliability can be viewed not only as a means to aid the achievement of other ends, but also as an end in itself (Phillips, 1968, p.163). If it is found that a given process of measurement produces a reliable measure, this can aid a researcher to develop and test propositions. If the factors

within the measurement situation can be identified and their relationships to the resulting data tested, a contribution may be made to our knowledge of behavioral processes. Phillips further states that viewing reliability

. . . as an end in itself can also lead to important knowledge even in cases where a given measuring instrument proves to be unreliable. In such cases the investigation centers around the factors that produced differing results in the two measurement situations.

One important source for variation in empirical research to be considered is the sampling of trials (Stouffer, 1950). This problem of sampling concerns the stability of responses of individuals to the items. If the same test were to be given over and over, to the same individuals, under similar conditions--without carry over from trial to trial--how much variation would there be in the responses of the individuals? This is the test-retest reliability (coefficient of stability).

The studies pointing out the reliability of HRA'S are few. Sachs et al. (1980) analyzed 203 subjects who underwent an HRA. Only 15% had no logical inconsistencies in their reported data. However, these data are not reported in terms of a reliability coefficient or standard error of measurement which makes it difficult to evaluate or compare to other data.

One of the greatest concerns with reliability that Pursley and Neutens (1986) pointed out is related to the reliability of self-reported information pertaining to ones's own health habits and health measurements. Sacks et al.

(1980) pointed out that subjects give different answers to the same questions even when given only a few weeks apart.

Best and Milsum (1977) noted in their study that they got almost as much change in those responses which should not change as in those that should. Alexy (1984) administered a HRA to 25 males with a retest three to five days later. No intervention was conducted in the interval between tests so that most data would be expected to remain unchanged. Reliability coefficients ranged from .996 to .239. Focusing on the variables with low reliability, attention should be directed to the coefficient for systolic blood pressure (.239). These answers varied considerably from test to test. What ever the reason for the inconsistency, it is important to note that systolic blood pressure levels are likely to play a major role in the risk computation algorithm, thus influencing other variables, such as risk for heart disease and estimated life expectancy (Petosa, 1986).

Efinger (1984) stressed that reliability is necessary even before validity can be established. Gronlund (1985) confirms that "reliability (1) provides the consistency that makes validation possible and (2) indicates how much confidence we can place in our results." Reliability of .90 or better is needed for clinical diagnosis, but reliability as low as .60 are generally permitted for research purposes.

Doerr and Hutchins (1981) reported that if the HRA is going to be used as a measuring device for research and as a

way to determine change over time, then reliability is important. It is important to know whether changes over time are due to real lifestyle changes or to unreliable reporting by the client.

As can be seen in Table 1 there are several ways of estimating reliability. Different types of consistency are determined by different methods--consistency over a period of time, over different forms of the instrument, and within the instrument itself (Gronlund, 1985, p.89). The test-retest method is a measure of stability, where the same test is given twice to the same group with any time interval between tests, from several minutes to several years.

### Validity

Validity refers to the appropriateness of the interpretations made from test scores and other evaluation results, with regard to a particular use. It is always concerned with the specific use of the results and the soundness of our proposed interpretations (Gronlund, 1985, p. 55).

Three different methods of validation are available. Content-related validity, criterion-related validity, and construct-related validity are possible (see Table 2). Content-related validity tells how well the sample of test questions represents the health area to be measured. Essentially, the content validation would determine the adequacy of the sampling of health habits considered important to college students. Efinger (1984) states that evidence of validity is sometimes limited to the testimony of experts.

TABLE 1. Methods of Estimating Reliability.

| Method                              | Type of Reliability Measure          | Procedure                                                                                                                                                         |
|-------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test-retest method                  | Measure of stability                 | Give the same test twice to the same group with any time interval between tests, from several minutes to several years                                            |
| Equivalent-forms method             | Measure of equivalence               | Give two forms of the test to the same group in close succession                                                                                                  |
| (Test-retest with equivalent forms) | Measure of stability and equivalence | Give two forms of the test to the same group with increased time interval between forms                                                                           |
| Split-half method                   | Measure of internal consistency      | Give test once. Score two equivalent halves of test (e.g., odd items and even items); correct reliability coefficient to fit whole test by Spearman-Brown formula |
| Kuder-Richardson method             | Measure of internal consistency      | Give test once. Score total test and apply Kuder-Richardson formula                                                                                               |

Source: N. E. Gronlund, Measurement and Evaluation in Teaching. New York: MacMillan Publishing Company. 55-59.

TABLE 2. Approaches to Test Validation.

| Approach                   | Procedure                                                                                                                                                                                       | Meaning                                                                                                                                                                               |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Content-Related Evidence   | Compare the test tasks to the test specifications describing the task domain under consideration.                                                                                               | How well the sample of test tasks <u>represents</u> the domain of tasks to be measured.                                                                                               |
| Criterion-Related Evidence | Compare test scores with another measure of performance obtained at a later date (for prediction) or with another measure of performance obtained concurrently (for estimating present status). | How well test performance <u>predicts</u> future performance or <u>estimates</u> current performance on some valued measures other than the test itself (called a <u>criterion</u> ). |
| Construct-Related Evidence | Establish the meaning of the scores on the test by controlling (or examining) the development of the test and experimentally determining what factors influence test performance.               | How well test performance can be interpreted as a meaningful measure of some characteristic or quality.                                                                               |

Source: N. E. Gronlund, Measurement and Evaluation in Teaching. New York: MacMillan Publishing Company. 55-59.

## II. SUMMARY

This chapter consists of a review of literature related to the study. It was divided into two categories. Part I contained a review of literature as it related to an overview of the HRA. The focus was on the history and development of the HRA as well as the current and future potential of the HRA in the Health arena. Part II was a review of the literature related to test reliability and validity. The emphasis was specifically on test-retest reliability and content validity.

## CHAPTER III

### METHODOLOGY

#### I. OVERVIEW

The purpose of the study was to determine the reliability and validity of a computerized health risk appraisal, "The Wellness Check". The methodology used in the study is discussed in this chapter in the following sections: Instrumentation, Study Methodology, Data Tabulation, Data Analysis, and Summary.

#### II. INSTRUMENTATION

##### Content Validity Check

A copy of the questions from the College Wellness Check was given to a panel of thirty experts in the Health field. These professionals were chosen because of their training and experience in the Health field. Each was asked to decide if the question was an appropriate item to include in an HRA for a college population. A copy of the questionnaire can be seen in Appendix A. Twenty-one out of the 30 questionnaires that were mailed were returned completed (see Appendix B for names and qualifications). The results were then tabulated to determine a percentage of agreement on each item.

The panel was also asked to comment on any items they felt should have been included that were not. They were asked, as well, to note any items that should have been given

asked, as well, to note any items that should have been given more attention. These responses were written in essay response and are included in Appendix C.

### Reliability Check

A computerized health risk appraisal, College Wellness Check, version 1.0, was the instrument being tested for reliability and validity. The questionnaire was developed by the Rhode Island Department of Health. This version was published in January 1987. The CWC consisted of a MS DOS software program, a reusable questionnaire, and an optional scan-type answer card. The results are tabulated through the use of an optical mark reader connected to the serial port on a microcomputer or can be hand typed into the computer.

All responses were entered by hand by this researcher. Ten percent of the questionnaires were randomly selected and checked for input errors. There were no errors therefore it is reasonable to assume that the data were entered accurately.

### Questionnaire

The questionnaire consisted of 50 items for eliciting information about health risk factors. These risk factors included the following risk areas: demographics, family history, body build, exercise, smoking, sleep, diet, drugs and alcohol, safety, stress and moods, human sexuality, and cancer. After the questionnaire was completed, the data were entered into the computer, which produced an immediate

printout. For the purposes of this study the printout was withheld until after the second administration of the questionnaire, so that responses on the retest would not be influenced by this feedback.

### III. PILOT STUDY

During the Spring of 1992 the College Wellness Check questionnaire was pilot tested in a general education requirement course at Middle Tennessee State University (January 23, 1992 and again on January 30, 1992). The class consisted of 40 students enrolled in Health 310. The pilot study was conducted in order to check for any administrative problems that might occur.

At this time it was discovered that several questions were being marked with more than one answer (questions 19, 41, and 49). It was also discovered that question four was left blank on several questionnaires. In examining the design of the questionnaire, it was felt this may be due to the placement of the question. A copy of the questionnaire may be found in Appendix A. After the pilot study it was realized that more specific instructions were necessary, emphasizing marking only the one best answer for each question and taking care not to skip any questions.

### Population

The population consisted of a class with 208 males and females from the general studies Psychology 142 class at Middle Tennessee State University. The HRA was administered in the Spring semester, 1992. The College Wellness Check was administered by this researcher. Permission to administer the questionnaire was obtained from the professor of the class. All students were given a choice to participate in the study.

Anonymity was ensured by having the students put the first letter of their mother's maiden name, the month, and the day of their birthday on the upper right corner of the answer sheet. The questionnaire was administered February 4th and again one week later on February 11th. The scores of each respondent's first test were paired with the scores of their second test and the identifiers were then removed.

Results from the completion of the College Wellness Check were made available to the students after the administration of the second test. Students were given a copy of the booklet The Way to Wellness to help answer any questions about their particular feedback (see insert inside the back cover). Participants were also encouraged to arrange a meeting with the researcher for clarification or consultation about further information on any particular situation.

#### IV. DATA TABULATION

##### Questionnaire

After the questionnaire was completed, the data were entered into the computer, which produced an immediate printout containing lifestyle scores and recommended behavioral changes. A sample copy of the printout returned to the students can be seen in Appendix D. The calculated scores placed the students in one of the following health risk categories: little or no risk (90-100), slightly risky (80-89), risky (70-79), very risky (60-69), and extremely risky (below 60). The results from the first administration of the CWC were matched with the second administration of the CWC and a correlation coefficient determined.

##### Statistical Procedures

The data were subjected to a conventional analysis technique using SPSSx. The Pearson Product Moment Correlation was used to determine the correlation coefficient between the test and retest of the CWC. The overall analysis also included displays of descriptive data such as the mean, standard deviation, and mode.

The content validity was reported as a percent of agreement among the expert jury. Their evaluation of the questionnaire was averaged to obtain an overall assessment of agreement on the material contained in the CWC. Additional

comments on the questionnaire were noted and can be found in Appendix C.

#### V. SUMMARY

In 1992, the Health Risk Appraisal, the College Wellness Check was administered to 168 students at Middle Tennessee State University. The study sought to determine reliability and validity on the instrument.

A test-retest was used to establish reliability and a panel of experts was given a questionnaire to establish content reliability. The Pearson Product Moment Correlation was used to determine the correlation coefficient between the test and retest of the CWC. A percentage of agreement was used to determine the content validity.

## CHAPTER IV

### ANALYSIS OF THE DATA

#### I. INTRODUCTION

This chapter was designed to present and analyze data that were collected via the administration of a computerized health risk questionnaire, College Wellness Check. As previously discussed in Chapter I, the purpose of the study was to determine the reliability and content validity of the questionnaire, College Wellness Check.

The data were collected from 208 students during the Spring semester, 1992. Twenty four students were eliminated from the study because they were absent on one of the days the test was administered. Sixteen were eliminated because of errors in marking the test by either leaving a question blank, marking two answers, or coding the test improperly for identification. Consequently, a total of 168 students were analyzed in the study. The data were entered into the computer program, the results of which were looked at with both the College Wellness Check program and the statistical program SPSSx.

#### II. SAMPLE DESCRIPTION

##### Race and Gender

Table 3 shows that the sample consisted of 141 white students for 83.9%, 22 black students for 13.1%, 1 Hispanic

Table 3. Number and Percent of Participants by Race.

| Category               | Number | Percentage |
|------------------------|--------|------------|
| White                  | 141    | 83.9       |
| Black                  | 22     | 13.1       |
| Hispanic               | 1      | 0.6        |
| Asian/Pacific Islander | 2      | 1.2        |
| Other                  | 2      | 1.2        |
| Total                  | 168    | 100.0      |

for .6%, 2 Asian students for 1.2% and 2 students classified as others for 1.2%. Table 4 shows that the sample was composed of 70 male students for 41.7%, while 98 students were female for 58.3% of the population.

It can be seen in Table 5 that the majority of students were white females, with 48.8% of the total population. The white males made up the second largest category with 35.1% of the total population. The population was made up of 13 black females for 7.7% of the total population and 9 black males for 5.4% of the total population. It can also be seen that one Hispanic female and two Asian females participated in the study. The two students marking other were males. It is interesting to note that the relationship of males to females and blacks to whites is very similar to the population of the University as a whole.

Table 4. Number and Percent of Participants by Gender.

| Category | Number | Percentage |
|----------|--------|------------|
| Males    | 70     | 41.7       |
| Females  | 98     | 58.3       |
| Total    | 168    | 100.0      |

Table 5. Number and Percent of Sample by Race and Gender.

| Race                         | Females |                                   | Males  |                                   | Total  |         |
|------------------------------|---------|-----------------------------------|--------|-----------------------------------|--------|---------|
|                              | Number  | Percent of<br>Total<br>Population | Number | Percent of<br>Total<br>Population | Number | Percent |
|                              |         |                                   |        |                                   |        |         |
| White                        | 82      | 48.8                              | 59     | 35.1                              | 141    | 83.9    |
| Black                        | 13      | 7.7                               | 9      | 5.4                               | 22     | 13.1    |
| Hispanic                     | 1       | .6                                | 0      | 0.0                               | 1      | .6      |
| Asian or<br>Pacific Islander | 2       | 1.2                               | 0      | 0.0                               | 2      | 1.2     |
| Other                        | 0       | 0.0                               | 2      | 1.2                               | 2      | 1.2     |
| Totals                       | 98      | 58.3                              | 70     | 41.7                              | 168    | 100.0   |

### Academic Classification

The majority of the students completing the questionnaire were Freshman. It can be noted from Table 6 that 73 of the 168 students for 43.5% were Freshman. Sophomore's comprised 29.2% with 49 students, Junior's were 30 of 168 for 17.9%, Seniors were 8.9% for 15 of 168, and one graduate student participated for .6%.

### III. DATA ANALYSIS

#### Results from the Pearson-r Analysis

The results from the analysis from the Pearson Product Moment Correlation can be seen below.

|                                   |                                     |
|-----------------------------------|-------------------------------------|
|                                   | 2nd Test Administration<br>(Retest) |
| 1st Test Administration<br>(Test) | .92<br>(168)<br>P = .000            |

The .92 coefficient indicated a substantial positive degree of association between the score on the first (test) and second (retest) administration. Further, the analysis indicated that with 168 subjects, this relationship was statistically significant beyond the .001 level.

#### Results from the Rater Agreement Study

Table 7 reports the results of the rater agreement process which helped determine the content validity of the

Table 6. Number and Percent of Sample According to Academic Classification.  
(N=168)

| Academic Level   | Number | Percent |
|------------------|--------|---------|
| Freshman         | 73     | 43.5    |
| Sophomore        | 49     | 29.2    |
| Junior           | 30     | 17.9    |
| Senior           | 15     | 8.9     |
| Graduate Student | 1      | .6      |
| Total            | 168    | 100.1   |

Table 7. Content Validity.

| Rater | Item Agreement | Percentage         |
|-------|----------------|--------------------|
| 1     | 49/50          | 98                 |
| 2     | 50/50          | 100                |
| 3     | 50/50          | 100                |
| 4     | 50/50          | 100                |
| 5     | 48/50          | 96                 |
| 6     | 50/50          | 100                |
| 7     | 41/50          | 82                 |
| 8     | 48/50          | 96                 |
| 9     | 39/50          | 78                 |
| 10    | 47/50          | 94                 |
| 11    | 50/50          | 100                |
| 12    | 49/50          | 98                 |
| 13    | 50/50          | 100                |
| 14    | 50/50          | 100                |
| 15    | 50/50          | 100                |
| 16    | 50/50          | 100                |
| 17    | 46/50          | 92                 |
| 18    | 50/50          | 100                |
| 19    | 46/50          | 92                 |
| 20    | 47/50          | 94                 |
| 21    | 50/50          | 100                |
| Total | 1010/1050      | 2020/21 =<br>96.2% |

College Wellness Check. Each rater was asked to indicate which of the 50 items were either acceptable or unacceptable to include on an HRA for a college population. As can be seen from Table 7 the overall percentage of agreement was 96.2%. There were 21 raters used in the process. It should be noted that many of the raters who did mark some questions no, indicated they did so because of wording problems not content error. These additional comments are noted in Appendix C.

#### IV. DATA DESCRIPTION OF HEALTH AND SAFETY RISK SCORES

Data analysis of health and safety risk scores was based on an in-class health and safety risk questionnaire, College Wellness Check, which consisted of 50 items and 10 demographic items (questionnaire shown in Appendix A). The student's score on the questionnaire placed them in a health risk category with the following scale determining where their score places them:

|                   |            |
|-------------------|------------|
| Little or no risk | (90-100)   |
| Slightly Risky    | (80-89)    |
| Risky             | (70-79)    |
| Very Risky        | (60-69)    |
| Extremely Risky   | (under 60) |

Table 8 shows the number of students in each category by gender. The majority of the students fell in the Slightly Risky category with 53% of the females and 40% of the males in this range. The next highest occurrence was in the Risky category with 22% of the females and 20% of the males. The little or no risk group contained 13% of the females and 14%

Table 8. Health and Safety Risk Categories of All Students and By Gender.

| Health Risk Categories     | Females |                       | Males  |                       | Total  |                       |
|----------------------------|---------|-----------------------|--------|-----------------------|--------|-----------------------|
|                            | Number  | Percent of Population | Number | Percent of Population | Number | Percent of Population |
| Little or No Risk (90-100) | 13      | 13                    | 10     | 14                    | 23     | 14                    |
| Slightly Risky (80-89)     | 52      | 53                    | 28     | 40                    | 80     | 48                    |
| Risky (70-79)              | 22      | 22                    | 14     | 20                    | 36     | 21                    |
| Very Risky (60-69)         | 7       | 7                     | 13     | 19                    | 20     | 12                    |
| Extremely Risky (Under 60) | 4       | 4                     | 5      | 7                     | 9      | 5                     |
|                            | N=98    | 99                    | N=70   | 100                   | N=168  | 100                   |

of the males. The very risky category contained 7% of the females and 19% of the males and the extremely risky category was the smallest with 4% of the females and 7% of the males. The results of the research study indicated that on the average, the students in this general education class fall in the slightly risky health and safety risk category. It is also interesting to note that a higher percentage of males than females were found in the more risky categories.

#### V. SUMMARY OF HEALTH AND SAFETY RISK SCORES

The health and safety scores of the student respondents were arranged according to frequency and percentage distribution and are shown in Table 9. Shown in Table 10 are the mean score, standard deviation, mode and range. Health and safety risk scores show a mean score of 78 on the first test and a mean of 79 on the retest.

An overview of the health habits of males and of females can be seen in the Tables 11 and 12. It was of particular interest to note that both males and females increase the attention they give to fat in their diet as they age. Tables 11 and 12 indicate that 53% of the males and 32% of the females do not limit their fat intake. However, when this statistic is broken down by age it is seen that this health habit improves with age in this population. Table 13 shows the percentage by gender and age. It can be seen that those females who do not limit their fat intake went from 40% for 18

Table 9. Frequency and Percentage Distribution of Scores from the CWC.

| 1st Administration |         |                     |  | 2nd Administration |  |                       |         |
|--------------------|---------|---------------------|--|--------------------|--|-----------------------|---------|
| Value              |         | Frequency<br>(Test) |  | Value              |  | Frequency<br>(Retest) |         |
|                    | Percent |                     |  |                    |  |                       | Percent |
| 31                 | .6      | 1                   |  | 25                 |  | 1                     | .6      |
| 48                 | .6      | 1                   |  | 25                 |  | 1                     | .6      |
| 50                 | .6      | 1                   |  | 49                 |  | 1                     | .6      |
| 51                 | .6      | 1                   |  | 51                 |  | 1                     | .6      |
| 52                 | .6      | 1                   |  | 55                 |  | 1                     | .6      |
| 53                 | .6      | 1                   |  | 56                 |  | 1                     | .6      |
| 54                 | .6      | 1                   |  | 58                 |  | 1                     | .6      |
| 55                 | .6      | 1                   |  | 59                 |  | 2                     | 1.2     |
| 56                 | .6      | 1                   |  | 60                 |  | 1                     | .6      |
| 57                 | .6      | 1                   |  | 61                 |  | 1                     | .6      |
| 59                 | 1.8     | 3                   |  | 62                 |  | 2                     | 1.2     |
| 61                 | .6      | 1                   |  | 63                 |  | 2                     | 1.2     |
| 62                 | .6      | 1                   |  | 64                 |  | 3                     | 1.8     |
| 63                 | 1.2     | 2                   |  | 65                 |  | 2                     | 1.2     |
| 64                 | 2.4     | 4                   |  | 66                 |  | 3                     | 1.8     |
| 66                 | 1.8     | 3                   |  | 67                 |  | 3                     | 1.8     |
| 68                 | 1.2     | 2                   |  | 69                 |  | 1                     | .6      |
| 69                 | 3.6     | 6                   |  | 70                 |  | 2                     | 1.2     |
| 70                 | 3.0     | 5                   |  | 71                 |  | 4                     | 2.4     |
| 71                 | .6      | 1                   |  | 72                 |  | 3                     | 1.8     |
| 72                 | 1.8     | 3                   |  | 73                 |  | 3                     | 1.8     |
| 73                 | .6      | 1                   |  | 74                 |  | 6                     | 3.6     |
| 74                 | 3.6     | 6                   |  | 75                 |  | 1                     | .6      |
| 75                 | 6.0     | 10                  |  | 76                 |  | 4                     | 2.4     |
| 76                 | 1.8     | 3                   |  | 77                 |  | 5                     | 3.0     |
| 77                 | 4.2     | 7                   |  | 78                 |  | 3                     | 1.8     |
| 78                 | 2.4     | 4                   |  | 79                 |  | 5                     | 3.0     |
| 79                 | 4.2     | 7                   |  | 80                 |  | 9                     | 5.4     |
| 80                 | 3.0     | 5                   |  | 81                 |  | 7                     | 4.2     |
| 81                 | 4.8     | 8                   |  | 82                 |  | 12                    | 7.1     |
| 82                 | 4.8     | 8                   |  | 83                 |  | 9                     | 5.4     |
| 83                 | 3.6     | 6                   |  | 84                 |  | 9                     | 5.4     |

Table 9. (continued)

| Value | 1st Administration<br>(Test) |         | 2nd Administration<br>(Retest) |           |
|-------|------------------------------|---------|--------------------------------|-----------|
|       | Frequency                    | Percent | Value                          | Frequency |
| 84    | 8                            | 4.8     | 85                             | 6         |
| 85    | 8                            | 4.8     | 86                             | 13        |
| 86    | 5                            | 3.0     | 87                             | 4         |
| 87    | 10                           | 6.0     | 88                             | 4         |
| 88    | 6                            | 3.6     | 89                             | 7         |
| 89    | 10                           | 6.0     | 90                             | 8         |
| 90    | 3                            | 1.8     | 91                             | 3         |
| 91    | 1                            | .6      | 92                             | 3         |
| 92    | 4                            | 2.4     | 93                             | 2         |
| 93    | 4                            | 2.4     | 94                             | 4         |
| 95    | 2                            | 1.2     | 95                             | 1         |
| 97    | 1                            | .6      | 100                            | 1         |
| Total | 168                          | 100.0   |                                | 168       |
|       |                              |         |                                | 100.0     |

Table 10. Descriptive Analysis of Test-Retest Scores.

|                    | 1st Administration<br>(Test) | 2nd Administration<br>(Retest) |
|--------------------|------------------------------|--------------------------------|
| Mean               | 78.17                        | 79.10                          |
| Median             | 80.50                        | 82.00                          |
| Mode               | 75.00                        | 86.00                          |
| Maximum            | 97.00                        | 100.00                         |
| Minimum            | 31.00                        | 25.00                          |
| Standard Deviation | 10.90                        | 11.00                          |

Table 11. Selected Health and Safety Risk Factors for Males.  
(N=186)

| Health Risk                                      | Age               |                 |           |           |                                 |
|--------------------------------------------------|-------------------|-----------------|-----------|-----------|---------------------------------|
|                                                  | All<br>Males<br>% | 18 or Less<br>% | 19 &<br>% | 20 &<br>% | 21 & 22<br>%<br>23 or More<br>% |
| 1. 20+ percent over ideal weight                 | 20                | 22              | 14        | 20        | 28                              |
| 2. 20+ percent under ideal weight                | 0                 | 0               | 0         | 0         | 0                               |
| 3. Hypertensive                                  | 13                | 11              | 11        | 7         | 22                              |
| 4. Borderline hypertensive                       | 9                 | 0               | 11        | 7         | 22                              |
| 5. Smoke cigarettes                              | 16                | 22              | 11        | 20        | 17                              |
| 6. Use smokeless tobacco                         | 11                | 0               | 14        | 7         | 17                              |
| 7. Not limit fat in daily diet                   | 53                | 67              | 64        | 47        | 33                              |
| 8. Never or rarely eat breakfast                 | 26                | 22              | 18        | 33        | 33                              |
| 9. Exhibit excessive drinking habits             | 19                | 22              | 21        | 13        | 17                              |
| 10. Admit having a drinking problem              | 7                 | 0               | 7         | 13        | 6                               |
| 11. Currently use cocaine                        | 1                 | 11              | 0         | 0         | 0                               |
| 12. Currently use other hard drugs               | 3                 | 11              | 0         | 0         | 6                               |
| 13. Currently use marijuana                      | 11                | 22              | 4         | 20        | 11                              |
| 14. Drive after drinking or using drugs          | 33                | 22              | 39        | 27        | 33                              |
| 15. Ride with a driver who has been drinking     | 37                | 33              | 43        | 27        | 39                              |
| 16. Never/rarely use seatbelts                   | 51                | 44              | 46        | 60        | 56                              |
| 17. Ride motorcycle                              | 23                | 22              | 29        | 20        | 17                              |
| 18. Do risky recreational activities             | 17                | 22              | 18        | 27        | 6                               |
| 19. Don't get aerobic exercise 3+ times per week | 63                | 44              | 68        | 47        | 78                              |
| 20. Describe self as highly stressed             | 23                | 11              | 18        | 33        | 28                              |
| 21. Considered suicide in the last two years     | 6                 | 0               | 7         | 0         | 11                              |
| 22. At risk of acquiring an STD                  | 19                | 0               | 18        | 27        | 22                              |

Table 11. (continued)

| Health Risk                                      | Age         |              |           |           |              |
|--------------------------------------------------|-------------|--------------|-----------|-----------|--------------|
|                                                  | All Males % | 18 or Less % | 19 & 20 % | 21 & 22 % | 23 or More % |
| 23. Not protect self/mate against pregnancy      | 7           | 11           | 7         | 7         | 6            |
| 24. Don't do monthly testicular/breast self exam | 79          | 78           | 82        | 80        | 72           |
| WELLNESS CHECK Scores by Category:               |             |              |           |           |              |
| Little or No Risk (90 - 100)                     | 14          | 22           | 11        | 20        | 11           |
| Slightly Risky (80 - 89)                         | 40          | 22           | 50        | 27        | 44           |
| Risky (70 - 79)                                  | 20          | 22           | 14        | 27        | 22           |
| Very Risky (60 - 69)                             | 19          | 22           | 18        | 20        | 17           |
| Extremely Risky (under 60)                       | 7           | 11           | 7         | 7         | 6            |
| Average (Mean) WELLNESS CHECK Score              | 77.0        | 77.1         | 76.9      | 78.0      | 76.1         |
| Number of Cases (by subgroup)                    | 70          | 9            | 28        | 15        | 18           |

Table 12. Selected Health and Safety Risk Factors for Females.

| Health Risk                                      | Age                 |                 |              |              |                 |
|--------------------------------------------------|---------------------|-----------------|--------------|--------------|-----------------|
|                                                  | All<br>Females<br>% | 18 or Less<br>% | 19 & 20<br>% | 21 & 22<br>% | 23 or More<br>% |
| 1. 20+ percent over ideal weight                 | 10                  | 10              | 7            | 0            | 36              |
| 2. 20+ percent under ideal weight                | 1                   | 0               | 2            | 0            | 0               |
| 3. Hypertensive                                  | 5                   | 3               | 2            | 9            | 18              |
| 4. Borderline hypertensive                       | 0                   | 0               | 0            | 0            | 0               |
| 5. Smoke cigarettes                              | 16                  | 13              | 9            | 36           | 36              |
| 6. Use smokeless tobacco                         | 0                   | 0               | 0            | 0            | 0               |
| 7. Not limit fat in daily diet                   | 32                  | 40              | 37           | 18           | 0               |
| 8. Never or rarely eat breakfast                 | 21                  | 20              | 20           | 36           | 18              |
| 9. Exhibit excessive drinking habits             | 9                   | 13              | 9            | 0            | 9               |
| 10. Admit having a drinking problem              | 3                   | 0               | 2            | 0            | 18              |
| 11. Currently use cocaine                        | 0                   | 0               | 0            | 0            | 0               |
| 12. Currently use other hard drugs               | 0                   | 0               | 0            | 0            | 0               |
| 13. Currently use marijuana                      | 4                   | 0               | 7            | 0            | 9               |
| 14. Drive after drinking or using drugs          | 33                  | 40              | 28           | 27           | 36              |
| 15. Ride with a driver who has been drinking     | 52                  | 53              | 52           | 64           | 36              |
| 16. Never/rarely use seatbelts                   | 77                  | 77              | 76           | 82           | 73              |
| 17. Ride motorcycle                              | 10                  | 10              | 7            | 27           | 9               |
| 18. Do risky recreational activities             | 6                   | 7               | 9            | 0            | 0               |
| 19. Don't get aerobic exercise 3+ times per week | 82                  | 73              | 89           | 73           | 82              |
| 20. Describe self as highly stressed             | 29                  | 27              | 30           | 36           | 18              |
| 21. Considered suicide in the last two years     | 2                   | 3               | 2            | 0            | 0               |
| 22. At risk of acquiring an STD                  | 11                  | 10              | 9            | 18           | 18              |

Table 12. (continued)

| Health Risk                                      | All Females |            |      |      |         | Age  |   |   |            |
|--------------------------------------------------|-------------|------------|------|------|---------|------|---|---|------------|
|                                                  | %           | 18 or Less | 19   | 20   | 21 & 22 | %    | % | % | 23 or More |
|                                                  |             | %          | %    | %    | %       |      |   |   | %          |
| 23. Not protect self/mate against pregnancy      | 13          | 13         | 13   | 13   | 9       | 18   |   |   |            |
| 24. Don't do monthly testicular/breast self exam | 56          | 63         | 63   | 63   | 27      | 36   |   |   |            |
| 25. Use the pill                                 | 34          | 40         | 41   | 41   | 18      | 0    |   |   |            |
| WELLNESS CHECK Scores by Category:               |             |            |      |      |         |      |   |   |            |
| Little or No Risk (90 - 100)                     | 13          | 7          | 20   | 20   | 9       | 9    |   |   |            |
| Slightly Risky (80 - 89)                         | 53          | 63         | 48   | 48   | 36      | 64   |   |   |            |
| Risky (70 - 79)                                  | 22          | 17         | 22   | 22   | 55      | 9    |   |   |            |
| Very Risky (60 - 69)                             | 7           | 7          | 7    | 7    | 0       | 18   |   |   |            |
| Extremely Risky (under 60)                       | 4           | 7          | 4    | 4    | 0       | 0    |   |   |            |
| Average (Mean) WELLNESS CHECK Score              | 80.6        | 80.7       | 81.3 | 81.3 | 79.3    | 78.8 |   |   |            |
| Number of Cases (by subgroup)                    | 98          | 30         | 46   | 46   | 11      | 11   |   |   |            |

Table 13. Students Who do not Limit their Fat Intake by Gender and Age.

| Age              | Gender      |           |
|------------------|-------------|-----------|
|                  | Female<br>% | Male<br>% |
| 18 or less       | 40          | 67        |
| 19-20            | 37          | 64        |
| 21-22            | 18          | 47        |
| 23-40            | 0           | 33        |
| Total Population | 32          | 53        |

and under down to 37% for the 19-20 age group, to 18% for the 21-22 age group to finally 0 in the 23 and up. The males progressed in the same fashion beginning with 67% of the 18-and-younger age group, decreasing to 64% of the 19-20 age group, to 47% in the 21-22 and finally to only 33% of the 23 and up age group.

The total counts and the percentage of the total population are given in Table 14. The questions on sexual behavior are particularly relevant to the health issues of today. Question number 48 in Table 14 indicates that 66.7% of the total population were sexually active in the last few months. It is also shown that only a very small percentage of the total population do not take measures to protect against sexually transmitted diseases.

In light of the health problems of today in relationship to sexually transmitted diseases it is of particular interest to note in Table 15 that even though 66.7% of the respondents were sexually active in the past few months that 83.9% of those were relationships committed to one partner. Specific responses from the subgroup of students who were sexually active in the past few months can be seen in Tables 16 and 17. Table 18 gives information concerning this sexually active group in response to the type of birth control measures used. The majority of respondents who have been sexually active in the past few months use or their partner uses the Pill. However, 13.4% of the respondents who were sexually active

Table 14. Counts and Percentages of College Wellness Check Questions.  
(N=168)

| Question Number | Content                                                         | Response                                                              | Count                               | Percent                                          |
|-----------------|-----------------------------------------------------------------|-----------------------------------------------------------------------|-------------------------------------|--------------------------------------------------|
| D1              | What is your sex?                                               | male<br>female                                                        | 70<br>98                            | 41.7<br>58.3                                     |
| D2              | What is your marital status?                                    | Single<br>Liv tog<br>Married<br>Separatd<br>Divorced<br>Widowed       | 142<br>5<br>14<br>0<br>7<br>0       | 84.5<br>3.0<br>8.3<br>0.0<br>4.2<br>0.0          |
| D3              | What do you consider your race/ethnic group to be?              | White<br>Black<br>Hispanic<br>Asian/PI<br>Nat. Amer<br>Other          | 141<br>22<br>1<br>2<br>0<br>2       | 83.9<br>13.1<br>0.6<br>1.2<br>0.0<br>1.2         |
| D4              | While attending classes, where do you live?                     | At home<br>dorm<br>frat/sor<br>sps/chld<br>Alone<br>W/others<br>Other | 51<br>64<br>2<br>13<br>6<br>28<br>4 | 30.4<br>38.1<br>1.2<br>7.7<br>3.6<br>16.7<br>2.4 |
| D5              | How much money do you spend on entertainment in a typical week? | <\$10/wk<br>\$10-\$20<br>\$20-\$30<br>\$30-\$50<br>\$50-100<br>>\$100 | 32<br>54<br>42<br>29<br>11<br>0     | 19.0<br>32.1<br>25.0<br>17.3<br>6.5<br>0.0       |

Table 14. (continued)

| Question Number   | Content                                                                           | Response                                                                         | Count                               | Percent                                        |
|-------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------|
| D6                | What grades did you earn during the last year?                                    | Most A's<br>Most B's<br>Most C's<br>Most D's                                     | 40<br>79<br>49<br>0                 | 23.8<br>47.0<br>29.2<br>0.0                    |
| D7                | What class/academic level are you in now?                                         | Freshman<br>Sophomore<br>Junior<br>Senior<br>Grd. Stu.<br>Other                  | 73<br>49<br>30<br>15<br>1<br>0      | 43.5<br>29.2<br>17.9<br>8.9<br>0.6<br>0.0      |
| WEIGHT CATEGORIES |                                                                                   |                                                                                  |                                     |                                                |
| 1                 | Do/Did either of your parents or your grandparents have high blood pressure?      | 30%+over<br>20-29%ov<br>15-19%ov<br>Ideal wt<br>20-24%un<br>25%+undr<br>Not calc | 13<br>11<br>5<br>138<br>0<br>1<br>0 | 7.7<br>6.5<br>3.0<br>82.1<br>0.0<br>0.6<br>0.0 |
| 1                 | Do/Did either of your parents or your grandparents have high blood pressure?      | don't kn<br>No<br>Yes, 1<br>Yes, >1                                              | 39<br>35<br>69<br>25                | 23.2<br>20.8<br>41.1<br>14.9                   |
| 2                 | Did either of your parents or your grandparents have heart disease before age 60? | don't kn<br>No<br>Yes, 1<br>Yes, >1                                              | 16<br>91<br>51<br>10                | 9.5<br>54.2<br>30.4<br>6.0                     |
| 3                 | Has anyone in your immediate family been diabetic before age 60?                  | don't kn<br>No<br>Yes, 1<br>Yes, >1                                              | 11<br>104<br>46<br>7                | 6.5<br>61.9<br>27.4<br>4.2                     |

Table 14. (continued)

| Question Number | Content                                                                      | Response                                                | Count                     | Percent                            |
|-----------------|------------------------------------------------------------------------------|---------------------------------------------------------|---------------------------|------------------------------------|
| 4               | Have you had your blood pressure checked in the past year?                   | Yes<br>No                                               | 122<br>46                 | 72.6<br>27.4                       |
| 5               | Have you ever been told that you have high blood pressure or are borderline? | No<br>Y, high<br>Y, border                              | 148<br>14<br>6            | 88.1<br>8.3<br>3.6                 |
| 6               | What is your blood cholesterol level?                                        | Nv check<br>Normal<br>High<br>Low<br>Dk means           | 103<br>43<br>9<br>6<br>7  | 61.3<br>25.6<br>5.4<br>3.6<br>4.2  |
| 7               | How often do you do at least 20-30 minutes of continuous aerobic activity?   | Daily<br>3+/wk<br>1-2/wk<br>Rrly/nev                    | 11<br>33<br>73<br>51      | 6.5<br>19.6<br>43.5<br>45.8        |
| 8               | How often do you participate in non-aerobic, recreational activity?          | Daily<br>3+/wk<br>1-2/wk<br>Rrly/nev                    | 9<br>19<br>63<br>77       | 5.4<br>11.3<br>37.5<br>45.8        |
| 9               | Do you smoke cigarettes?                                                     | nev smkd<br>I quit<br><10/day<br>10-20 /d<br>20+/day    | 124<br>17<br>18<br>7<br>2 | 73.8<br>10.1<br>10.7<br>4.2<br>1.2 |
| 10              | Do you smoke marijuana?                                                      | N, never<br>N, exper<br>N, quit<br>Y, <1/wk<br>Y, 1+/wk | 109<br>37<br>10<br>6<br>6 | 64.9<br>22.0<br>6.0<br>3.6<br>3.6  |

Table 14. (continued)

| Question Number | Content                                                                           | Response                                           | Count                     | Percent                            |
|-----------------|-----------------------------------------------------------------------------------|----------------------------------------------------|---------------------------|------------------------------------|
| 11              | How often do you use smokeless tobacco?                                           | Never<br>occasional<br>1-3/day<br>4+/day           | 151<br>9<br>6<br>2        | 89.9<br>5.4<br>3.6<br>1.2          |
| 12              | Are you within your ideal weight?                                                 | Yes<br>sl under<br>vy under<br>sl over<br>vry over | 88<br>24<br>1<br>43<br>12 | 52.4<br>14.3<br>0.6<br>25.6<br>7.1 |
| 13              | Do you make an effort to limit the amount of fat in your daily diet?              | No<br>Y, ocassly<br>Y, always                      | 68<br>67<br>33            | 40.5<br>39.9<br>19.6               |
| 14              | On the average, how many hours of sleep do you get each night?                    | <6 hours<br>6-8 hour<br>8-9 hour<br>>9 hours       | 22<br>128<br>18<br>0      | 13.1<br>76.2<br>10.7<br>0.0        |
| 15              | Do you feel you have an eating related problem that might be anorexia or bulimia? | No<br>Y, mild<br>Y, seriou                         | 162<br>5<br>1             | 96.4<br>3.0<br>0.6                 |
| 16              | How often do you eat breakfast?                                                   | Nvr/rarly<br>1-2/wk<br>3-5/wk<br>Daily/al          | 39<br>50<br>30<br>49      | 23.2<br>29.8<br>17.9<br>29.2       |
| 17              | Do you make an effort to limit sodium in your diet?                               | Yes<br>No                                          | 72<br>96                  | 42.9<br>57.1                       |

Table 14. (continued)

| Question Number | Content                                                                         | Response                                                 | Count                     | Percent                            |
|-----------------|---------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------|------------------------------------|
| 18              | On the average, how many days a week do you have at least one drink of alcohol? | Nvr/rarly<br>1/week<br>2/week<br>3-5/wk<br>Alm daly      | 87<br>26<br>44<br>9<br>2  | 51.8<br>15.5<br>26.2<br>5.4<br>1.2 |
| 19              | On the days that you drink, how many drinks do you usually have?                | don't dr<br>1-2 drnk<br>3-5 drnk<br>6-9 drnk<br>10+ drnk | 68<br>47<br>35<br>16<br>2 | 40.5<br>28.0<br>20.8<br>9.5<br>1.2 |
| 20              | Did/do either of your parents have a drinking problem?                          | No<br>don't kn<br>Y,father<br>Y,mother<br>Y,both         | 140<br>5<br>21<br>0<br>2  | 83.3<br>3.0<br>12.5<br>0.0<br>1.2  |
| 21              | Do you have a drinking problem?                                                 | No<br>Y,slight<br>Y,problm<br>Y,seriou                   | 160<br>7<br>1<br>0        | 95.2<br>4.2<br>0.6<br>0.0          |
| 22              | During the last month, how many times did you get stoned, drunk or high?        | Never<br>1-4 time<br>>4 times<br>Faily                   | 104<br>45<br>16<br>3      | 61.9<br>26.8<br>9.5<br>1.8         |
| 23              | Do you use cocaine?                                                             | N,never<br>N,exper<br>N,quit<br>Y,sometm<br>Y,freqtl     | 153<br>8<br>6<br>0<br>1   | 91.1<br>4.8<br>3.6<br>0.0<br>0.6   |

Table 14. (continued)

| Question Number | Content                                                                                        | Response                                                   | Count                   | Percent                          |
|-----------------|------------------------------------------------------------------------------------------------|------------------------------------------------------------|-------------------------|----------------------------------|
| 24              | Do you use any other "designer" or "hard" drugs?                                               | N, never<br>N, experm<br>N, quit<br>Y, sometm<br>Y, freqtl | 155<br>9<br>2<br>1<br>1 | 92.3<br>5.4<br>1.2<br>0.6<br>0.6 |
| 25              | Do you ever drive a car after drinking or using drugs?                                         | No, don't<br>Y, rarely<br>Y, sometm<br>Y, freqtl           | 113<br>37<br>13<br>5    | 67.3<br>22.0<br>7.7<br>3.0       |
| 26              | Do you ever ride with a driver who has been drinking or using drugs?                           | No, don't<br>Y, rarely<br>Y, sometm<br>Y, freqtl           | 91<br>55<br>18<br>4     | 54.2<br>32.7<br>10.7<br>2.4      |
| 27              | In the past two years have you been cited for driving under the influence of alcohol or drugs? | No, pasgr<br>No, havnt<br>Yes, once<br>Yes, >1             | 30<br>135<br>3<br>0     | 17.9<br>80.4<br>1.8<br>0.0       |
| 28              | During the school year, about how many miles do you travel in a car each week?                 | <25 m/wk<br>26-100 m<br>101-499m<br>500+mile               | 25<br>56<br>83<br>4     | 14.9<br>33.3<br>49.4<br>2.4      |
| 29              | How often do you use seatbelts when you drive or ride in a car?                                | Always<br>Smetimes<br>Rarely<br>Never                      | 111<br>32<br>18<br>7    | 66.1<br>19.0<br>10.7<br>4.2      |

Table 14. (continued)

| Question Number | Content                                                                                       | Response                                                | Count                    | Percent                            |
|-----------------|-----------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------|------------------------------------|
| 30              | Do you ride a motorcycle, moped, or all-terrain vehicle?                                      | No<br>Y,w/hlmt<br>Y,smt ht<br>Y,nv hlm                  | 142<br>13<br>5<br>8      | 84.5<br>7.7<br>3.0<br>4.8          |
| 31              | Do you participate in risky recreational activities?                                          | No<br>Y,rarely<br>Y,sometm<br>Y, often                  | 150<br>10<br>5<br>3      | 89.3<br>6.0<br>3.0<br>1.8          |
| 32              | In the past year, have you been involved in an argument or fight involving physical violence? | No<br>Yes, 1<br>Yes, 1+                                 | 145<br>12<br>11          | 86.3<br>7.1<br>6.5                 |
| 33              | Do you have access to a hand gun?                                                             | Yes<br>No                                               | 57<br>111                | 33.9<br>66.1                       |
| 34              | How would you describe your level of stress from academic related stresses?                   | Vry high<br>High lvl<br>Somewhat<br>Low lvl<br>Very low | 8<br>36<br>89<br>30<br>5 | 4.8<br>21.4<br>53.0<br>17.9<br>3.0 |
| 35              | In the past 6 months, have you experienced periods of depression?                             | No<br>Y,OK now<br>Y,coping<br>Y,problm                  | 69<br>86<br>12<br>1      | 41.1<br>51.2<br>7.1<br>0.6         |
| 36              | How would you describe your friendships?                                                      | a loner<br>lnr/frnd<br>a few fs<br>many f/s             | 3<br>20<br>99<br>46      | 1.8<br>11.9<br>58.9<br>27.4        |

Table 14. (continued)

| Question Number | Content                                                                                    | Response                                                | Count                    | Percent                            |
|-----------------|--------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------|------------------------------------|
| 37              | How would you describe your relationship with your family?                                 | No famly<br>not clse<br>cls w/1<br>cls/most<br>cls/all  | 1<br>7<br>36<br>70<br>54 | 0.6<br>4.8<br>21.4<br>41.7<br>32.1 |
| 38              | If a serious problem developed would you seek professional counseling?                     | No, never<br>No, to go<br>Y, first<br>Y, been<br>Y, now | 38<br>8<br>98<br>23<br>1 | 22.6<br>4.8<br>58.3<br>13.7<br>0.6 |
| 39              | In bad moments, is there someone you can turn to who will listen and give you support?     | Yes<br>not sure<br>no, wish<br>No need                  | 162<br>3<br>1<br>2       | 96.4<br>1.8<br>0.6<br>1.2          |
| 40              | In the past two years, have you experienced a significant loss due to death?               | No<br>Yes, 1<br>Yes, 2+                                 | 100<br>45<br>23          | 59.5<br>26.8<br>13.7               |
| 41              | Which of the following was true about your parents during the first 18 years of your life? | married<br>sep/div.<br>widowed<br>Not aplc              | 102<br>53<br>8<br>5      | 60.7<br>31.5<br>4.8<br>3.0         |
| 42              | Has anyone in your immediate family committed suicide?                                     | Yes<br>No                                               | 3<br>165                 | 1.8<br>98.2                        |
| 43              | Have any of your close friends committed suicide?                                          | Yes<br>No                                               | 16<br>152                | 9.5<br>90.5                        |

Table 14. (continued)

| Question Number | Content                                                                              | Response                                             | Count                      | Percent                            |
|-----------------|--------------------------------------------------------------------------------------|------------------------------------------------------|----------------------------|------------------------------------|
| 44              | During the last two years, have you considered or attempted suicide?                 | No<br>not seri<br>ser lor2<br>thgttofit<br>attemptd  | 132<br>30<br>4<br>2<br>0   | 78.6<br>17.9<br>2.4<br>1.2<br>0.0  |
| 45              | Which of the following describes your usual dental practice?                         | Dly br&f<br>D b oc f<br>D b nv f<br>notbrdly         | 12<br>103<br>49<br>4       | 7.1<br>61.3<br>29.2<br>2.4         |
| 46              | Do you do testicular (male or breast (female) self-exams?                            | Yes<br>No                                            | 58<br>110                  | 34.5<br>65.5                       |
| 47              | Have you had a Pap test:                                                             | Not aplc<br>Y, 1st yr<br>Y, >1 yr<br>No<br>Dk means  | 49<br>46<br>16<br>47<br>10 | 29.2<br>27.4<br>9.5<br>28.0<br>6.0 |
| 48              | During the last few months, which best describes your sexual behavior?               | act/lptn<br>>1 ptner<br>not act                      | 94<br>18<br>56             | 56.0<br>10.7<br>33.3               |
| 49              | If you are currently in a sexual relationship, what birth control measures are used? | Not aplc<br>None<br>withdrwl<br>the pill<br>oth/Pill | 63<br>4<br>14<br>58<br>29  | 37.5<br>2.4<br>8.3<br>34.5<br>17.3 |

Table 14. (continued)

| Question Number | Content                                                                     | Response                                                | Count                     | Percent                             |
|-----------------|-----------------------------------------------------------------------------|---------------------------------------------------------|---------------------------|-------------------------------------|
| 50              | Do you take measures to protect against sexually transmitted disease (STD)? | not actv<br>N,1 ptnr<br>Y,always<br>Y,no al<br>not caut | 50<br>64<br>30<br>21<br>3 | 29.8<br>38.1<br>17.9<br>12.5<br>1.8 |

Table 15. Those Respondents Who are Sexually Active.  
(N=12)

|                                   | <u>Sexually Active Respondents</u> |         |
|-----------------------------------|------------------------------------|---------|
|                                   | Number                             | Percent |
| Active with one partner           | 94                                 | 83.9    |
| Active with more than one partner | 18                                 | 16.1    |

Table 16. Responses from Female Students Who were Sexually Active.  
(N=96)

| Question                                                                             | Responses                                                    | Number                    | Percent                              |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------|--------------------------------------|
| Do you do testicular (male) or breast (female) self-exams?                           | Yes<br>No                                                    | 43<br>55                  | 43.9<br>56.1                         |
| Have you had a Pap test?                                                             | Not aplc<br>Y, 1st yr<br>Y, >1 yr<br>No<br>Dk means          | 1<br>46<br>15<br>34<br>2  | 1.0<br>46.9<br>15.3<br>34.7<br>2.0   |
| During the last few months, which best describes your sexual behavior?               | act/1ptn<br>>1 ptner<br>not actv                             | 52<br>11<br>35            | 53.1<br>11.2<br>35.7                 |
| If you are currently in a sexual relationship, what birth control measures are used? | Not aplc<br>None<br>withdrwl<br>the pill<br>oth/pill         | 32<br>3<br>10<br>36<br>17 | 32.7<br>3.1<br>10.2<br>36.7<br>17.3  |
| Do you take measures to protect against sexually transmitted disease (STD)?          | not actv<br>N, 1 ptner<br>Y, always<br>Y, not al<br>not caut | 33<br>37<br>17<br>11<br>0 | 33.7<br>37.8<br>17.3<br>11.2<br>00.0 |

Table 17. Responses from Male Students Who were Sexually Active.  
(N=70)

| Question                                                                             | Responses                                                    | Number                    | Percent                             |
|--------------------------------------------------------------------------------------|--------------------------------------------------------------|---------------------------|-------------------------------------|
| Do you do testicular (male) or breast (female) self-exams?                           | Yes<br>No                                                    | 15<br>55                  | 21.4<br>78.6                        |
| Have you had a Pap test?                                                             | Not aplc<br>Y, 1st yr<br>Y, >1 yr<br>No<br>Dk means          | 48<br>0<br>1<br>13<br>8   | 68.6<br>00.0<br>1.4<br>18.6<br>11.4 |
| During the last few months, which best describes your sexual behavior?               | act/1ptn<br>>1 ptner<br>not actv                             | 42<br>7<br>21             | 60.0<br>10.0<br>30.0                |
| If you are currently in a sexual relationship, what birth control measures are used? | Not aplc<br>None<br>withdrwl<br>the pill<br>oth/pill         | 31<br>1<br>4<br>22<br>12  | 44.3<br>1.4<br>5.7<br>31.4<br>17.1  |
| Do you take measures to protect against sexually transmitted disease (STD)?          | not actv<br>N, 1 ptner<br>Y, always<br>Y, not al<br>not caut | 17<br>27<br>13<br>10<br>3 | 24.3<br>38.6<br>18.6<br>14.3<br>4.3 |

Table 18. Birth Control Used by Sexually Active Respondents.  
(N=112)

| Birth Control          | Number of Respondents | Percent of Sexually Active Respondents |
|------------------------|-----------------------|----------------------------------------|
| Pill                   | 52                    | 46.4                                   |
| Method Other Than Pill | 27                    | 24.1                                   |
| N/A                    | 15                    | 13.4                                   |
| Withdrawal             | 14                    | 12.5                                   |
| None                   | 4                     | 3.6                                    |
| Total                  | 112                   | 100.0                                  |

indicated Not Applicable as their response. With the options of "none" and "a means other than the pill" for the group that all were sexually active this would indicate that there was some confusion or lack of understanding of this question.

Tables 19 and 20 have information on the smoking population. It can be seen that a higher percentage of the smokers than nonsmokers are in the riskier categories, as would be expected. Table 19 indicates that for males 100% of all smokers are in the 3 high risk categories as compared to 35% of the nonsmoking males. In Table 20 it can be seen that 69% of the smoking women are in the 3 high risk categories compared to only 27% of the nonsmoking women.

Table 21 and 22 show a comparison of the health habits of smokers and nonsmokers by gender. It is interesting to find that a higher percentage of smokers over nonsmokers consider themselves to be highly stressed. Three percent more female smokers and 16% more male smokers consider themselves highly stressed than do nonsmokers. Another item of interest shows that a higher percentage of smokers in this population drive after drinking or using drugs than do nonsmokers. In Table 21 it is seen that among nonsmoking females 28% drive after drinking or using drugs and opposed to 56% of the smoking females. The male population in Table 22 shows much the same with 29% of the nonsmoking males driving after drinking or using drugs as opposed to 55% of the smoking males. Even though these two tables show more smokers with high risk

Table 19. A Comparison of Nonsmokers' and Smokers' Health Risk Scores for Males.

(N=59)

| WELLNESS CHECK Category             | Nonsmokers<br>% | Smokers<br>% |
|-------------------------------------|-----------------|--------------|
| Little or No Risk<br>(90-100)       | 17              | 0            |
| Slightly Risky<br>(80-89)           | 47              | 0            |
| Risky<br>(70-79)                    | 15              | 45           |
| Very Risky<br>(60-69)               | 15              | 36           |
| Extremely Risky<br>(Under 60)       | 5               | 18           |
| Average (Mean) WELLNESS CHECK Score | 79.4            | 63.9         |
| Number of Cases (by subgroup)       | 59              | 11           |

Table 20. A Comparison of Nonsmokers' and Smokers' Health Risk Scores for Females.

| WELLNESS CHECK Category             | Nonsmokers<br>% | Smokers<br>% |
|-------------------------------------|-----------------|--------------|
| Little or No Risk<br>(90-100)       | 16              | 0            |
| Slightly Risky<br>(80-89)           | 57              | 31           |
| Risky<br>(70-79)                    | 21              | 31           |
| Very Risky<br>(60-69)               | 5               | 19           |
| Extremely Risky<br>(Under 60)       | 1               | 19           |
| Average (Mean) WELLNESS CHECK Score | 82.3            | 71.8         |
| Number of Cases (by subgroup)       | 82              | 16           |

Table 21. A Comparison of Health Habits of Smokers and Nonsmokers for Females.

| Health Risk                                      | All Females<br>% | All Female Smokers<br>% |
|--------------------------------------------------|------------------|-------------------------|
| 1. 20+ percent over ideal weight                 | 11               | 6                       |
| 2. 20+ percent under ideal weight                | 1                | 0                       |
| 3. Hypertensive                                  | 5                | 6                       |
| 4. Borderline hypertensive                       | 0                | 0                       |
| 5. Smoke cigarettes                              | 0                | 100                     |
| 6. Use smokeless tobacco                         | 0                | 0                       |
| 7. Not limit fat in daily diet                   | 34               | 19                      |
| 8. Never or rarely eat breakfast                 | 18               | 38                      |
| 9. Exhibit excessive drinking habits             | 7                | 19                      |
| 10. Admit having a drinking problem              | 1                | 13                      |
| 11. Currently use cocaine                        | 0                | 0                       |
| 12. Currently use other hard drugs               | 0                | 0                       |
| 13. Currently use marijuana                      | 2                | 13                      |
| 14. Drive after drinking or using drugs          | 28               | 56                      |
| 15. Ride with a driver who has been drinking     | 50               | 63                      |
| 16. Never/rarely use seatbelts                   | 5                | 19                      |
| 17. Ride motorcycle                              | 11               | 6                       |
| 18. Do risky recreational activities             | 6                | 6                       |
| 19. Don't get aerobic exercise 3+ times per week | 80               | 88                      |
| 20. Describe self as highly stressed             | 28               | 31                      |
| 21. Considered suicide in the last two years     | 1                | 6                       |
| 22. At risk of acquiring an STD                  | 10               | 19                      |
| 23. Not protect self/mate against pregnancy      | 12               | 19                      |
| 24. Don't do monthly testicular/breast self exam | 56               | 56                      |
| 25. Use the pill                                 | 34               | 50                      |

Table 22. A Comparison of Health Habits of Smokers and Nonsmokers for Males.

| Health Risk                                          | All<br>Males<br>% | All Male<br>Smokers<br>% |
|------------------------------------------------------|-------------------|--------------------------|
| 1. 20+ percent over ideal weight                     | 19                | 27                       |
| 2. 20+ percent under ideal weight                    | 0                 | 0                        |
| 3. Hypertensive                                      | 14                | 9                        |
| 4. Borderline hypertensive                           | 10                | 0                        |
| 5. Smoke cigarettes                                  | 0                 | 100                      |
| 6. Use smokeless tobacco                             | 12                | 9                        |
| 7. Not limit fat in daily diet                       | 56                | 36                       |
| 8. Never or rarely eat breakfast                     | 22                | 45                       |
| 9. Exhibit excessive drinking habits                 | 17                | 27                       |
| 10. Admit having a drinking problem                  | 5                 | 18                       |
| 11. Currently use cocaine                            | 0                 | 9                        |
| 12. Currently use other hard drugs                   | 2                 | 9                        |
| 13. Currently use marijuana                          | 7                 | 36                       |
| 14. Drive after drinking or using<br>drugs           | 29                | 55                       |
| 15. Ride with a driver who has been<br>drinking      | 34                | 55                       |
| 16. Never/rarely use seatbelts                       | 25                | 27                       |
| 17. Ride motorcycle                                  | 22                | 27                       |
| 18. Do risky recreational activities                 | 14                | 36                       |
| 19. Don't get aerobic exercise 3+<br>times per week  | 64                | 55                       |
| 20. Describe self as highly stressed                 | 20                | 36                       |
| 21. Considered suicide in the last<br>two years      | 3                 | 18                       |
| 22. At risk of acquiring an STD                      | 15                | 36                       |
| 23. Not protect self/mate against<br>pregnancy       | 7                 | 9                        |
| 24. Don't do monthly testicular/<br>breast self exam | 80                | 73                       |

behaviors it cannot be assumed that smoking causes these behaviors.

## V. SUMMARY

The analyses and interpretations of the sample data were presented in this chapter. The data were generated by the administration of the College Wellness Check questionnaire to 168 students at Middle Tennessee State University. The CWC is a microcomputer package that gives data summaries. The data were also exported from the CWC software and imported into the Statistical Analysis System (SPSSx). The chapter also reported both the test-retest reliability coefficient as well as the content validity coefficient.

The study population consisted of 168 students--141 white students and 27 nonwhite students, 98 females and 70 males. There were 73 freshman, 49 sophomores, 30 juniors, 15 seniors and 1 graduate student.

The study indicates a substantial positive degree of association between the test and the retest. The Pearson Product Moment Correlation produced a .92 coefficient. This indicates that with 168 subjects, this relationship was statistically significant beyond the .001 level.

A high percentage of agreement on the content validity was obtained. There were 21 raters used and the percentage agreement was 96.2%.

## CHAPTER V

### SUMMARY

#### I. INTRODUCTION

It was the purpose of this study, as shown in Chapter I, to determine the reliability and content validity of the Health Risk Appraisal, College Wellness Check. The study specifically sought to address the following questions:

1. What is the test-retest reliability (correlation coefficient) of College Wellness Check?

2. What is the content validity of College Wellness Check?

The College Wellness Check was administered to 168 students during February, 1992. The study population consisted of 70 (41.7%) males and 98 (58.3%) females, 141 (83.9%) white and 27 (16.1%) nonwhite.

The College Wellness Check is a computer package which analyzes its own data. This package processed data to give feedback both for the individual on his/her health risks, as well as giving data to the research that describes the sample population. The SPSSx package was used to determine the remaining descriptive statistics as well as the Pearson Product Moment Correlation.

## II. FINDINGS

Based on the analyses of the data in the study, the following major findings were revealed.

1. The instrument was found to have a high reliability coefficient of .92.

2. The instrument was found to have a high level of content validity (96.2%) as was determined by the panel of experts.

3. The mean health risk score of the 168 Middle Tennessee State University students was 78.6% with a standard deviation of 10.9.

4. Based on the mean health risk score, the students in the General Education Psychology class at Middle Tennessee State University, on the average, fall into the Slightly Risky Category.

5. The students were categorized into the following health risk categories: 14% in the little or no risk category, 48% in the slightly risky category, 21% in the risky category, 12% in the very risky category, and 5% in the extremely risky category.

6. It was revealed that 48.2% of the students drink alcohol and 10.7% drink 6 or more drinks on the days that they do drink.

7. Thirty-three percent have driven a car after drinking and 45.8% have ridden with a driver who has been drinking or using drugs.

8. The study revealed that 16% currently smoke and that 5.4% smoke more than 10 cigarettes a day.

9. It was found that 66.1% of the students always wear their seatbelts with only 4% never wearing seatbelts.

10. Only about one-fourth of the students (26.1%) exercise aerobically at least three times a week.

11. It was found that 23.2% of the students do not eat breakfast.

12. Almost 60% of the students make an effort to eliminate fat from their diets and 43% try to limit sodium in their diet.

13. Fifty-one percent have experienced periods of depression in the past 6 months and 72% said they would seek professional counseling if a serious problem developed.

14. It was found that only 34.5% of the students were doing testicular (male) or breast (female) self-exam.

15. Sixty-six and seven-tenths percent of the students were sexually active during the last few months.

16. The pill was the birth control measure used by 34.5% of the sexually active population.

### III. CONCLUSION

Based on the findings of this study, the high reliability and content validity indicates that the CWC is an appropriate HRA to use with a college population.

#### IV. IMPLICATIONS

Because the findings of this study indicated that the CWC is an appropriate HRA to use with a college population, there are many possibilities available. This HRA would allow us to gain knowledge about the nature of the student population with whom we work and plan programs in accordance to identified needs.

The high reliability and content validity established by this study would decrease one of the concerns of health providers about self-report questionnaires. It would ensure that any changes detected over time are due to real lifestyle changes and not to unreliable reporting by clients.

The strong content validity established by this study supports that the questions asked in the CWC represents valid health concerns in a college population. Therefore, interpretations made from test scores and other information gathered through this HRA would be appropriate for a college population.

This research is a step towards solidifying the role of HRA's in the Health field. This HRA is an excellent tool for accumulating data in a college population both because of the high reliability and content validity established in this study combined with it's ease of administration in the classroom and to large groups.

## V. RECOMMENDATIONS

Based upon the findings, conclusion, and literature review of the research study, the following recommendations were made:

1. Questions on the CWC that were confusing should be altered so that each question has alternatives that are mutually exclusive and exhaustive.

2. The arrangement of the questions on the CWC should be adjusted slightly to alleviate the problem of overlooking some questions.

3. Future Health Risk Appraisal instruments should complete research on the reliability and content validity before publication.

4. Long term studies with HRA's that have established high reliability and content validity should be undertaken.

5. Research on the HRA as a tool for motivating college students to enter health programs should be completed.

6. Care should be taken not to generalize these findings to other populations.

7. HRA's should be monitored frequently for updating the appropriateness of the questions for the population.

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## APPENDIXES

## APPENDIX A

### C O L L E G E   W E L L N E S S   C H E C K

This confidential health-risk appraisal was specifically designed for college students. It will provide you with an individual picture specific to your health risks. Your answers will be held in strictest confidence — so don't put your name anywhere on the questionnaire. Please answer all the questions otherwise the computer will not accept your answers.

**DIRECTIONS:** Please mark your answers with a check mark (✓) in the brackets. Answer every question, but give only one answer per question.

01. What is your sex?    ☐ 1 - male    ☐ 2 - female

02. What is your marital status?  
☐ 1 - Single (never married)    ☐ 4 - Separated  
☐ 2 - "Living together" (not married)    ☐ 5 - Divorced  
☐ 3 - Married    ☐ 6 - Widowed

03. What do you consider your racial/ethnic group to be?  
☐ 1 - White (non-Hispanic)    ☐ 5 - Native American Indian or Alaskan Native  
☐ 2 - Black (African-American)    ☐ 6 - Other  
☐ 3 - Hispanic    ☐ 4 - Asian or Pacific Islander

04. Where attending classes — where do you live?  
☐ 1 - At home (with parents)    ☐ 5 - Alone, in an apartment/rented house  
☐ 2 - In a dormitory    ☐ 6 - With others, in an apartment/rented house  
☐ 3 - In a fraternity/sorority house    ☐ 7 - Other  
☐ 4 - With my spouse and/or children

05. How much money do you spend on entertainment in a typical week (for example, dates, movies, drinks, parties, dances, etc.)?  
☐ 1 - less than \$10 a week    ☐ 4 - between \$30 and \$50 a week  
☐ 2 - between \$10 and \$20 a week    ☐ 5 - between \$50 and \$100 a week  
☐ 3 - between \$20 and \$30 a week    ☐ 6 - more than \$100 a week

06. What grades did you earn during the last year?  
☐ 1 - Mostly A's    ☐ 3 - Mostly C's  
☐ 2 - Mostly B's    ☐ 4 - Mostly D's

07. What class/academic level are you in now?  
☐ 1 - Freshman    ☐ 4 - Senior  
☐ 2 - Sophomore    ☐ 5 - Graduate student  
☐ 3 - Junior    ☐ 6 - Other

08. What is your age? \_\_\_\_\_ yrs.

09. How tall are you (with 1" heels)? \_\_\_\_\_ ft. \_\_\_\_\_ in.

010. What is your weight (with indoor clothing)? \_\_\_\_\_ lbs.

1. Did/did either of your parents or your grandparents have high blood pressure?  
☐ 1 - I don't know    ☐ 3 - Yes, one of them  
☐ 2 - No, none of them    ☐ 4 - Yes, more than one of them

2. Did either of your parents or your grandparents have a heart attack, stroke (or other serious heart condition) before age 60?  
☐ 1 - I don't know    ☐ 3 - Yes, one of them did  
☐ 2 - No    ☐ 4 - Yes, more than one of them did

3. Has anyone in your immediate family been diabetic (parents, grandparents, brothers or sisters) before age 60?  
☐ 1 - I don't know    ☐ 3 - Yes, one of them  
☐ 2 - No    ☐ 4 - Yes, more than one of them

4. Have you had your blood pressure checked in the past year?    ☐ 1 - Yes    ☐ 2 - No

5. Have you ever been told either that you have high blood pressure or that you have borderline high blood pressure?  
☐ 1 - No    ☐ 2 - Yes, that it was high  
☐ 3 - Yes, that it was borderline

6. What is your blood cholesterol level?  
☐ 1 - Never Checked  
☐ 2 - Normal  
☐ 3 - High  
☐ 4 - Low  
☐ 5 - Don't know what this means

7. How often do you do at least 20-30 minutes of continuous aerobic activity — such as jogging, swimming, bicycling, etc. ...?  
☐ 1 - Daily    ☐ 3 - One or two times per week  
☐ 2 - Three or more times a week    ☐ 4 - Rarely or never

8. How often do you participate in non-aerobic activities — such as softball, tennis, golf, bowling, etc. ...?  
☐ 1 - Daily    ☐ 3 - One or two times per week  
☐ 2 - Three or more times a week    ☐ 4 - Rarely or never

9. Do you smoke cigarettes?  
☐ 1 - No, I never have or only tried it    ☐ 3 - Yes, I smoke less than 10 cigarettes a day  
☐ 2 - No, I smoked in past and quit    ☐ 4 - Yes, I smoke, between 10 and 20 a day  
☐ 5 - Yes, I smoke more than 20 cigarettes a day

10. Do you smoke marijuana?  
☐ 1 - No, I never have  
☐ 2 - No, I experimented with it, but never used it regularly  
☐ 3 - No, used it regularly in the past, but not now  
☐ 4 - Yes, sometimes (once a week or less)  
☐ 5 - Yes, frequently (more than once a week)

11. How often do you use smokeless tobacco — such as chewing tobacco or snuff?  
☐ 1 - Never    ☐ 3 - One to three times a day  
☐ 2 - Only occasionally    ☐ 4 - Four or more times a day

12. Are you within your ideal weight?  
☐ 1 - Yes  
☐ 2 - I'm slightly underweight  
☐ 3 - I'm very much underweight  
☐ 4 - I'm slightly overweight  
☐ 5 - I'm very much overweight

13. Do you make an effort to limit the amount of fat in your daily diet—such as fried foods, red meat, luncheon meats, etc. ...?  
☐ 1 - No    ☐ 2 - Yes, but only occasionally  
☐ 3 - Yes, most of the time

14. On the average, how many hours of sleep do you get each night?  
☐ 1 - Less than six hours  
☐ 2 - Six to eight hours  
☐ 3 - Eight to nine hours  
☐ 4 - More than nine hours

15. Do you feel that you have a food or eating related problem that might be anorexia or bulimia?  
☐ 1 - No    ☐ 2 - Yes, but only a mild one  
☐ 3 - Yes, a serious one

16. How often do you eat breakfast?  
☐ 1 - Never or rarely  
☐ 2 - Once or twice a week  
☐ 3 - Three to five days a week  
☐ 4 - Daily or almost daily

17. Do you make an effort to limit the amount of sodium (salt) in your daily diet?  
☐ 1 - Yes    ☐ 2 - No

18. On the average, how many days a week do you have at least ONE drink of alcohol (beer, wine, or liquor)?  
☐ 1 - Never or rarely    ☐ 4 - Three to five days per week  
☐ 2 - One day per week at most    ☐ 5 - Almost daily  
☐ 3 - Two days per week or only on weekends

19. On the days that you drink, how many drinks do you usually have?  
☐ 1 - I don't drink    ☐ 4 - Six to nine drinks  
☐ 2 - One to two drinks    ☐ 5 - Ten or more drinks  
☐ 3 - Three to five drinks

20. Did/did either of your parents have a drinking problem?  
☐ 1 - No    ☐ 3 - Yes, my father  
☐ 2 - I don't know    ☐ 4 - Yes, my mother  
☐ 5 - Yes, both my parents

21. Do you have a drinking problem?  
☐ 1 - No, certainly not    ☐ 2 - Yes, I may have a slight problem  
☐ 3 - Yes, I have a problem    ☐ 4 - Yes, I have a serious problem

22. During the last month, how many times did you get stoned, drunk or high?  
☐ 1 - Never ☐ 3 - More than four times but not every day  
☐ 2 - One to four times ☐ 4 - Daily

23. Do you use cocaine?  
☐ 1 - No, I never have  
☐ 2 - No, I experimented, but never used it regularly  
☐ 3 - No, I did in the past, but not now  
☐ 4 - Yes, sometimes (once a week or less)  
☐ 5 - Yes, frequently (more than once a week)

24. Do you use any other drugs such as PCP, amphetamines, barbiturates, non-prescribed tranquilizers, or other "designer" or "hard" drugs?  
☐ 1 - No, I never have  
☐ 2 - No, I experimented, but never used any regularly  
☐ 3 - No, I did in the past, but not now  
☐ 4 - Yes, sometimes (once a week or less)  
☐ 5 - Yes, frequently (more than once a week)

25. Do you ever drive a car (or other motor vehicle) after drinking or using drugs?  
☐ 1 - No I don't  
☐ 2 - Yes, but very rarely (once or twice in the last 12 months)  
☐ 3 - Yes, sometimes (as much as once a month)  
☐ 4 - Yes, frequently (as much as once a week)

26. Do you ever ride with a driver who has been drinking or using drugs?  
☐ 1 - No I don't  
☐ 2 - Yes, but very rarely (once or twice in the last 12 months)  
☐ 3 - Yes, sometimes (as much as once a month)  
☐ 4 - Yes, frequently (as much as once a week)

27. In the past two years have you been cited by the police for driving under the influence of alcohol or drugs?  
☐ 1 - No, but I was a passenger in a car when the driver was cited  
☐ 2 - No I haven't  
☐ 3 - Yes, I have been cited once in the past two years  
☐ 4 - Yes, I have been cited more than once in the past two years

28. During the school year, about how many miles do you travel in a car (or other motor vehicle) each week?  
☐ 1 - less than 25 miles per week ☐ 3 - 101 to 499 miles per week  
☐ 2 - 26 to 100 miles per week ☐ 4 - 500 or more miles per week

29. How often do you use seatbelts when you drive or ride in a car?  
☐ 1 - Always or nearly always ☐ 3 - Rarely  
☐ 2 - Sometimes ☐ 4 - Never

30. Do you ride a motorcycle, moped or all-terrain vehicle (ATV)?  
☐ 1 - No ☐ 2 - Yes, and I always wear a helmet  
☐ 3 - Yes, and I sometimes wear a helmet  
☐ 4 - Yes, and I never wear a helmet

31. Do you participate in risky recreational activities such as sky diving, hang gliding, mountain climbing, car/motorcycle racing, etc.?  
☐ 1 - No ☐ 2 - Yes, but only rarely  
☐ 3 - Yes, sometimes  
☐ 4 - Yes, often

32. In the past year, have you been involved in an argument or fight involving physical violence?  
☐ 1 - No ☐ 2 - Yes, but only once  
☐ 3 - Yes, more than once

33. Do you have access to a hand gun in your residence or vehicle?  
☐ 1 - Yes ☐ 2 - No

34. How would you describe your level of stress from classes/grades/ tests or other academic related stresses?  
☐ 1 - Very high level of stress ☐ 4 - Low level of stress  
☐ 2 - High level of stress ☐ 5 - Very low level of stress  
☐ 3 - Somewhat stressed

35. In the past six months, have you experienced periods of depression?  
☐ 1 - No  
☐ 2 - Yes, I have been depressed, but I'm feeling OK now  
☐ 3 - Yes, I have been depressed, and I'm still working through it  
☐ 4 - Yes, I am depressed now, and am having problems coping

36. How would you describe your friendships?  
☐ 1 - I'm a loner and have no close friends  
☐ 2 - I'm basically a loner, but do have at least one close friend  
☐ 3 - I have a few close friends  
☐ 4 - I have many close friends

37. How would you describe your relationship with your family?  
☐ 1 - I have no real family  
☐ 2 - I have a family but I am not particularly close to any of them  
☐ 3 - I have at least one person in my family that I am close to  
☐ 4 - I have close relationships with most of my family  
☐ 5 - I have close relationships with all of my family

38. If a serious personal problem developed would you seek professional counseling?  
☐ 1 - No, I would never go for counseling  
☐ 2 - No, because I wouldn't know where to go  
☐ 3 - Yes, it would be the first time for me  
☐ 4 - Yes, I've been to counseling in the past  
☐ 5 - Yes, I'm going to counseling now

39. In bad moments, is there someone (a friend or relative) you can turn to who will listen and give you support?  
☐ 1 - Yes  
☐ 2 - I'm not sure if there is someone I could turn to  
☐ 3 - No, but I wish there were  
☐ 4 - No, and I don't need anyone

40. In the past 2 years, have you experienced a significant loss because of the death of a close friend or family member?  
☐ 1 - No ☐ 2 - Yes, one death  
☐ 3 - Yes, two or more deaths

41. Which of the following was true about your parents during the first 18 years of your life?  
☐ 1 - My parents were together (married) during that time  
☐ 2 - They became separated or divorced during that time  
☐ 3 - My mother or father was widowed during that time  
☐ 4 - Not applicable

42. As far as you know, has anyone in your immediate family committed suicide?  
☐ 1 - Yes ☐ 2 - No

43. Have any of your close friends committed suicide?  
☐ 1 - Yes ☐ 2 - No

44. During the last two years, have you considered or attempted suicide?  
☐ 1 - No I haven't  
☐ 2 - I've thought about it, but not seriously  
☐ 3 - I've thought about it seriously once or twice  
☐ 4 - I've thought about it often  
☐ 5 - I've made an attempt at suicide

45. Which of the following describes your usual dental practices?  
☐ 1 - Daily, both brush and floss  
☐ 2 - Daily, brush but floss occasionally  
☐ 3 - Daily brush but never floss  
☐ 4 - Do not brush every day

46. Do you do testicular self-exam (testes) or breast self-exam (breasts)?  
☐ 1 - Yes ☐ 2 - No

47. Have you had a Pap test?  
☐ 1 - Not applicable ☐ 4 - No  
☐ 2 - Yes, within the last year ☐ 5 - Don't know what this means  
☐ 3 - Yes, but it has been more than one year

48. During the last few months, which of the following best describes your sexual behavior?  
☐ 1 - I was active and committed to one sexual partner--  
☐ 2 - I had sexual relationships with more than one partner  
☐ 3 - I was not sexually active

49. If you are currently in a sexual relationship in which pregnancy could occur, what birth control measures do you and/or your partner use?  
☐ 1 - Not applicable  
☐ 2 - None, no attempt is made to avoid pregnancy  
☐ 3 - Use withdrawal prior to ejaculation  
☐ 4 - Use "the pill"  
☐ 5 - Use a birth control method other than "the pill"

50. Do you take measures to protect against sexually transmitted disease, (STD)?  
☐ 1 - No, I am not sexually active.  
☐ 2 - No, I have had the same partner for a long time.  
☐ 3 - Yes, I am highly cautious with my sexual partners and always protect against STD.  
☐ 4 - Yes, I am highly cautious with my sexual partners but do not always protect against STD.  
☐ 5 - No, I am not cautious about STD.

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 1985 - Revised 11/86 ohp 2

## APPENDIX B

### Content Validity Panel

- Dr. Ruth Engs - Professor at Indiana University  
Dept. of Health and Safety Education
- Dr. Thomas O'Rourke - Professor at Univ. Of Ill. at Urbana-  
Champaign
- Dr. Arvil Burks - Professor at University of Central  
Arkansas Health Education Dept.
- Dr. Michael Young - Professor at University of Arkansas  
Health Education Program
- Dr. Carl Westerfield - Professor at University of Alabama  
Health Education Department
- Dr. Richard K. Means - Professor Auburn University  
Health Education Area
- Dr. Don Calitri - Professor at Eastern Kentucky University  
Health Education Dept.
- Dr. Georgia Keeney - Professor at Univ. of Minnesota-  
Duluth Dept. of Health , Phy. Ed. and  
Recreation
- Dr. Jimmie Price - Professor at Western Kent. Univ.  
Dept. of Health and Safety
- Dr. Robert Barnes - Professor at East Carolina University  
Health Ed. Dept.
- Dr. David Anspaugh - Professor at Memphis ST. Univ.  
Dept. of Health, Physical education  
and recreation.
- Dr. Darwin Dennison - Professor at State Univ. of NY-  
Buffalo Health Behavioral Services
- Dr. Wayne Payne - Professor at Ball State Univ.  
Dept. of Physiology and Health Science
- Dr. Jack Pursley - Professor at The Univ. of Tenn.  
Dept. of Health, Leisure, and Safety
- Susy Flethcer, D.N.S., R.N. - Indiana State University  
Dept. of Nursing

Lynn Gilfillan, M.Ed. - Community Wellness Rep  
Coors Medical Center

James E. Dewey, Ph.D. - President  
Response Technologies, Inc.

Julie Fellows, Ph.D. - Texas Department of Health  
Public Health Promotions Division

Dr. Murray Vincent - Professor at the Univ. of South  
Carolina Dept. of Health Education

Dr. Steve Furney - Dept. of Health & Physical Education  
Southwest Texas State University

Dr. Rob Ryder - Penrose St. Frances Health Care System,  
Colorado Springs, CO

## APPENDIX C

The following are comments made by the raters:

Question 17 is too vague.

AIDS questions and a question about unprotected sex within the last five years should be included.

All questions are okay but need changes.

D1 - Gender instead of sex. D6 - Grade point average instead of A's, B's, etc.

#16 - may not be relevant for healthy college kids.

#21 - unlikely to be answered truthfully.

#25 - might want to up amount of drinking.

#42 and #43 - should have an option of "not sure" to mark since some accidents may be suicides.

No additional comments

Good survey

#7 - change to 30-45 minutes.

Needs question on sexual preference, steroids and AIDS (AIDS risk taking behaviors).

10, #22, #24, etc. - Drug questions should all be together or split up more.

Marital status is really out of date, it is better to use living arrangements if that's what you're after or some variation of D4.

Needs stressor issues: Living in chaos, homicide experience, how long away from home, financial concerns, number of children at home, especially if a woman.

Items rated no should be included but reworded.

Life and career goals, specific number of pounds overweight, safe\unsafe sex-use of condom, IV drug use, birth control pills and smoking, childhood immunizations, oral cancer checks, financing college education (parents, personal loan, government loans, working and going to class).

Questions seem appropriate for college life.

No additional comments

Would suggest additional item or items regarding AIDS.

#12 - Was unclear why this was asked. If you are going to compare actual weight to perceived weight the question is ok.

#17 - I'm not sure the literature still supports reduced sodium in young people with normal Blood Pressure. This

question could be misleading.

#20 - What difference does it make which parent had the problem? Unless there's a clear reason, knowing the "one" or "both" parents had a problem is much less invasive.

#45 - It seems ludicrous to ask the brushing and flossing question right after all that suicide stuff. Suggest you change the order somehow.

#50 - What if they don't know what effective measures are? They could think they're protected when they're not. Also, response 4 doesn't have a clear meaning to me.

Looks good. I took the Wellness Inventory as described by Travis and checked to see if all 12 areas were covered. These were 2 areas that I didn't see mentioned in a question: coping, such as "Do you engage in an active coping technique for stress? If so, which one? Exercise, meditation, relaxation exercises.

Second area on wellness and communication, i.e. assertiveness - listening to others without interrupting them.

Demographic questions should always go at the end and not at beginning. Survey research methodology has consistently shown that response will improve this way. Also, although you are asking whether the questions are appropriate, the problem is not the content area of the questions but the format of the alternatives. A "good" question has alternatives that are mutually exclusive and exhaustive. A number of items have problems and I so indicate.

# D3 - Some might rebel at "race\ethnic group" or D1 - "sex" - but it should be included.

Group "blood pressure" questions together (#1, #4, and #5). Some sensitive questions - drug use, suicide, etc. - but need to be included.

Might include coffee drinking practices and medications taken.

Rater 16 - Helmet use for motorcycle riders. Change STDs to HIV\STDs.

What about rape, sexual assault, other violence. Have you been the victim of in the last year?

Should #46 be how often you do Testicular self exam or breast self exam - it's not preventative, if not done regularly.

Women - Have you ever had an abortion?

Men- Have you ever made someone pregnant? (or in the last year) These questions might be predictive of risky sexual behavior.

No comments

D5 - money spent on entertainment? Do not understand the connection #6 - What if blood cholesterol was checked 5 years ago and it was high? Incorporate concept that blood

cholesterol has been checked recently and what was level

#12 - Would a person know his\her "ideal weight"?

#13 and #17 - omit "make an effort to"

#31 - Term "risky" change to "high risk"

#36 - How would you describe your friendships - change to "how would you describe your relationship with friends"

#50 - May want to include HIV\AIDS with term STD

No additional comments

The topic of stress could have been covered in more detail especially inquiry to stress handling and relaxation techniques.

#32 and #33 are "interesting". Is there important reasons for knowing about access to handguns by college students?

Might want to add questions on steroid use and additional questions on nutrition (eating fruit, fiber, etc.)

Seems invasive but it is appropriate for the population.

## APPENDIX D

### COLLEGE WELLNESS CHECK

FOLLOW UP INFORMATION AVAILABLE: SANDRA NEAL 898-2911

| CATEGORY          | SCORES   | SCORE | COMMENT                   |
|-------------------|----------|-------|---------------------------|
| Little or No Risk | 90-100   |       |                           |
| Slightly Risky    | 80-89    |       |                           |
| Risky             | 70-79    |       |                           |
| Very Risky        | 60-69    | 66    | Your body deserves better |
| Extremely Risky   | Under 60 |       |                           |

- Because of your family history, you may be at a greater risk for high blood pressure or heart disease. It is more important that you eat right, watch your weight, and no smoke.
- + Continue to have your blood pressure checked. Making this a life-time habit will greatly increase the likelihood that you will enjoy a healthier lifestyle.

YOU DO NOT GET SUFFICIENT EXERCISE. YOU SHOULD BEGIN A GOOD EXERCISE PROGRAM, SPECIFICALLY DESIGNED FOR A PERSON OF YOUR AGE, HEIGHT, WEIGHT, AND MEDICAL CONDITION.

SMOKING IS A MAJOR HEALTH HAZARD AT ANY AGE. IT'S COSTLY, GIVES YOU BAD BREATH, MAKES YOUR CLOTHES SMELL, CAUSES PREMATURE WRINKLES ON YOUR FACE, AND SHORTENS YOUR BREATH. IF YOU QUIT NOW, YOUR BODY CAN RETURN TO A HEALTHY STATE. REMEMBER THAT SMOKING CAN LEAD TO CANCER, HEART DISEASE, AND OTHER SERIOUS ILLNESSES.

- Try not to skip breakfast. It is a very important meal. Your body needs energy if you hope to be alert and active.

DON'T LET YOUR ALCOHOL DRINKING HABITS GET THE BEST OF YOU. HEAVY CONSUMPTION OVER TIME WILL DAMAGE YOUR HEALTH AND KEEP

YOU FROM PERFORMING AT YOUR BEST. IF YOU CONTINUE TO DRINK ALCOHOLIC BEVERAGES AT YOUR PRESENT RATE YOU ARE MORE LIKELY TO ENCOUNTER PHYSICAL AND SOCIAL PROBLEMS ASSOCIATED WITH ALCOHOLISM.

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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. ILLEGAL DRUG USERS CAN NEVER BE SURE OF THE QUALITY OF DRUGS THEY ARE USING.

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- + Safety belts save lives. Highway accidents kill more people from infancy through age 24 than any other cause. Buckling up is an intelligent choice.
- Alcohol-related traffic accidents kill and cripple tens of thousands of innocent people every year. Both alcohol and drugs greatly reduce reaction time, increasing your chances of causing or being unable to avoid a serious accident.
- You are not taking the proper precautions against breast cancer. Early detection of breast cancer through self-examination may greatly increase your chance of successful treatment.
- \*\*\* Information is available on how you can take control of your lifestyle and reduce your identified risks. Please refer to the following pages in "The Way to Wellness" booklet:  
PAGE(S) 7 9 11 13 14 20 23 25 29
- \*\* TO PRINT BOTTOM OF PAGE MESSAGE HERE GO TO OPTION #7 ON THE MAIN MENU\*\*

WELLNESS CHECK was developed by the Rhode Island  
Department of Health

## APPENDIX E

Please read the College Wellness Check and mark yes or no on this corresponding answer sheet as to whether you believe the question to be an appropriate one to include on a wellness inventory for college students.

- |                                                               |                                                              |                                                              |
|---------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| D1. <input type="checkbox"/> YES <input type="checkbox"/> NO  | D2. <input type="checkbox"/> YES <input type="checkbox"/> NO | D3. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| D4. <input type="checkbox"/> YES <input type="checkbox"/> NO  | D5. <input type="checkbox"/> YES <input type="checkbox"/> NO | D6. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| D7. <input type="checkbox"/> YES <input type="checkbox"/> NO  | D8. <input type="checkbox"/> YES <input type="checkbox"/> NO | D9. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| D10. <input type="checkbox"/> YES <input type="checkbox"/> NO |                                                              |                                                              |
|                                                               |                                                              |                                                              |
| 1. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 18. <input type="checkbox"/> YES <input type="checkbox"/> NO | 35. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 2. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 19. <input type="checkbox"/> YES <input type="checkbox"/> NO | 36. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 3. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 20. <input type="checkbox"/> YES <input type="checkbox"/> NO | 37. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 4. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 21. <input type="checkbox"/> YES <input type="checkbox"/> NO | 38. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 5. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 22. <input type="checkbox"/> YES <input type="checkbox"/> NO | 39. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 6. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 23. <input type="checkbox"/> YES <input type="checkbox"/> NO | 40. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 7. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 24. <input type="checkbox"/> YES <input type="checkbox"/> NO | 41. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 8. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 25. <input type="checkbox"/> YES <input type="checkbox"/> NO | 42. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 9. <input type="checkbox"/> YES <input type="checkbox"/> NO   | 26. <input type="checkbox"/> YES <input type="checkbox"/> NO | 43. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 10. <input type="checkbox"/> YES <input type="checkbox"/> NO  | 27. <input type="checkbox"/> YES <input type="checkbox"/> NO | 44. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 11. <input type="checkbox"/> YES <input type="checkbox"/> NO  | 28. <input type="checkbox"/> YES <input type="checkbox"/> NO | 45. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 12. <input type="checkbox"/> YES <input type="checkbox"/> NO  | 29. <input type="checkbox"/> YES <input type="checkbox"/> NO | 46. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 13. <input type="checkbox"/> YES <input type="checkbox"/> NO  | 30. <input type="checkbox"/> YES <input type="checkbox"/> NO | 47. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 14. <input type="checkbox"/> YES <input type="checkbox"/> NO  | 31. <input type="checkbox"/> YES <input type="checkbox"/> NO | 48. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 15. <input type="checkbox"/> YES <input type="checkbox"/> NO  | 32. <input type="checkbox"/> YES <input type="checkbox"/> NO | 49. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 16. <input type="checkbox"/> YES <input type="checkbox"/> NO  | 33. <input type="checkbox"/> YES <input type="checkbox"/> NO | 50. <input type="checkbox"/> YES <input type="checkbox"/> NO |
| 17. <input type="checkbox"/> YES <input type="checkbox"/> NO  | 34. <input type="checkbox"/> YES <input type="checkbox"/> NO |                                                              |

Please comment below if you feel that a subject was left off that should be on the questionnaire or if you feel that a particular topic should have been covered in more detail.

## VITA

Sandra McMillan Neal was born in Cleveland, Tennessee. She attended public schools in Cleveland, and after graduating from Bradley Central High School in 1971, Sandra attended one year at Cleveland State Community College. She then entered Middle Tennessee State University in 1972, where she received the Bachelor of Science degree in Health, Physical Education, Recreation, and Safety in 1976. During 1976 Sandra received the Outstanding Senior award in the HPER Department.

Sandra then became the Head Women's Tennis Coach at Middle Tennessee State University as a graduate assistant. She received her Master of Science degree in 1977.

Sandra became the full time head tennis coach in 1976 where she served until 1991. During that time her team won three Ohio Valley Conference Championships and she was named "Coach of the Year" four times. In addition to her tennis coaching duties, Sandra served as Volleyball Coach 1977-1979, as Interim Women's Athletic Director for 1980-1981, and taught Health and Physical Education classes 1979 to the present.

Sandra entered the Doctor of Education program in Health Education at the University of Tennessee, Knoxville, in the summer of 1988. She received the Doctor of Education degree in Health Education with collateral areas in Public Health and Psychology in May 1992.

Sandra is a member of Pi Lambda Theta; Phi Epsilon Kappa; the Tennessee Alliance for Health, Physical Education,

Recreation, and Dance; and the American Alliance for Health, Physical Education, Recreation and Dance.

Sandra is married to Bill Neal and has two children, Cayce and Brady.