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# Nurses' personal health habits and cardiovascular disease risk factors

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NURSES' PERSONAL HEALTH HABITS AND  
CARDIOVASCULAR DISEASE RISK FACTORS

A Thesis

Presented to

The Faculty of the School of Nursing  
San Jose State University

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science

By  
Ashraf M. Hosseinian  
May 1999

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## ABSTRACT

### NURSES' PERSONAL HEALTH HABITS AND CARDIOVASCULAR DISEASE RISK FACTORS

by

Ashraf Hosseinian

The focus of this descriptive survey was to: (a) measure nurses' knowledge of cardiovascular disease (CVD) risk factors, (b) measure nurses' CVD risk factors, and (c) determine whether a relationship exists between nurses' knowledge of CVD and their personal health habits. A mailed questionnaire was used. The sample population consisted of 101 registered nurses at an acute care hospital.

The findings suggest nurses are knowledgeable about CVD risk factors and incorporate healthy habits into their lifestyles. Pearson correlation was utilized to describe the relationship between nurses' knowledge of CVD risk factors and their CVD risk factors, which was not satisfactory ( $p= 0.686$ ). However, it is not known whether registered nurses who had more knowledge of CVD risk factors and practiced healthy habits participated in this study or they answered the questions as they felt appropriate. All participants (100%) scored below the U.S.



average of 14 on Farquhar's test for heart attack and stroke risk.

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## Chapter 1

### INTRODUCTION

Cardiovascular disease (CVD) is the leading cause of mortality in the U. S. each year, is newly diagnosed in approximately 1.5 million persons yearly, and accounts for an estimated \$47 billion in direct and indirect health care costs (Centers for Disease Control, 1993). Multiple risk factors associated with CVD include genetic susceptibility, elevated serum cholesterol, low levels of high-density lipoprotein cholesterol, cigarette smoking, uncontrolled hypertension, obesity, diabetes mellitus, and physical inactivity (Centers for Disease Control, 1993). An individual has no control over genetic susceptibility. However, there are other risk factors over which an individual has some control, including cigarette smoking, hypertension, and high levels of blood cholesterol. In addition, there are several contributing factors of which the precise roles have not been clearly established. These include diabetes, excessive weight, lack of exercise, and impact of emotional stress (Centers for Disease Control, 1990).

The Centers for Disease Control have estimated that 50% of U. S. deaths result from the 10 leading causes of

death that are due to modifiable lifestyle factors. Because many of the major chronic diseases have strong behavioral components, such as smoking, diet, and physical activity, much of the emphasis in public health has turned recently to changing individual behavior. Efforts have been directed toward encouraging individuals to adopt healthy behaviors and to modify risk factors. Examples include community programs conducted by the American Heart Association and the American Cancer Society to increase awareness of negative effects of smoking, hypertension, hypercholesterolemia, and physical inactivity.

Health promotion and health maintenance are increasingly viewed as personal responsibilities. The impact of individual lifestyle choices on the health destiny can be found by investigating their associated risk factors. The promotion and maintenance of healthy lifestyles establishes a foundation for prevention of chronic diseases (U.S. Department of Health and Human Services, 1991).

#### Purpose

Registered nurses, as health professionals, are presumed to be knowledgeable regarding CVD risk factors. As patient educators and providers of health services,

nurses are in a unique position to promote positive health practice changes among themselves as well as with the public. However, many nurses are overweight, smoke, and do not exercise.

The purpose of this study was to (a) measure nurses' knowledge of CVD risk factors, (b) measure nurses' CVD risk factors, and (c) determine whether or not a relationship exists between nurses' knowledge of CVD and their personal health habits. These findings will add to our knowledge concerning whether nurses incorporate their knowledge of CVD risk factors into their own lifestyles.

#### Definition of Terms

1. Nurses: Individuals licensed by the state of California as registered nurses and employed in the agency selected for this study.
2. Personal health habits: The manner in which people conduct their day-to-day activities that influence their health practices (Singer, 1982).
3. "Knowledge of CVD risk factors": As measured by a test developed by Smith, Hicks, and Heyward (1991) called the Knowledge of CVD Risk Factors Test.
4. Risk factors: Certain personal characteristics associated with incidence of CVD including cigarette

smoking, hypertension, obesity, hypercholesterolemia, physical inactivity, diabetes, and emotional stress (Teasley, 1981). This was measured by an established risk factor test called Farquhar's Simplified Self-Scoring Test for Heart Attack and Stroke Risk (Teasley, 1981).

### Research Questions

This research asked if a relationship exists between nurses' knowledge of CVD and their personal health habits. Variables in this study were the nurses' knowledge of CVD risk factors, their personal CVD risk factors, and personal health habits. The independent variables were demographic characteristics such as age, sex, shift worked, years worked at agency, and professional characteristics.

### Research Design

The design for this study was descriptive with a three-part questionnaire using survey methods. It was non-experimental, and subjects were not divided into control and experimental groups.

### Sample

The sample consisted of 101 volunteer registered nurses that were between 25 and 65 years of age working full time or part time at an acute care teaching hospital in northern California.



### Instrument

A three-part questionnaire was administered for this study (see Appendix A). Part one was the demographic data sheet which obtained information about age, gender, length of employment at this hospital, position held at present time, usual shift worked, average number of days worked per week, and type of unit worked. Part two was Farquhar's Simplified Self-Scoring Test for Heart Attack and Stroke Risk, which is an established risk factor assessment (Teasley, 1981). Part three was the Knowledge of CVD Risk Factors Test that has been tested for validity and reliability (Smith, et al., 1991). This instrument is designed to assess knowledge of CVD risk factors among participants. Permission to use these tests was obtained (see Appendix E). Permission of San Jose State University Institutional Review Board, Human Subjects, was obtained prior to data collection.

### Analysis of Data

After receiving the completed questionnaires from participants, data were analyzed using statistical measures such as mean, range, frequency, and standard deviation for each demographic category. Pearson correlation statistic

was used to determine if a relationship among the variables existed and the degree of potential association between scores on the knowledge test and nurses' CVD risk factors.

#### Scope and Limitations

This study was limited by the fact that only a small number of nurses were asked to participate. Another limitation was that only one acute care hospital was used for this study. The generalizability of these study findings is limited because of the size and single location of the sample. In order to enhance generalizability, additional studies to include a larger sample of nurses from several hospitals in different geographical locations are recommended.

## Chapter 2

### CONCEPTUAL FRAMEWORK

The Health Belief Model (HBM) was used in this study to explore health behavior. The HBM hypothesizes that health related action depends upon the simultaneous occurrence of three classes of factors:

1. The existence of sufficient motivation or health concern to make health issues relevant.

2. The belief that one is vulnerable to a serious health problem. This is often described as perceived threat.

3. The belief that following a particular health recommendation would be beneficial in reducing the perceived threat and at a subjectively acceptable cost (Rosenstock, et al., 1988).

Concepts of the HBM are perceived susceptibility to and severity of illness, perceived benefits of taking a particular action minus perceived costs or barriers to action, and health motives which include the value of reduction of perceived threats (Rosenstock, Strecher, & Becker, 1988).

The HBM considers the attitudes and beliefs of the individual. The model refers to an individual's perception

of the severity of an illness, their susceptibility to it, and the costs and benefits incurred in following a particular course of action.

### Literature Review

Cardiovascular disease (CVD) affects more than 68 million individuals in the United States, making heart disease and atherosclerosis serious health care concerns (American Heart Association, 1991). The 1991 study indicated that nearly 55% of all cardiovascular deaths are due to CVD. Therefore, modification of risk factors associated with CVD is essential to prevention and treatment.

Knowledge of the risks for CVD is thought to be a key component of health decision-making (Ford & Jones, 1991). Many intervention programs offered by the American Heart Association and the American Cancer Society have been aimed at educating the public regarding CVD risk factors. Major public education concerning the three major CVD risk factors of smoking, hypertension, and hypercholesterolemia has been initiated in the past 25 years. Besides these national efforts, major health education projects have attempted to increase public knowledge of CVD risk factors. In these programs, knowledge is assumed to be a key

component of behavioral decision-making about CVD risk reduction.

The original work for following trends in health risk behaviors was a study conducted in Alameda, California, in 1965 which led to establishment of the Behavioral Risk Factor Surveillance System (BRFSS). Ten years following the 1965 cohort study, seven health habits were identified in association with subsequent favorable health status in decreasing mortality rate. These health habits were: never smoking, drinking fewer than five alcoholic beverages at one sitting, maintaining desirable weight for height, sleeping 7-8 hours a night, exercising, eating breakfast regularly, and avoiding snacks. This study set the ground for national health promotion and disease prevention strategies initiated in the late 1970s. The broad national goals were summarized in Healthy People: The Surgeon General's Report on Health Promotion and Disease Prevention (U. S. Department of Health, 1979).

Since 1984, the Centers for Disease Control (CDC) of the United States Public Health Service (USPHS) has been assisting interested states to initiate a Behavioral Risk Factor Surveillance System (BRFSS). The purpose has been to routinely collect data regarding prevalence of personal

behaviors leading to adverse health outcomes among the adult population. The data collected by telephone were to be used by state health departments to begin a risk reduction and disease prevention plan in order to reduce mortality and morbidity rate. The personal behaviors being monitored include cigarette smoking, hypertension control, exercise, and alcohol use (Ropka, 1988).

Avis, McKinlay, and Smith (1990) examined the level of knowledge of CVD risk factors in the general population in relation to personal behavior pursued by an individual. These results were collected randomly from a population of 732 men and women from the greater Boston area. Findings demonstrated that respondents were more knowledgeable about the relationship between exercise and cholesterol and that heart disease knowledge was related positively to education, being female, and exercising.

In comparing knowledge with behavior, results showed that for smokers and those who were overweight, risk was not related to awareness. Thus, the results suggested that knowledge does not necessarily lead to risk reducing behavior in individuals. Wilt, Hubbard, and Thomas (1990) evaluated knowledge, attitudes, and practice patterns concerning cholesterol and heart disease in a stratified,

random sample of 206 registered nurses at a major academic medical center in New York City. All nurses were convinced of the importance of diet in reducing heart disease. Despite their enthusiasm for heart disease prevention through diet modification, many nurses had substantial knowledge gaps, suggesting that nurses may not be adequately prepared to counsel about diet or drug treatment for high blood cholesterol.

Ford and Jones (1991) examined cardiovascular knowledge in a nationally representative sample of the United States population with data from the 1985 Health Promotion and Disease Prevention Supplement of the National Health Interview Survey. They analyzed interview data of 12,551 white women, 770 Hispanic women, 2,547 black women, 9,832 white men, 576 Hispanic men, and 1,440 black men. They constructed a seven-item index for CVD knowledge. After adjusting for age and educational level, white men and women scored highest on the CVD knowledge index. Education was the strongest predictor of CVD knowledge. Levels of CVD knowledge were lower among respondents with less education and income, those who were not married, those with less access to medical care, and those who were smokers or physically inactive.

In 1981, Teasley conducted a research study to gather information on factors which influence individual health practices and CVD risk factors. The instrument consisted of three-part survey form. Part one requested demographic data. Part two elicited information regarding resources available in an individual agency and the extent to which they were being used, and the individuals' own sense of personal responsibility for their health. Part three consisted of an established risk factors test, Farquhar's Simplified Self-Scoring Test of Heart Attack and Stroke Risk. The finding of study of 90 female nurses in one San Francisco Bay Area county suggested that nurses did incorporate positive health practices into their life styles. However, it is not clear whether responses given by the nurses were accurate or that the nurses answered the questions as they felt most appropriate to give (Teasley, 1981).

This study built on the research done by Teasley (1981) and by Ford and Jones (1991). The second part of Teasley's instrument was substituted with a valid and reliable test to assess nurses' knowledge of CVD risk factors.



## Chapter 3

### METHODOLOGY

The overall research design of this study was a correlational, descriptive survey. Survey type questionnaires are the appropriate method to examine the relationship and may also explore the nature and direction of these relationships. The data in this study were collected through a three-part self-administered questionnaire. Part one was demographic information, part two was the Farquhar test, and part three was knowledge of CVD risk factors. The hypotheses in this study were:

1. Registered nurses are knowledgeable about CVD risk factors.

2. Knowledge of CVD risk factors is negatively related to CVD risk factors among registered nurses.

Pearson product-moment correlation was the statistical method used in this study which is a statistic of association using interval level data and yielding a score between -1 and +1. This was done through a set of procedures designed to identify relationships between multiple variables and to determine whether knowledge scores on one set of data predicted the characteristics of another set of data.

### Data Collection

Approval was obtained from a hospital in northern California to conduct this research (Appendix B). A list of 350 employed registered nurses with their addresses was provided. Employed registered nurses in the above acute care hospital were asked to participate in the study by mailed questionnaire.

A consent form was developed for this study which emphasized voluntary participation as well as confidentiality of the nurses once they chose to participate. The consent form accompanied the questionnaire. A code number was assigned to each nurse for the purpose of sending a postcard and another questionnaire to increase numbers of participants for statistical purposes. Returning the questionnaire constituted the nurses' consent to participate in the study as was mentioned in the consent letter. A copy of the informed consent can be found in Appendix C.

### Analysis of Data

After all questionnaires were received, part two and part three of the questionnaire were scored by the researcher. Part two, the risk factor test, was scored according to Farquhar's Simplified Self-Scoring Test of

Heart Attack and Stroke Risk. Part three, the knowledge test, was scored according to the number of correct answers. These scores were entered into the computer along with demographic data, as well as the scores of Farquhar's test. In order to explore the relationship between the variables of nurses' knowledge of CVD risk factors and their CVD risk factors, this study utilized Pearson product-moment correlation to examine the relationships among the study variables. Pearson product-moment correlation was used to describe the magnitude and direction of the relationship between nurses' knowledge of CVD risk factors and their own CVD risk factors. A correlation coefficient can range in value from +1.0 to -1.0. A zero coefficient means that there is no relationship between variables. A negative correlation means the more knowledgeable the nurses were about CVD risk factors, the lower their own CVD risk factors. A positive correlation means the more knowledgeable the nurses were of CVD risk factors, the higher their own CVD risk factors.

## Chapter 4

### FINDINGS

The focus of this research was to: (a) measure nurses' knowledge of CVD risk factors, (b) measure nurses' CVD risk factors, and (c) determine whether a relationship exists between nurses' knowledge of CVD and their personal health habits. The data were analyzed using descriptive statistical measures such as mean, range, frequency, standard deviation, and Pearson correlation to determine potential relationships among the variables.

#### Description of Sample

Of the 350 survey questionnaires mailed to currently employed registered nurses at an acute care hospital in northern California, 103 were returned; two subjects were eliminated, one due to age over 65, and another due to missing information. The final study sample consisted of 101 registered nurses between 25 and 65 years of age, working either full time or part time in a teaching hospital containing 250 beds.

Demographic data were analyzed with frequencies and percentages and are presented in Table 1. As noted, the majority of the participants, 95 (94%), were female, 63

Table 1

Demographic Data of Registered Nurses (n=101)

	<u>n</u>	<u>%</u>
<u>Gender</u>		
Male	6	6.0
Female	95	94.0
Total	101	100.0
<u>Age</u>		
Under 25	0	0.0
25-40	38	38.0
41-65	63	62.0
Total	101	100.0
<u>Years of employment</u>		
Less than 1	10	10.0
1-5	11	11.0
6-10	21	21.0
Over 10	59	58.0
Total	101	100.0
<u>Shift worked</u>		
Days	57	56.0
Evenings	30	30.0
Nights	14	14.0
Total	101	100.0

Table 1-continued

---

	<u>n</u>	<u>%</u>
<u>Days per week</u>		
1-2	11	11.0
3-4	66	65.0
5	24	24.0
Total	101	100.0
<u>Unit worked</u>		
Transitional care	18	18.0
Intensive care	46	45.0
Medical-surgical	29	29.0
Maternal-child	8	8.0
Total	101	100.0

---

(62%) between 41 and 65 years of age, 59 (58%) employed over 10 years, 91 (90%) staff nurses, 66 (65%) worked between 3 and 4 days per week, 57 (56%) worked day shift, and 46 (45%) worked in an intensive care unit.

Part two of the questionnaire, Farquhar's Simplified Test of Heart Attack and Stroke Risk, was scored by the researcher. A copy of the self-scoring test is included in Appendix D. The possible range of risk was 0-24. The actual range that the sample population scored was 1-13. A score of 0-4 indicates a very low risk of heart attack or stroke averaging about 1/10 the rate in the U. S. 35-65 age group. This score was obtained by 19 (19%) of the respondents.

A score of 5-8 indicates the risk of heart attack or stroke about 1/4 of the U. S. average rate. This score was obtained by 60 (59%) of the respondents. A score of 9-12 indicates the likelihood of having a heart attack or stroke is about 1/2 the U. S. average. This score was obtained by 21 (21%) of the respondents. A score of 13-16 indicates an uncomfortable and readily avoidable zone. The U. S. average is 14. Only 1 (1%) of the respondents had a score of 13. No one scored higher than 13, which would indicate a greater risk for heart attack and stroke. The mean score

for this part was 6.66, and the standard deviation was 2.51 (Table 2).

Part three of the questionnaire was the knowledge of CVD risks factors test consisting of 40 questions. Two questions were eliminated due to a misprint on the duplicated tools. The possible score on this part ranged from 0-38. The actual scores obtained were 18-36. The mean was 29.43, and the standard deviation was 3.38. Pearson product-moment correlation was also utilized to describe the relationship between the variable of nurses' knowledge of CVD risk factors and their CVD risk factors, which was not statistically significant ( $p= 0.686$ ). The minimum level of significance was set at 0.05. No statistically significant correlation was found between nurses' knowledge of CVD risk factors and their CVD risk factors. This could have been due to several different factors, one of which was the homogeneity of the sample population.

Means and standard deviations of knowledge score for each variable including age, gender, length of employment, usual shift worked, average number of days worked per week, and types of unit worked are presented in Table 3. As noted on Table 3 regarding knowledge scores, male nurse



Table 2

Mean Knowledge and Risk Factor Scores

	<u>n</u>	X	SD
Knowledge score	101	29.43	3.38
Risk factor score	101	6.66	2.51

Table 3  
Mean (X) and Standard Deviation (SD) of Knowledge Score for Each Variable

	<u>n</u>	<u>X</u>	<u>SD</u>
<u>Gender</u>			
Male	6	33.0	1.67
Female	95	29.28	3.34
Total	101		
<u>Age</u>			
Under 25	0	0.0	0.0
25-40	38	29.92	3.06
41-65	63	29.17	3.56
Total	101		
<u>Years of employment</u>			
Less than 1	10	29.30	3.62
1-5	11	29.91	2.47
6-10	21	29.38	2.69
Over 10	59	29.43	3.74
Total	101		
<u>Position</u>			
Staff nurses	91	29.78	3.15
Team leaders	10	27.78	5.19
Total	101		
<u>Shift worked</u>			
Days	57	29.60	3.22
Evenings	30	29.77	3.38
Nights	14	28.43	4.03
Total	101		

Table 3-continued

	<u>n</u>	X	SD
<u>Days per week</u>			
1-2	11	30.27	2.87
3-4	66	29.40	3.36
5	24	29.25	3.71
Total	101		
<u>Unit worked</u>			
Transitional care	18	9.50	2.46
Intensive care	46	30.24	3.35
Medical-surgical	29	28.33	3.84
Maternal-child	8	29.50	3.02
Total	101		

(mean=33.0) scored higher than female nurses (mean=29.28). Participants age 25 to 40 (mean=29.92) scored slightly higher than other age groups. Participants who were employed between 1 to 5 years at this hospital (mean=29.91) scored higher than other groups. Staff nurses (mean=29.78) scored higher than team leaders. Participants who worked evening shift (mean=29.77) scored higher than other groups. Participants who worked 1 and 2 days per week (mean=30.27) scored higher than other groups. Participants who worked in the intensive care unit (30.24) scored higher compared to other groups.

In summary, the findings of this study suggest that registered nurses are knowledgeable about CVD risk factors and they do incorporate healthy habits into their lifestyles. The results of this study support the findings of Teasley (1981).

Chapter 5  
SUMMARY AND CONCLUSIONS

This correlational, descriptive survey study focused on the relationship and also explored the direction of the relationship between registered nurses' CVD risk factors and their knowledge of CVD risk factors. The data collection instrument in this study was a three-part self-administered questionnaire. Part one collected demographic information from the respondents. Part two was Farquhar's Simplified Test of Heart Attack and Stroke Risk which is an established risk factors test and measured the following controllable risk factors: (a) smoking, (b) body weight, (c) salt intake or blood pressure reading, (d) physical activity or walking, and (e) stress and tension. Part three was knowledge of CVD risk factors test, a valid and reliable tool that measured nurses' knowledge of CVD risk factors.

Data were analyzed with descriptive statistics including range, frequency, mean, and standard deviation, and Pearson product-moment correlation assessing demographic categories and between knowledge scores and risk scores of the participants. These findings were presented in text and tables.

In summary, the findings of this study suggest that registered nurses are knowledgeable about CVD risk factors and their risk for heart attack and stroke is fairly low compared to the general U. S. population. All respondents of this study scored below the U. S. average of 14 on Farquhar's Simplified Test for Heart Attack and Stroke Risk. No correlation was found between nurses' knowledge of CVD risk factors and their CVD risk factors. However, it is not known whether registered nurses who had more knowledge of CVD risk factors and practiced healthy habits participated in this study or they simply answered the questions as they felt appropriate.

This study's findings were limited by the fact that a small number of nurses participated. Another limitation was that only one acute care hospital was used for this study. Further studies to include nurses from several hospitals in different geographical locations are recommended.

In conclusion, nursing as a discipline is well suited to continuing and furthering research regarding knowledge of CVD risk factors and CVD risk factors. Registered nurses are in a unique position as they encounter clients

at every level of the continuum of CVD from prevention, to acute care through rehabilitation.

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APPENDIX A  
Data Collection Form

Demographic Data Sheet

- |   |  |  |   |
|---|--|--|---|
| <b>1. Sex</b><br><input type="radio"/> Male<br><input type="radio"/> Female   | <b>2. Age</b><br><input type="radio"/> Under 25<br><input type="radio"/> 25-40<br><input type="radio"/> 41-65<br><input type="radio"/> over 65 | <b>3. Length of employment at this agency:</b><br><input type="radio"/> less than one year<br><input type="radio"/> 1-5 years<br><input type="radio"/> 6-10 years<br><input type="radio"/> over 10 years | <b>4. Position at the present time:</b><br><input type="radio"/> staff nurse<br><input type="radio"/> team leader<br><input type="radio"/> supervisor |
| <b>5. Usual shift worked:</b><br><input type="radio"/> days<br><input type="radio"/> evenings<br><input type="radio"/> nights | <b>6. Average number of days worked per week:</b><br><input type="radio"/> 1-2<br><input type="radio"/> 3-4<br><input type="radio"/> 5         | <b>7. Type of unit worked:</b><br><input type="radio"/> Transitional Care<br><input type="radio"/> Intensive Care/Coronary Care<br><input type="radio"/> Medical-Surgical                                |   |

Listed below are several risk habits or factors associated with heart attacks and strokes.  
For each item, darken the oval that you feel best describes you currently.

**Smoking cigarettes:**

- None  
 up to 9 per day  
 10-24 per day  
 25-34 per day  
 35 or more per day

**Body weight:**

- ideal weight  
 up to 9 lbs. excess  
 10-19 lbs. excess  
 20-29 lbs. excess  
 30 lbs. or more excess

**Salt intake:**

- no added salt; no convenience foods  
 no use of salt at table; sparse use of high-salt foods  
 salt in cooking; some salt at table  
 frequent salt at table  
 frequent use of salty foods

**Blood pressure:**

- (upper reading)**  less than 150  
 150-169  
 170-199  
 200-219  
 220 or over

**Physical activity:**

- vigorous exercise 4 or more times/week, 20 min. each  
 vigorous exercise 3 times/week, 20 min. each  
 vigorous exercise 1-2 times/week  
 occasional exercise  
 exercise rarely

**Walking:**

- brisk walking 5 times/week, 45 min. each  
 brisk walking 3 times/week, 30 min. each  
 brisk walking 2 times/week, 30 min. each  
 normal walking 2/5-4/5 miles daily  
 normal walking less than 2.5 miles daily

**Stress and tension:**

- rarely tense or anxious  
 feel tense about 3 times/week  
 feel tense or anxious 2-3 times/day; frequent anger or hurried feelings  
 quite tense; usually rushed; occasionally take tranquilizer  
 extremely tense; take tranquilizer 5 times/week or more

Knowledge of Cardiovascular Disease Risk Factors Test

Orientation

1. Comprehensive cardiac rehabilitation that utilized the "total person approach" addresses the physical, mental, emotional, social, and \_\_\_\_\_ dimension of each individual.
- a. biological  
 b. intellectual  
 c. psychological  
 d. spiritual
2. When entering a cardiac rehabilitation program, a symptom-limited graded-exercise treadmill test:
- a. should be performed every month  
 b. has no influence on exercise prescription  
 c. should not be more than three months old  
 d. should be performed every six months

CHD Signs, Symptoms and Medication

3. Beta-blockers are drugs that:
- a. reduce heart rate and blood pressure  
 b. improve heart-muscle contractility  
 c. interfere with blood-clotting ability  
 d. are used to reduce blood lipids
4. The most common disease of the circulatory system among people in the United States is:
- a. heart attack  
 b. stroke  
 c. high blood pressure  
 d. a blood clot in blood vessels of the heart
5. An occlusive blood clot that results in a small area of dead heart muscle is called:
- a. a myocardial infarction  
 b. a stroke  
 c. endocarditis  
 d. a pulmonary infarction
6. The condition in which the pumping power of the heart is reduced to the point where fluids begin to collect in the lungs and extremities is known as:
- a. arrhythmias  
 b. congestive heart failure  
 c. coronary spasms  
 d. tachycardia
7. A risk factor of coronary heart disease that you cannot change is:
- a. lack of exercise  
 b. heredity  
 c. obesity  
 d. stress

8. The single most preventable cause of death and disease in the United States is:
- a. drug abuse  
 b. environmental pollution  
 c. poor nutrition  
 d. smoking

9. Which of the following blood fats is thought to lower risk of coronary heart disease:
- a. high-density lipoprotein  
 b. low-density lipoprotein  
 c. cholesterol  
 d. triglycerides

10. The major cigarette-smoke contributors to the development of coronary heart disease are carbon monoxide and:
- a. carbon dioxide  
 b. coal tar  
 c. nicotine  
 d. dioxin

Exercise

11. Which of the following is a direct benefit of exercise:
- a. reduced work of heart for a given workload  
 b. reduction of fat cells  
 c. enlarged lungs  
 d. increased resting heart rate
12. The best type of physical activity to maintain cardiovascular fitness is \_\_\_\_\_ exercise.
- a. anaerobic  
 b. aerobic  
 c. non-aerobic  
 d. dynamic
13. Warming up...:
- a. allows the body to return to normal functioning  
 b. assists in reducing strain on the heart  
 c. results from increased perspiration  
 d. allows muscles to become firmer
14. Which of the following is a sign of overexertion:
- a. a perceived exertion rating of 14 on a 20-point scale  
 b. a heart rate of 100 beats per minute upon finishing a workout  
 c. persistent tiredness the day following exercise  
 d. shortness of breath upon finishing an exercise routine
15. The symptoms of angina pectoris after physical exertion include:
- a. numbness of the legs  
 b. prolonged, severe chest pain  
 c. pain in the right arm  
 d. temporary chest pain

Diet

16. Most Americans could benefit from diets...
- a. lower in complex carbohydrates and higher in protein  
 b. lower in complex carbohydrates and lower in fat  
 c. higher in complex carbohydrates and higher in fat  
 d. higher in complex carbohydrates and lower in fat
17. The type of fat that is solid at room temperature is called:
- a. saturated  
 b. monosaturated  
 c. polyunsaturated  
 d. unsaturated
18. A reasonable weight-loss goal is:
- a. 1 pound a day  
 b. 2 pounds a day  
 c. 2 pounds a week  
 d. 5 pounds a week

Cardiopulmonary Resuscitation

19. One of the purposes of cardiopulmonary resuscitation is:
- a. to clear clogged blood vessels  
 b. to supply the lungs with air  
 c. to clear a blocked airway  
 d. to remove fluid from the lungs
20. The first step in finding the proper hand position for giving chest compressions is to:
- a. find the "notch" where the ribs meet the breastbone  
 b. find the top of the breastbone  
 c. find the navel  
 d. estimate the length of the breastbone
21. At what rate should you compress the chest during CPR:
- a. 20-40 times per minute  
 b. 40-60 times per minute  
 c. 60-80 times per minute  
 d. 80-100 times per minute

### Type A and B Behavior

22. An individual who is hostile, impatient and competitive exhibits:
- a. accident-prone behavior
  - b. Type A behavior
  - c. Type B behavior
  - d. destructive behavior
23. Type A individuals usually are:
- a. more enterprising and daring than other people
  - b. more ambitious and more successful than other people
  - c. hard-working, aggressive and competitive
  - d. free of anxiety about having ample time to accomplish all their objectives
24. People with Type A and Type B personalities differ primarily in the ways they...
- a. rationalize their behaviors
  - b. perform their jobs
  - c. relate to their friends
  - d. respond to stressors
25. Type A personality people are most often pressured by...
- a. time
  - b. work
  - c. friends
  - d. failure

### Stress

26. Stress may be described as:
- a. abnormal responsive reactions to change
  - b. the pattern-specific response of the body to any disturbance
  - c. the non-specific response of the body to any demand
  - d. the responses of the body to an unpleasant situation
27. What is the relationship between stress and atherosclerosis:
- a. atherosclerosis is the major cause of stress
  - b. elasticity of the arterial walls will increase with atherosclerosis
  - c. a single stress, by itself, is both necessary and sufficient to cause atherosclerosis
  - d. the stress response causes cholesterol to be circulated in the bloodstream to aid in muscle activity
28. The stress response begins with:
- a. adaptation to the stressor
  - b. exposure to the stressor
  - c. identification of the stressor
  - d. physical symptoms of stress
29. Which of the following is a physiologic response to stress:
- a. feeling hungry
  - b. slow heart rate
  - c. decreased metabolism
  - d. increased blood pressure
30. To successfully control a new stressful environment one must:
- a. seek assistance
  - b. alleviate the cause
  - c. adapt to the situation
  - d. change to a pleasant environment
31. The condition in which the heart rate slows, blood pressure decreases and muscle tension reduces is known as:
- a. stress
  - b. relaxation response
  - c. concentration
  - d. alpha activity

32. Which of the following is an element of relaxation:

- a. breathing slowly and rhythmically
- b. control of alpha waves
- c. concentrating on muscle tension
- d. planned recreational activities

33. Meditation is used during:

- a. transactional analysis
- b. relaxation training
- c. time management
- d. general adaptation syndrome

### Emotions and Heart Disease

34. The three major psychological responses identified in patients following a cardiac event include all except:
- a. anxiety
  - b. denial
  - c. depression
  - d. aversion
35. Prolonged sadness or an absence of all feeling is a definition of:
- a. alienation
  - b. anxiety
  - c. depression
  - d. manipulation
36. Which of the following is a symptom of depression:
- a. apathy
  - b. heart palpitations
  - c. intense hunger
  - d. involvement
37. Avoiding recognition of an illness, ignoring symptoms and/or refusing to acknowledge an illness is called:
- a. anxiety
  - b. denial
  - c. depression
  - d. rationalization

### Family Problems

38. The spouse of a patient with coronary heart disease...
- a. is responsible for his or her mate's lifestyle modifications to prevent a future heart attack
  - b. should always be near during the first two to three months of rehabilitation
  - c. must cope with great stress during the patient's acute stage of illness and recovery
  - d. is able to communicate his/her feelings more openly than the patient
39. A healthy sex life may be...
- a. achieved by modifying the intensity and reducing the energy
  - b. resumed if patients can attain a heart rate of at least 140 beats per minute on a graded exercise test
  - c. unrelated to the patient's willingness to express concern
  - d. initiated after a large meal with wine to relieve apprehension
40. Guidelines for patients desiring to be loving, caring, spouses include which of the following:
- a. medications that affect mood or sexual function should be temporarily discontinued prior to coitus
  - b. avoid communicating frustration and doubt
  - c. suppress sexual desire and attraction because of the effect of coitus on heart rate and blood pressure
  - d. get back in touch with each other by touching, holding hands and hugging

APPENDIX B  
Agency Approval

## INTER-OFFICE MEMORANDUM

TO: Ashraf M. Hosseinian

DATE: September 19, 1997

FROM: H. Shinefield, M.D.  
Chairman, Central  
Research Committee

COPY TO: Stephen Fisk, M.D.

AT: KFRI Administration  
1800 Harrison  
16th Floor, Oakland

---

SUBJECT: Research Project Entitled, "Evaluation of Nurses' Personal Health  
Habits in Relation to Cardiovascular Disease Risk Factors"

Your proposal for the above-subject research study has been reviewed and approved  
by the Central Research Committee.

If you have any questions or comments, please call Gayle McCartney, telephone 8  
(427) 3241.



APPENDIX C  
Consent Form



A campus of The California State University

---

College of Applied Sciences and Arts • School of Nursing  
One Washington Square • San José, California 95192-0057 • 408/924-3130 • Fax 408/924-3135

October 3, 1998

Dear Nurse Colleague:

I am conducting a research study as a requirement for writing a thesis. The purpose of this study is to evaluate nurses' personal health habits in relation to cardiovascular disease risk factors.

In order to conduct this study, I need your help to fill out this questionnaire, which will take approximately 10-15 minutes of your time. Your responses will be strictly confidential and your anonymity will be guaranteed. Your participation is voluntary and there is no risk involved with this study. Returning this questionnaire indicates your consent to participate in this study. Please return the questionnaire in the stamped envelope by 11/01/98.

Complaints about this research may be presented to Dr. Jayne Cohen, Graduate Coordinator at San Jose State University (408) 924-1325. Questions or complaints about research, subjects' rights, or research-related injury may be presented to Dr. Serena Stanford, Associate Vice President of Graduate Studies and Research (408) 924-2480.

Thank you for assisting me in conducting this study and please feel free to contact me for any question you may have at (408) 236-5926. The result of this study will be available at San Jose State University Library after December 1999.

Sincerely,

Ashraf Hosseinian, R.N.

Enclosure

APPENDIX D  
Farquhar Test

Test Results of Farquhar's Simplified  
Self-scoring Test of Heart Attack and Stroke Risk

Maximum points = 24

<u>Zone</u>	<u>Score</u>	
F	21-24	The probability of having a premature heart attack or stroke is about 4-5 times the U.S. average. Action is urgent. Try to drop 4 points within a month and 3 more points within 6 months.
E	17-20	Incidence of heart attack or stroke is about twice the U.S. average. Action is urgent. Try to drop 4 points within 6 months, and continue reduction.
D	13-16	The U.S. average is .14. This is an uncomfortable and readily avoidable zone. Careful planning can result in a 5-6 point reduction within a year.
C	9-12	The likelihood of having a heart attack or stroke is about 1/2 the U.S. average. This is a zone rather easily achieved by most people within a year if they are now in Zone D or E. Careful planning can result in a 4-6 point reduction within a year.
B	5-8	Incidence of heart attack or stroke about 1/4 of the U.S. average. This goal is achievable by many but often takes 1-2 years to reach.
A	0-4	Incidence of heart attack or stroke rates very low, averaging less than 1/10 the rate in the U.S. 35-65 age group. This goal requires diligent effort, considerable family support, and often take 3-4 years to reach. Individuals in this range should be proud and gratified (and will often find themselves acting as models and teachers for the many who have not achieved this very low risk zone).

SIMPLIFIED SELF-SCORING TEST OF  
HEART ATTACK AND STROKE RISK (Farquhar)

Risk habit or factor	Increasing Risk				
	None	Up to 9 per day	10-24 per day	25-34 per day	35 or more per day
1. Smoking Cigarettes Score	0	1	2	3	4
2. Body Weight Score	Ideal Weight	Up to 9 lbs. excess	10-19 lbs. excess	20-29 lbs. excess	30 lbs or more excess
3. Salt Intake or Blood pressure upper reading (if known) Score	1/5 average Hard to achieve; no added salt; no convenience foods. Less than 110	1/3 average No use of salt at table; spare use of high-salt foods 110-129	U.S. average Salt in cooking; some salt at table 130-139	Above average Frequent salt at table 140-149	Far above average Frequent use of salty foods 150 or over
4. Saturated fat and cholesterol intake or Blood pressure upper reading (if known) Score	1/5 average Almost total vegetarian; rare egg yolk; butterfat and lean meat. Less than 150	1/3 average 2 meatless days/week; no whole milk products; lean meat only. 150-169	1/2 average Meat (mostly lean), eggs, cheese 12 times/week; nonfat milk only. 170-199	U.S. average Meat, cheese, eggs, whole milk 24 times/week. 200-219	Above average Meat, cheese, eggs, whole milk over 24 times/week. 220 or over
5. Self-rating of physical activity or Walking rating Score	0	1	2	3	4
6. Self-rating of stress and tension	Rarely tense or anxious or Yoga medication, or equivalent 20 min. 2 times/day.	Calmest than average or Feel tense about 1 times/week.	U.S. average. or Feel tense or anxious 1-1 times/day. or Frequent anger or hurried feelings.	Quite tense. Usually rushed. or Occasionally take tranquilizer.	Extremely tense. or Take tranquilizer 5 times/week or more.
	0	1	2	3	4

APPENDIX E  
Clearance for Test Use



W · W · NORTON & COMPANY · NEW YORK · LONDON

500 FIFTH AVENUE · NEW YORK 10110-0017

September 20, 1995

Ashraf Hosseinian  
1687 Clovis Avenue  
San Jose, CA 95124

RE: your letter of 8/31/95

Dear Ashraf Hosseinian:

Thank you for your request. Provided the material you wish to use is uncredited in our work to another source, this letter will grant you permission to use the material in your dissertation, and in all copies to meet university requirements including University Microfilms edition, subject to the following conditions:

1. Such material must be reproduced exactly as it appears in our publication;
2. Full acknowledgment of the title, author, copyright and publisher is given;
3. You must reapply for permission if your dissertation is later published.

Best wishes for the success of your paper. Please don't hesitate to call if you have any questions.

Yours sincerely,

Sincerely,

Frederick T. Courtright  
Rights and Permissions Manager

Department of Health and Physical Education  
Weber State University  
Ogden, Utah 84408-2801  
November 9, 1995

Ashraf Hosseinian  
1687 Clovis Avenue  
San Jose, CA 95124

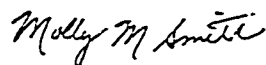
Dear Ashraf:

Thank-you for inquiring about using the 40-Item Coronary Heart Disease (CHD) Knowledge Test. The test was published in an article entitled, "Coronary Heart Disease Knowledge Test: a Valid and Reliable Tool", Nurse Practitioner, 1991, 16:28-38.

The test was developed as a tool to use in evaluating the effectiveness of a cardiac rehabilitation program. Knowledge of CHD was one of several factors analyzed in the program evaluation which I conducted for my doctoral dissertation. The program evaluation followed the PRECEDE model of health program planning and evaluation. The exam has been wholly reproduced in the aforementioned article. I grant you permission to use the 40-Item CHD Knowledge Test as printed with proper acknowledgement. Should you desire to modify any item, please cite the modification in the footnotes and reference. The exam I developed was designed to assess knowledge gained in a 16-lecture series. Hopefully, the test will be useful to you in your research.

If you are able to use the exam, please let me know sometime in the future at the above address. Also, if you are able to get your study accepted for publication, let me know so I can read your work. Thank-you.

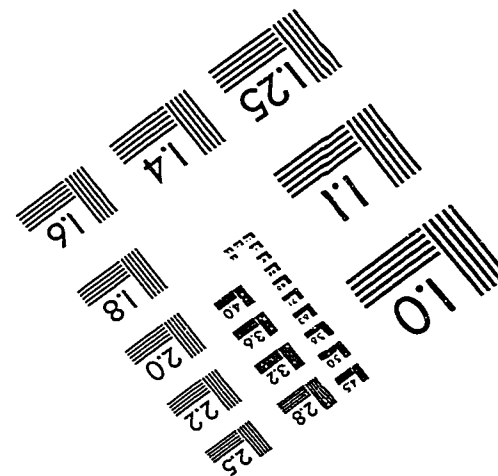
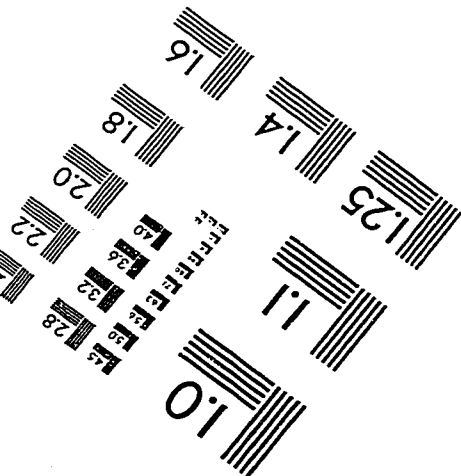
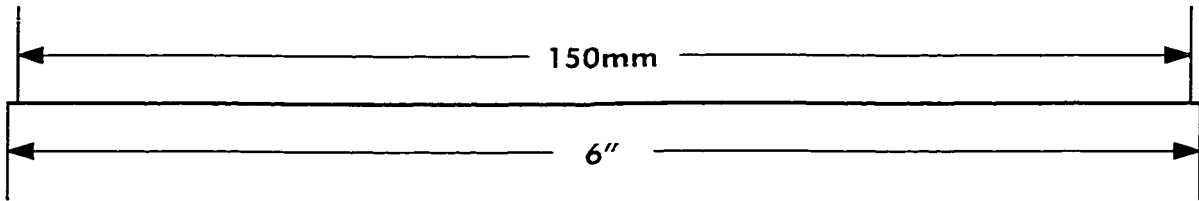
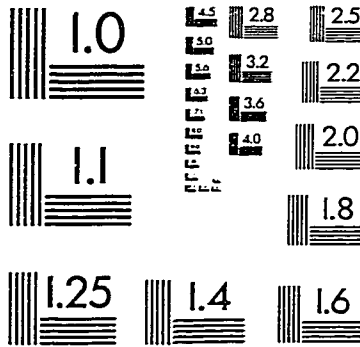
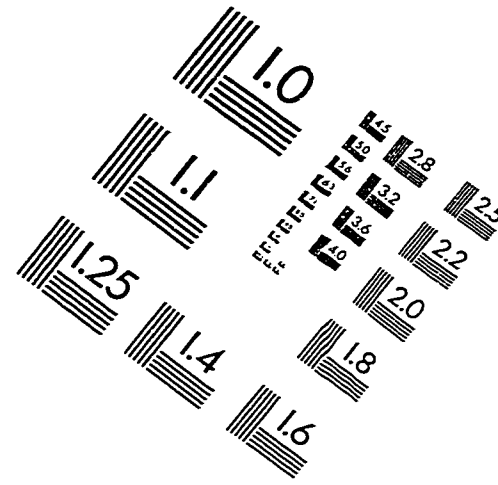
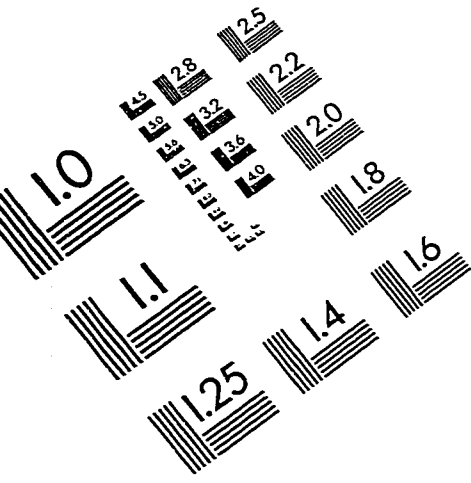
Sincerely,



Molly M. Smith, Ph.D.  
Associate Professor



# IMAGE EVALUATION TEST TARGET (QA-3)



APPLIED IMAGE, Inc  
1653 East Main Street  
Rochester, NY 14609 USA  
Phone: 716/482-0300  
Fax: 716/288-5989

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