

PREVENTIVE HEALTH PRACTICES OF TODAY'S NURSE

A THESIS

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We hereby recommend that the thesis prepared under
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DEDICATION

This study is dedicated to my family: my father, Louis, my sisters June and Penny, but especially to my mother, Ruth--for her constant understanding, eternal optimism and mainly for her faith in me.

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I would like to acknowledge the expert guidance offered to me by my committee chairman, Dr. Vera Harmon. Dr. Rae Langford and Dr. Diane Ragsdale were also instrumental in the development and completion of this project.

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CHAPTER 1

INTRODUCTION

There is a rapidly growing consensus, both scientific and professional, that risk factor intervention should be intensively explored as a way of maintaining and improving health. Intervention against bodily risk factors such as hypertension and high serum cholesterol and behavioral risk factors such as cigarette smoking, too little exercise, and excessive alcohol consumption, offers improving prospects for reducing major current causes of death (Breslow, 1978).

Americans in today's society appear to experience difficulty in doing what is necessary to stay healthy. Most people consider themselves healthy as long as they are able to perform day to day functions and activities without experiencing undue fatigue or pain. It is frequently only after disease or illness is evident that individuals begin to question some of their daily habits and routines. However, more often than not this questioning is usually a temporary state and does not lead to a permanent change in behavior.

Nurses can play an important role in encouraging and teaching clients and others with whom they come into

contact by stressing the benefits and importance of proper rest, nutrition, exercise, relaxation and regular check-ups. If nurses have placed physical fitness as a priority in their own lives, it will be easier for them to help others set it as a priority.

Statement of Problem

It is suggested in the literature that the teacher should be a role model for her students. Can nurse practitioners be effective as role models if they do not personally practice those preventive health measures which they attempt to teach? Does the nurse employed on an oncology unit, for example, personally comply with preventive health practices to a greater extent than do nurses employed on non-oncology treatment units? Does the oncology nurse have Pap smears taken on a more regular basis than do non-oncology nurses? This study addressed: To what extent are primary preventive health measures being incorporated into the lifestyles of oncology nurses as compared to non-oncology nurses in terms of (1) avoiding those risk factors that initiate and promote a disease process, and (2) the regular implementation of screening measures to facilitate early identification of pathological processes

Justification of Problem

The nurse, particularly the oncology nurse, because she is involved in an area where health practices are of particular importance, can be one of the primary leaders in health education for the population at large. Yet there has been little documented research of the physical fitness habits and patterns of nurses. Nurses should recognize the significant contributions they can make in health education by serving as effective role models.

Prior to becoming effective role models, nurses must view preventive health behaviors such as avoidance of risk factors and personal participation in screening measures as important and beneficial. This participation or lack of it can best be assessed through on-going research and documentation.

Theoretical Framework

The Health Belief Model (Rosenstock, 1974) was originally formulated to explain preventive health behavior. Health behavior is defined as any activity undertaken by an individual who believes himself "to be healthy for the purposes of preventing disease or detecting disease in an asymptomatic stage" (Kasl & Cobb, 1966, p. 246).

The Health Belief Model posits the following assumptions as prerequisites for individuals to practice

health behavior: (1) they are personally vulnerable to a disease, (2) that the disease, if it occurs, would be severe enough to cause bodily harm or to cause a change in some aspect of their lives, and (3) that implementing a specific action or regimen would be beneficial in reducing their vulnerability to the disease or its severity if the disease had already occurred. The same three factors were applicable for participation in screening measures but there was an additional requirement that individuals believe that they could have a disease without manifesting symptoms (Becker & Maiman, 1975).

A factor that serves as a cue or a trigger to appropriate action appears to be necessary. In other words, some instigating event occurs to set the process in motion. Such events or cues might be internal such as perception of bodily states or external such as the impact of the media or communication. The required intensity of a cue that is deemed sufficient to trigger behavior varies with differences in the level of susceptibility and severity (Friedan, 1961).

Nurses can play an important role in encouraging and teaching clients and others with whom they come into contact by stressing the benefits and importance of proper rest, nutrition, exercise, relaxation, and regular check-ups. According to Bandura when a significant person, such

as the nurse, is viewed as acting or playing a certain role which the client can understand, the client will then attempt to assimilate that role into his own repertoire of behaviors, and role modeling occurs (Meleis, 1975).

Thus the nurse can be one of the primary sources of health education for the public. However, nurses must come to view preventive health behaviors such as avoidance of risk factors and personal participation in screening measures as important and beneficial not only to themselves but to their clients who may view them as role models. Behavior modeled by the nurse may serve as an external cue or trigger for action by the client. Additionally, increasing research and documentation of the actual participation level of nurses in the areas of risk factor avoidance and participation in screening measures may serve as an external cue to action for changes in existing behavior of nurses.

Assumption

The following assumption was relevant for this study: Preventive health behaviors of oncology nurses may serve as an external cue to improving preventive health behaviors of others.

Research Questions

For the purposes of this study the following research questions were proposed:

1. Do oncology nurses avoid risk factors to a greater degree than do non-oncology nurses?
2. Do oncology nurses participate in screening measures to a greater degree than do non-oncology nurses?

Definition of Terms

For the purposes of this study, the following terms were defined:

Non-oncology nurse: a nurse who provides care primarily to patients whose diagnosis is other than cancer.

Nurse: any person with a diploma, AD, or BS degree in nursing and has a license to practice professional nursing in the state of Texas.

Oncology nurse: a nurse who provides care primarily to patients with the diagnosis of cancer.

Risk factors: factors such as lack of adequate exercise levels, incidence of smoking, lack of adequate sleep, lack of adequate relaxation, and improper dietary intake as measured by the Questionnaire on Physical Fitness (QPF) (Evans, 1979).

Screening measures: participation in measures such as Pap smears, monthly breast self-examination, yearly

dental and optometrical examinations, and yearly physical examinations after age 35 as measured by the QPF.

Limitations

The limitations of this study included:

1. Convenience sampling was used; therefore findings can only be applied to the sample under study.
2. Nurses may have preconceived attitudes about screening measures, risk factors, and their own habits in this area, and therefore, may have had a tendency to construct an inaccurate picture of themselves.

Summary

Nurses comprise a large segment of health professionals and have frequent patient contact. They are in an advantageous position to be able to stress the importance of adequate nutrition, rest, exercise, relaxation, and regular check-ups to the individuals they meet on professional and nonprofessional bases. To be effective as role models, however, nurses must view preventive health practices as important on a personal level as well as on a professional level. This study was designed to investigate preventive health practices of oncology nurses as compared to non-oncology nurses in terms of avoiding risk factors and implementing regular screening measures.

Chapter 2 presents a review of the literature. Chapter 3 presents the methodology used in implementing this study. The analysis of data obtained from this study is presented in Chapter 4. Chapter 5 offers a summary of the study including recommendations for further research.

CHAPTER 2

REVIEW OF THE LITERATURE

The review of the literature is divided into five major areas which include nutrition, exercise, stress, sleep, and medical awareness. The medical awareness area includes information on medical check-ups, breast self-examinations and Papanicolaou smears, dental care, optometrical care, smoking and alcohol usage, the warning signs of cancer and risk factors of heart disease. This chapter also describes the role of the nurse in preventive health practice.

Nutrition

A new spectrum of disease has emerged causing significant health problems over the past 50 years. These are diseases resulting from overconsumption. Like the diseases of nutritional deficiency, the diseases of overconsumption appear insiduously in the population--often occurring in mid to late adult life. Among their other characteristics, however, is that precursor markers may be identified in children and young adults. The diseases of overconsumption occur in a setting of affluence and

advanced technology which make possible a rich diet (Connor, 1979).

A panel of experts included in the nutrition segment of the 1979 Surgeon General's Report on Health Promotion and Disease Prevention concluded from an assessment of the factors contributing to the 10 leading causes of death that "as much as 1/2 of U.S. mortality in 1976 was due to unhealthy behavior and lifestyle" (Harper, 1980, p. 1703). Also, "for the individual, often only modest lifestyle changes are needed to substantially reduce risk for several diseases" (Harper, 1980, p. 1703).

According to the above report, there has been a 700% increase in medical costs during the past 20 years, yet these increases have not yielded significant improvements in health. The problem can be analyzed briefly--the expenditures have been focused largely towards treatment and not prevention (Surgeon General's Report, 1979).

Suggestive evidence of a relationship between nutrition and the development of various degenerative diseases as well as the high incidence of obesity in the U.S. led to the formulation in 1977 (and revision in 1978) of certain dietary goals for people in the U.S. These goals were devised by the Senate Select Committee on Nutrition and Human Need which received expert advice from a number of medical nutritionists (Dietary Goals, 1978).

Trends in the U.S. food consumption since 1900 reveal an increase in the proportion of dietary energy derived from fat, sugar, and alcohol and also an increase in salt consumption. Today 42% of energy comes from fats and 24% from sugar (Wheeler, 1978). Over the same period leading causes of death have come to include heart and cardiovascular diseases, cancer, liver cirrhosis, diabetes and arteriosclerosis. Faulty diet has been claimed as a causative agent in all of these disease entities.

The following are the six revised guidelines set forth by the Senate Select Committee (Dietary Goals, 1978):

1. To avoid overweight, consume only as much energy (calories) as is expended; if overweight, decrease energy intake and increase energy expenditure.
2. Increase the consumption of complex carbohydrates and naturally occurring sugars from about 28% of energy intake to about 48% of energy intake.
3. Reduce the consumption of refined and processed sugars by about 45% to account for about 10% of total energy intake.
4. Reduce overall fat consumption from approximately 40% to about 30% of energy intake.
5. Reduce saturated fat consumption to account for about 10% of total energy intake and balance that with polyunsaturated and monosaturated fats which should account for about 10% of energy intake each.
6. Reduce cholesterol consumption to about 300 mg/day.
7. Limit intake of sodium by reducing intake of salt to about 5 grams/day. (p. 16)

The following three sections cover relevant nutrition aspects of the three major health problems in the U.S. today--obesity, heart disease, and cancer.

Obesity

Many health problems are related to diet and obesity is no exception. Obesity is a problem of all ages and both sexes which occurs when the intake of food energy exceeds energy expenditure resulting in an excessive accumulation of adipose tissue in the body (Thomas, 1979).

It has been noted that body fat can be increased both by an increase in the amount of fat cells and by an increase in the amount of fat in each individual fat cell. The number of fat cells increases from birth to early adulthood and then tends to remain constant. Scientists believe that both genetic and nutritional factors play a role in determining the number of fat cells an individual possesses (Thomas, 1979).

There is no easy solution to the problem of obesity. The original problem of obesity is compounded by the fact that there are associations between obesity, diabetes, gallbladder problems, hypertension, and some types of cancer as well as being a risk factor for cardiovascular disease (Harper, 1980).

Over-nutrition leads to diabetes in those pre-disposed to it presumably due to the fact that more insulin is necessary than can be produced. When insulin production is insufficient to control blood sugar levels within the normal range, the person is considered to be diabetic. Thus, over-eating can precipitate diabetes. This has occurred in approximately 85% of the more than five million cases of diabetes. The obese diabetic is then more vulnerable to cardiovascular disease, since an increase in blood sugar levels may result in increased blood lipid levels. This pathology often results in deposition of lipids in vascular tissue and eventually arterial occlusion occurs (Eckstein, 1980).

Among overweight post-menopausal women the risk of developing endometrial cancer can probably be attributed to an increase in estrogenicity. The estrogenicity of cervical smears has been positively correlated with obesity (Van Itallie, 1979). The increased estrogenicity in obese post-menopausal women may affect the risk of developing breast cancer as well (Check, 1980).

According to Van Itallie (1979), atherogenic traits such as hypertension, diabetes, hyperlipidemia and gout have all been securely linked to obesity. In addition to an indirect role there is evidence to suggest that obesity

acquired between the ages of 20 and 40 may have a much greater effect on the development of subsequent cardiovascular disease than obesity which occurs after the age of 40. This was confirmed recently by Larson, Bjorntap, and Tibblin (1981) whose findings in longitudinal studies indicated that excessive obesity especially in young people has a marked influence on health. It was concluded by these researchers that even moderate obesity increases the risk for hypertension, diabetes mellitus, gallstones, kidney stones, and cardiovascular diseases. Berchtold, Berger, Jorgens, Dawede, Chantelay, Gries, and Zimmerman (1981) conducted the first study which reported serum High Density Lipoprotein-Cholesterol (HDL-C) levels in a large population. They reported an association between obesity and low HDL-C levels and high serum insulin levels.

Heart Disease

Coronary heart disease (CHD) is the leading cause of death in the U.S. (Rifkind, Goor, & Levy, 1978). Although the incidence has been decreasing recently it is still responsible for 750,000 deaths per year. Two times as many people die from CHD as from all cancers (Cooper, Stamler, & Dyer, 1978).

One of the major risk factors associated with CHD has been the total plasma cholesterol level. Recently the role

of plasma total cholesterol has been further defined with the observation that while the level of Low Density Lipoprotein (LDL)--the major cholesterol carrier in the blood--is strongly and directly related to CHD, the level of High Density Lipoprotein (HDL) is inversely related to the risk of CHD. The lower the HDL, the greater the risk for CHD (Rifkind, Goor, & Levy, 1979). Miller, Forde, Thelle, and Mjos (1977) and Gordon, Castelli, Hjortland, Kannel, and Darnber (1977) indicated that HDL-C was a better predictor of the risk of future CHD than total cholesterol.

Many factors effect HDL-C. Low levels of HDL-C have been found in association with smoking, lack of exercise, obesity, and chronic renal and liver diseases. High levels are found in association with moderate intake of alcohol, increased physical activity, possibly low energy intake (Wilson & Lees, 1972) and high fiber diets (Bremner, Brooks, Third, & Laurie, 1975). However, to date dietary interventions in relation to HDL-C have been conducted only on small samples.

Dietary trials for the prevention of CHD historically have been aimed at decreasing the level of total cholesterol. However, the benefit of cholesterol lowering has not yet been conclusively proven in man (Rifkind et al., 1979). It now seems that dietary modifications to increase the level of HDL-C might be of more benefit than

decreasing the level of total cholesterol (Flanagan, Little, Milliken, Wright, McGill, Weir, & O'Moore, 1980).

Because hypertension is a recognized risk factor for heart disease, a reduction of salt intake was delineated as one of the dietary goals set forth by the Senate Committee in 1978 (Dietary Goals, 1978). About one third of the U.S. population is susceptible to high blood pressure and hypertension when sodium intake is increased. The average American intake of sodium is about 6-8 grams/day, however, only one gram is necessary to supply daily sodium requirements (Eckstein, 1980). It is of interest to note there is a low incidence of hypertension in primitive societies where sodium intake averages 1-2 grams per day (Feldman, 1980). Limitation of intake of sodium to 60 milliequivalents/day tends to prevent the onset of hypertension. It may require as little as 20 milliequivalents/day to reduce severe hypertensive pressure levels. With mild hypertension 40-50 milliequivalents/day will often reduce blood pressure levels (Tobian, 1979).

Cancer

In 1981 approximately 805,000 people will be diagnosed as having cancer. In the 1970's there were an estimated 3.5 million cancer deaths, over 6.5 million people were diagnosed as new cancer cases and more than 10 million

people underwent medical care for cancer (Cancer Facts and Figures, 1981, 1980).

The recognition that nutrients have an important bearing on the determination of cancer risk factors has received increasing support in the last few years. Moreover, foods which supply these nutrients may also contain a large variety of non-nutrient components, some of which could be carcinogenic. Various epidemiological studies during the last decade reported similar findings to indicate that 80-90% of all human cancers are associated with the environment and/or ingestion of carcinogenic chemicals (Boyland, 1967; Doll, 1977; Higginson, 1969). However, very little continues to be known concerning the mechanism by which nutritional status accounts for or affects tumor activity. One hypothesis is that nutritional status may play a role through modification of the activities of the enzymes that are responsible for carcinogen metabolism (Draper, 1979).

Dietary factors have been linked to cancer. Nutritional factors have also been implicated in the cause of cancers of the gastrointestinal tract including esophageal, gastric, pancreatic and of the large bowel. These factors probably act by promoting the effect of carcinogenic substances taken in the diet or produced in the G.I. tract (Cummings, 1978).

In Western Europe and North America development of esophageal cancer has been related to combinations of excess alcohol intake and smoking. Some authors (Wynder & Gross, 1961; Wynder, Reddy, McCoy & Williams, 1976) do not think alcohol alone leads to cancer but that it promotes the effect of a carcinogen associated with tobacco smoke. Tuyn (1970) reported it is the combined effect of alcohol and tobacco which acts to multiply the risk for cancer.

Gastric cancer is one of the most common fatal malignancies in the world. From studies which induced gastric cancer in animals, it was determined that alkyl nitrosamines were potent gastric carcinogens. These carcinogens were found to be inhibited by Vitamin C (Bralow, 1972; Mirvish, Wallacave, Eagen, & Shubik, 1972).

Hill, Hawkeswork, and Tattersall (1973) reported that areas with increased nitrate levels in drinking water have an excess death rate from gastric cancer. Other research suggests that gastric cancer is associated with a predominantly starchy diet devoid of fat, fresh fruit and vegetables (Armstrong & Doll, 1975; Haenzel, Kurihara, Segi, Berg, & Locke, 1976; Phillips, 1975; Wynder, Kmet, Dungal, & Segi, 1963).

Attempts to prevent pancreatic cancer are difficult because there are few clear predisposing conditions.

Diabetics have a slightly increased risk. The main risks are in relation to dietary fat intake and cigarette smoking (Wynder, Mabuchi, Maruchi, & Fortner, 1973). An association with protein intake has also been noted (Armstrong & Doll, 1975). At this time the precise mechanism for the origin of this cancer is speculative.

The clearest association between diet and cancer exists for cancer of the large intestine. Theories as to how diet may lead to tumor genesis are well advanced. Prevention of this type of cancer therefore is a realistic goal for health care providers within the next few years (Cummings, 1978).

A number of studies have indicated an association between diet and bowel cancer notably from animal fat intake (Draser & Irving, 1973; Wynder & Shigematsu, 1967), protein (Armstrong & Doll, 1975; Gregor, Toman & Prusova, 1969) with special emphasis on beef (Haenszel, Berg, Segi, Kurihara, & Locke, 1973; Howell, 1975). Dietary fiber has also been implicated (Burkitt, 1971).

One hypothesis as to how these dietary constituents lead to large bowel cancer is that present in the lumen of the bowel are carcinogenic substances, as yet unknown, whose effects are enhanced or promoted by bile acids. In

this circumstance bile acids are known as co-carcinogens (Cummings, 1978).

Increased dietary animal fat intake leads to a pronounced increase in fecal bile-acid excretion (Cummings, Hill, Jenkins, Pearson, & Wiggins, 1976). Case controlled studies have shown that patients with colon cancer have significantly higher bile-acid levels in the feces as compared to matched controls (Hill, Draser, Williams, Morson, Cox, & Simpson, 1975). Recent animal studies have indicated that high protein diets increase colon tumor formation (Topping & Visek, 1976). Dietary fiber dilutes intestinal contents, speeds up transit through the G.I. tract and increases fecal output (Cummings, Hill, Jenkins, Pearson, & Wiggins, 1976). The diluting effect could be of importance in preventing the build-up of carcinogens or their promoters. In the case control study of Modan, Barell, Lubin, Modan, Greenberg, & Graham (1975), colon cancer patients had lower crude fiber intakes than controls.

In conclusion, dietary fiber, animal fat and protein have been reported to be associated with the formation of large bowel tumors. Protein and fat may lead to enhanced tumor production either through an effect on bile acid or bacterial metabolism of protein. In contrast, dietary fiber was reported as a protective factor (Cummings, 1978).

Exercise

It was in the spirit of preventive medicine that the aerobics program of exercise was developed in the early 1960s (Cooper, 1977). Although human muscle tissue can subsist anaerobically for relatively short periods of time, and each individual muscle contraction can be deemed as a basically anerobic event, the great majority of cellular functions must be considered aerobic. The continuing and limiting requirements for aerobic muscle function are oxygen and energy carriers such as pyruvic, acetic, and keto acids. The limit of an individual's ability to work aerobically depends upon his nutrient supply mechanism and his oxygen supply mechanism. Except in cases where a short duration, high activity level response is necessary, an individual's muscles operate most efficiently in an aerobic state (Thomas, 1975).

Any dynamic exercise program should involve three phases--warm-up, work out, and cool down. A 5 to 10 minute warm-up could include walking and limbering up exercises that gradually increase in intensity. Warming up permits a gradual circulatory adjustment, so that the initial oxygen deficit with the formation of lactic acid is avoided. Muscle temperature can increase, which enhances muscular efficiency and oxygen extraction. Also,

arrhythmias are less likely to occur particularly in cardiac patients. The warm-up should be extended in cold weather and after a lengthy lay-off from regular exercise (Bruce, 1974).

In order to produce a desirable effect, the workout should be challenging to the oxygen transport system although it does not require exhaustion. The intensity, duration, and frequency of the workouts can be adjusted so that a slight reduction in one aspect can be partially or totally compensated for by an increase in one or both of the others. The heart rate is a convenient means of determining the intensity of exercise. A target heart rate of 85% of the maximal heart rate corresponds well with 75% maximal oxygen uptake (Bruce, 1974).

The duration of a workout for the most part depends upon the intensity achieved. The lower the intensity of exercise the longer the duration required to produce the same effect. If endurance is the training goal, the duration should probably be at least long enough to produce perspiration, mild fatigue, and breathlessness (usually 9-12 minutes), but the longer the workout, the better the training effect (Bruce, 1974).

The cooling down period of low intensity exercise permits gradual circulatory readjustment, allows dissipation of heat, enhances the removal of lactic acid, and

prevents a rapid fall in blood pressure that could trigger arrhythmias, syncope, or other undesirable complications. Rhythmic contraction of muscles during the cool down phase augments venous return and maintains adequate cardiac output to prevent hypotension (Bruce, 1974).

According to Bruce (1974) and Cooper (1977) three to five evenly spaced workouts per week are most effective to produce maximal oxygen uptake. The additional aerobic benefit from the sixth or seventh workout per week is probably minimal.

A consistent aerobic exercise regime combined with a reduction in caloric intake has proven to be successful in the medical treatment of obesity. Mayer (1968) stated that many obese persons actually consume less food than their thinner counterparts but they are far less physically active. Treatment of obesity relying chiefly on caloric restriction has been found to be successful in as few as 5%, and probably in no more than 20% of all cases (Franklin & Rubenfire, 1980; Fineberg, 1972).

As noted by Franklin & Rubenfire (1980) exercise with or without caloric restriction offers three important advantages over caloric restriction alone. First, exercise improves the function of the cardio respiratory and muscular system. Second, exercise and recreational games

can be enjoyable leisure time and social activities. Third, weight loss through exercise consists primarily of fat loss as opposed to the water loss or loss of vital lean tissue.

Exercise therapy for the obese should be of long enough duration to maximize energy expenditure and promote a negative caloric balance. The preferred forms of exercise employ large muscle groups, are maintained continuously, and are rhythmical and aerobic in nature. Research studies indicated that the minimal threshold of exercise training for weight reduction and fat losses included continuous exercise of at least 20 to 30 minutes' duration and an exercise intensity sufficient to expend 300 or more kcal per session (3,500 kcal/0.45 kg) with an exercise frequency of at least three days a week (Pollack, Wilson, & Fox, 1978).

Exercise plays an important role in the treatment of diabetes, particularly adult-onset diabetes. In human beings, the two most important environmental factors related to the development of diabetes appears to be inadequate physical activity and excessive caloric intake. Exercise affords a reduction in insulin and for many adult-onset diabetics, it can eliminate insulin requirements entirely (Cantu, 1980). In addition to lowering blood glucose, exercise seems to increase sensitivity to insulin and probably contributes to the integrity and longevity of

the pancreatic beta cells which secrete insulin (Bjortorp, Fahlen, & Grimby, 1972).

Perhaps the area in which the role of exercise has been the most investigated is that of exercise in relation to the cardiovascular system. Although exercise itself produces acute changes within the cardiovascular system in response to the increased demands of skeletal muscle, it is also evident that chronic endurance exercise produces changes in the heart and circulation which adapt the organism to the demands of the chronic exercise. These changes include an increase in the circulating blood volume which appears to produce an increased heart size. Heart rate in the endurance trained individual is usually slower at rest. There is also an increase in end diastolic volume with an associated increase in stroke volume. Finally, resting blood pressure in trained subjects is lower than in sedentary controls (Lowenthal, Bharadnaja, & Oaks, 1979).

To date there has been conflicting data on the effect of exercise on the fibrinolytic activity of the blood. For example, Lowenthal et al. (1979) reported that exercise increases both the clotting and fibrinolytic activity of the blood. However, Fergurson, Bavi, and Bernier (1979) suggested that physiologically significant fibrinogenolysis does not occur with strenuous exercise.

Numerous retrospective studies have indicated that there is an association between lower cardiovascular mortality and morbidity and mild to moderate activity as compared to sedentary lifestyles (Dehn, 1980). Morris, Pollard, Everitt, and Chave (1980) reported on 1,138 first clinical episodes of coronary heart disease in 17,944 middle-aged office workers. Men who engaged in vigorous sports and kept fit during an initial survey conducted in 1968-1970 had an incidence of CHD in the next eight and one half years somewhat less than half that of their colleagues who recorded no vigorous exercise. The authors further suggested that vigorous exercise is a natural defense of the body, with a protective effect on the aging heart against ischemia and its consequences. Paffenbarger (1980) reported that the risk of heart attack is significantly reduced in men engaging in strenuous sports while "casual" sports involvement seemed to have no beneficial effect. His subjects included 17,000 males aged 35-74 who were observed for 6-10 years. Heart attack rates were shown to decline with increased activity. This trend held true for all ages.

Finally, other retrospective studies suggested that physically active people are more likely to survive a myocardial infarction and have a more rapid recovery than

their more sedentary counterparts (Shepard, 1980). Recently published data from the National Exercise and Heart Disease Project indicated that the cumulative three year mortality rate for post myocardial infarction males was 4.6% for an intensive exercise group as compared to 7.3% for the control group. The three year rate for recurrent myocardial infarction was 5.3% and 7.0% respectively. The data were consistent with an assumption of substantial benefit from exercise (Shaw, 1981).

Stress

"Stress is the non-specific response of the body to any demand made upon it" (Selye, 1979b, p. 562). An organism is considered to be under stress when it must readjust or adapt in order to maintain normalcy. A stressor then can be any stimulus which induces stress. The essence of stress is the demand for adaptation. Stress is non-specific in its causation: it is a general response elicited by psychological, physical, or chemical agents. Stress cannot be avoided--there will always be a demand to maintain life and to resist and adapt to changing external influences. According to Selye (1979b), absolute freedom from stress is death.

The demands of life do not produce the same effects on each individual. What Selye refers to as conditioning

factors can selectively enhance or inhibit particular stress effects. Conditioning factors may be internal such as genetic predisposition, age, sex, or external such as dietary factors, societal traditions or treatment with certain drugs or hormones. Moreover, every stressor agent elicits in addition to a non-specific generalized reaction certain specific effects which are characteristic of that agent. It will depend largely upon such conditioning factors and special effects whether the heart, stomach, kidney, brain, or liver will break down. The factors will determine what part of the body is the weakest link in a given situation (Selye, 1979a).

Diseases of adaptation or stress diseases are diseases in whose development the non-specific stressor effects of the eliciting pathogen play a major role (Selye, Tache, & Pay, 1979). Typical diseases of adaptation are due to insufficient, excessive, or faulty reactions to stressors as in inappropriate hormonal or nervous response. A few of the diseases in which stress plays a particularly important role are hypertension, myocardial infarctions, and gastric and duodenal ulcers (Selye et al., 1979). Also, Selye et al. (1979) stated that a severe emotional distress may trigger carcinogenesis in predisposed persons.

Consistent and persuasive findings are recurrently reported linking coronary and hypertensive heart disease to

prolonged emotional stress, behavioral patterns, sociocultural mobility and changing life events. It has been documented that the traditional risk factors of elevated blood cholesterol, hypertension, and cigarette smoking are absent in more than half of the new cases of coronary heart disease encountered in clinical practice (Buell & Elliot, 1979).

Orth-Gomer and Ahlborn (1980) conducted a research study on 50 men with clinically manifest ischemic heart disease, 50 men with risk indicators of ischemic heart disease and 50 healthy men. The subjects were interviewed about experiences of psychological stress in their work, family life and education. They were also examined for the presence of hypertension, hyperlipidemia, hyperglycemia, hyperurecemia, obesity, impaired pulmonary function, smoking, and alcohol consumption. The relative risk of developing clinical ischemic heart disease with the experience of psychological stress during the five years prior to onset of symptoms was calculated. It was found to be six times greater with than without such experience. This relative risk was not reduced when controlling for the conventional risk indicators.

The concept of the coronary prone behavior pattern is not new. Friedman and Rosenman (1959) characterized the Type A behavior pattern. Those psychosocial factors which

most closely and most intensely involve sustained over-stimulation of the central nervous system have the most consistently positive association with risk of coronary heart disease. These psychosocial factors operate through the CNS to generate changes in autonomic nervous functioning and endocrine activity which in turn have a cumulative impact on the cardiovascular system (Jenkins, 1979). According to Jenkins the strongest, most consistent correlates of CHD risk across a variety of research circumstances are the following: disturbing emotions such as anxiety and depression, interference with sleep and finally with the greatest amount of research support--the Type A coronary prone behavior pattern. Having somewhat less strength and consistency as a predictor of CHD risk are such variables as work overload, life dissatisfactions, and chronic conflict situations.

There is evidence that the Type A behavior variable is associated with a substantial increase in incidence, prevalence, mortality, and probably extent of coronary atherosclerosis. No other psychosocial variable has been consistently described as being a major risk factor for atherosclerotic heart disease (Kuller, 1979).

Numerous studies in the U.S. and Europe reported that behavior type (A or B) was a predictor of whether or not a

person developed CHD. This relationship was strengthened for men between the ages of 39-40 years. The Type A variable seemed to be the strongest predictor of individuals susceptible to a second infarction (Rosenman, Brand, Jenkins, Friedman, Straus, & Wrum, 1975).

A 1978 study of coronary angiography reported Type A behavior pattern significantly related to the amount of atherosclerosis present even after blood pressure, cholesterol, and smoking history had been controlled for statistically (Jenkins, 1979). Other studies which included angiography indicated that the individuals with lesser obstruction of the vessels were clearly of the Type B personality pattern and those with serious obstructions were Type A (Zyzanski, Jenkins, Ryan, Flessar, & Everist, 1976).

Despite the abundance of reasonably well-tolerated, effective antihypertensive medications, the prevalence of resistant hypertension (diastolic blood pressure of 100 mm Hg or greater) remains high. Psychological distress is a possible cause that has been explored minimally. Gifford and Tarazi (1978) stated that rises in blood pressure due to anxiety are not easily blocked by antihypertensive medications. Measures aimed at reducing psychological distress, such as relaxation and biofeedback techniques, seem to have a modest but significant effect on blood pressure in

hypertension (Brody, 1980). Syme (1978) has reported that a program designed to help patients deal with their social needs and reduce life stress seemed to be more successful than several more traditional medical care approaches in controlling hypertension in a low income population.

Results of a study by Brody (1980) indicated a relationship between psychological distress and control of hypertension. Patients under the highest amount of psychological distress responded to antihypertensive medications with a smaller decrease in blood pressure and were more likely to have resistant hypertension.

Although folklore, anecdotes, and clinical observations suggest that there may be a significant relationship between psychic stress and occurrence of gastric or duodenal ulceration, little evidence documents such a clinical relationship (Spiro, Wolf, Almy, Bahrach, Sturedevant, & Herbert, 1979). The effects of psychic stress on gastric function continue to be under investigation. Mittleman and Wolff (1942) found that when resentment, guilt, and repressed anger were artificially induced in a laboratory setting, there was a tendency towards an increase in gastric secretion and gastric mobility. Peptic ulcer disease (PUD) is now recognized as a heterogenous group of disorders with a common final pathway leading to an erosion in either the gastric or the duodenal mucosa. It

is therefore possible that psychologic factors may be important in some kinds of peptic ulcer disease and not in others (Feldman & Sabovich, 1980).

A retrospective study which used hospital notes and a questionnaire indicated that gastric ulcer patients were more independent, depressed, and anxious than non-gastric ulcer individuals. The gastric ulcer patients also appeared to have had greater incidence of financial and domestic problems than the control populations (Alp, Court, & Grant, 1970). In other studies Dunn and Cobb (1962) found a greater prevalence of PUD in men in supervisory roles (foremen) than in the craftsmen. And, in 1973, Cobb and Rose found PUD to be nearly twice as prevalent among air traffic controllers (especially the younger ones) as among second class airmen.

Thomas, Greig, and Piper (1980) reported that the number of stressful life events was not significantly different in patients who had a diagnosis of chronic gastric ulcer than in a well-matched control group. Although there were no differences in the life events experienced by chronic gastric ulcer patients and their controls, this assessment of stress did not include the significance of the event as perceived by the particular individual. The ulcer patient may perhaps react differently to stress. The

ulcer itself is perhaps one result of this abnormal reaction. Consequently the exact role of emotional stress in the development of chronic gastric ulcer remains undefined (Feldman & Sabovich, 1980).

Holmes and Rahe (1967) proposed that stressful life events by evoking "psychophysiologic reactions" (p. 215) play an important causative role in the natural history of many diseases. They also indicated that these reactions account in part for the onset of disease in many individuals. Through research based on these assumptions, they devised The Social Readjustment Rating Scale.

Researchers studying life change and illness relationships in late adult life have found significant life change buildup in the lives of men and women prior (six months) to their development of severe cardiovascular disease and even death (Adler & Engel, 1971). Rahe and Theorell (1971) in studies conducted in Scandanavia demonstrated a life change buildup prior (six months) to myocardial infarction which reached a level nearly 100% higher than patients' baseline level. DeFaire (1975) in his studies of Swedish identical twins, one of which had died of coronary heart disease, found significantly higher recent life change levels reported for the twin who had died (over a four year period prior to death) compared to the

surviving twin's life changes level for the same four year period.

Investigators have considered the effects of a significant life change, for example, death of a spouse, on the subsequent health of the survivor of the marriage. Madison and Viola (1968) reported that widows and widowers develop significantly more illness during the six months to one year immediately following the death of their spouse than do members of matched control groups.

The Life Event Scale for Adolescents, an adaptation of the Social Readjustment Rating Scale, was used to gather data regarding the events that had occurred during the previous year from 114 high school football players. The findings indicated that players who experienced more family instability, separations, divorces, and deaths were more likely to sustain a significant injury. It is postulated that a player's mental or emotional state may increase his risk of injury (Coddington & Troxell, 1980).

Sleep

Recently several theories have been reported on the functions of sleep. The restorative theory holds that sleep is a period of recovery or restoration of psychological, neurological, and/or psychological states. The protective theories state that the function of sleep is

to protect the organism from excessive wear and tear. The position of the energy conservation hypotheses holds that the function of sleep is to conserve energy through enforcing rest and limiting metabolic requirements. The ethological theory holds that the role of sleep is a control system to enhance survival. Finally, the instinctive theory considers sleep to be an instinct which is elicited by a particular cue (Webb, 1979).

In 1957 Dement and Kleitman reclassified the stages of sleep. In stages 1, 2, 3, and 4 there are no eye movements (or only slow eye movements). They are referred to collectively as Non-Rapid Eye Movement (NREM) sleep and the fifth stage is called Rapid Eye Movement (REM) sleep. The proportion of time spent in the various stages of sleep in the young adult are: 25% in REM, 50% in stage 2, and 20% in stages 3 and 4. The remaining 5% is distributed between waking time and stage 1 sleep. This pattern varies somewhat between subject to subject, but is quite stable within subjects from night to night (Cartwright, 1978).

As the individual falls asleep eye movements slow down and the eyes begin to roll slowly from side to side while entering the stage 1 sleep pattern. Stage 2 occurs usually within the next few minutes and then gradually changes to Stage 3. In stage 4 the descent into deep sleep

usually takes place within the first 30 minutes after sleep onset. Once having reached this level the sleeper stays in stage 4 for 30-40 minutes before rising back through stages 3 and 2 to stage 1 again. At this time, usually about one and one half hours after the onset of sleep the sleeper enters the REM stage which is known as active sleep. It is in this stage that dreams are on-going. Usually adults sleep about seven and a half hours per night. About 100 minutes of this, from 22-24%, is spent in active REM sleep (Cartwright, 1978).

Several hypotheses have been proposed for the functions of the REM stage of sleep. Roffwarg, Mugio, and Dement (1966) concluded that REM has an important role to play in the neural circuitry of the brain. As a stage of intense internal stimulation, REM may help to prepare the higher brain centers to handle the bombardment of external stimulation the organism is exposed to. Another explanation by Synder (1966) was that the REM state has a sentinel function. While in this state, animals are closer to arousal than in the NREM state. Other investigators assign the REM stage a role in cognition (Feinberg, 1969).

The changes in sleep with age have now been well documented by Williams, Karacan, and Hirsch (1974). They report that there are differences between the sexes, when the amount of time in REM and NREM is plotted from ages 3-80 years. Both groups show the classic sharp drop in

REM from infancy to puberty, with a more gradual drop continuing up to age 30. For males, the REM percentage levels off through middle-age, then decreases again in old age. Females do not show any further drop in REM after the twenties.

Research studies have been conducted on individual differences in sleep and dream behaviors. Hartmann, Baekeland, and Zwillig (1972) studied subjects who were extremely short or extremely long sleepers. The long sleepers averaged 9.7 hours of sleep per night while the short sleepers averaged only 5.6 hours. Long sleepers were found to value sleep--to think of it as important; short sleepers in contrast had a negative attitude toward sleep and thought of it as a waste of time. Short sleepers were judged to be more energetic, aggressive, ambitious, and self-satisfied. They tended to handle problems by denial. Long sleepers on the other hand were shy, mildly neurotic, and depressed. They were worriers, insecure about where they were going. The authors summarized these findings by saying that the long sleepers seem to be constantly reprogramming themselves while short sleepers are preprogrammed. The two types of sleepers did not differ in the amount of stage 3 and stage 4 sleep. However, the groups did differ significantly on the amount of REM sleep: 121.2 minutes

for long sleepers and only 65.2 minutes for short sleepers. The authors reported that the long sleeper enjoys in fantasy what the short sleeper experiences in reality.

Hartmann and Brewer (1976) also investigated variable-length sleepers, that is, variations in sleep length within individuals over time. In this study, responses of over 3,000 persons surveyed by a questionnaire indicated that sleep need increased under two conditions: with increased physical work or exercise, or with depressed or upset moods.

Sleep disorders in the past were often not treated or were treated inappropriately. Sleep has always been used as an indicator of general health. Sleep is hard to maintain during periods of physical pain and is very responsive to emotional upsets and anxiety. There are many ways that sleep can be disturbed. There can be disorders of amount in relation to waking, such as too little or too much sleep; disorders of the way sleep is distributed, such as fragmented sleep at night or intrusions of sleep into waking hours; or the occurrence during sleep of behaviors which normally belong in waking, such as walking, talking, enuresis, and teeth grinding (Cartwright, 1978).

The most common sleep complaint is insomnia. This term is a broad general category pertaining to those with

difficulty in attaining or maintaining sleep. It appears that most occasional sleep-onset insomnia is secondary to a waking state of anxiety, and most sleep-offset insomnia is secondary to depression (Cartwright, 1978).

Kales, Caldwell, Preston, Healey and Kales (1976) noted insomniacs are internalizers of stress. Patients with chronic insomnia appear to be in a state of chronic emotional arousal due to a turning inward of anxiety. Once the diagnosis of insomnia is determined, if the decision is to treat the insomnia directly, there can be several choices such as drugs, sleep inducing devices, or psychological intervention, i.e., relaxation techniques (Cartwright, 1978).

In another area of sleep research, studies have delved into the relationship between poor sleep and depression. The literature indicated two findings: (1) depression is associated with early morning awakenings, and (2) there is a very short interval between sleep onset and the first REM period of the night. Depressed sleep is short sleep, lacking in stage 4, with frequent interruptions and reduced REM. Studies have reported that even six months or greater after remission from a severe depression, the time awake is higher and the percentage of delta sleep is lower than in controls (Hauri, Chernik, Hawkins, & Mendels, 1974).

There have been hundreds of studies on sleep deprivation in recent years. Physiologically, a

sleep-deprived subject shows a brain hypoarousal state. Overall, difficult mental and social tasks tend to be more affected than physical tasks. Prolonged periods of sleep deprivation can eventually lead to hallucinations, delusions, and increased ego disorganization (Hartmann, 1979).

Probably the results of sleep research that have attracted the most public attention are those exploring the effects of drugs on various kinds of sleep. Researchers investigating aspects of sleep have determined that most sleeping medications: (1) do not work at all or are often addictive; (2) contribute to sleep that is attained which is usually distorted and not a normal night of sleep with the REM time suffering; and (3) encourage, when withdrawal is attempted, a marked rebound effect of REM time, an increase in the number of eye movements within the REM periods and reports of vivid distressing nightmares (Cartwright, 1979).

Oswald and Priest (1969) reported amphetamines, heroin, pentobarbital, and alcohol usage decrease the REM stage of sleep. Almost anything a person might take to sleep "better" produces some REM suppression and addiction; withdrawal is followed by REM rebound, nightmares, and insomnia.

Recommended behavioral treatments of common sleep problems include maintaining a regular 24 hour sleep/wake

rhythm and remaining in bed for a shorter period of time than one would actually like to do. The most potent aid in staying on a regular sleep/wake cycle is a rigidly enforced arising time. Other suggestions by the author which aid in the treatment of these common sleep problems include the scheduling of "worry times" early in the evening, learning deep relaxation techniques, curtailment of stimulants such as alcohol, coffee, colas, and tea, and finally going to bed only when tired (Hauri, 1979).

Medical Awareness

Included under the medical awareness section are subsections on medical check-ups, breast self-examinations and Papanicolaou smears, dental care, optometrical care and smoking and alcohol usage habits. Also included are the warning signs of cancer and risk factors of heart disease.

Medical Check-ups

Health services today are generally delivered in either of two ways. One is through monophasic examinations such as the Papanicolaou smear for cervical cancer and the TB skin test. At the other end of the scale is multiphasic testing which includes a barrage of examinations such as blood pressure, height and weight measurements, an EKG, exercise stress testing, and blood tests for cholesterol, hemoglobin, and sugar (Breslow and Somers, 1977).

As an alternative to both of the preceding examinations Breslow and Somers (1977) proposed the Lifetime Health-Monitoring Program (LHMP) which is a lifetime schedule of effective individual preventive procedures. According to the authors the LHMP differs considerably from both mono- and multiphasic screening. In the LHMP, the lifespan is divided into 10 periods based on changing lifestyle, health needs and problems. For each of the 10 periods health goals were devised and professional services related to the goals were delineated.

According to Breslow and Somers (1977) there is evidence that leaders of preventive medicine such as physicians in primary care are getting away from the concept of the annual check-up. More emphasis is being placed on current major risk factors such as cigarette smoking, obesity, hyperlipidemia, hypertension, and alcoholism.

Breast Self-Examination and Papanicolaou Smears

The breast self-examination has been advocated for many years as an effective screening modality for the detection of breast cancer. In 1958 Haagensen reported that "at least 98% of the women who develop breast carcinoma discover their tumors themselves" (p. 23). Additionally, in the 25 years since Haagensen reported, employment of techniques such as X-ray mammography, thermography,

diaphanography, and biochemical markers have been utilized in detection of breast cancer. After all this time and equipment, however, most breast carcinomas are still discovered by the woman herself (Venet, 1980). A Gallup study done in 1973 showed that only 18% of women examined their breasts regularly and only 35% of these felt confident that they could identify a lump from normal tissue. In a more recent study of a group of upper-middle class women Stillman (1977) reported that 48% of the women surveyed practiced breast self-examination while 18% still had never done so. A survey conducted in 1979 and reported in 1980 by the National Cancer Institute (NCI) indicated: (1) the number of women who have heard about breast self-examination (BSE) has risen from 77% in a 1973 American Cancer Society report to 96% in the NCI poll; (2) percentages of those performing BSE increased from 55% in 1973 to 77% in 1979; and (3) women who practice BSE each month or more often number 40% in 1979, as compared to only 18% in 1973 (Paroni, 1981).

The Papanicolau smear (Pap test) is the recommended test for detecting cervical cancer in its early stages. Findings from a number of studies conducted in Iceland, Finland, Scotland, and the U.S. support the effectiveness of the Pap test in the detection of cervical cancer (Marx, 1979).

The American Cancer Society (ACS) presently recommends a regular, although not annual, Pap smear for those women who are not at high risk for cervical cancer. The ACS recommends a Pap test once every three years after two initial negative tests one year apart (Cancer Facts and Figures, 1980). The decision of the ACS to recommend regular rather than annual smears was prompted by results reported by a Canadian task force commissioned to evaluate the use of screening for cervical cancer. The investigation revealed that the progression of cervical cancer may take up to 35 years from its early stages to the stage where invasion of the muscular layer of the uterus is present. Thus the task force concluded that annual exams to detect this slow growing condition were not necessary for a woman whose risk of developing cervical cancer is low (Marx, 1979). Those women who are at higher risk for developing cervical cancer include women who began sexual intercourse at an early age and who have multiple sex partners (Cancer Facts and Figures, 1980).

Dental Care

Oral disease is a major health problem that affects a majority of the world's population. Most oral disease affects the teeth and supporting structures and occurs in two forms: dental caries and periodontal disease. Dental

caries are the leading cause of tooth loss prior to the age of 35. Periodontal disease is the major cause after the age of 35 (Newburn, 1978).

Periodontal disease is most common in adults, but children and adolescents may also be affected. Recent estimates state that 67 million American adults have periodontal disease and almost one-third of them have lost all of their natural teeth to the disease process (Glickman & Smulow, 1974). Plaque is an invisible sticky film that attaches to the surfaces of clean teeth. If left undisturbed for 24 hours bacterial colonies form and mature and in the presence of carbohydrates, begin producing acids that cause dental caries and endotoxins that cause gingival and periodontal disease (Wilkins, 1976). Preventive measures for both dental caries and periodontal diseases consist of proper daily home care and regular periodic professional care. The dentist's role is to offer a yearly check-up with a scaling of plaques and counseling of patients in oral hygiene techniques (Wilkins, 1976).

Daily plaque removal is essential if decay processes are to be minimized. Because plaque needs 24 hours to mature, one complete cleaning every day can be effective in disease control. While flossing is recommended once a day, brushing is usually recommended several times a day

(Cleaning Your Teeth and Gums, 1972). The elements that help assure prevention are toothbrushes, proper brushing methods, dental floss, fluoridated toothpastes, and when necessary auxiliary aids. Also, with dental prevention in mind, it is desirable to consume as few sugars as possible. Raw fruits and vegetables and cheese are some of the foods that can be chosen for snacks in place of sugar-containing foods (Cleaning Your Teeth and Gums, 1972).

Optometrical Care

The eyes change very little during the years between 20 and 40. With advancing age, however, the eyes become prone to a variety of disorders. Regular eye examinations, especially after the age of 40, are recommended. The major causes of adult blindness in the U.S. are cataracts, glaucoma, and diabetic retinopathy. Glaucoma can begin at any time, however, it commonly occurs after the age of 35. One of every eight blind adults is a victim of this disease. The earlier the disease is diagnosed and treated by an ophthalmologist, the better are the chances of preventing blindness (Eye Care, 1979).

Cataract refers to a condition in which the lens of the eye become cloudy. This condition is directly related to the aging process. Surgery is the treatment of choice

for the removal of cataracts and is successful with vision being restored in more than 95% of all cases (Eye Care, 1979).

According to the National Society for the Prevention of Blindness, diabetic retinopathy is forecast to become the leading cause of blindness in the coming decade. This disease which affects the retinal blood vessels of people who have been diabetic for many years is progressive and usually unpredictable. Diabetic retinopathy is usually treated by use of a laser beam which seals affected blood vessels. The Society recommended that every diabetic should have regular ophthalmological examinations at least every two years (Your Eyes, 1976).

Smoking

The 1979 U.S. Surgeon General's Report declared "cigarette smoking is the single most important environmental factor contributing to premature mortality in the U.S." (p. 5). Probably one of the most important causes of cancer in the general population, smoking leads to lung, buccal cavity, pharynx, pancreas, and bladder cancer. Smoking along with excessive consumption of alcohol leads to cancer of the mouth, pharynx, esophagus, and liver (Sax, 1981).

According to the American Cancer Society (Cancer Facts and Figures, 1980) smoking is responsible for up to 83% of lung cancer cases in men and about 43% among women. Overall smoking accounts for approximately 20% of all cases and is associated with conditions such as colds and gastric ulcers as well as contributing significantly to chronic bronchitis, emphysema, and heart disease. Smoking-related disorders cost the nation approximately \$27 billion in medical care each year and are estimated to cause 325,000 premature deaths each year (Cancer Facts and Figures, 1980).

Presently there are over 30 million ex-smokers in the U.S., but 54 million others collectively smoke more than 620 billion cigarettes per year. In recent years however the proportion of adult smokers in the U.S. population has been declining. From 1970-1978 there was an average decline of 3.2% for both sexes with the decline of male smokers being greater (Cancer Facts and Figures, 1980).

Alcohol

Today in the United States there are 100 million drinkers of alcohol and 10 million are chronic abusers (What Everyone Should Know, 1981). About 1 in 11 drinkers becomes an alcoholic who has lost control over his/her drinking problem. Although moderate drinking causes no direct harm, continuous heavy drinking over a period of

years can result in permanent damage such as chronic malnutrition, brain damage with resultant psychoses, cancer of the mouth, esophagus, or stomach, heart disease which includes an enlarged heart and congestive heart failure, liver damage such as cirrohsis, alcoholic hepatitis, and cancer of the liver, and ulcers and gastritis as well as possible damage to the adrenal and pituitary glands. Prolonged heavy drinking can shorten the life span by as much as 10-12 years (Breslow & Endstrom, 1974; What Everyone Should Know, 1981).

The cost of alcoholism is high in other ways as well. Alcohol is a factor in one-half of all highway fatalities and in one-third of all highway injuries. Twenty-three thousand people are killed on U.S. highways each year by drunk drivers. Alcohol is related in up to 70% of all deaths and 63% of all injuries from falls. Alcohol use is associated with up to 69% of all drownings. Lost productivity due to alcohol abuse costs \$19 billion per year in the U.S. According to the Alcohol, Drug Abuse, and Mental Health Administration alcoholism is a treatable illness from which as many as two-thirds of its victims can recover (The Answer Book, 1978; Facts About Alcohol and Alcoholism, 1980).

Cancer Warning Signs and Risk Factors of Heart Disease

Early detection of cancer by the individual can often lead to early diagnosis of the disease entity. Early diagnosis can then lead to induction of treatment at an earlier stage. Screening measures such as breast self-examinations and Papanicolaou smears have proven to be valuable aids in the early detection of breast and cervical cancers. Unfortunately universal screening measures for other types of cancers have not yet been developed.

Germann (1974) stated seven warning signs that should serve to prompt an individual to seek medical care. These warning signs may enable the individual to detect cancer at an earlier stage. The warning signs are: a change in bowel or bladder habits, a sore that does not heal, unusual bleeding or discharge, thickening or lump in breast or elsewhere, indigestion or difficulty in swallowing, an obvious change in a wart or mole, and nagging cough or hoarseness (Germann, 1974, p. 338). The first letter of each phrase combines to form the word caution which should make memorization of sequence possible. Any of the above which persists longer than a few days requires further medical attention.

The commonly accepted risk factors for heart disease include smoking, hypertension, obesity, diabetes, family

history of heart disease, stress and personality type, elevated serum lipids, and inactivity. The 1979 Surgeon General's Report concluded that studies now demonstrate a causal relationship between cigarette smoking and heart disease. Obesity is a major factor in the development of essential hypertension (Connor, 1979). Hypertension is a main contributor to the development of premature atherosclerosis (Oka, 1976). The obese diabetic is more vulnerable to cardiovascular disease due to the fact that an increase in blood sugar leads to increased blood lipid levels with resultant deposition of lipids in vascular tissue until occlusion occurs (Eckstein, 1980). Studies indicated that the lower the High Density Lipoprotein, the greater the risk for Coronary Heart Disease (Rifkind, Goor, & Levy, 1978). Numerous studies have indicated that there is an association between lower cardiovascular morbidity and mortality and mild to moderate activity as compared to sedentary lifestyles (Dehn, 1980). The loss of both parents under the age of 60 to any form of cardiovascular disease increases the offspring's risk of cardiovascular disease by 1.5-2 times (Nicholson, 1973). Finally, the Type A personality variable is associated with a substantial increase in incidence, prevalence of mortality and probably extent of coronary atherosclerosis (Kuller, 1979).

The Nurse's Role in Preventive Health Practices

As nurses are the largest group of health employees, it can be assumed that the potential for influence by nurses, as far as health education is concerned, is great (Smith, 1979). Also, "the nurse is the most appropriate, best prepared member of the health team to take the lead in patient education" (Chaisson, 1980, p. 9). She also stressed that nurses have been educated to be "advocates for and teachers of the patient" (p. 9).

According to Pender (1980) interaction with professionals such as nurses, who are perceived by the learner/patient as having knowledge and expertise often increases the readiness to engage in the practice of preventive health behavior. She emphasized that the greater the credibility of the source, the more persuasive is the motivating message. In contrast, when the information source (nurse) is perceived by the learner as lacking expertise, reaction of the learner may be negative and the behavior advocated by the nurse may be actively avoided. The nurse's competence as perceived by the public will then play a role in the public's response to her suggestions.

Glover (1978) stated that in terms of prevention, healthy behavior and lifestyles, "modeling exists as a powerful tool that may either greatly enhance or destroy

the verbal message of human health" (p. 175). He indicated that teachers, especially teachers of health education, serve as models and that the actions of these models are imprinted heavily on the student. Having a healthy attitude is not enough; the attitudes must be incorporated into actual practice and become values. If health is not valued by the educator, then the health educator is certainly not effective. The role of health educators as models is most often overlooked but remains a powerful change agent. Much of the value of educating individuals in health matters lies in the example that the health educator sets and not so much in the information which is disseminated (Glover, 1978).

In an attempt to determine whether nurses actually have placed the attitudes of preventive health into practice and incorporated them as personal values, statistical findings regarding the smoking habits of nurses have been published. The Nurses' Health Study in 1976 contained a report of a survey of 122,690 married registered nurses in 11 states. It was reported that one-third of the nurses currently smoked. An additional 24.3% of the respondents indicated that they had smoked regularly at some time (Belanger, Hennekins, Rosner, & Speizer, 1978). Another study which investigated the smoking habits of student

nurses revealed that 30.9% of the students smoked (Hillier, 1973). In an Australian study of 159 female and 61 male nurses 55.7% of the male and 52.2% of the female nurses smoked as compared to 45% of the males and only 29% of the females in the general population. The authors (Kirby, Bashkavir, Drew, & Foenander, 1976) implied that there is some indication that the increased smoking level of female nursing personnel could reflect a response of stress and needs further investigation. Finally, in a British survey it was reported that at the top of the smoking league survey were hospital nurses. Of the nurses surveyed, 48% were smokers (Smith, 1979).

Isler (1978) reported that there are approximately 40,000 alcoholic nurses in the U.S. The alcoholic nurse was usually in the top one-third of her class and had attained advanced degrees. Also this nurse often held a demanding responsible position. Isler also indicated that one-third of these alcoholic nurses were drug dependent as well.

Pantaleo (1977) conducted a survey of 90 hospital-based nurses in an attempt to find out how nurses take care of themselves. This study concluded that the majority of the nurses were in good health and took care of themselves by following preventive care measures such as yearly

physicals, dental exams, chest X-rays, Pap smears and breast examinations. Of the nurses in this study, 59% smoked.

Evans (1979) utilized the Questionnaire on Physical Fitness (QPF) to survey the health habits of 47 registered nurses. Generally, the Evans (1979) study concluded that nurses generally did not practice good physical fitness habits. For example, 87% of those surveyed had poor nutrition habits and 94% of the nurses did not engage in any type of regular exercise program. Only 48% of the nurses performed monthly breast self-examinations while 88% of the respondents had had a Pap smear in the last 12 months. Surprisingly, 78% of the nurses did not smoke. Also, 96% of the nurses surveyed felt that they were in good health.

Freedman (1980) also used the QPF to survey the health habits of nurses. Freedman's sample consisted of 52 nurses. Of these nurses, 90.4% did not engage in any type of regular exercise and 90.4% had poor nutrition habits. Of the nurses, 36% smoked, 63.5% did monthly breast exams and 82.7% had had a Pap smear in the past 12 months.

Summary

In the preceding chapter research studies have indicated the need for lifestyle changes and moderation if the risk for disease is to be reduced. However, these changes have

not yet been incorporated by individuals in our society.
The result is a continuation of generally poor preventive
health practices.

CHAPTER 3

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

This study was a nonexperimental descriptive survey. Participation in screening measures and avoidance of risk factors of registered nurses employed in oncology treatment areas as compared to registered nurses employed in non-oncology areas were examined.

Setting for the Study

The setting for the research study was the monthly professional meeting of one oncology nurses' group and the monthly professional meeting of one non-oncology nurses' group located in a large metropolitan area in the Southwest. These professional groups were chosen for the investigator's convenience.

Population and Sample

The target population consisted of 17 professional nurses attending the monthly meeting of an oncology nurses' association and 29 professional nurses attending the monthly meeting of a non-oncology nurses' association. Total population sampling was used. All members present participated in this study.

The Ethical Provisions for Human Subjects

The ethical provisions for the subjects in the study consisted of:

1. A written consent from all of the nurses prior to participation in the study (Appendix A).
2. The exclusion of names from the written research report.
3. Anonymity of participants was assured in the following ways: the data requested was limited to that which was relevant to the study, there was no form of identification on the questionnaire, the signed consent was returned before completion of the questionnaire and the investigator was the only person to see and tabulate individual data.

Instrument

The instrument used in this study was the Questionnaire on Physical Fitness developed by Evans (1979) (Appendix A). It is a self-administering scale divided into six parts: (1) demographic or personal data, (2) nutrition, (3) rest, (4) exercise, (5) relaxation, and (6) medical awareness which includes screening measures. The questionnaire assesses the actual physical fitness habits of nurses and not just their knowledge of what should be done to achieve a maximal level of physical fitness.

The questionnaire is composed in the form of an ordinal scale. Each answer has two or more categories from which the subject may choose the correct response for his or her situation. The instrument takes approximately 10 to 15 minutes to complete. The maximum possible score for the questionnaire is 65 points. The minimum possible score is 0 (Evans, 1979).

The questionnaire was submitted to a panel of three experts on physical fitness to be examined for content validity. Final approval was reached through consensus of the three experts (Evans, 1979). Utilizing the test-retest method the questionnaire was examined for reliability. A Spearman Rank Order correlation coefficient of $r_s = .98$ was obtained and the instrument was considered reliable (Evans, 1979).

Data Collection

Upon approval from the Human Subjects Review Committee of Texas Woman's University and the study agencies, data collection began (Appendix B). This was undertaken at the monthly meetings of one oncology nurses' professional organization and one non-oncology nurses' professional organization. At the meetings the investigator verbally explained the purpose of the study, its benefits and risks,

and gave the necessary instructions to the entire audience (Appendix C).

Willing and eligible participants were asked to obtain a copy of the questionnaire and the consent form from the investigator either at the break or at the end of the meeting. The consent was signed and immediately left with the investigator. The participants were then asked to fill out the questionnaire before leaving the meeting. These were left in an area separate from the consent forms. A box was provided for the questionnaires so that the participants could not view questionnaires other than their own.

Treatment of Data

Descriptive statistics were used in the treatment of the data. Tables and percentages were used to determine the general patterns of response from the sample. Each of the five areas of the questionnaire were treated individually. A nonparametric test, the Mann-Whitney U, was used to address the research questions.

Summary

This study utilized a nonexperimental descriptive design to determine the preventive health practices of oncology nurses as compared to non-oncology nurses. Total

population sampling was used to obtain subjects from the respective populations. A total of 17 oncology nurses and 29 non-oncology nurses voluntarily participated in the study. Data were then treated with statistical tests appropriate to the research design and research questions.

CHAPTER 4

ANALYSIS OF DATA

This descriptive study was conducted to determine to what extent oncology nurses, as compared to non-oncology nurses, avoid risk factors and participate in screening measures. This chapter is divided into two sections and provides the analysis of data. The first section contains a description of the sample and the second section addresses the research questions.

Description of Sample

The sample was comprised of professional nurses who attended the monthly meeting of one oncology nurses' association and professional nurses who attended the monthly meeting of one non-oncology nurses' association. Using convenience sampling, 46 nurses voluntarily answered the questionnaire. Seventeen (37%) of the subjects were oncology nurses and 29 (63%) were non-oncology nurses.

The subjects ranged in age from 22 to 54 years with a mean of 31.30 years. The majority of the respondents were white and all of the subjects were female. Twenty-three (50%) of the respondents were married. While the number

of children ranged from zero to four, 31 (67.4%) had no children at all (Table 1).

A majority of the subjects, 25 (54.3%), were granted baccalaureate degrees and practiced nursing in hospital settings. Years of experience as a practicing nurse ranged from 1 to 30 with a mean of 7.783 years among the 46 subjects (Table 2).

In response to the question regarding current health problems, 31 (67.4%), stated they were free of illnesses. However, six (12.1%) did report illnesses which varied in the degree of severity. Of the six subjects who reported presence of illness, four (8.7%) reported recurrent tonsillitis, monilia allergy, hypothyroidism, and an ovarian cyst, respectively, while two (4.3%) of the nurses described diseases of a more serious nature. Diffuse connective tissue disease was reported by one nurse while another subject reported anemia, hypertension, coronary heart disease, and adult onset diabetes mellitus. Three (6.6%) of the subjects did not answer the question. The number of days missed in the previous 12 months due to illness for the 46 subjects ranged from 1 to 20 days with a mean of 3.587 days.

Table 1

Frequencies by Age, Race, Marital Status, and
Number of Children of 46 RNs Who Participated
in a Health Practices Survey

Variable	Frequency	Percent
<u>Age</u>		
22-29 years	26	57.0
30-39 years	13	28.0
40-49 years	4	9.0
50-54 years	<u>3</u>	<u>6.0</u>
Total	46	100.0
<u>Race</u>		
Caucasian	36	78.3
Black	2	4.2
Mexican American	1	2.2
Other	5	10.9
No Response	<u>2</u>	<u>4.4</u>
Total	46	100.0
<u>Marital Status</u>		
Married	23	50.0
Single	15	32.6
Widowed	2	4.3
Divorced	5	10.9
No Response	<u>1</u>	<u>2.2</u>
Total	46	100.0
<u>Number of Children</u>		
0	31	67.4
1	4	8.7
2	6	13.0
3	2	4.3
4	<u>3</u>	<u>6.5</u>
Total	46	100.0

Table 2

Frequencies by Type of Nursing Education, Years Experience and Work Setting in Nursing of 46 RNs Who Participated in a Health Practices Survey

Variable	Frequency	Percent
<u>Type of Education</u>		
Baccalaureate	25	54.3
Diploma	5	10.9
Associate	7	15.2
Masters	5	10.9
Other	2	4.3
No Response	<u>2</u>	<u>4.3</u>
Total	46	100.0
<u>Years Experience</u>		
1-5	24	52.2
6-10	10	21.7
11-15	7	15.2
16-20	3	6.6
21-25	1	2.2
26-30	<u>1</u>	<u>2.2</u>
Total	46	100.0
<u>Work Setting</u>		
Hospital	41	89.1
Clinic	1	2.2
Self-Employed	1	2.2
No Response	<u>3</u>	<u>6.5</u>
Total	46	100.0

Findings

The research questions in this study were: (1) Do oncology nurses avoid risk factors to a greater degree than do non-oncology nurses? and (2) Do oncology nurses

participate in screening measures to a greater degree than do non-oncology nurses? The findings related to each of the five categories of the Questionnaire on Physical Fitness (QPF) (Evans, 1979) are reported in the following section. The Mann-Whitney U test was utilized to compare the responses of the oncology nurses to the non-oncology nurses. The Mann-Whitney U is a nonparametric procedure which is used to analyze differences between two independent samples. Ranks are assigned to these groups. The sum of the ranks can then be compared by computing the U statistic (Polit & Hungler, 1978).

The maximum possible score on the Evans questionnaire was 65 points. The scores ranged from 23 to 56, with a mean of 41.5. The oncology group range of scores was 23 to 56 with a mean of 41.8. The non-oncology group scores ranged from 28 to 54 with a mean of 41.3.

Subjects were placed into groups according to percentage of positive answers. The High group was identified as those with 55-65 (90%) positive responses; the Moderate group was identified as those with 49-54 (80%) positive responses; and the Low group was identified as those with 48 or less (70% or less) positive responses (Table 3). Scores were then computed for the categories of both groups combined. Maximum scores attainable for each

Table 3

Frequencies of High, Medium and Low Scores on the Questionnaire for Physical Fitness of 46 RNs Who Participated in a Health Practices Survey

Variable	Frequency	Percent
<u>Oncology</u>		
High (90%)	1	5.4
Medium (80%)	5	29.6
Low (70% and below)	<u>11</u>	<u>65.0</u>
Total	17	100.0
<u>Non-Oncology</u>		
High (90%)	0	0.0
Medium (80%)	4	14.0
Low (70% and below)	<u>25</u>	<u>86.0</u>
Total	29	100.0

category were 17 points for the nutrition section, 6 for rest, 10 for exercise category, 12 for relaxation, and 21 for the medical awareness section. The range, mean, and standard deviation of these scores are listed by category in Table 4.

The Mann-Whitney U test was employed to determine if there were significant differences between the oncology and non-oncology nurses for the five categories of the QPF. A z score was computed to correct for tied scores. In each of the five categories of the QPF, the z score was determined to be an insignificant value. Therefore

Table 4

Range, Means, and Standard Deviations by Category for 46
RNs Who Participated in a Health Practices Survey

Category	Range	Mean	Standard Deviation
Nutrition	2-16	8.719	3.423
Rest	2-6	4.540	2.161
Exercise	0-10	3.739	2.850
Relaxation	4-12	9.196	1.893
Medical Awareness	10-20	15.522	2.510

it was concluded for this study that: (1) oncology nurses did not avoid risk factors to a greater degree than non-oncology nurses, and (2) oncology nurses did not participate in screening measures to a greater degree than the non-oncology nurses.

It is of interest to note that at the time they responded to the questionnaire, 5 (29%) of the oncology nurses and 1 (.04%) non-oncology nurse smoked; 15 (82%) of the oncology nurses and 12 (41%) of the non-oncology nurses practiced breast self-examination each month. Finally, 12 (70%) of the oncology nurses and 23 (79%) of the non-oncology nurses had had a Papanicolau smear in the past 12 months.

Summary

This chapter reported the analysis and subsequent treatment of the data obtained in the study. The preventive health practices of the predominantly young, Caucasian, hospital-employed female groups of oncology and non-oncology professional nurses were surveyed and measured by the Evans (1979) Questionnaire on Physical Fitness. Of a possible maximum score of 65, scores of the oncology nurses' group ranged from 23 to 56 with a mean of 41.8 with a majority of the scores ranging in the Low category. Scores of the non-oncology nurses' group ranged from 28 to 54 with a mean of 41.3, also with a majority of scores in the Low category. The scores of the oncology group and the non-oncology group were not found to be significantly different after utilization of the Mann-Whitney U test on the five categories of the Evans questionnaire. Therefore it was concluded for this study that: (1) oncology nurses did not avoid risk factors to a greater degree than non-oncology nurses, and (2) oncology nurses did not participate in screening measures to a greater degree than the non-oncology nurses.

CHAPTER 5

SUMMARY OF THE STUDY

The purpose of this study was to determine: (1) Do oncology nurses avoid risk factors to a greater degree than do non-oncology nurses? and (2) Do oncology nurses participate in screening measures to a greater degree than do non-oncology nurses? In this chapter, the study is summarized, the findings are discussed, conclusions and implications are presented, and recommendations for further study are made.

Summary

A nonexperimental descriptive research design was used to investigate the two research questions. Forty-six subjects, 17 oncology and 29 non-oncology nurses, completed the Evans (1979) Questionnaire on Physical Fitness (QPF) as a means of determining the preventive health habits of the two groups.

The data collected was analyzed using the nonparametric statistical test, the Mann-Whitney U. This test was used to determine if there were significant differences between the two groups in their health habits in the following five areas: nutrition, exercise, stress, relaxation, and medical awareness.

Discussion of Findings

As nurses are the largest group of health employees it can be assumed that the potential for influence by the nurse as far as health education is concerned is great (Smith, 1979). When a significant person, such as the nurse, is viewed as acting or playing a certain role which the learner/patient can understand, the learner/patient will then attempt to assimilate that role into his own repertoire of behaviors and role modeling occurs (Meleis, 1975). Several investigators have reported the significance of role modeling in the interaction of health professionals, particularly nurses, and the public (Glover, 1978; Pender, 1975; Smith, 1979). Therefore, because professional nurses are viewed as role models by the public, knowledge of the personal health habits of these nurse-models becomes important. The Evan's (1979) QPF was designed to measure health habits of nurses in the areas of nutrition, exercise, relaxation, stress, and medical awareness.

Overall findings of this study indicated that the nurses of both groups generally exhibited poor health habits. Most of the scores of the respondents in both groups were in the Low category in each of the five areas studied. Similar findings were reported in the original

Evans' (1979) study and by Freedman (1980) who also utilized the QPF.

Using the Mann-Whitney U test it was determined that there were no significant differences in health habits between the oncology nurses' group and the non-oncology nurses' group in the five areas examined. Score ranges and means were comparable to those reported by Freedman (1980) and Evans (1979). The nurses in this study and in the Evans (1979) and Freedman (1980) studies did not tend to practice good health habits as measured by the Evans Questionnaire. Pantaleo (1977) reported that in her investigation of the health habits of nurses, nurses did not always practice good health behaviors, especially in the areas of weight control and smoking.

Of the 46 nurses in this study, 29% of the oncology nurses and .04% of the non-oncology nurses smoked. Freedman (1980) reported 36.5% of the subjects in that study as smokers while Evans (1979) reported 14.9%. Belanger, Hennekens, Rosner, and Speizer (1978) in a national survey reported that 34.5% of nurses were smokers.

A majority of the oncology nurses in this study, 82%, practiced monthly breast self-examination (BSE) although only 41% of the non-oncology nurses practiced monthly BSE. Freedman (1980) reported 63% of the subjects in that study

practiced BSE monthly as did 48% in the Evans (1979) study. A recent National Cancer Institute survey reported that approximately 40% of the subjects in that study practiced monthly BSE (Paroni, 1981).

In this study, 70% of the oncology nurses and 79% of the non-oncology nurses had had a Papanicolaor smear in the past 12 months. Freedman (1980) reported 83% while Evans (1979) reported 88% of the respondents had had a smear within the past year. The lower scores in this study may reflect the decision by the American Cancer Society that Pap smears are no longer required yearly for women who are not at high risk for cervical cancer (Cancer Facts and Figures, 1980).

Conclusions and Implications

Based on the findings and within the limitations of the study, the following conclusions were drawn:

1. Oncology nurses do not avoid risk factors to a greater degree than non-oncology nurses.
2. Oncology nurses do not participate in screening measures to a greater degree than non-oncology nurses.
3. Nurses do not generally practice good health habits.

Based on the findings and conclusions of this study, the following implication was suggested:

Nursing educators should emphasize the importance of preventive health practices beginning at the undergraduate level. Subsequently these nurses may benefit from programs such as hospital-based inservices which focus on good health habits once they have entered the work force.

Recommendations for Further Study

Based upon the findings of the study the following recommendations are made:

1. The Evans (1979) questionnaire should be administered using a larger sample of professional nurses with random selection of subjects to validate that nurses generally have poor health habits.
2. Investigations should be aimed at discerning from nurses what factors contribute to the generally poor health habits exhibited by that group.
3. The Evans (1979) questionnaire should be utilized in a comparative study to determine whether nurses as compared to non-health field related individuals have better or poorer health habits.

APPENDIX A
QUESTIONNAIRE PACKET

CONSENT FORM

Consent to Act as a Subject for Research and Investigation:

1. I hereby authorize Melinda Granger to include me in her study on the physical fitness habits and medical awareness of nurses. I understand that the study involves answering questions concerning my usual daily habits in the areas of exercise, nutrition, relaxation, sleep, and medical awareness. The questionnaire will take approximately 15 minutes to complete. I have been assured that my anonymity will be maintained throughout the study.
2. The procedure or investigation listed in Paragraph 1 has been explained to me by Melinda Granger.
3. (a) I understand that the procedure or investigation described in Paragraph 1 involves the following possible risks or discomforts: the possibility of public embarrassment due to improper release of the data.
(b) I understand that the procedure and investigation described in Paragraph 1 have the following potential benefits to myself and/or others: increased knowledge in the areas of primary preventive health practices and physical fitness habits of nurses; a personal increase in knowledge in the areas of physical fitness habits and primary preventive health practices.

- (c) I understand that no medical service or compensation is provided to subjects by the university as a result of injury from participation in research.
4. An offer to answer all of my questions regarding the study has been made. If alternative procedures are more advantageous to me, they have been explained. I understand that I may terminate my participation in the study at any time.

Subject's Signature

Date

QUESTIONNAIRE ON PHYSICAL FITNESS

Personal Data

Age_____ Sex_____ Race_____ Marital Status_____

of children_____ Nsg. education_____ Yrs. experience as R.N._____

Employed_____ Unemployed_____ Work setting_____

Height_____ Weight_____ Frame Size_____ Weight at age 20_____

Resting pulse rate_____ Blood pressure_____

Do you presently have any diagnosed diseases? If so, please identify.

Are you presently on any routine medications (including birth control pills)? Please identify.

Approximately how many days of work did you miss in the last 12 months due to illness?

Have either of your parents died from or presently have heart disease? If so, what was the age of onset?

Instructions: Please answer the questions with your usual day or habits in mind. Answer yes to those things that you feel you usually do and no to the ones you usually do not do.

Nutrition

1. How many servings of fruit and/or vegetables do you usually have in a day?
0 1 2 3 4 5 6
2. How many glasses of milk do you usually drink in a day?
0 1 2 3 4 5 6
3. How many ounces of meat do you eat in a day?
0 2-3 4-5 6-7 8-9 10-11 12-13 14-15
4. Do you buy lean meats and trim them well? yes no
5. How many servings of breads and/or cereals do you have in a day?
0 1 2 3 4 5 6

21. Do you retire at approximately the same time (within 2 hrs.) 5-6 nights per week? yes no
22. Do you usually wake up feeling fatigued? yes no
23. Is insomnia a problem for you? yes no
24. Do you use sleeping pills (prescribed or over the counter)? yes no
25. Do you ever walk in your sleep? yes no
26. Do you usually find it necessary to take a nap during the day? yes no
If so, for how many hours? _____
How many days per week _____
27. When working the night shift, are you able to sleep at least 7 hours during the day? not applicable yes no
How often do you work nights in a month's time? _____

Exercise

28. Do you feel that you get enough exercise at work or during your daily routine if unemployed? yes no
29. Do you ever walk or ride a bike to a local store, movie, or friend's house? yes no
30. Do you ever exercise as an aid in controlling your weight? yes no
31. Do you spend at least 20-30 minutes four times a week in an exercise program? (planned aerobic exercise) yes no
If so, what exercise does your program consist of? _____
32. Are you proud of your body? yes no

The next five questions are for those who do exercise regularly.

33. Do you perform warm up exercises prior to your exercise regime? yes no
34. Do you wear a rubber suit or sweat suit while exercising to help you lose weight? yes no

35. Do you monitor your pulse or respirations during exercise to calculate your level of intensity? yes no
36. Do you perform cool down exercises after your exercise regime? yes no
37. Do you enjoy your exercise program? yes no

Relaxation

38. Are you satisfied with your present job? yes no
39. Have you changed jobs in the last year? yes no
40. Have you taken at least two weeks vacation in the last year? yes no
41. Do you usually find it easy to relax at home after work or on days off? yes no
42. Do you feel that you are handling your financial responsibilities adequately at present? yes no
43. Have you made a major purchase by loan in the last year? yes no
44. Have you lost a spouse, close relative or friend in the last year? yes no
45. Do you have such habits as biting your fingernails or foot tapping? yes no
46. Have you ever had GI problems such as ulcers or colitis? yes no
47. Do you usually take tranquilizers? yes no
48. Do you feel that you lead a stressful life? yes no
49. Are you generally satisfied with your life? yes no

Medical Awareness

50. Have you had a dental check-up in the last 12 months? yes no
51. Do you have a regular dentist? yes no
52. How many times a day do you usually brush your teeth?
 0 1 2 3 4 5 6

68. How many days per week do you usually drink alcoholic beverages?

0 1 2 3 4 5 6 7

69. Please indicate which one of the beverages listed below you usually drink and how many ounces you usually drink in one day.

Beer	7	12	24	36	48	60	72	84	96
Lite Beer	7	12	24	36	48	60	72	84	
Dry Wine	2	4	6	8	10	12	14	16	
Sweet wine	2	4	6	8	10	12	14	16	
Liquor	1	2	3	4	5	6	7	8	

70. How much money have you spent in the last month on sedatives, pain relievers, alcohol, and tobacco?

0 \$5.00 \$10.00 \$15.00 \$20.00 \$30.000 \$40.00

71. Do you know the seven warning signs of cancer? yes no

72. How many of the cardiac risk factors listed below do you have?

- () Hypertension
- () Elevated triglycerides
- () High cholesterol intake
- () Diabetes
- () Gout
- () Smoker
- () Family Hx of heart disease
- () Inactive
- () Stress
- () Angina
- () Overweight

73. Do you feel that you are in good health? yes no

SCORING OF QUESTIONNAIRE

One point for each of the following positive answers will be allotted to determine a total of 65 points as the best possible score. This would indicate a score of 100%.

- | | | |
|--|--------------|---|
| 1. 4, 5, 6 | 22. no | 51. yes |
| 2. 2, 3, 4 | 23. no | 52. 2,3,4,5,6 |
| 3. 6-7 oz (If answer to #4 is yes, then 8-9 or 10-11) | 24. no | 53. yes |
| 4. yes | 25. no | 54. yes |
| 5. 4, 5 | 26. no point | 55. no |
| 6. yes | 27. no point | 56. 0, 1-3 |
| 7. yes | 28. no | 57. yes |
| 8. yes | 29. yes | 58. yes |
| 9. yes | 30. yes | 59. no point |
| 10. yes | 31. yes | 60. yes |
| 11. no point | 32. yes | 61. yes |
| 12. no point | 33. yes | 62. yes |
| 13. One point is given for choice(s) from positive column or for combination of 2 positives/1 negative | 34. no | 63. yes or not applicable if male |
| <u>Positive</u> | 35. yes | 64. yes |
| fruit | 36. yes | 65. no point |
| cheese | 37. yes | 66. yes |
| milk | 38. yes | 67. no |
| nuts | 39. no | 68. 0 |
| juice | 40. yes | 69. 1 point for:
Beer-12 oz +
Lite Beer-24oz +
Dry Wine-5 oz+
Sweet Wine-3 oz+
Liquor-2 oz + |
| vegetables | 41. yes | 70. \$10.00 or less |
| | 42. yes | 71. yes |
| 14. 0, 1, 2 | 43. no | 72. no point |
| 15. yes | 44. no | 73. yes |
| 16. yes | 45. no | |
| 17. yes | 46. no | |
| 18. yes | 47. no | |
| 19. no | 48. no | |
| 20. 7, 8 | 49. yes | |
| 21. yes | 50. yes | |

APPENDIX B
APPROVAL FORMS

TEXAS WOMAN'S UNIVERSITY
HOUSTON CAMPUS
HUMAN RESEARCH REVIEW COMMITTEE
REPORT

STUDENT'S NAME Melinda Granger

PROPOSAL TITLE Preventive Health Practices of Today's Nurse

COMMENTS: _____

DATE: April 27, 1981

Jane Robertson
~~Disapprove~~ Approve

[Signature]
~~Disapprove~~ Approve

R.P. Bennett
~~Disapprove~~ Approve

Judy Myers
~~Disapprove~~ Approve

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
DENTON, TEXAS 76204

DALLAS CENTER
1810 INWOOD ROAD
DALLAS, TEXAS 75235

HOUSTON CENTER
1130 M. D. ANDERSON BLVD.
HOUSTON, TEXAS 77025

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE Gulf Coast Chapter of the American Association of Critical Care Nurses

GRANTS TO MELINDA GRANGER

a student enrolled in a program of nursing leading to a Master's Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem:

To what extent are primary preventive health practices being incorporated into the lifestyles of oncology nurses as compared to non-oncology nurses?

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.
2. The names of consultative or administrative personnel in the agency (may) (may not) be identified in the final report.
3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other PENDING OK WITH MY ADMINISTRATIVE SUPERVISOR

AFTER REPORT IS COMPLETE.

Date: April 30, 1987

[Signature]
Signature of Agency Personnel

[Signature]
Signature of Student

[Signature]
Signature of Faculty Advisor

* Fill out and sign three copies to be distributed as follows: Original-Student;
First copy - agency; Second copy - TWU College of Nursing.

G2:GEN 13
07026074 cd

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
DENTON, TEXAS 76204

DALLAS CENTER
1810 INWOOD ROAD
DALLAS, TEXAS 75235

HOUSTON CENTER
1130 M. D. ANDERSON BLVD.
HOUSTON, TEXAS 77025

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE SOCIETY of HOUSTON ONCOLOGY NURSES

GRANTS TO MELINDA GRANGER

a student enrolled in a program of nursing leading to a Master's Degree at Texas Woman's University, the privilege of its facilities in order to study the following problem:

To what extent are primary preventive health practices being incorporated into the lifestyles of oncology nurses as compared to non-oncology nurses?

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3. The agency (wants) (does not want) a conference with the student when the report is completed.
4. The agency is (willing) (unwilling) to allow the completed report to be circulated through interlibrary loan.
5. Other _____

Date: April 30, 1991

Mary Margaret A.N. M.S.
Signature of Agency Personnel

Melinda Granger
Signature of Student

Theresa Harmon
Signature of Faculty Advisor

* Fill out and sign three copies to be distributed as follows: Original-Student; First copy - agency; Second copy - TWU College of Nursing.

GP:GEN 13
07026074 cd

APPENDIX C

ORAL DESCRIPTION

ORAL DESCRIPTION OF THE STUDY

I would first like to thank your president and the group for allotting me this time during your meeting and allowing me to conduct the study here. My name is Melinda Granger and I am a graduate student in nursing at Texas Woman's University in Houston. As part of the requirements for my master's degree I am conducting a study in order to determine to what extent are primary preventive health measures being incorporated into the lifestyles of oncology nurses as compared to non-oncology nurses. In order to qualify as a participant you must hold a current Texas license as a registered nurse. You do not have to be employed or meet any other requirements. The questionnaire is designed to determine what your normal habits are so please keep this in mind as you are answering the questions. I need to know what you normally do or do not do and not what you feel you should be doing. The questionnaire is divided into five areas. These are nutrition, rest, exercise, relaxation, and medical awareness. It will take approximately 15 minutes to complete. All of the information received will be kept confidential--your name will not appear anywhere on the questionnaire. There is a consent form attached to each questionnaire which you must sign before participating in the study. It should be removed

and left in the box marked "consents" which is separate from the box for the questionnaires. I will now read the consent aloud to you.

Please complete the questionnaire before leaving the meeting and place it in the appropriate box. I am hoping to be able to return in a couple of months to share the results of my study with you at a future meeting. I will be glad to answer any questions you have now or as you pick up the questionnaires. Thank you again for your cooperation.

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