INSOMNIA IN THE ELDERLY PRESENTING IN A PRIMARY HEALTH CARE SETTING

By

Molly McCrum Lawrence

A NON-THESIS

Submitted to
Michigan State University
in partial fulfillment of the requirements
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MASTER OF SCIENCE IN NURSING

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1984

ABSTRACT

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Elderly are believed to have an increased incidence of insomnia. The problem investigated is: Do elderly clients presenting to a primary health care system identify insomnia as a problem; if they do, how is it manifested; is it viewed as a health problem to be treated by the primary health care provider, or do the elderly institute self-care?

Using Nightingale's theory, it is conceptualized that nurses can assess insomnia of the elderly holistically to preserve and promote health.

A pilot study was done using a self-rating questionnaire survey. Forty elderly 65-85 presenting to a primary health care setting participated. Descriptive analysis of the data was done.

Nursing implications are that the primary health care nurse should assess insomnia when working with the elderly. A thorough history and physical assessment are necessary when the elderly complain of insomnia.

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CHAPTER I

THE PROBLEM

Introduction

Sleep has been defined as a natural temporary period of almost complete unconsciousness, normally at night, in which the body rests (Webster's, 1981). Yet for many persons, feeling rested after sleep is a bodily condition that eludes them. These persons suffer from insomnia. Insomnia is a type of sleep disturbance that seems to be an especially common and frequent complaint of the elderly (Collings, 1983; Hayter, 1893).

Old age is a difficult and trying time. Old age is a portion of our lifespan that is filled with many significant life changes. Retirement, financial strain, role change, and death of important loved ones are but a few of the stresses faced by the elderly population. Along with the many life changes that are occurring, an elderly person's sleep pattern may be disrupted, leading to insomnia.

Empirical evidence suggests that the elderly population experience more frequent qualitative and quantitative changes in their sleep pattern than that of any other age group (Collings, 1983). Since most people spend one-third of their life sleeping and good sleep is seen as a measure of health (Bahr, 1983), the symptom of insomnia to the

elderly becomes an important element that may appear to threaten the well-being of this population.

Intensive sleep research using sophisticated techniques and instrumentation has been conducted for little more than 20 years (Collings, 1983). The use of elderly subjects rather than young adults in sleep research is an area of even newer investigation. Most of the research with elderly subjects previous to the 1980s compared older and younger subjects and was limited to research conducted in sleep laboratories (Hayter, 1983). No reliable information was available regarding the sleep problems or patterns of older persons of various ages or how they reported a sleep problem.

From research done in the 1960s and 1970s, it is known that the elderly have more frequent awakenings during the night (Tune, 1968; Webb, 1975) and they take more naps (Tune, 1968; Webb, 1975). It is also believed the total sleep time of the elderly gradually declines to about 6.5 hours (Kupfer & Reynolds, 1983). Early morning awakenings are also a more frequent complaint of the elderly population (Dement, Miles, & Carskadonn, 1983).

Background of the Problem

Since the research studies that have been done previous to the 1980s did not make the results generalizable only to the elderly population but mostly compared them to another more youthful population, the information does not help us to better understand the sleep disturbances of the elderly. It appears that with the number of elderly persons increasing in our society, there is an increased need to under-

stand and be able to care for their health care needs, especially at the primary health care level. Elderly persons are having a significant impact on our society as their number increases. The elderly are often seen in the primary health care setting for chronic health problems or acute episodes of illness. Since research shows that the elderly are generally dissatisfied with their sleep (Dement et al., 1983), the complaints of sleep disturbances are likely to be brought frequently to the practicing clinicians in primary care settings. In order to be better prepared and more knowledgeable, it is important to have accurate information about the sleep habits, sleep disturbances, and sleep changes that are occurring in this essentially healthy elderly population that presents to the primary health care setting.

Because the client presenting to a primary health care setting is elderly, the health care provider may view the complaint of insomnia as part of the aging process and totally ignore the complaint of the client, changing his attention to other areas of concern. In this case, inaction may be a response of the primary health care provider. On the other hand, the provider may act on the complaint presented by the client and recommend some strategies to be used.

The action taken by the primary health care provider is a response to the identified complaint of insomnia leading to a prescribed treatment. Hopefully, the treatment will be undertaken after a careful history and physical exam have been completed and there has been some evaluation of the findings related to insomnia. The recommendation of the provider should take into consideration such factors as the effect

of the aging process on sleep, the client's knowledge of this, the client's sleeping environment, life's stresses, activity level, normal sleeping pattern, current medication, and any existing chronic illness rather than quickly prescribing some medication, as the desired strategy, to relieve the complaint.

Through acquiring strategies to utilize, the elderly client is able to work at resolving a symptom that might lead to disability. The client is showing self-responsibility by seeking advice for a symptom that could lead to further disability if not addressed early. The client is attempting to achieve a higher level of wellness (Ebersole & Hess, 1981). Wellness indicates a balance in one's own physical, spiritual, emotional, and social relation and with the natural environment (McClure, 1982). The elderly are often viewed as "feeble" and already in a state of degenerating health. These clients do suffer from some degenerative changes, but wellness is a state of being and feeling that one strives to achieve (Ebersole & Hess, 1981); thus achieving a higher level of wellness is within the reach of the elderly person.

Whatever the strategies advised by the primary health care provider for the elderly client with insomnia, it should be health promoting, helping the elderly to achieve a high level of wellness. The client, at this point, is not suffering from a disease but is essentially a healthy individual. Using Florence Nightingale's theory, it is with healthy human beings that nurses can intervene and put the individual in a state for nature to act upon to preserve health and prevent

disease. This leads to health promotion by helping this human being achieve a high level of wellness (George, 1980).

It is interesting that elderly clients may not identify insomnia as a problem or choose to seek the care of the primary health care provider regarding this complaint. Elderly clients may have developed their own strategies or solutions that they feel have aided in providing relief for their insomnia. They are instituting methods of self-care that they find to aid in promoting their wellness. Since insomnia is not a disease entity, the elderly may not view it as a health problem that should be taken care of by the primary health care provider. Again, in this instance, strategies of self-care may be employed by the elderly who are seeking to promote their own health.

The problem investigated in this study is: Do elderly clients presenting in a primary health care system identify insomnia as a problem; and if they do, how is it manifested; is it viewed as a health problem to be treated by the primary health care provider, or do the elderly institute self-care?

Purpose

Current knowledge of elderly persons' sleep habits and assessment and treatment of insomnia are mostly limited to research conducted in sleep laboratories. Little is known about the elderly population's identification and perception of insomnia in relation to the primary health care setting. The literature is lacking in reports of studies of the elderly population's identification of insomnia as a health

problem, particularly receiving care in a primary health care setting. The purpose of this study is to conduct a survey to determine if elderly presenting in a primary health care setting identify insomnia as a problem. If insomnia is a problem, (1) how is it manifested? (2) is it seen as a health problem? (3) do the elderly view this sleep problem as a relevant problem to be taken care of by the primary health care provider? (4) or do the elderly choose to use self-care approaches in treating insomnia? and (5) what strategies for self-care do they use?

Description of Study

This study could bring out areas of knowledge that are lacking in literature about sleep in the elderly client who presents to the primary health care system. This study has the potential of helping us, as advanced practice nurses and primary health care providers, to better understand whether or not the elderly truly have an increased incidence of insomnia. Also, this study will aid in understanding if the elderly view insomnia as a health problem, or if it is an issue that providers need to raise with the elderly client to promote wellness. Through this study, knowledge regarding self-care techniques and strategies used to treat insomnia should become evident. This knowledge perhaps will help the advanced practice nurse develop strategies that can be used with each individual client in dealing with a complaint of insomnia. This study should help nurses in advanced practice to better assess sleep problems and develop strategies to intervene to help the elderly achieve a higher level of wellness.

A pilot study, using the tool that was developed to assess the elderly's perception of insomnia, was conducted using 40 elderly clients presenting to a primary care setting for health care. The analysis of the pilot study is descriptive only, since the population used was small. This study will look at how insomnia is manifested, how it is viewed by the elderly client, what strategies--medical, self-care, or both--are used, if the client is satisfied with medical management, whether other chronic illnesses are present, what medications the client is taking at the present time, and sociodemographic data about the clients. This pilot study will, it is hoped, demonstrate that a sleep questionnaire can be used in the primary care setting to help address areas of concern to the elderly client.

Definitions of Concepts

For the purposes of this study, the elderly are defined as those persons between the ages of 65 and 85. Theories concerning aging have changed since 1970 (Ebersole & Hess, 1981). It is difficult to define or measure when one becomes old because of the way the world is changing around us. The ages specified are used, first of all, because an individual is aware of the aging process and most likely involved in certain aspects of the changing lifestyle and, second, because the population of the primary health care system used for study purposes had more individuals in this age group who seek health care services.

Primary health care has been defined by the Department of Health, Education, and Welfare (1972) as comprising two dimensions:

responsibility for a person's first contact in any given episode of illness with the health care system leading to a decision of what must be done to resolve his/her problem; and coordination of the continuum of care, that is, maintenance of health, evaluation and management of symptoms, and initiation and follow-up of appropriate referrals. A primary health care system is a setting that combines these dimensions and makes these services available to clients.

The term identify is defined by Webster's (1981) as "recognizing to be the very thing described." In other words, it is a cognitive mechanism whereby an individual either positively attributes the characteristic to be true of himself or it is not, or it is not identified.

Insomnia, the condition studied, is not a disease but rather a symptom indicating that there is an abnormality of one's sleep pattern. Insomnia signifies want of sleep and is used to indicate any interference with the duration or depth of sleep (Harrison, 1980). Insomnia is an interruption in one's sleep pattern that is a restorative physiological factor important to health and well-being. These interruptions, for the purposes of this study, are frequent awakenings, difficulty falling asleep, longer periods in bed, and early morning awakenings.

A problem has been defined in Webster's (1981) as a difficult matter requiring a solution. A health problem, then, would be a matter requiring a solution pertaining to one's health. Health has been defined as the subjective presence of well being along with data that measure normal function (American Academy of Nursing, 1977). From

these definitions, a health problem is defined as a matter requiring a solution that pertains to the subjective presence of well-being that measures normal function.

The primary health care provider is viewed as part of the primary health care system. The provider is seen as being able to identify the health status of an individual; assume the responsibility of the management of the health problem, ongoing health maintenance, and clinical management; and identify the need for continuity of care by coordinating, collaborating, consulting, and referral of services as needed (Yedidia, 1981).

Self-care, according to Norris (1982) consists of those processes that permit people and families to take initiative, to take responsibility, and to function effectively in developing their own potential for health. Self-care encompasses preventive self-care, self-treatment, and deciding whether to call a health care provider for assistance.

Strategy is a term used frequently throughout nursing literature as a means of developing a plan of assistance for a client. Webster's (1981) defines strategy as just that--a careful plan or method. The strategy that is developed is to be used as a method toward the solution of the problem or an end goal of relief from the problem.

In summary, sleep has a restorative and recuperative function necessary for the preservation of life. When a person becomes older, there seems to be more difficulty in achieving quality sleep; thus insomnia is seen as a common complaint. To be able to understand

elderly clients' manifestation of insomnia and perception of whether insomnia is a health problem will assist the health care provider in instituting a plan of care to promote their current health status.

Importance of Study

The findings of this research project should provide new information on the problem of insomnia as perceived by the elderly client. These findings should have a significant effect on increasing the health care provider's awareness of whether insomnia is a significant problem in the elderly population. The literature is lacking in studies of sleep problems, their prevalence and significance as related to a primary health care setting. This author has developed a tool to be used for sleep assessment of the elderly client. By using this tool, perhaps the relationship between the elderly client, the sleep problem of insomnia, and its relationship to the primary health care provider can be studied in more detail. As the elderly population of our nation steadily increases and if insomnia is a prevalent complaint of this population, then the primary health care provider will need to realize this complaint. With this realization, the primary health care provider can gain knowledge of effective strategies and treatment to help the elderly client in dealing with insomnia.

Assumptions and Limitations

It is assumed that insomnia is, indeed, a problem that occurs more frequently in the elderly. Although this does appear to be true of studies done with hospitalized or institutionalized elderly, it cannot

be generalized to the healthy elderly, since there is only one that deals with a healthy elderly population (Hayter, 1983). Thus the assumption of a problem being true with one segment of the elderly has been believed to be true of all elderly.

The fact that only one sleep study was found that was concerned with healthy elderly is a limitation of this study. There is not a great source of literature to review regarding the elderly's sleep habits. Specifically, the sleep complaints of the healthy elderly, not hospitalized or institutionalized, are limited. Sleep literature concerning the elderly has increased since the 1980s, but these sources of information are not often concerned with the healthy elderly who would be presenting to a primary health care setting. The number of sleep studies involving healthy elderly and the small amount of literature in this area of sleep are viewed as limitations of this study.

It is hypothesized that the elderly client obtaining health care at a primary health care setting would identify insomnia as a problem and that these elderly persons would implement self-care strategies before seeking the advice of a primary health care provider.

The remainder of this written project covers various portions of the research. First, the concepts as applied according to Florence Nightingale's theory, a review of the literature regarding insomnia and the elderly, the methodology and procedures used to implement the assessment tool and, finally, a summary of the conclusions obtained from the study and their implications for nursing practice are discussed in the remaining chapters.

CHAPTER II

CONCEPTUAL FRAMEWORK

Overview

The elderly are having a more significant impact on our society as their number increases. They are becoming involved in community activities, varied group organizations, and many are involved in politics at the community, state, and national levels. With the number of elderly increasing in our society, there is an increased need to understand and be able to care for their health problems at the primary care level. The elderly may be seen often by a primary care provider for chronic health problems or acute episodes of illness.

Insomnia has been identified in the literature as a common complaint of the elderly. Along with the many life stressors and changes the elderly face, they may also be experiencing a disruption of their sleep--or insomnia. The question arises, would the elderly identify a change in their sleeping pattern, namely insomnia, as a health care problem that they would be likely to bring to a primary health care provider to assist them in overcoming? Since sleep is viewed as a normal body function, perhaps the elderly would not identify this as a health problem, and self-care for insomnia would not be instituted as they may suffer needlessly.

Whether a primary health care provider is sought for the identified problem of insomnia or self-care is used, specific strategies for the relief of insomnia are the end result. These strategies may or may not be effective. This may result in using many strategies to attempt to achieve the relief of insomnia. By using strategies used to relieve insomnia in the elderly, the primary health care provider of the elderly should be capable of maintaining the present health status and quality of life of the elderly.

In summary, the elderly population is increasing in size. Therefore, the number of elderly seen by primary health care providers will also be increasing. Insomnia is a common complaint of the elderly. As primary health care providers, it is important for us to understand whether the elderly do identify insomnia as a problem and how it is manifested. It is also important to know whether insomnia is identified as a health problem if it is managed by using self-care. In either instance, specific strategies, believed to be useful in relieving the complaint of insomnia, should come forth.

In the remaining portion of this chapter, the concepts of this research are defined; also included is a schematic presentation of the conceptual framework. A discussion of Florence Nightingale's theory of nursing and its relationship to the research conceptual framework follows. Finally, a summary of how these concepts relate to the research problem under study is presented.

Elderly

Elderly as defined by Webster's (1981) is "rather old," being past middle age. This is a poor measure of age since everyone's perception would be different. Theories concerning aging have changed since 1970 (Ebersole & Hess, 1981). It is difficult to define or measure when one becomes old because of the way the world is changing around us. The chronological age using 65 as the dividing line for "old age" was begun by Bismark in the 1880s in legislation dealing with retirement pensions (NIH, 1980). At this age in life one is able to retire, collect Social Security benefits, and often no longer remains a "working" member of society. This arbitrary choice of age 65 was appropriate in the nineteenth century, when this age was the life expectancy for males in most Western countries. The National Institute of Health and World Health Organization have defined "elderly," "aged," and "old" to mean age 65 and over (NIH, 1980). Since this is the traditional view of when old age or elderly begins, I defined elderly, for the purpose of this study, to be ages 65 to 85. This age span is used because it will give some depth to the variety of responses to be returned. The individual will be aware of the aging process and most likely involved in certain aspects of the changing lifestyle. Also, the particular setting used for this study has a high volume of clients between the ages of 65 and 85. Thus elderly is defined as those persons 65 to 85 years of age.

Primary Health Care System

The system that delivers ongoing longitudinal care for an individual is a characteristic of a primary health care system. The system serves as a point of entry to a setting delivering health care, and also a point of screening and referral if necessary. Basic services are provided that deal with preserving health, health maintenance, or health promotion. Being capable of offering human support to its clients concerning health-related issues is a quality of the primary care system that aids in helping individuals through difficult circumstances (College of Nursing, 1981).

The care given in a primary care system is client centered and holistic. The care given helps the clients define their involvement with professional services and how to continue with the care. Thus the primary health care system is seen as the coordinating, collaborating, and integrating system when other health care services are needed (College of Nursing, 1981).

The primary health care system is, then, one's first encounter with a system that treats the client holistically concerned with preserving health, health maintenance, and health promotion. It is an autonomous system of health care that refers when necessary, collaborates and integrates the system with other services that are needed. The primary health care system provides continuity of care to the client over time. The system keeps the client as its central focus (College of Nursing, 1981). The primary care system is defined, then, as the entry point of an individual to the health care system.

Identify

Identify implies a recognition of a particular state as being present, according to Webster's Dictionary (1981). Thus to not identify would be not recognizing a particular state to be present. Recognition of such a state would mean that some sort of mental process has occurred in which a person would either attribute or not attribute known characteristics of a state to be true of one's self. The answers on the sleep questionnaire, to be used in this study, will indicate whether insomnia is a sleep disturbance that he/she has encountered. By this process, then, the elderly will identify or not identify insomnia as a problem that they face. They will do this identifying by completing a sleep questionnaire.

Insomnia

Insomnia is the symptom to be studied. Insomnia is not a disease but rather a symptom that is an abnormality of one's sleep pattern. Insomnia signifies want of sleep and is used, popularly, to indicate any impairment in its duration, depth, or restorative properties (Harrison et al., 1980). Insomnia is, then, an interruption in one's normal sleep pattern which is a restorative physiological factor important to health and well being. The fact that this symptom signifies a threat to the individual's health and well being is true of those who would present themselves to a primary health care setting.

Insomnia of the elderly is the specific category of clients to be studied. Little is known about the elderly population's identification

and perception of insomnia in relation to the primary care setting. Research has been done on the subjective characteristics of sleep in the elderly population using sleep laboratories, electrocephologrames, and electroculograms (Feinberg, 1967; Gerard, 1978; Herbert, 1978; Karacan & Williams, 1978). The elderly clients presenting to a primary care setting are chosen because they are at a stage in their lives when health has great importance. Insomnia is a symptom that may arise causing a disturbance in their lifestyle. The elderly's perception of whether insomnia is truly a health problem to be taken care of in a primary care setting will be evaluated. As noted earlier, studies regarding the elderly's perception of whether insomnia is a significant problem and its prevalence as a complaint in a primary health care setting are not abundant. Thus the study will help to give an indication of the prevalence of insomnia as a problem of the elderly that would be encountered by the primary health care provider.

According to the literature, insomnia will be defined as a want of sleep due to (1) increased number of nighttime awakenings or difficulty remaining asleep (Bradner, 1976; Cohen, 1978; Hayter, 1980; Johns, 1975), (2) sleep latency or difficulty in falling asleep (Cohen, 1976; Hayter, 1983; Johns, 1975), and (3) early morning awakening (Cohen, 1976; DeLOughery, 1982; Hayter, 1980). The elderly who identify insomnia are likely to be describing one or more of these sleep problems. Age has been shown to be a factor in the reporting of sleep disturbances. The elderly reports a problem to a greater degree than does a younger person (Weiss, 1974).

In summary, insomnia will be viewed as an interruption in one's sleep pattern which is a restorative physiological factor important to health. The population to be studied will be the elderly client classified earlier. The presence of insomnia will be determined by administering a self-rating sleep questionnaire. The questionnaire will determine if the elderly identifies insomnia as a problem, and also how insomnia is manifested and managed.

Primary Health Care Provider

Primary health care has been defined as including the initial contact of the client with the health care system and encompasses a full range of basic health services (Silvers & McAttee, 1979). Primary health care involves taking care of those who are well and ill. The care should be accessible, individualized, client-oriented, of high quality, comprehensive, and based on a firm background of knowledge that integrates the medical, biological, physiological, psychological, social, and behavioral sciences.

The provider of this primary health care can be one of a variety of health professionals. For the purpose of this study, the primary health care setting whose elderly are to be studied are given care by two physician primary care providers. Thus, these are the health professionals whose care the elderly would be seeking if insomnia is identified as a problem for which they would seek care. The primary health care provider, then, is the person who assumes the responsibility and accountability for the coordination, integration, and

continuing management of the client's total health care and services (Silvers & McAtee, 1979).

In summary, a primary health care provider will be the health professional whose care is sought in a client's initial contact with the health care system offering a full range of basic health services.

Self-Care

Individuals have been taking care of their own health needs for years. Norris (1979) defined self-care as encompassing those processes that permit people to take initiative, to take responsibility, and to function effectively in developing their own potential for health. This definition implies that self-care encompasses preventative self-care, self-treatment, and deciding whether to call health care providers for assistance. For the purposes of this study, this perception of self-care will be utilized in relation to the elderly.

Self-care, according to the definition, includes those acts of everyday living that maintain the well-being of older adults. Self-care is caring for one's self. Elderly persons have been caring for their own needs for many years. Although the current health care system fosters the dependence of the elderly, self-care is a process that is often chosen over seeking the advice of the health care provider. The elderly have the knowledge, experience, and ability to make effective decisions regarding their own health status that maintain life, health, and well-being.

In summary, self-care is the process that permits people to take initiative, responsibility, and to function effectively in developing

their own potential for health. The elderly have experienced and learned much about self-care throughout their lives. This puts them in a unique situation to implement self-care.

Strategy

A strategy according to Webster's (1981) is a careful plan or method. This plan or method that is implemented by the elderly is either a recommendation of the health care provider or of self-care. A strategy is an attempt to devise and employ certain methods that will result in relief of the problem, in this study being insomnia. A strategy, then, is the careful plan or method that has been developed to attempt to reach the goal of easing the problem of insomnia.

In summary, the elderly may either identify or not identify insomnia as a problem. In the instances where insomnia is viewed as a problem, the elderly may choose to address the problem with a health care provider or institute self-care in order to obtain relief. Specific and a variety of strategies may be employed in order to provide relief for the elderly suffering from insomnia.

The concepts that have been defined are connected. The conceptual framework depicted in Figure 1 illustrates the connectedness of these concepts. The elderly is the individual who either will identify insomnia or will not identify insomnia as a problem. If insomnia is identified, the options of whether to present this problem to a primary health care provider or to institute self-care exist. Whichever approach is taken to relieve the problem of insomnia, strategies should

be the end result. This conceptual framework goes back to the original research problem of: Whether the elderly presenting to a primary health care setting identify insomnia to be a problem; if they do, how is it manifested and is it viewed as a health problem to be taken care of by the primary health care provider or is self-care instituted.

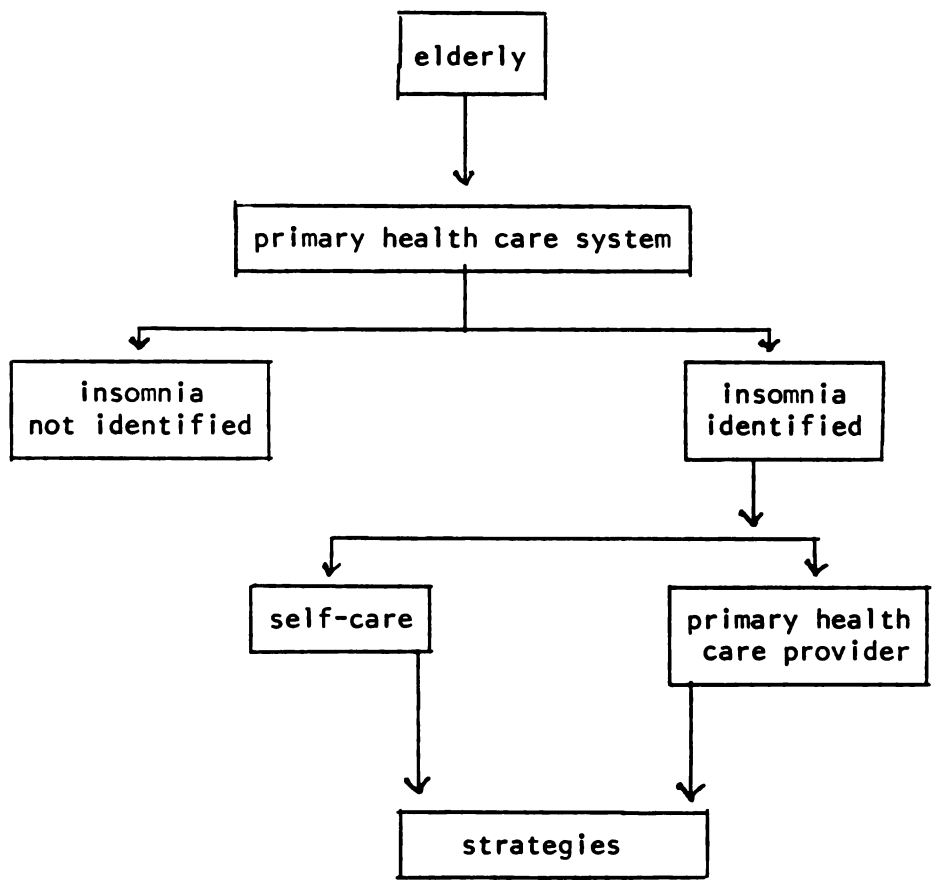

Figure 1.--Conceptual model.

Relationship of Model to Nursing Theory

Florence Nightingale was born into a society characterized by widely disparate social structures. At one end of society the carefree, complacent upper class lived in a state of isolated affluence; at the other end was the victimized, oppressed lower stratum (Palmer, 1977). Born in 1820 of well-to-do parents, Florence Nightingale possessed energy and determination that would make her eminent in any age. Nightingale's character was influenced by a love of the arts; dissent from religious orthodoxy; a meticulous education, equal to that of most men of her day; extensive travel; and her belief that she had received a call from God to do His will. The status of nursing, her mission in life, was so low that her ultra-conservative family was startled and ashamed by her intentions. Nightingale was a strong individual, and the tenacity with which she clung to this sense of vocation enabled her to succeed where a less resourceful character would most certainly have failed (Bolster, 1964). Few persons of the nineteenth century have been surrounded by so much glamour and public adoration as has Florence Nightingale. Nightingale did much to establish nursing as a profession. Her theory of what nursing is and is not is still applicable to the profession today.

Nightingale's general focus of nursing comprises the units of person, environment, health, and disease. The person is viewed as comprising physical, emotional, social, and spiritual components, or a holistic being. A person is believed to be able and responsible to alter his situation to relieve suffering. The environment is those

physical elements, external to the person, that affect the healing process and health. Health is, then, a result of environmental, physical, and psychological factors. Health is being able to use well every power we have to use. Nightingale believed these units act together and were units that nursing could influence to prevent disease, which was seen as the reparative process of the body to correct some problem.

The central focus of Florence Nightingale's theoretical framework is nursing and its relationship to health. Her primary focus for nursing to aid in promoting health is by influencing the environment. She has conceptualized nursing as a science of health and has described it as primarily directed toward improving and managing the environment so that nature can heal patients (Ellis, 1982). Nightingale viewed nursing as having an assistive function in helping the client return to or maintain health. Nightingale viewed the nurse as primary care agent and as the first defense in health maintenance, promotion of wellness, and prevention of disease (Palmer, 1983). Today, this conceptualization of nursing is again receiving a great deal of attention with health maintenance and health promotion being areas where nursing is putting emphasis, especially in the case of the nurse in primary care.

Nightingale, in the 1800s, realized the importance of nursing the well. She had the wisdom to know the best way to promote the health and welfare of the British soldier was to improve the health of the British population, which was the source of the army (Palmer, 1977). Nightingale perceived the nurse as the key to establishing a healthy,

disease-free citizenry; further, she perceived that nursing extended from the active care setting to the broadest concept of the community, or primary care nursing. She believed the laws of health are of nursing, for they are in reality the same and apply among the well as among the sick (Nightingale, 1860). Nightingale was a leader in recommending preserving health as well as curing the ill. Thus, using Nightingale's ladder concept of what nursing is and following it down the side of health, one can see that putting the healthy elderly in a condition to preserve their present health would be a prime role for nursing.

In her book, Notes on Nursing (1860), Nightingale viewed sleep as an important aspect of life. She addressed the fact that the first cycle of sleep is most restorative and if a patient is roused out of this sleep he is almost certain to have no more sleep. Nightingale stated, "never to allow a patient to be wakened, intentionally or accidentally, is a sine qua non of all good nursing" (p. 25). Thus, Nightingale would have been concerned by the elderly's frequent awakenings at night and would have believed nursing could impact this restorative function. Nightingale also wrote of the healthy person who allows himself to sleep during the day will lose his sleep at night. Napping during the day is often a habit of the elderly and perhaps is a reason for the complaint of insomnia. Nightingale also believed the environment should be conducive to sleep. She addressed the fact that sleep should not be disrupted by noise, that bedding should be clean and light, light in the room and fresh air essential

for providing a proper environment. Thus, Nightingale's concern for sleep as a necessary, restorative function that is affected by one's habits and environment gives credence to the elderly's need for sleep and support for some strategies to promote sleep for them. Another strategy to promote sleep, as addressed by Nightingale, was reading. Although her works do not say a great deal about spirituality, one can infer from her upbringing that this is an aspect of the total individual she did not mean to neglect. Therefore, when reading is said to be relaxing, one can infer it is the Bible being read, which was common practice in the era in which she lived. One can derive that Nightingale approaches the client in a holistic sense and interprets sleep as an important process which nursing can impact.

Nightingale did not ever write about the client being involved in self-care. She assumed the client to be almost passively affected by the nurse and the environment. She did see the person as having the ability and responsibility to alter his situation to relieve suffering. Thus it is felt that she did, in a sense, believe in self-care. Nightingale was a progressive individual for the nineteenth century. She most likely would have been a proponent of self-care and have seen this as the client's choice to affect his environment, relieving insomnia and promoting and preserving his health.

Following Nightingale's ladder conceptualization of nursing addressing the healthy client, the concepts of this study are applicable to what Nightingale believed nursing to be Figure 2). A primary health care nurse can put the healthy client in condition for nature to

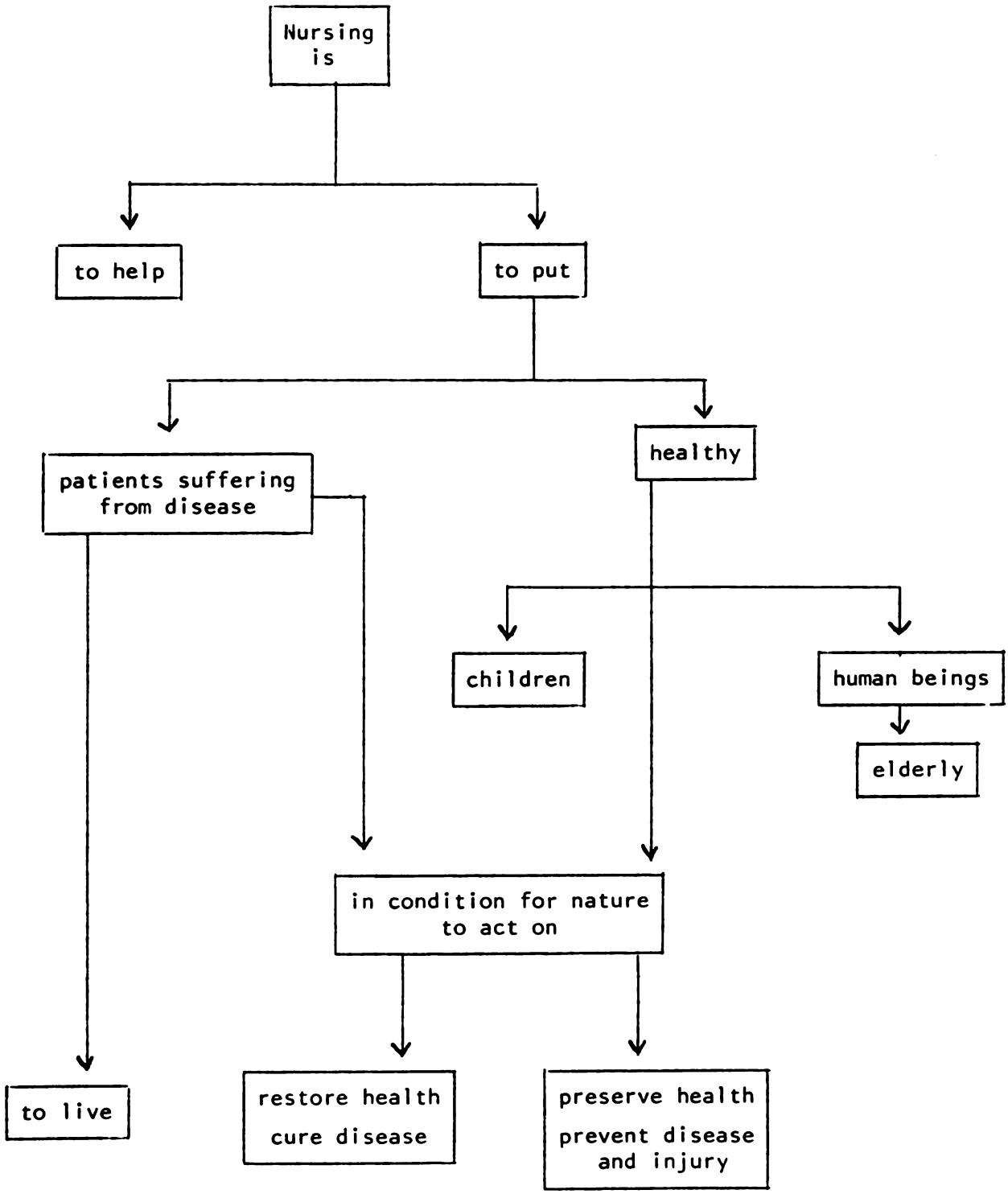

Figure 2.--An adaptation of Nightingale's ladder model of nursing. (From George, J. (1980). Nursing theories: The base for professional nursing practice. Englewood Cliffs, N.J.: Prentice-Hall.)

act upon to preserve health and to present disease and injury. Thus, if the healthy elderly client brings the problem of insomnia to the primary care provider, the provider should be able to maintain the health and prevent disease in the elderly by using strategies that act on the environment to effect change and relieving insomnia.

This study will illustrate that the environment affects the elderly by using George's (1980) triangle representation dividing the environment into the segments of physical, psychological, and social environment (Figure 3). Dealing with insomnia as the patient's condition, the physical environment can promote sleep by being conscious of the air, light, noise, temperature, pain, humidity, cleanliness, and other variables. The psychological environment relates to promoting sleep by being aware of stressors, anxieties, fear, depression, allowing communication so that the elderly gain knowledge of the condition. The social environment affects the elderly by the daily routine that they have established affecting circadian rhythms and by allowing for prevention of disease and health promotion. Using these factors and fitting them into the triangle conceptualization of nursing, one is able to see that insomnia is a health problem that nursing is capable of managing holistically for the elderly. Nightingale treats the client holistically and discusses sleep in her writings with the desired outcome being to have an environment that enhances sleep, which is necessary for a healthy individual.

In summary, Nightingale's theory of nursing in dealing with the healthy is in the same focus as this study. The primary health care

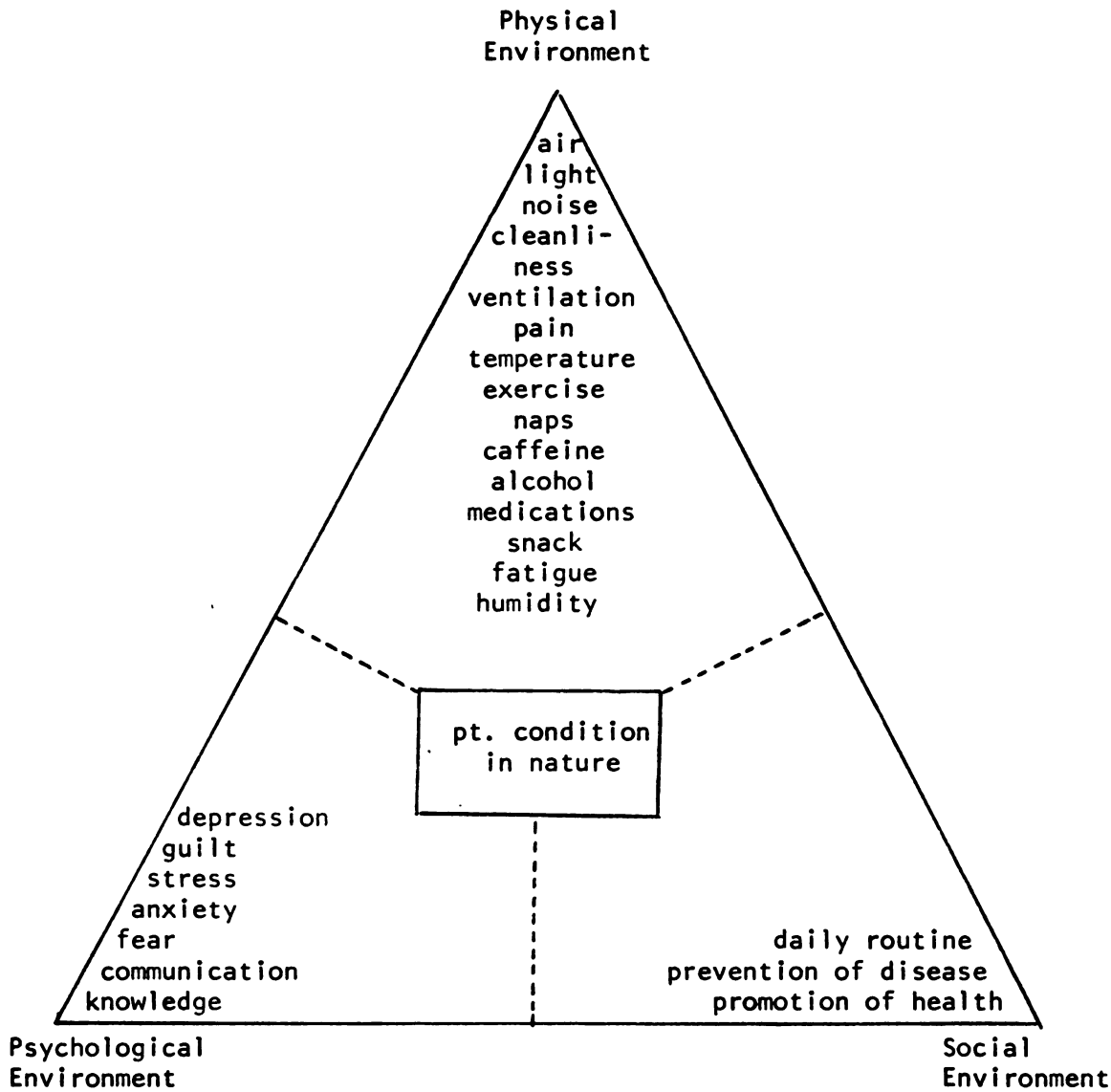

Figure 3.--Adaptation of Nightingale's concept of nursing. (From George, J. (1980). Nursing theories: The base for professional nursing practice. Englewood Cliffs, N.J.: Prentice-Hall.)

provider, today, is working with healthy clients, and many of these clients are elderly. The primary health care provider is in a position to aid the elderly in preserving their health and promoting health. Today, self-care is also seen as an option to primary health care that the healthy has to maintain or preserve his health. Nightingale believed sleep to be a restorative function necessary for health that can be enhanced by environmental factors. Again, this conviction is maintained throughout this study. Nightingale's theory of nursing and statements regarding sleep give support to the conceptual framework of this study.

CHAPTER III

REVIEW OF LITERATURE

Overview

How many thousand of my poor subjects
Are at this hour asleep! O' sleep, O' gentle sleep,
Nature's soft nurse, how have I frightened thee,
That thou no more wilt weigh my eyelids down
And steep my senses in forgetfulness?

Shakespeare...Henry IV

How did you sleep last night? This commonplace question has taken on new significance for health and longevity in recent years as investigators have begun a detailed exploration of sleep and wakefulness in older people. Sleep research began in the 1960s; then momentum and monies for sleep research increased in the 1970s. We are now in the 1980s. The focus of much sleep research is studying the sleep pattern of the elderly (Dement et al., 1981).

The elderly are becoming a dominant force in our society as the life span increases (Gelein, 1982). Society appears to be aware of the impact the increased number of elderly have in affecting change in political candidates, organizations, schools, and the health care system. As their number increases, the elderly are having an increased contact with the health care system. Age has been shown to be a factor in the reporting of sleep disturbances. The elderly person reports a

problem with sleep to a greater degree than does a younger person (Collings, 1983; Weiss, 1974).

Since we spend approximately one-third of life in sleep (deBrun, 1981; Ebersole & Hess, 1981; Fenton, 1976), it is an important body function to understand. In response to the question of the nature of sleep, many definitions of sleep are found. Sidney Cohen (1976) defined sleep as a condition of reduced consciousness. Oswald (1976) expanded on this definition, defining normal sleep as a recurrent healthy condition of inertia and unresponsiveness which is associated with various physiological changes. Although one generally accepted definition of sleep does not exist, most researchers have defined it in basically similar terms. The major components included are: (1) sleep suspends the complex sensory motor activity which brings one into relation with the environment (Fenton, 1976); (2) sleep and wakefulness comprise alternate phases in the cycle of existence (Hayter, 1980); and (3) sleep is a normal body function which is required to maintain physical and mental health (Hartman et al., 1972).

Normal Sleep

The sleep process can be divided into two neurologically distinct states. These are NREM (non-rapid eye movement) and REM (rapid eye movement) (Gambert & Duthie, 1981; Karacan & Williams, 1983). These states cycle through a sequence of four stages of NREM followed by REM. This cycle usually lasts approximately 90 minutes and is repeated four or five times in the course of a night (deBrun, 1981; Hayter, 1980; Karacan & Williams, 1983).

In Stage I of NREM sleep, the first stage of normal sleep, a person is somewhat aware of his surroundings, very relaxed and dreamy at this time. In this stage of sleep a person is frequently awakened by involuntary body jerks. Stage I of sleep only lasts approximately 5% of the total sleep time (Hayter, 1980; Kinzie & Markoff, 1974). Low-voltage sleep waves with mixed frequencies appear on EEG during this stage (Kinzie & Markoff, 1974).

Stage II NREM follows and is the first well-defined stage of sleep. It has been estimated to fill between 40 and 55% of our total sleep time (Kinzie & Markoff, 1974; Walsleben, 1982). There is moderately easy awakening during this stage of sleep. One remains somewhat aware of his surroundings. Sleep spindles and K complexes are recorded on EEG at this time (Walsleben, 1982).

Stage III NREM sleep is the next phase of sleep that a person enters. This phase encompasses approximately 10% of one's total sleep time. High-voltage sleep waves with generalized slowing are recorded on EEG during this stage of sleep. Sleep is becoming deeper, thus making awakening more difficult. Physiological changes noted are a slower pulse, respiratory rate and blood pressure are lowered (Kinzie & Markoff, 1974).

The next stage of sleep one enters is Stage IV NREM. This stage usually appears approximately 40 minutes after the start of Stage I (Hayter, 1980). This is a phase of profound sleep during which there is the greatest difficulty in awakening. Confusion, for a brief time, may appear upon being aroused from Stage IV NREM. Physiological

changes that occur are again a slow pulse, lowered blood pressure, slow respiration, and body temperature falls (Kinzie & Markoff, 1974; Martin, 1975; Walsleben, 1982). This stage of sleep takes up approximately 10 to 15% of the total sleep time. Stage IV sleep is said to restore, relax, and rest the body physically (Hartmann, 1976; Hayter, 1980). This stage of sleep is what most people think of when they think of sleep, when they are in total oblivion to their surroundings. An EEG tracing during Stage IV NREM shows a high-voltage wave with slowing.

Often Stages III and IV NREM are referred to together as slow-wave sleep or Delta Sleep (deBrun, 1981). The human growth hormone is believed to be sleep dependent and requires the precursor of slow-wave sleep (Martin, 1975). The bulk of Stages III and IV sleep is believed to occur in the early portion of the night (Fenton, 1976), being prevalent in the first third of the night.

By the end of about 90 minutes total sleep time, one gradually returns up through the lighter stages of sleep to Stage I (Hayter, 1980). Instead of reentering Stage I or awakening, one enters REM sleep. REM sleep on EEG tracing is low-voltage, high-frequency, similar to Stage I of NREM. Approximately 20% of one's total sleep time is spent in the REM phase (Gambert & Duthie, 1981; Kinzie & Markoff, 1974; Walsleben, 1982). REM sleep has many unique features. The one for which it is named is the frequent bursts of rapid eye movement, which often can be observed through closed eyelids (Fenton, 1976; Hayter, 1980). Other unique physiologic characteristics of REM

sleep include profound muscular twitching, muscular relaxation with complete relaxation of the lower jaw and neck, the pulse and breathing become irregular, the blood pressure variable, body temperature becomes uncontrolled, and a marked paroxysmal increase in nerve cell activity. Males have penile erections, and gastric secretion is increased in both sexes, the highest level of oxygen consumption occurs, and increased cerebral blood flow (Hayter, 1980; Karacan, 1971; Kinzie & Markoff, 1976; Martin, 1975; Oswald, 1976; Walsleben, 1982). The need for REM sleep is said to be psychologically and mentally restorative (Hartmann, 1971; Hayter, 1980). REM sleep is believed to have a particular role of restoring and maintaining the function of catecholamine mechanisms within the brain. A high proportion of REM sleep is associated with periods of most rapid brain growth (Oswald, 1976). Periods of REM sleep increase during each cycle of sleep throughout the night (deBrun, 1981; Fenton, 1976; Hayter, 1980). So as Stages III and IV NREM decrease as the night progresses, REM sleep is increasing.

The dreams associated with REM sleep are believed to be essential to the process of mental restoration. Studies of sleep behavior reveal that everyone dreams during REM sleep, although these dreams may not be remembered upon awakening (Hayter, 1980). When one is awakened from REM sleep, he is likely to report vivid dreams with much visual imagery. This REM mentation slips rapidly from the memory unless rehearsed upon reawakening (Fenton, 1976). Because of this fact, many deny having dreams.

The psychological and mental restoration that are said to accompany REM make it important for learning, memory, and psychological adaptation. It is during REM sleep that the day's events are reviewed. This perhaps is why problems sometimes are solved when one "sleeps on" a troublesome issue or, at least, a new perspective may be gained (Hayter, 1980). The requirement for REM sleep has been said to be increased if one is facing psychological stresses. This increase in REM sleep may give one a feeling of not having slept soundly due to the fact that REM sleep is a lighter sleep (Hartmann, 1971).

The cycle of sleep from Stage I NREM to REM sleep is said to occur four to five times per night, with a complete sleep cycle about every 90 minutes. The distribution of these sleep stages has been shown to be relatively consistent across the population (Karacan & Williams, 1971). That is, most REM sleep occurs in the later one-third of the night, and Stages III and IV NREM sleep are more prevalent during the first third of the night. People are generally aware that they sleep more lightly and dream more during the hours just before awakening (Fenton, 1976; Hayter, 1980; Karacan, 1971). Some research exists that states these 90-minute cycles are part of the body's rhythm, circadian rhythm. It is believed these 90-minute cycles occur throughout the 24 hours of the day and are part of the biological rhythms of man (Brandner, 1976; Collings, 1983; Hayter, 1980). In normal humans of all ages, the regular alteration of sleep and wakefulness in a 24-hour period is a fundamental biological rhythm.

In summary, normal sleep has been described according to different stages, with the various physiological changes that occur, the approximate amount of time spent in each stage, the EEG tracing characteristics of each, and the functions that each stage of sleep is said to serve. These descriptions of what takes place during normal sleep give the primary health care provider a foundation to help assess sleep-related complaints.

Sleep Changes With Aging

As one ages, the distribution of time spent in each stage of sleep changes. This, in turn, affects the quality of sleep in the elderly. There is a need to have a working knowledge of the fundamental principles of the changes that occur in sleep throughout the life cycle. By understanding the basic changes of sleep that occur with aging, one may gain valuable insight for assessment and management of elderly clients (Lerner, 1982). Various characteristics of NREM sleep change dramatically with aging.

Stage I NREM is altered for the elderly. In this instance, there is said to be an increased total duration of Stage I and an increase in the number of shifts into Stage I sleep (Dement, 1981; Karacan, 1983). Since more Stage I sleep predominates elderly persons' sleep pattern, then it would be understandable to think that their sleep would be lighter.

Stage II of NREM sleep is apparently unchanged as one ages (Bahr, 1983; Dement, 1981; Hayter, 1980). Dement did mention that the

characteristic EEG tracing of Stage II may show an alteration in the sleep spindles.

Karacan (1983) stated that slow-wave sleep or Stages III and IV sleep gradually decrease with age until it is nearly absent by age 60. Brandner (1976) in his research agreed with this statement. These are the sleep stages that are physically restorative. Other research has indicated that Stage IV NREM sleep decreases steadily throughout life, estimating a 30 to 55% decrease by age 70 (Cohen, 1976; Gambert & Duthie, 1981; Kinzie & Markoff, 1974). Dement (1981) stated that in Stage IV NREM there is an absolute and relative reduction in time spent in this stage, with little or none by age 60. His research findings indicated that there tends to be normal or even an increase of Stage II in elderly women and normal or reduced in men.

Rapid eye movement (REM) sleep also undergoes some changes with the aging process. One study said that there is a decrease of REM sleep to about 20% of the total sleep time (Brandner, 1976). Hayter (1983) said that REM sleep remains unchanged with aging. Karacan (1971, 1981) and Dement (1981) believed that REM sleep remains fairly stable until extreme old age. Dement went on to express his view that this decrease in REM sleep of the elderly may show a trend of reduced intellectual function related to organic brain syndrome with changes in cerebral blood flow. When the period of REM sleep decreases, there is also a decrease in the physiological change that accompanies it. The length of REM sleep remains fairly uniform throughout each sleep cycle. So the majority of REM sleep for the elderly does not occur in the last

one-third of sleep. Stage II NREM is believed to frequently interrupt REM sleep for the elderly (Dement, 1981; Karacan & Williams, 1983; Kellerman, 1981).

In summary, research has shown that the stages of sleep are altered by the aging process. Stage I NREM increases in amount. Stage II NREM is unchanged except by EEG tracing. Stages III and IV NREM have the most dramatic change as one ages. They are greatly decreased as one ages. Some researchers believe they are absent. There are varied opinions about the changes in REM sleep. Some research has stated there is a decrease of REM in extreme old age. The period of REM sleep remains uniform throughout the sleep cycles and is frequently interrupted by Stage II NREM sleep.

Another change that accompanies aging is in the total sleep time. There are varying beliefs about the total sleep time of the elderly as compared to that of the average person. Hayter (1983) believed that the total sleep time of the elderly does not change with age; the older person does not require more or less sleep but does require longer to go to sleep. On the other hand, Fenton (1976) and Brandner (1976) believed that with age there is a decrease in the total sleep time. They stated that the elderly function well on 5 to 6 hours of sleep compared to 7 or 8 for the young adult. Gerard (1978), Lerner (1982), and Johnson (1975) believed that it takes the elderly more time in bed to achieve the same amount of sleep as a younger person. Dement (1981) commented that there are studies indicating the total sleep time to be reduced and those that show it unchanged. A consideration that needs

to be taken into account along with total sleep time in an elderly person is whether napping is part of their lifestyle. The number of daily naps averages 1.8 for men and 1.4 for women (Dement, 1981).

One further alteration of the sleep pattern that occurs with aging is an increase in the number of awakenings per night. Lerner (1982) stated that scarcely an hour goes by without the elderly person awakening. Other researchers have shown that there is a definite increase in the number of awakenings after sleep onset until the final awakening (Brandner, 1976; Dement, 1981; Gambert & Duthie, 1981).

As has been discussed here, aging involves changes at all levels: cellular, physiological, and functional. By these changes, the delicate mechanism of sleep is altered. The elderly person experiences quantitative as well as qualitative changes in sleep patterns. Thus, the picture of sleep for the elderly that emerges from research is one of marked fragmentation. The stages of sleep are altered. The elderly can be expected to take longer to go to sleep, to wake up more frequently and for longer periods (Herbert, 1978). The more time spent in bed presumably correlates with the frequency of complaints of insomnia in the elderly (Gambert & Duthie, 1981).

About 50% of all persons over the age of 60 report insomnia-related symptoms (Karacan, 1983). Insomnia is a symptom of sleeplessness. It is a complaint, not a disease (Brandner, 1976). There are three types of insomnia that have been identified: (1) sleep latency or difficulty in falling asleep after retiring; (2) broken sleep or the multiple awakenings during the night with difficulty in falling asleep

again; and (3) early morning awakening (Cohen, 1976; DeLoughery, 1982; Dement, 1981; Karacan, 1983).

As was noted earlier, multiple awakenings are part of the aging process. These frequent awakenings may leave one with the feeling that he has had a poor night's sleep. Early morning awakenings are also a common complaint of the elderly (DeLoughery, 1982). This type of insomnia is often equated with an early sign of depression (Cohen, 1976; DeLoughery, 1982; Frankel et al., 1976). Difficulty in falling asleep may be due to the fact that the elderly person has had a nap after dinner and is not able to sleep again when it is bedtime (Hayter, 1980). If there is a preoccupation about getting to sleep, the anxiety that results can lead to sleep latency. The frustration of wanting to fall asleep can become a repetitive cycle. Cohen (1976) noted that elderly persons seem obsessed with their insomnia and persistently brood about it during their waking hours.

The normal body rhythm, circadian rhythm, appears to undergo change in the elderly, beginning at about age 60 (Karacan, 1983). Collings (1983) stated that there is a tendency toward disassociation and asynchrony of some circadian rhythms in elderly people. This is due to central nervous system deterioration, sensory impairment, and changes from biphasic to polyphasic sleep patterns that may occur as a normal part of the aging process. Thus the sleep and wakefulness pattern of the elderly may not follow a pattern of circadian rhythmicity.

In summary, changes in the elderly's sleep occur not only in the sleep stages, but the sleep patterns are also affected. The total sleep time of the elderly, number of nighttime awakenings, early morning awakening, and changes in the circadian rhythm alter the quality of sleep for the elderly. Insomnia is a common complaint of the elderly, often due to the reporting of a change in one of these sleep patterns.

Differential Diagnosis of Insomnia

Other factors affect the reasons why the elderly frequently have the complaint of insomnia. Kramer (1982) stated that insomnia is often treated as if it were different from other symptoms--that is, one that does not call for the same differential diagnosis as would chest pain or dyspnea. Insomnia can be a symptom of some illnesses that are progressive or that can be exacerbated by the use of sedatives (Dement, 1981).

An accurate diagnosis is necessary, then, to be sure that insomnia is truly the chief complaint needing treatment. The first step in diagnosis is taking a thorough history based on an appreciation of the possible relevant diagnosis (Kramer, 1982). Subjective measures such as sleep questionnaires can be used to help differentiate if the elderly person presenting with a complaint of insomnia truly has a sleep disturbance (Johns, 1971). A normal sleep pattern for the elderly individual should be established as compared to the causes that have brought on the complaint of insomnia (Gambert & Duthie, 1981; Mathis, 1978).

There are underlying conditions that may alter the normal sleep pattern and cause an elderly person to complain of insomnia. These pathological conditions should be considered in attempting to accurately differentiate a diagnosis of insomnia. Effects of stress, emotional conflict, or changes often precipitate a disturbance of sleep. With the elderly, these might include hospitalization, change of residence, or death of spouse or close friend. Usually these stress factors are temporary, and the sleep disturbance will last less than 3 to 4 weeks (Karacan, 1983).

Sleep loss that occurs due to a chronic tension-anxiety can become a vicious cycle. In this situation, the bedroom becomes associated with frustration and arousal. This, in turn, perpetuates the sleep loss (Cohen, 1976). Elderly persons with stress disturbances tend to complain of insomnia and multiple awakenings throughout the night rather than daytime sleeplessness and of difficulty falling asleep (Karacan, 1983).

Depression, as a cause of insomnia, has already been alluded to. The clinical symptoms of depression are frequent awakenings, early morning wakefulness, and reduced Stage IV NREM. The severity of these symptoms increases with age. However, decreased Stage IV NREM and frequent awakenings are common in the normal sleep pattern of the elderly (Karacan, 1983; Kramer, 1982). A health care provider should be cautious in attributing sleep disturbance to depression without careful evaluation.

Cardiovascular disease is another pathological condition to be considered. Deaths from cardiac disorders occur more often during sleep than waking hours, with the greatest number between 5 and 6 a.m. This is an interval abundant with REM sleep, when more irregular autonomic activity occurs (Karacan, 1983). The slight fall in blood pressure that normally accompanies sleep may contribute to stroke in a person with cerebrovascular disease (Hayter, 1980; Karacan, 1983).

The incidence of duodenal ulcer increases sharply after age 60 (Karacan, 1983). As noted earlier, gastric secretion increases during REM sleep. Duodenal ulcer patients will secrete 3 to 20 times more gastric acid than normal during sleep. With this increase in gastric acid, pain may be prevalent during the night (Lerner, 1982).

Arthritis, a common ailment of the elderly, may cause awakening during the night. This awakening is due to the pain and joint stiffness because of the extended period of inactivity. Conditions that produce discomfort will preclude the normal sleep pattern (Lerner, 1982; Mathis, 1978).

Chronic obstructive lung disease will produce an abnormal increase in alveolar tension and decrease in oxygen saturation. Lying in a prone position often causes dyspnea and stasis of mucous (Lerner, 1982). Breathing is already irregular during Stages III and IV NREM and REM sleep. Thus, frequent awakenings during the night may occur during the critical physically and mentally restorative phases of sleep, cuasing the COLD client to have an increased fragmentation of sleep.

It has been recognized that patients with Parkinson syndrome have problems during sleep. Their tremors and rigidity stop, yet sleep is altered severely. There is a total wake time increase and a decrease in REM sleep. Drug therapy may improve this sleep pattern, but most often the complaint of insomnia persists (Lerner, 1982).

Hyperthyroidism can produce a sleep disturbance that may persist for 1 year even after appropriate treatment has been started (Kramer, 1982). Hypothyroidism is associated with a decrease in Stage III NREM sleep (Hayter, 1980). Thus endocrine causes of insomnia need to be considered when evaluating the complaint of insomnia.

Alcohol use and abuse need to be considered when assessing a client who has the complaint of insomnia. Every phase of chronic alcoholism is associated with some sleep disturbance. Alcoholics suffer from long sleep latency, frequent awakenings, and disordered sleep patterns (Kramer, 1982). Alcohol use, although it seems to speed the onset of sleep, has more deleterious than beneficial effects on sleep because it affects REM sleep. The hangover that frequently follows alcohol consumption may be partially due to REM deprivation (Hayter, 1980).

A thorough history of the drugs a client uses may uncover the cause of insomnia and alleviate the need for further treatment. CNS stimulants, including caffeine, cause increased stability of wakefulness. Drugs, including thyroid preparations, anticonvulsants, monoamine oxidase inhibitors, ACTH, and propanolol may interfere with sleep (Kramer, 1982). The major tranquilizers, hypnotics, opiates,

sedating tricyclics, and even aspirin may cause disturbance in the stages of sleep with chronic use or upon withdrawal (Mendelson, 1980).

In summary, pathological conditions that need to be assessed when a complaint of insomnia is presented to a health care provider are stress, depression, ulcer disease, cardiovascular disease, chronic pulmonary obstructive lung disease, Parkinson syndrome, thyroid disease, and alcohol and drug use. If these or some other pathological condition is not the cause of insomnia, then an indepth history assessing the elderly person's sleep pattern needs to be conducted (Johns, 1971).

Assessment of Insomnia

A normal sleep pattern for the individual should be established as compared to the causes of insomnia that have brought the client to the health care system (Gambert & Duthie, 1981; Mathis, 1978). This history should be amplified in the following areas of difficulty falling asleep: erratic or broken sleep, early morning awakenings, daytime naps, dreams, nightmares, feelings upon awakening, habits directly before retiring, and the total number of hours of sleep desired (Kramer, 1982; Mathis, 1978). This information will provide a description of the sleep pattern that is causing the complaint of insomnia.

An investigation of the onset of the complaint should be conducted next. The investigation should ascertain when the symptom of insomnia began, if it is cyclical or continuous, what was going on in the environment at the time, have there been worries, changes in life

patterns, or previous episodes of insomnia before (Kinzie & Markoff, 1974; Mathis, 1978).

Substance intake is another area that needs to be considered when inquiring about sleep disturbances (Brandner, 1976). Questioning should include the consumption of coffee and other caffeine-containing beverages, of medications, sleeping pills, alcohol, and diet (Gambert & Duthie, 1981; Mathis, 1978).

Environmental conditions also need evaluation. The questioning process should cover what the sleeping arrangements are, the external noises, disquieting stimuli, too much exercise before bedtime, too little exercise during the day, snoring by person bringing complaint or spouse, is bed comfortable, sleep partner, restless, climate too warm or too cold, or variation in lighting (deBrun, 1981; Kinzie & Markoff, 1974; Mathis, 1978).

To accurately assess an elderly person's sleep disturbance once any other existing pathological condition has been ruled out, a history evaluating a normal sleep pattern, sleep pattern causing the disturbance, onset of the complaint, substance intake, and environmental conditions needs to be conducted. Most of the sleep disturbances can be diagnosed on the basis of the history, which may also include an interview with the person's bed partner (Kramer, 1982).

Assessment tools to be used for the complaint of insomnia that would assess patterns of sleep, naps, habits before retiring, substance intake, environmental conditions, present medical illness, and social status are lacking in all the literature reviewed. Most of the tools

that were reviewed did not pertain to the elderly (Dement, 1976; Lamb, 1980; Webb, 1976). Lerner (1982) did develop a self-assessment test for the elderly, but this is a short questionnaire and does not address many of the areas mentioned. Hayter (1983) did a study of healthy elderly's typical sleep behaviors. She used a preliminary sleep questionnaire that addresses age, sex, and daily activities that might affect sleep. This questionnaire was followed by 2-week recording sleep chart. Although the healthy elderly Hayter studied could have been seen in a primary health care setting, the areas of present illness, medications, and self-care were not assessed.

In summary, the literature is lacking in sleep questionnaires that could be used to assess patterns of sleep, naps, habits before retiring, substance intake, environmental conditions, present illness, social status, and self-care for the healthy elderly. This area of assessment could aid a clinical nurse specialist who is working with the healthy elderly in a primary health care setting or similar setting. The assessment would provide the clinical nurse specialist with an examination of the basic sleep changes that have occurred with the elderly. Also, an assessment of the habits, environmental factors, medications, medical illness, and what self-care the elderly use would aid the clinical nurse specialist in developing strategies that might help promote a healthier sleep.

Once the sleep disorder causing insomnia has been accurately evaluated to be present, then some strategies need to be developed to aid the elderly in achieving a higher quality of sleep. Understanding

that insomnia is rarely a medical emergency, there is time to investigate thoroughly by having the elderly person keep a sleep log or diary for at least a week (DeLoughery, 1982). One should record such things as the time they retire and arise, if they take naps, how often they awaken at night, and any sleep events (Mathis, 1978). Often a person will overestimate the amount of time spent awake (Cohen, 1976), so this diary work-up may be curative for the person (Mathis, 1978).

A fair amount of geriatric insomnia is related to ignorance about the fact that advancing years are accompanied by a normal reduction of one's sleep requirement (Cohen, 1976). The most helpful therapy for many elderly persons is education about the normal sleep pattern (Karacan, 1983). Sleep efficiency declines after middle age; that is, elderly people spend more time in bed, yet spend less of that time sleeping. However, they get as much sleep as younger adults because they make up for nocturnal sleep loss by napping (Dement et al., 1981; Johns, 1975; Karacan, 1983). The changes within the stages of sleep of the elderly have already been reviewed. By sharing the changes of the sleep pattern that accompany the aging process with the elderly, one can increase the understanding of why their sleep is not what it was when they were younger (Brandner, 1976). By education, a new perspective can be gained that may ease anxiety and help the elderly adapt to change.

Strategies to Promote Sleep

One approach to help the elderly achieve a more restful sleep is to maintain conditions that are conducive to sleep (Ebersole & Hess, 1981). This includes a maintenance of a bedtime ritual, such as a regular time to retire and awaken. These bedtime patterns often help to induce sleep (Cohen, 1976; DeBrun, 1981; DeLoughery, 1982; Mathis, 1978). The elderly may need help in establishing a new routine. Family members or close friends should be enlisted to help maintain this new routine (Karacan, 1983).

Suggesting that the elderly person limit his nap to less than 1 hour per day should aid in promoting a longer period of sleep at night (Brandner, 1976). Ebersole and Hess (1981) said naps are useful and provide relaxation and compensation for less sleep at night. Daytime naps do not have the same rhythm as night sleep. REM sleep predominates during morning sleep and Stage IV NREM predominates in late afternoon or evening naps (Hayter, 1980). This information can be used to decide if one would benefit more from a nap that would be mentally or physically restorative. Boredom is a factor in at least some napping (Hayter, 1980; Yura, 1978). To alleviate this boredom, the best advice is to set up stimulating, demanding schedules involving other people. Daytime stimulation tends to lessen napping and thus consolidate restful sleeping at night (Brandner, 1976).

A common cause of insomnia is lack of exercise (Bower, 1978). If not already established, an elderly person should begin a routine of daily exercise. This should not be done close to bedtime, at least not

in the 2 hours before retiring, but earlier in the day (Hayter, 1980). The exercise program may need to be done gradually for the elderly person who is not used to it (DeLoughery, 1982; Hayter, 1980; Mathis, 1978). Physical exercise can promote sleep (DeBrun, 1981).

Eliminating the intake of caffeine-containing beverages at least 8 hours before bedtime can help alleviate the problem of insomnia for the elderly (DeLoughery, 1982; Mathis, 1978). Stimulants such as these can produce an exhilaration that retards the onset of sleep and increases one's anxiety (deBrun, 1981). This simple action can help reduce the elderly's problem.

Alcoholic beverages before bedtime should be discouraged. Even a "nightcap" may create nighttime wakefulness (deBrun, 1981). The effects alcohol has on REM sleep have been discussed previously.

A warm glass of milk or a snack before bedtime can be sleep-promoting techniques. Most protein foods, including milk and some vegetables, contain the amino acid L-tryptophan. L-tryptophan is a precursor of the neurotransmitter serotonin, which is believed to induce and maintain sleep (Ebersole & Hess, 1981; Hayter, 1980). Research shows that 1 gram of L-tryptophan in food changes the length of time needed to produce sleep from 23 minutes to 12 minutes (Ebersole & Hess, 1981). L-tryptophan has thus been found to speed the onset of sleep and prolong the period of sleep without altering REM sleep in any way (Hayter, 1980; Karacan, 1983). This natural substance has not yet been approved as a drug by the Food and Drug Administration. L-tryptophan has little possibility of toxicity or abuse and does not alter

sleep stages. Until it becomes marketable, warm milk, cocoa, and other ordinary food preparations that contain serotonin can aid the elderly in falling asleep (Ebersole & Hess, 1981).

Relaxation techniques have been used by researchers to enhance sleep and help eliminate sleep problems. In a study done at Stanford University, men from age 30 to 71 years were given either sleep hygiene information, training in nighttime relaxation techniques, or instruction in daytime stress reduction. These subjects were successfully withdrawn from sleeping medication, and 75% reported that they now were sleeping better (Medical News, 1983). Relaxation techniques have frequently been quite effective in the treatment of insomnia. Progressive relaxation, self-hypnosis, and biofeedback are treatment approaches that can be used for relief of insomnia (DeLoughery, 1982; Mathis, 1978).

By attending to environmental factors, sleep quality can be enhanced. We may overlook the influence that various environmental irritants may have on sleep (Brandner, 1976). The types of environmental factors that need to be attended to were mentioned earlier.

Some strategies that can be employed to aid in producing a higher quality of sleep in the elderly are, first of all, education about the normal aging changes, maintaining a sleep diary, bedtime rituals, limiting naps, regular exercise routine, eliminating caffeine and alcoholic beverages before bedtime, a warm glass of milk or snack, using relaxation techniques, and maintaining environmental conditions

conducive to sleep. These strategies are all nonchemical interventions that can aid in promoting sleep.

The focus of modern medicine and its support system provide the elderly with a network of pharmacological sophistication and intervention to aid in sleep promotion. This is the chemical intervention for the solution to the complaint of insomnia. With all of our resources we have a paradox since drug-dependent sleep produces an antithesis of treatment and makes regulation increasingly difficult. Due to the prolonged half life of medications in the elderly, the effects of sedatives may continue into the daytime and result in confusion and sluggishness (Dement et al., 1981; Lerner, 1982).

Drugs, especially hypnotics, may profoundly affect sleep patterns in a manner having considerable clinical significance. Hypnotics are drugs given to produce sleep, but have been found to suppress REM sleep (Kinzie & Markoff, 1974). Although promoting drowsiness does not insure alleviation of insomnia, it is widely assumed the amount and/or quality of sleep is improved when a hypnotic drug is ingested at bedtime. It is further assumed that this improved sleep will also improve daytime alertness and overall sense of well-being. These untested assumptions have led to widespread use of hypnotics in medical practice (Dement et al., 1981; Lerner, 1982). One-third of medically prescribed hypnotics are used by people over 60, who constitute 15% of the population (Karacan, 1983).

Use of hypnotic drugs in the elderly leads to a danger of drug-related mortality. Old age is one of the several contraindications to

the use of these drugs; the others are snoring, psychosis, drug abuse, concurrent use of other drugs, and concomitant medical illness (Karacan, 1983). In 1981, there was one single sleep laboratory that was done evaluating the use of hypnotics in the elderly population. This seems to be a neglect in view of the disproportionate use of sleeping pills by older persons (Dement et al., 1981).

The potential hazards of hypnotics are that they are easily abused, leading to habituation dependency, overdose toxicity, additive toxicity, adverse interactions with other drugs, hangover effect on daytime activities, difficulty in awakening to respond to emergencies, an increase in the number and duration of sleep apnea episodes, and a disruption of normal sleep stages, that are already disturbed in advanced age (Karacan, 1983; Lerner, 1982).

The commonly used hypnotic drugs are amytal, seconal, nebutal, luminal, chloral hydrate, paraldhyde, nitrazepam, methalqualone, glutethimide, and alcohol (Kellerman, 1981; Kinzie & Markoff, 1974; Lerner, 1982). A hypnotic drug should be given only for transient or intermittent insomnia for a few days of occasional use, and at the lowest efficacious dose (DeLoughery, 1982). This dosage is probably lower than that recommended by the manufacturer (Karacan, 1983).

The suppression of REM sleep that is caused by the hypnotics is often followed by an increase in REM, REM rebound, when the drug is withdrawn (Karacan & Williams, 1971). REM rebound can be accompanied by unpleasantly vivid and detailed dreams, which in turn may lead the elderly to again ask for sleeping medication (Lerner, 1982). There may

be a return to the use of hypnotic drugs. The broken sleep, unsatisfying dreams, and frequent nightmares caused by REM rebound may lead to a pattern of continued drug use to prevent the symptoms that are actually being caused by the prescribed medication. This vicious cycle may lead to habituation (Mathis, 1978).

Recently there has been a swing to the less-dangerous benzodiazepines. These minor tranquilizers are often used for anxiety and sleep disturbances (DeLoughery, 1982; Lerner, 1982). The benzodiazepines include chloridiazepoxide, diazepam, flurazepam, clorazepate dipotassium, and oxazepam (DeLoughery, 1982; Kellerman, 1981). These drugs are generally nonlethal unless used by those prone to use alcohol. There is a long duration of action. Side effects are more frequent and severe with nightly use. A particular disadvantage of this group of drugs with the elderly is that they further decrease Stages III and IV NREM. Normal, age-related changes are thus exaggerated (Karacan, 1983; Kellerman, 1981). DeLoughery (1982) noted that these antianxiety drugs do not effectively induce sleep but can have a long-lasting hangover effect, and users develop tolerance levels in 2 weeks' time. Frequently this leads to an increase in the dosage of the drug, only to have the amount become equally ineffective in a short period of time (Mathis, 1978).

A sedating antidepressant before bedtime is preferable to other drugs for the depressed elderly person with disturbed sleep. These drugs include amitriptyline, doxepin, and imipramine (Karacan, 1983; Mathis, 1978). These drugs can be dangerous if taken in overdose and

are particularly dangerous to cardiac patients (Kellerman, 1981). These antidepressants may totally suppress REM sleep at ordinary doses, but this effect lessens during a month of drug administration. Nevertheless, REM rebound is a potential side effect after the drug is discontinued (Kinzie & Markoff, 1974). When these drugs are used with elderly persons, they may require a dosage only one-half to two-thirds of the usual adult dose (Mathis, 1978).

Antihistamines such as diphenhydramine also are used to help promote sleep with some individuals. They seem to be extremely safe, but their effectiveness is questionable (Gambert & Duthie, 1981).

Over-the-counter sleeping medications may be used to help attain sleep. The limited effectiveness of these drugs is thought to be the side effect of drowsiness and/or the placebo effect (DeLoughery, 1982). The elderly should be advised against the use of over-the-counter medication in other than the recommended dosage and especially against using in combination with any other sleep-inducing medication (Brandner, 1976).

Drug treatment for insomnia has its place, but very often is not necessary and frequently is an underlying cause of the problem (DeLoughery, 1982). The hypnotic, benzodiazepams, antidepressants, antihistamines, and over-the-counter medication have been presented, along with the effects they may have on an individual's sleep pattern.

This chapter of literature review has presented information on the normal sleep pattern, the aging sleep pattern, pathological conditions causing sleep disturbance, methods used for investigation of complaint

of insomnia once an underlying disease has been ruled out, strategies used to address sleep problems, and finally the medications used in treating insomnia. There are large gaps in the literature regarding knowledge about sleep in the elderly. Much of the research done in sleep laboratories and pharmacologic treatment has been performed in young or middle-aged adults (Karacan & Williams, 1983). Since there is a change in the elderly's sleep pattern, the accepted classification of diagnosis may not be able to be generalized to the elderly population (Dement et al., 1981). Much of the recent literature concerning sleep seems to be concerned with the elderly. If this increase in research continues, perhaps a better understanding of the elderly's sleep pattern, disturbances, and treatment will result.

As Weiss (1962) noted, there clearly appears to be a greater incidence of sleep disturbance with increased age. By understanding the elderly, having a working knowledge of the fundamental principles of the changes in sleep, assessing the basic changes that occur in the elderly person, and knowing what strategies are most efficacious for the elderly, perhaps we, as clinical nurse specialists, will gain valuable insight for future assessment and management of the elderly person complaining of insomnia, thus helping them in promoting a higher quality of sleep.

This literature review clearly indicates that assessment of the complaint of insomnia in the elderly has not been addressed. Nurses should capitalize on the lack of study in the area of sleep in the elderly by research, developing tools for assessment, and strategies

for management to promote a healthier life. By doing this, nurses would display expertise in the area of health promotion. Health promotion is an area of the health care system in which nurses have been able to demonstrate more advanced skills than the other health professions. Being able to attend to the complaint of insomnia in the elderly could demonstrate that nursing is a link between health and adaptation to aging. Nursing research, assessment tools, and strategies could bring nursing into a key role in assisting elderly clients in developing health-promoting skills.

CHAPTER IV

METHODOLOGY AND PROCEDURES

Introduction

The description of the methodology and procedures used to operationalize this study follows. This chapter will give a description of the research design, the hypotheses, pretest, sample and population, instrumentation, field procedures, the process of data scoring, data collection and, finally, the analysis of the data. The information that is received will be used to aid in understanding the symptom of insomnia in the elderly presenting to a primary health care setting.

Research Design

The research design used for this study was a survey. This survey was done as a preliminary work to aid in understanding the nature of the problem of insomnia in primary health care.

A survey design, using a self-rating sleep questionnaire, was used for the implementation of this study. This design was chosen because it would:

--provide information about sleep patterns of the elderly in a setting familiar to them.

--allow the study of insomnia in the elderly to be from their own perspective.

--facilitate the formulation of various strategies used by the elderly that have been effective in dealing with the problem of insomnia.

--provide guidance for the development of further strategies that nurses can utilize in working with the elderly in primary care.

Data obtained through a survey design are always limited to what the respondent believes to be the case (Mendenhall, 1971, p. 6). This may be a limitation in many studies, but it is a strength in this investigation. The survey will seek subjective information concerning the elderly's sleep patterns and habits. If the elderly identify insomnia as a problem, and if insomnia is a health problem or self-care strategies are used, will be other variables examined in the survey. The elderly individual's identification of insomnia is an important factor in his selection of ways to deal with the problem and important to a basic understanding of the extent of the problem in primary care. This preliminary work in the study of insomnia will also aid in further research in this area.

Hypotheses

The hypotheses of this study are derived from the study questions. These hypotheses were arrived at by the researcher because of previous research, literature review, and familiarity of working with the elderly in a primary care setting. The hypotheses of this study are:

--That the elderly obtaining health care at a primary care setting would identify insomnia as a problem

--These elderly would implement self-care strategies before seeking the advice of a primary care provider

Operational Definitions

To implement the concepts of this study, the concepts were defined in the following terms:

Elderly was defined as those persons 65 to 85 years of age.

Primary care setting was defined as a private general practice health care setting in Howell, Michigan. It is the practice of two osteopathic physicians.

Insomnia was defined as difficulty with falling asleep, frequent awakenings, and early morning awakenings. This concept was operationalized using Questions 5, 6, 7, 8, 9, 10, 14, and 15. (See questionnaire, Appendix A.)

Identify was operationalized by the subjective responses obtained using the self-rating sleep questionnaire. (See Appendix A.)

Self-care means were defined as processes the elderly had taken responsibility for in developing their own health potential and were operationalized according to answers to Questions 22, 23, 25, 26, 12, and 13. (See questionnaire, Appendix A.)

Use of the primary health care provider was defined as seeking the help of a health provider who identifies and assumes responsibility for management of care, and was operationalized according to the answers on the self-rating sleep questionnaire to Questions 17, 18, 19, 20, 21, and 24. (See questionnaire, Appendix A.)

Strategies used by the elderly and ones used by the health care provider were defined according to the answers to Question 23. (See questionnaire, Appendix A.)

Background and sociodemographic variables were operationalized according to Questions 30, 31, 32, 33, 34, 35, and 36. (See questionnaire, Appendix A.)

Other variables that may affect one's sleep were operationalized by the answers to Questions 11, 16, 27, 28, and 29. (See questionnaire, Appendix A.)

Pretest

A pilot study of the survey instrument was conducted. A pilot study was used for several reasons. First of all, it would help to verify if a survey design would be applicable in dealing with the problem of insomnia in the elderly. The instrument used was a self-rating sleep questionnaire that was developed to assess the complaint of insomnia in the elderly. It was also felt that this pilot study would be a useful way to assess whether the instrument would be an effective way to receive the subjective information needed. Forty elderly persons were identified and completed the instrument. The results received were used to describe the symptom of insomnia and the approach the elderly used to resolve or deal with the symptom.

Sample

The population for this sample were those elderly persons 65 to 85 who present to a primary care setting. The population included

presented to the setting with other health care problems between the week of July 14 and the week of August 10, 1983. A sample size of $\underline{N}$ = 40 elderly individuals was selected for participation in this study. The only exclusionary factors for the sample of 40 elderly were for those who were mentally incapable or those who were too ill to complete the questionnaire. No person refused to complete the questionnaire.

A nonprobability, convenience sampling technique was used to obtain the sample of elderly. These subjects were chosen from the population of elderly 65 to 85 years old who presented to a primary health care setting. The particular setting used for purposes of this study is one in which the researcher previously worked. Due to the fact that the researcher wished to be present on the days the survey was taken in order to answer any questions, the sample was drawn from the elderly 65 to 85 presenting to a primary care setting on the days when the researcher was present. (See Field Procedures for format followed.)

In summary, a sample of 40 elderly individuals 65 to 85 years of age was obtained from a population of clients presenting to a primary health care setting in Howell, Michigan.

Instrumentation

No valid or reliable instrument that measures overall subjective sleep habits and sleep patterns was found in the literature. The self-rating sleep questionnaire was developed by the researcher for the purpose of this study. This self-rating sleep questionnaire was

developed to be a preliminary tool designed to elicit information in seven categories of variables, including:

1. demographic data
2. subjective feelings about sleep patterns
3. subjective report of sleep habits
4. subjective feeling of sleep and its relationship to health
5. subjective feelings of physical health and current medications
6. subjective feelings about self-care used for sleep promotion
7. subjective data of lifestyle habits that impact sleep

Data were obtained on all these categories using the self-rating sleep questionnaire. The pilot study was conducted to test this instrument to determine if the information desired according to the categories could be collected. Thus, the only instrument utilized in this research study was that of the self-rating sleep questionnaire.

Field Procedures

To implement the self-rating sleep questionnaire, it was necessary that it be completed by 40 elderly individuals 65 to 85 years of age in a primary care setting. These elderly individuals were presenting for some other health problem. At the time this questionnaire was completed, the researcher was present at the setting. The 40 elderly were first told the purpose of the questionnaire and then asked if they would be willing to participate in the study. The time required to complete this questionnaire varied from 15 to 25 minutes. None of the participants approached refused to complete the self-rating sleep questionnaire. Next, the participants were presented the questionnaire and

instructed how to complete it. The questionnaires were completed in the office waiting room or examining rooms. If questions arose, the researcher was available to clarify and answer these problems. Very few questions arose throughout the data-collection period. Most of the questions that did arise were regarding the names of medications the elderly individuals were taking. Once these questionnaires were completed, they were collected from the participants with an expression of appreciation for participating in the study. The elderly person was then seen by the physician for further health care. Over a period of 3 weeks, the needed number of self-rating sleep questionnaires were completed.

In summary, a procedure of informing the participants of the purpose, time involved, manner in which to complete the questionnaire, being available for questions, and collecting the completed questionnaires was used in the field procedures of this study.

Data

Once all 40 of the self-rating sleep questionnaires were completed, the data received were coded onto the necessary forms. After this coding was completed, the keypunch was done, in order for the information to be put into the computer. The data were processed by the computer, following which a sample descriptive analysis of the results was done. The age, time to go to bed, fall asleep, and time to wake up are variables for which a mean was used. A range was used in

examining the time to go to bed, fall asleep, and wake up. All of the other variables were analyzed by descriptive percentages.

The process of implementing the scientific method throughout this study of insomnia in the elderly presenting to a primary care setting has been outlined here. The research design, hypotheses, pilot study, sample, operational definitions, instrumentation, field procedures, and data processing were described. Results of the data analysis, recommendations, conclusions, implications for nursing, and the relationship of this study to Nightingale's conceptual framework and to previous research are presented in Chapter V.

CHAPTER V

SUMMARY AND CONCLUSIONS

Introduction

The purpose of this chapter is to review the results received from the pilot study that was conducted. Implications for nursing practice, service, and education are presented, along with recommendations for how these suggestions can be implemented in these areas of nursing. The relationship these results have to Nightingale's conceptual framework is presented, as well as to previous research done in the area of insomnia in the elderly. Finally, the conclusions and recommendations that have been derived from this study are outlined.

Results

A survey study of 40 elderly individuals was done. Since the sample size was nonprobabilistic, small, and only a pilot study was done, the results of this study cannot be generalized to all elderly individuals (Pollit & Hungler, 1983). A survey was used to gather data from a portion of the population for the purpose of examining the characteristics, opinions, and habits of the elderly in relation to sleep. The central focus of the survey was to describe the elderly's sleep habits, life-style variables, existing chronic diseases, medication use, and perception of insomnia in relation to health. The

information received in this sleep questionnaire survey was descriptive in nature, and this survey allowed for the beginning examination of the problem of insomnia in the elderly. From this preliminary work, an assessment tool can be developed for more in-depth testing.

A descriptive analysis of the data received from the 40 elderly who completed the sleep questionnaire was done. Summary data are presented in percentages, except that mean age, time subjects go to bed, time subjects fall asleep, and time subjects wake up are in a range analysis. Thus, the results of this study were all computed using descriptive statistics.

The results received from the data (see Table 1) showed that the sex ratio of the sample was two-thirds females and one-third males, with a mean age of 73.4 years (N = 40). All of the respondents were Caucasian.

The sociodemographic data (see Table 1) show that the majority (52.5%, N = 21) of those participating in the study were married. The remainder were either widow/widower or single. The majority of the elderly were retired (see Table 1), with 35% (N = 14) being homemakers and 2% (N = 1) employed full time. Sixty-three percent (N = 25) of those elderly owned their own homes, with the remainder (N = 15) living in apartments, senior citizen housing, condominiums, and with family other than spouse (see Table 1). The majority of the elderly (52%, N = 21) who participated lived with someone, whereas 48% (N = 19) lived alone. Most of those persons (61%, N = 24) had received at least a

Table 1.--Sociodemographic data (N = 40)

	Number	Percent
Age of Participants		
Range: 65-85 years		
Mean: 73.4 years		
Sex of Participants		
Male	13	33.0
Female	27	67.0
Total	40	100.0
Marital Status		
Married	21	52.5
Widow/widower	16	40.0
Single	3	7.5
Total	40	100.0
Yearly Income		
< $5,000/year	11	27.0
$5,001-$10,000/year	12	30.0
$10,001-$20,000/year	13	32.0
$20,001-$30,000/year	1	2.0
> $30,000/year	2	5.0
No answer	1	2.0
Total	40	98.0
Type of Home		
Own home	25	63.0
Condominium	1	2.0
Apartment	6	15.0
Senior citizen housing	4	10.0
With family other than spouse	3	7.0
Other	1	2.0
Total	40	99.0
Number of People Live With		
None	19	48.0
One	16	40.0
Three to four	4	10.0
More than four	1	2.0
Total	40	100.0

Table 1.--Continued.

	Number	Percent
Type of Education Completed		
College	5	13.0
High school	19	48.0
Grammar school	12	30.0
Did not complete grammar school	4	10.0
Total	40	101.0
Occupational Status		
Retired	25	63.0
Homemaker	14	35.0
Working full time	1	2.0
Total	40	100.0

high school education (see Table 1). The yearly income of those participating in this study was $10,000/year for 57% (N = 23). Other subjects (N = 13) had an income of $10,000-$30,000 (see Table 1). One individual had an income of greater than $30,000, and two chose not to answer this question. This information gives a background understanding of the types of elderly who participated in this study.

The variables to be analyzed are whether the elderly identify insomnia to be a problem; if they do, how it is manifested; is insomnia viewed as a health problem to be treated by the primary health care provider, or is self-care instituted. The researched questions indicating whether the client identifies insomnia to be a problem show that 62.5% (N = 25) believed that they had no difficulty sleeping (see Table 2). The remaining 37.5% (N = 15) of the elderly did identify

Table 2.--Time factors related to insomnia (N = 40).

Category	Always		Sometimes		Never	
	N	%	N	%	N	%
Difficulty falling asleep	4	10	32	80	4	10
Difficulty falling asleep if awakened	2	5	30	75	8	20
Feel rested when awaken in a.m.	14	35	26	65	0	0

	Number	Percent
Frequency of nighttime awakenings		
One to two	20	50
Three to four	14	35
Four	5	13
Never	1	2
Length of time to fall asleep if awakened		
0-15 min.	11	28
16-30 min.	15	38
31-60 min.	10	26
> 1 hr.	4	8
How often/week awaken too early		
Zero to one times	15	38
Two to three times	17	42
Four or more times	8	20
How long have you experienced difficulty sleeping?		
No difficulty	25	62.5
Experienced difficulty for 6 months	2	5.0
Experienced for 1 year	1	2.5
Experienced > 1 year	12	30.5

sleep as a problem. For all (N = 15) who identified insomnia as a problem, it had been a problem over 6 months; 80% (N = 12) had had the problem longer than 1 year (see Table 2). These results are consistent with the estimate of 20 to 40% of the U.S. population having sleep problems (Kruper & Reynolds, 1983). Walsben (1982) estimated that 20 to 25% of people have occasional bouts of insomnia. According to Dement et al. (1983), insomnia appears to be more frequent in the elderly than in other age groups. The results of this study, which showed that 37.5% (N = 15) of those who identified insomnia as a sleep problem is within the normal estimate of 20 to 40% of the population who have sleep problems; yet it is greater than the estimate of 20 to 25% who suffer from insomnia. Thus, the elderly studied do identify insomnia to be a problem.

Although only 37.5% (N = 15) of the 40 elderly identified insomnia as a problem, 80% (N = 32) of the elderly reported having trouble falling asleep sometimes, and another 10% (N = 4) reported this trouble always occurred (see Table 2). This is a total of 90% (N = 36) of the elderly who at least sometimes have difficulty falling asleep. Frequency of nighttime awakenings was reported to be more than three times a night by 48% (N = 19) of the elderly (see Table 2). If awakened during the night, 75% (N = 30) of the elderly subjects reported difficulty falling asleep sometimes, and 5% (N = 2) reported always (see Table 2). Thirty-four percent of the elderly individuals (N = 13) reported it took 30 minutes or more to fall asleep if awakened. Eight percent (N = 3) of these individuals took more than

1 hour to fall asleep again (see Table 2). Frequency of being awakened too early was reported to be two or more times per week by 62% (N = 25) of the elderly. Twenty percent (N = 8) of these reported early morning awakenings more than four times per week (see Table 2).

Thus, what has been defined as insomnia, difficulty falling asleep, frequent nighttime awakenings, and early morning awakenings are actually reported by 95% (N = 38) of the elderly individuals. This is a much greater percentage than the 37.5% (N = 15) who identify insomnia as a problem. The striking aspect of this finding is that the elderly have in some way compensated for what research would define as manifestations of insomnia. Either the elderly believe these manifestations to be normal for their age or just do not perceive these factors as a problem.

Of the 37.5% (N = 15) who identified insomnia as a problem, only 16% (N = 3) believed insomnia was a health problem (see Table 3). Eighty-four percent (N = 16) of these elderly who identified insomnia did not believe it was a health problem (see Table 3). Yet 72% (N = 13) of the elderly felt a doctor was able to help with a sleep problem (see Table 3). Sixty-nine percent (N = 11) of those who identified insomnia said they would discuss it with their doctor, but only 34% (N = 6) had done so (see Table 3). Of those who did discuss insomnia with a health care provider, 83% (N = 5) were satisfied (see Table 3). Thirty-nine percent (N = 7) of the elderly individuals who identified insomnia had tried something themselves for sleep (see Table 3).

Table 3.--Health care provider variables.

	Number	Percent
If trouble falling asleep, is it a health problem? (N = 19)		
Yes	3	16
No	16	84
Would you discuss sleep with your doctor? (N = 16)		
Yes	11	69
No	5	31
Is doctor able to help with sleep problem? (N = 18)		
Yes	13	72
No	5	28
Have you discussed sleep with your doctor? (N = 18)		
Yes	6	34
No	12	66
If yes, were you satisfied? (N = 6)		
Yes	5	83
No	1	17
Tried something yourself for sleep? (N = 18)		
Yes	7	39
No	11	61

Thus, insomnia is not usually viewed as a health problem by those who identify insomnia, even though a majority feel a doctor is able to help with a sleep problem. Less than a majority had discussed a sleep problem with their doctor. A few elderly had tried to treat their sleep problems themselves. It would seem that sleep is not viewed as a health problem but an issue that could be discussed with the health

care provider. This would seem to indicate that sleep perhaps was not discussed unless the issue arose or was brought out by the health care provider. If the sleep issue was discussed with a health care provider, a greater percentage of the elderly were satisfied with the help received. This seems to indicate that health care providers can be of assistance in providing some relief for insomnia.

Of the 40 elderly subjects, 90% (N = 36) identified at least one factor; 67.5% (N = 27) identified at least two factors; 45% (N = 18) identified at least three factors; and 25% (N = 10) identified four factors that interfered with their sleep (see Table 4). Fifty-eight percent (N = 23) of the elderly believed humidity interfered, and 50% (N = 20) identified temperature as a factor (see Table 4). Other factors commonly cited as interfering with the sleep of these elderly subjects were restlessness for 38% (N = 15) and anxiety for 33% (N = 13) (see Table 4). Noise was reported by 17.5% (N = 7), pain by 20% (N = 8), and light by 11% (N = 5) of the elderly subjects.

Even though insomnia is not identified as a problem by most of the elderly, there are factors that interfere with the sleep of almost all the elderly subjects. Perhaps the reason for humidity and temperature being reported so frequently as factors that interfere with sleep is because the data were collected in July and August, during a hot summer. The psychological factors, guilt and anxiety, were a problem for many of the elderly. The environmental factors, pain, noise, and light, are reported to a greater extent as interfering with sleep. These findings would seem to indicate that we, as health care

providers, can help the elderly holistically in providing strategies that provide relief for these factors that are believed to interfere with the sleep of the elderly.

Table 4.--Factors and frequency of factors that interfere with sleep.

Factor	Number	Percent
Restlessness	15	38.0
Anxiety	13	33.0
Depression	2	5.5
Guilt	0	0
Spouse	2	5.5
Noise	7	17.5
Light	5	11.0
Temperature	20	50.0
Humidity	23	58.3
Pain	8	20.0
Fatigue	3	8.3
Other	2	5.5
Number of factors		
0 factors	4	10.0
1 factor	36	90.0
2 factors	27	67.5
3 factors	18	45.0
4 factors	10	25.0

The elderly subjects who participated in this study reported 50% (N = 20) that their health was good to excellent (see Table 5). Fifty percent (N = 20) reported their health as fair or poor (see Table 5). Some factors that may affect insomnia are naps, exercise, caffeine use, disease, and medicines. Nap taking three or more times a week was

Table 5.--Health and life style variables, medical reported illness and medications.

	Number	Percent
Health and Life Style Variables		
Rate your health		
Excellent	2	5
Very good	5	13
Good	13	32
Fair	19	48
Poor	1	2
Number of naps/week		
Never	12	30
One to two times	8	20
Three to four times	7	18
Five to six times	7	18
Seven or more times	6	14
Frequency of regular exercise		
Regular	9	21
Walk, but not regular	17	44
< 5 days/week	1	3
< 3 days/week	13	33
Amount of coffee, tea, soda/day		
One to two cups	18	45
Three to four cups	19	47
Five to six cups	3	8
Medical Reported Illness and Medications		
Number of chronic diseases		
One	17	42
Two	16	40
three	4	10
Four	3	7
Types of chronic diseases		
Hypertension	16	40
Diabetes	5	15
Ulcer	2	5
Arthritis	18	45
Cancer	2	5

Table 5.--Continued.

	Number	Percent
Types of chronic diseases (cont'd)		
Gout	6	15.0
Obesity	5	12.5
Kidney disease	3	7.5
Alcoholic	0	0
Emphysema	5	12.5
Heart disease	5	12.5
Other	5	12.5
Number of medications used		
No medications	6	15.0
One medication	8	20.0
Two medications	7	18.0
Three medications	7	18.0
Four medications	8	20.0
Five medications	2	5.0
Six medications	1	2.0
Seven medications	1	2.0
Over-the-counter medications currently used		
Vitamins	14	35.0
Laxative	1	2.5
Analgesic	8	20.0
Sleeping medicine	0	0
Number of over-the-counter medications used		
No medications	26	65.0
One medication	7	18.0
Two medications	5	13.0
Three medications	2	5.0

reported by 50% (N = 20) of the elderly, with 5% (N = 6) napping seven or more times a week (see Table 5). Only 21% (N = 9) reported getting regular exercise (see Table 5). Thirty-three percent (N = 13) reported an exercise amount of less than 3 days per week (see Table 5). The amount of coffee, tea, and soda intake was reported to be three to six

cups by 55% (N = 22) of the elderly subjects. All subjects (N = 40) reported at least one chronic disease. Arthritis was reported by 45% (N = 18) of the elderly and hypertension by 40% (N = 16) (see Table 5). Medication use was reported by 85% (N = 34) of the elderly individuals; 15% (N = 6) used no medication; 20% (N = 8) used only one medication; 18% (N = 7) used two medications; 18% (N = 7) used three medications; 20% (N = 8) used four medications; and 9% (N = 4) used five to seven medications (see Table 5). Hypertensive medications were used by 50% (N = 20); digitalis preparations by 17.5% (N = 7); diuretics by 15% (N = 6); and vasodilators, benzodiazepines, bronchodilators by 12.5% (N = 5) of the elderly subjects (see Table 5). Over-the-counter medication use was reported by 35% (N = 14) of the elderly, with vitamins being most frequently used (see Table 5). It seems that factors other than those reported could interfere with the sleep of these elderly subjects. Naps are frequently reported by half of the elderly. There is a lack of exercise for at least one-third of the elderly subjects. Chronic disease is a common variable among all participants. Medication use is a factor that is common to a majority of the elderly subjects. This seems to indicate that other than the psychological, physical, and social factors reported by the elderly need to be examined by the health care provider in order to accurately assess insomnia of the elderly.

A limitation of this study is the manner in which the analysis was done. The confounding variables of chronic illness and medication may not give a true indication of the percentage of elderly who have a

problem with insomnia. This limitation needs to be recognized when examining the results of this pilot study.

Of the 37.5% (N = 15) of the elderly subjects who identified insomnia as a problem, 59% (N = 9) of the elderly reported symptoms occurred the next day (see Appendix B, Item 16). Fatigue was the most commonly reported symptom to occur. Forty-one percent (N = 4) reported this. Forgetfulness and uncoordination were symptoms reported to occur the next day by 12% (N = 2) of the elderly individuals. Thus, by a majority of the elderly who identified insomnia some type of symptom resulted the next day after having experienced insomnia. This indicated that for those elderly persons who suffer from insomnia, their daily ability to function may also be affected.

When those who identified insomnia as a problem were questioned as to whether they had tried something themselves to relieve insomnia, 39% (N = 7) replied yes and 61% (N = 11) stated no (see Table 3). When all 40 elderly were asked to check items used to help them sleep, 100% (N = 40) checked at least one item (see Table 6). Thirty-two percent (N = 13) used one self-care strategy; 22% (N = 9) used two self-care strategies; 20% (N = 8) used three self-care strategies; and 25% (N = 10) used four self-care strategies (see Table 6).

Reading was used by 40.5% (N = 16) of the elderly subjects to help them sleep. Thirty-five percent (N = 14) of the elderly reported sleeping alone was used to help them sleep. Taking a shower/bath was a self-care strategy used by 17.5% (N = 7) of the elderly. Drinking milk, having a snack, and watching television were reported equally by

15% (N = 6) of the elderly as an approach to help one sleep. Thus, even though the elderly did not identify that they had the problem of insomnia, all elderly subjects used at least one self-care strategy to promote their sleep. Of those who identified insomnia as a problem, many did not feel they had actually done something themselves to help with their sleep problem but did actually check at least one self-care strategy. These would seem to indicate that the elderly are instituting approaches that will promote a better quality of sleep even though they do not perceive they are in fact doing this.

Table 6.--Types and numbers of strategies used by respondents to help them sleep.

Strategy	Number	Percent
Shower/bath	7	17.5
Night light	2	5.0
Sleep alone	14	35.0
Snack	6	15.0
Beverage (nonalcoholic)	5	12.5
Beverage (alcoholic)	3	7.5
Exercise	3	7.5
Music	5	12.5
Television	6	15.0
Reading	16	40.5
Milk before retiring	6	15.0
Prescription sleeping medicine	3	7.5
OTC sleeping medicine	2	5.0
Number of Strategies Used		
At least 1 self-care strategy	40	100.0
Only 1 self-care strategy	13	32.5
Two self-care strategies	9	22.5
Three self-care strategies	8	20.0
Four self-care strategies	10	25.0

In summary, the results of this study showed that the elderly do identify insomnia as a problem to a greater extent than the normal population. The elderly reported manifestation of insomnia to a greater extent than insomnia was reported as a problem. Only a small percentage of those who identified insomnia as a problem believed it to be a health problem. Those who did seek the advice of their health care provider were mostly satisfied with the results. The results indicate that a majority of the elderly reported factors that interfere with or affect their sleep. Even though all did not feel they had done something to help themselves, all participants in the study had instituted at least one self-care strategy to promote their sleep.

Recommendations

These findings support the limited research presently available in the area of insomnia. Insomnia is a problem in the elderly population. The results seem to indicate that even though the elderly do have manifestations of insomnia, these changes are not perceived by them as a problem to present to the health care profession. A major recommendation of this study is that nurses in primary health care do an accurate assessment of whether the elderly individual is exhibiting symptoms of insomnia. Since the elderly indicate difficulty falling asleep, frequent nighttime awakenings, and early morning awakenings to a greater extent than they identify insomnia, a thorough assessment of these areas is indicated to determine if insomnia is present. Nurses need to help the elderly become aware that difficulty falling asleep, frequent nighttime awakenings, and early morning awakenings are really

sleeping problems and maybe something can be done about them. If insomnia is a problem for an elderly individual, then a further assessment of lifestyle factors, chronic disease state, and medication use is needed to determine if these factors may be affecting the elderly's sleep. It has been noted that lifestyle factors, chronic disease, and various medicines can all impact the quality and quantity of sleep. An assessment of whether the symptom of insomnia exists and what lifestyle, chronic disease, and medication factors exist that may affect sleep can aid in developing strategies to promote health.

The nurse working with the elderly also needs to assess environmental factors that could be causing difficulty sleeping. These factors include such areas as light, temperature, odor, noise, and humidity, which have been identified in research to affect the sleep pattern. Other factors such as guilt, restlessness, spouse's disturbance, and pain are areas that need assessment in regard to sleep. By assessing these various areas, the nurse in primary health care could help the elderly client see that one or more of these environmental factors may be eliminated and thus produce a higher quality of sleep.

For each elderly person, baseline data about their sleep behaviors should be obtained. It is recommended that the nurse in primary health care be the one to raise the question of sleep with the elderly, since the elderly is not apt to address the issue. This would help to not only address sleep patterns, but also promote education and health. The elderly may not perceive sleep problems to be a health problem.

Another area that the primary health care nurse needs to assess is what the elderly do use to promote sleep. This study showed that 100% of the elderly used some method to promote sleep even though all of the elderly did not feel they had a problem with insomnia. Once the nurse helps the elderly assess what promotes successful sleep for them, then strategies can be developed that may be useful in helping other elderly clients with the problem of insomnia.

It is recommended that this study be replicated in an urban setting to see if results would be consistent. A test of the reliability and validity of this survey instrument should occur before the tool is used for further research. It is suggested that the study be replicated with a larger, more heterogeneous sample. A more detailed analysis of the results of this study or any similar study might look at factors such as use of medications that interfere with sleep, disease processes that interfere with sleep, and lifestyle factors that would interfere with sleep.

In summary, it is recommended that the nurse in primary health care assess whether insomnia is a problem for the elderly. A further assessment of lifestyle factors, chronic disease, and medication use will aid in determining if these may affect the elderly's sleep. The issue of sleep needs to be brought out with the clients by the primary health care provider, or it may not be addressed when necessary. The nurse can assess if the elderly are using any sleep-promoting strategies and if these are successful. Also, it is recommended that further research of insomnia in the elderly presenting to a primary health care

setting be done. More in-depth analysis of data related to sleep patterns among the elderly is a recommendation for further study.

Conclusions

The findings of this study indicate that insomnia is indeed a problem experienced by the elderly. Since this is true and findings indicate that insomnia is not believed to be a health problem, primary health care providers need to be made aware of these facts. A conclusion of this study is that the elderly do indicate difficulty with their sleep, even though it is not identified as a health problem. Also, factors that interfere with the elderly's sleep are reported to a greater extent than insomnia is identified as a problem. Knowing these findings, the problem of insomnia should be addressed by the primary health care provider, and further assessment to facilitate education of the elderly regarding sleep and sleep patterns should become a routine part of the care of the elderly.

The findings of this study show that the elderly use self-care strategies to promote a better quality of sleep even though insomnia may not be identified as a problem. The elderly may be using self-care strategies to promote sleep. It can be concluded that the strategies used by the elderly may not be effective, since insomnia is still identified even though various strategies are used. Since this is true, primary health care providers need to assess which strategies work and educate the elderly to various strategies that can provide relief for insomnia and promote a better sleep.

Since insomnia is not usually seen as a health problem, at least this is indicated from the results of this study, nurses in primary health care can help to promote the health of the elderly by addressing the issue of insomnia. The area of health promotion is an area of health in which the elderly are apt to be receptive to the information received. Nurses working in primary health care can then promote the elderly's health while at the same time promoting the nursing profession's expertise in the area of health promotion.

In conclusion, it is felt that the findings of this study show that nurses working in primary health care settings should be sensitive to the increased possibility of insomnia being a problem of the elderly. Because of this possibility, nurses should be able to assess and prepare the elderly for the sleep changes that will be occurring and factors that interfere with sleep. Also, primary health care providers should first address insomnia with the elderly through anticipatory guidance. The elderly would not be overly concerned then when sleep changes occur and offer the opportunity to develop strategies to relieve insomnia.

Implications for Nursing

The major implication for nursing from this study, especially related to nurses working in primary health care settings, is to address and assess whether insomnia is a symptom that is a problem for the elderly. This study showed that symptoms of insomnia may be present more often than the elderly define it as a problem. This study also indicated that the elderly are using various strategies to help

them sleep. These findings would seem to indicate that a thorough assessment of insomnia is warranted to help the elderly to better describe sleep patterns and achieve a better quality and quantity of sleep.

If the complaint of insomnia arises from the client or has been identified as a problem, the nursing implications differ. An assessment of other variables that affect sleep is needed. Nurses in primary care need to do a complete physical exam to rule out an underlying cause for sleep disturbance. Along with the physical exam, the nurse working in a primary health care setting should take a careful sleep history. The sleep history should assess the following: the number of hours spent trying to sleep, number of naps, number of times the elderly awakens per night, time of awakening, the number of hours of sleep desired each night, current medication--prescription and over-the-counter, a 24-hour sleep/wakefulness pattern, timing of naps that are taken, additional information from the sleep partner, a drug history--caffeine, soda, alcohol, chocolate, and a family history. A physical assessment and sleep history will give insights into this. If the elderly client initiates the complaint of insomnia or it is identified as a problem, a thorough physical exam and detailed health and sleep history are areas a primary health care nurse should assess.

The implication for nurses, especially those working in primary health care, is to assess if insomnia is a problem for the elderly. If insomnia is a problem, then a further assessment of lifestyle factors, physical disease, and medication use is indicated. This

information can be obtained by doing a physical assessment and sleep history assessment. Strategies that are shown to be effective should be implemented to promote sleep. Also, the sleep information could increase the understanding of the sleep stages and changes that practicing nurses may not be aware of. This study illustrated that insomnia is a problem in the elderly, that it is not often viewed as a health problem, and that self-care is almost always used by the elderly. Nurses in practice can help to provide a healthier sleep for the elderly by accurately assessing if insomnia is a problem and further assessing variables that can result in sleep disturbance.

Nursing education, especially at the graduate level and in gerontology areas, should include textbook information regarding assessment and strategies that can be utilized by students. The nurse educator needs to include the areas of physical exam, sleep pattern and sleep history, environmental factors, chronic disease, medications, lifestyle variables, and what is being done to promote sleep when instructing others how to assess insomnia in the elderly. By including these areas of assessment in nursing education, nurses will be prepared to accurately assess the problem of insomnia for the elderly.

More research on the sleep habits of healthy elderly to increase nursing's data base should be encouraged by nurse educators. The results of nursing research and nursing practice can be used in nursing service areas. The implications for the nursing profession are great in helping to better assess the problem of insomnia so that strategies can be developed to promote sleep for the elderly.

Relationship to Conceptual Framework and Previous Research

The results from this study of insomnia of the elderly in a primary care setting provide clarity to Nightingale's pyramid and ladder conceptual frameworks of nursing. Using the ladder conceptual framework (Figure 1), nurses put healthy elderly in condition for "nature to act on" to preserve health, prevent disease and injury. Nurses can intervene with or put the healthy elderly presenting in a primary health care setting in condition for nature to act on by initiating or pursuing an accurate assessment of the problem of insomnia which this study shows is a problem for the elderly. Once a nurse has put the healthy elderly in condition for nature to act on, then the nurse is able to institute strategies to preserve the health of the elderly individual. Also, this action can prevent further disease and injury to the healthy elderly. Thus, Nightingale's ladder concept of nursing is reinforced by the results of this study.

Nightingale's pyramid concept of nursing (Figure 2) illustrates how the patient's condition is impacted by the physical environment, social environment, and psychological environment. This conceptual framework is congruent appropriately with the results of this study. The areas mentioned under each of these environments are areas that need to be addressed when assessing the complaint of insomnia. It is often by using strategies that affect the physical, social, or psychological environment that a nurse is able to provide some relief and promote health in the elderly. The elderly in this study did not

identify insomnia as a problem to bring to the primary health care provider. Nurses can impact the health of the elderly by addressing insomnia and assessing the areas of the physical, social, and psychological environment. The results also indicate that insomnia is a greater problem for the elderly and that they may have been using self-care even though insomnia was not identified as a problem. Using the pyramid concept, the professional nurse may be capable of providing other strategies that will aid in promoting a higher quality of sleep for the elderly. In these ways, it can be seen that Nightingale's pyramid concept is related to the results of this study of insomnia in the elderly in a primary health care setting.

Previous research in the area of insomnia in the elderly is related to the findings of this study--primarily, that insomnia is a problem to a greater extent for the elderly. The findings from this study disagree with previous research, except Hayter's 1983 study, that insomnia is manifested by either difficulty falling asleep, frequent nighttime awakenings, or early morning awakening using one or any combination of factors. This study disagrees because a greater percentage of elderly had difficulties in one or more of these factors than the percentage who identified insomnia as a problem. Thus, even though the elderly may have one of these factors, it does not imply that it is a manifestation of the problem of insomnia for that elderly individual. There is no research that was found that discussed how the elderly managed insomnia or what self-care strategies were used. There is one study done with healthy elderly in a community setting (Hayter,

1983) that studied manifestations of insomnia and sleep pattern changes with aging. No research was found that addressed insomnia of the elderly presenting in a primary health care setting. Although some of the findings of this study reinforce previous research, the findings dispute some research and add new information to the data base of nursing research in the area of insomnia of the elderly.

In summary, the results of this study of insomnia of the elderly presenting in a primary health care setting do integrate Nightingale's conceptualization of nursing. The finding that insomnia is a problem for the elderly relates to previous research, disputes some research on how insomnia is manifested, and adds to what research has been completed in studying strategies to relieve insomnia of the elderly.

Conclusions and Recommendations

The major recommendation for nursing from this study, especially related to nurses working in primary health care settings, is to determine what changes in sleep patterns accompany the aging process. This study also showed that the elderly may not perceive that their sleep changes are a problem or are a normal part of the aging process. Even those who don't label the problem have indicated difficulty in various areas. For these reasons, a better assessment of sleep patterns will help to insure a higher quality of sleep for the elderly. Nurses need to incorporate this education into their practice when seeing the elderly because although sleep pattern changes may be occurring, the elderly are not apt to raise the issue with the primary health care provider. Also, that we, as health care providers, are

aware that these changes may be causing difficulties in their daily lifestyle, and would like to help the elderly develop habits to improve their quality of sleep. Thus, education of what factors interfere with sleep and can affect a change in the quality of sleep need to be included when caring for the elderly. Increasing the elderly's awareness of the effect diseases, medicines, naps, exercise, environmental, psychological, and social factors have on sleep is part of the education in which nursing practice needs to partake. Therefore, education of the elderly in sleep pattern changes and factors that interfere with and affect sleep is an area that nurses can address and implement into their practice once more detailed research has been completed. This education will help to assure the elderly that changing sleep patterns are normal.

Nursing practice is seen as an area where the results of this study can be effectively used. Nurses in practice can use the knowledge gained from the results of this study to promote a better quality of sleep for the elderly. By assessing whether insomnia is a problem and assessing lifestyle factors, disease processes, and medication use through a sleep history, nurses are able to help the elderly assess a cause for the problem. Nurses can investigate the elderly's motive for asking for sleeping medication, which may disturb their sleep. Thus, nurses can promote a better quality of sleep by addressing it with the elderly, by a physical assessment and a thorough sleep history assessment.

Stimulating further research of insomnia of the elderly is one area where nursing education can use the findings of this study. Because some of the findings do not substantiate all of the research done in the area of insomnia of the elderly and some of the findings are new information, then further research is needed to substantiate and validate the findings of this study.

A recommendation drawn from this study is that more research in the area of insomnia of the elderly is needed. All of the elderly who participated in this study identified something that they used to help them sleep. Further research in the area of insomnia of the elderly could be done using experimental studies to help to identify if the strategies the elderly use are beneficial in promoting sleep. Various intervention studies could be done testing the strategies that the elderly have indicated they use to help them sleep. If the elderly has complained of insomnia or has given an indication that his/her sleep is troublesome, then it is nursing's responsibility to assess with the elderly in identifying what strategies they use to promote a healthier sleep. Effective strategies should be identified and tested using experimental research.

This pilot study illustrates that the elderly may have symptoms of insomnia more often than it is reported as a problem. This implicates that developing good sleep hygiene habits is an action that can be taken with all elderly. Sleep hygiene covers many different strategies that can be used to help promote a better quality of sleep and could be tested through research. One of the more important strategies is to

help the elderly keep to a rigid sleep schedule. This schedule involves retiring at the same time each night and getting out of bed at the same time each morning. This regularity of sleep schedule and eating meals at the same time each day should help to stabilize body rhythms. Nurses could help the elderly learn that a comfortable environment is important to promote one's sleep. The bedroom should have clean linens, a firm mattress and pillow, be odor-free, have a level of lighting that is comfortable and will make the room remain dark in the mornings, the temperature should be comfortable, and the noise level should be decreased since the elderly have a decreased arousal threshold. Nurses can develop and test other sleep strategies that can be implemented when working with the elderly. Rituals used by the elderly may entail a nighttime bath, brushing teeth, and checking the doors and lights. The routineness of these activities may become a cue to the body and promote sleep onset. It may be important to help the elderly eliminate daytime naps or resting in bed and increase activity and decrease boredom. This may help to associate the bed with nighttime sleeping.

Other implications for nurses in working with the elderly may be to develop good sleep hygiene habits. Nurses should assess the elderly's caffeine and alcohol consumption before bedtime and whether a light bedtime snack may help to reduce sleep latency. A routine of daily exercise might be sleep promoting. The elderly need to begin this exercise gradually. Nurses can help the elderly to develop an exercise plan. Nurses can also help the elderly to realize that exercise should

probably be done at least 3 hours before retiring or it will be stimulating instead of sleep promoting. Another sleep hygiene habit which nurses can test by intervention with groups is to test if allowing a transition period of a lower activity level about 1 hour before retiring is sleep promoting. If the elderly cannot get to sleep, a strategy that may be helpful is to get out of bed and do something relaxing until they become sleepy. If the elderly awaken during the night, nurses can help them to realize that it is important to remain drowsy rather than become aroused by some activity. Finally, a sleep hygiene habit of using a nightlight in the bedroom or bathroom can aid in eliminating disorientation when awakened and promote safety for the elderly.

By implementing some of these strategies into the care of the elderly, primary health care nurses can treat manifestations of insomnia, which are the early morning awakenings, difficulty falling asleep, and frequent nighttime awakenings. This study illustrates that the elderly do have an increased number of manifestations even though it may not be perceived as a problem. Nurses can be of great assistance to the elderly in using any of the various strategies to develop good sleep hygiene habits that will promote a better quality of sleep.

Relaxation exercises may be indicated and tested to assess if they help reduce daytime stresses that the elderly experience. Stresses that the elderly are experiencing would cause the body to release chemicals that inhibit sleep. So, nurses can promote sleep for

the elderly by educating the elderly in relaxation techniques and stimulus control that together relieve somatic tension and anxiety.

As this study shows, the elderly do identify insomnia, and by testing of strategies through experimental and intervention research, nurses may develop effective treatment plans for the problem of insomnia. Perhaps the elderly want a "pill" to solve their insomnia. Nurses working in primary health care can recommend L-tryptophan to the elderly client. L-tryptophan is a normal dietary amino acid, available at most health food stores, that is believed to be a precursor of serotonin, which induces sleep. Another strategy for nursing is to use in practice with the elderly is a sleep diary. Although the client may have manifestations of insomnia, as this study shows that many elderly do, the elderly client may sleep more than he/she realizes.

Older persons are often still sexually active. Sexual activity before retiring may have been relaxing at one time. Sexual activity at bedtime may now interfere with getting to sleep, so the elderly may need to consider having sex earlier in the day. If insomnia has been a long-standing problem, as this study shows that many have had symptoms longer than a year, then behavioral therapy may be indicated. Elderly persons may need assistance in changing accumulated sleep habit problems. Nurses can help to involve family, friends, and/or the elderly's support system in instituting behavioral changes. In summary, the conclusions drawn from this pilot study are for nursing research to further test strategies used by the elderly. By doing this, nurses can

add to their data base strategies that are effective in managing the problem of insomnia for the elderly.

In conclusion, this study of insomnia of the elderly presenting in a primary health care setting has a great significance for nursing practice. It is recommended that all the results can be employed by the primary health care nurse provider. Nurses in practice can truly impact the health of the elderly by making use of the findings of this study. Also, nursing education can directly benefit from the results of this study. It is recommended that they assess the elderly's sleep and sleep patterns, that the curriculum areas include sleep assessment, and that research be done to test strategies to promote sleep, relieving insomnia for many elderly. Thus, this study of insomnia of the elderly presenting in a primary health care setting adds to the data base for all areas of the nursing profession.

APPENDICES

APPENDIX A

SLEEP QUESTIONNAIRE

APPENDIX A

SLEEP QUESTIONNAIRE

DIRECTIONS: This form contains questions concerning your sleeping habits. Your response to these questions should reflect your normal sleeping habits over the past year. It is not necessary to spend a great deal of time on any one question. If you have difficulty with any part of the form, leave it blank and your question will be clarified when the form is collected. Do not put your name on the form. All information gained from this questionnaire will remain confidential. Thank you very much.

Please check appropriate box: Male Female Your age ____

---

1. Do you have a scheduled time for retiring each night?

   ____ Yes
   ____ No

2. At what time do you usually go to bed? _____ a.m.
   p.m.

4. At what time do you usually wake up? _____ a.m.

5. Do you have trouble falling asleep?

   ____ Always
   ____ Sometimes
   ____ Never

6. How many times during the night do you wake up?

   ____ 1 or 2
   ____ 3 or 4
   ____ More than 4

7. Do you ever have difficulty falling asleep if you are awakened?

   ____ Always
   ____ Sometimes
   ____ Never

8. How long does it take to fall asleep if you are awakened?

   ____ 0-15 minutes
   ____ 16-30 minutes
   ____ 31-60 minutes
   ____ Longer than 1 hour

9. How often per week do you awaken too early?

____ 0-1 times
____ 2-3 times
____ 4 or more times

10. Do you feel rested when you awaken in the morning?

____ Always
____ Sometimes
____ Never

11. How do you rate your overall health?

____ Excellent
____ Very good
____ Good
____ Fair
____ Poor

12. How many times per week do you nap?

____ 0 times
____ 1 to 2 times
____ 3 to 4 times
____ 5 to 6 times
____ 7 or more times

13. When do take your nap?

____ Morning
____ Mid-afternoon
____ Evening

14. Please check <u>any</u> and <u>all</u> factors which interfere with your sleep.

___ Restlessness	___ Spouse	___ Temperature
___ Anxiety	___ Noise	___ Humidity
___ Guilt	___ Light	___ Pain
___ Depression	___ Odors	___ Fatigue

___ Other (write in) _____

If you do <u>not</u> have a sleeping problem, skip to Question 23. If you <u>do</u> have a sleep problem, please continue.

15. If you have difficulty sleeping, how long have you experienced this difficulty? (Please check)

___ One week	___ One month	___ Six months	___ More
___ Two weeks	___ Two months	___ One year	

16. If you have trouble sleeping, what symptoms occur the next day? (Please check any and all that are included.)

___ Fatigue ___ Forgetfulness _____ Other (write in)
___ Confusion ___ Uncoordination ___ No symptoms occur

17. If you have trouble sleeping, do you see this as a health problem?

____ Yes
____ No

18. Do you feel your doctor is able to help with your sleep problem?

____ Yes
____ No

19. Is this sleep problem something you would discuss with your doctor?

____ Yes
____ No

If no, why not? _____
_____

20. Have you discussed your sleep problem with your doctor?

____ Yes
____ No

21. If yes, were you satisfied with the assistance you received from your doctor?

____ Yes
____ No

22. Have you tried something yourself to help your sleep problem?

____ Yes
____ No

23. Please check any and all of the following items used to help you sleep.

____ Shower/bath
____ Night light
____ Sleep in room alone
____ Snack
____ Beverage (non-alcoholic)
____ Beverage (alcoholic)
____ Exercise
____ Music
____ T.V.
____ Reading

Continued on next page . . .

23. (Continued)

____ Sleeping medication:
Name: _____
How often do you use per week? _____

____ Over-the-counter medication:
Name: _____
How often do you use per week? _____

24. Do you feel your doctor is able to help with problems related to sleep?

____ Yes
____ No

25. Do you ever drink warm milk before retiring?

____ Always
____ Sometimes
____ Never

26. How frequently do you get some physical exercise?

____ Regular daily program of exercise
____ Walking, but not regularly
____ Exercise fewer than 5 days a week
____ Occasional exercise--less than 3 days a week

27. How much coffee, tea or soft drink (pop) do you drink per day?

____ 1 to 2 cups
____ 3 to 4 cups
____ 5 to 6 cups
____ More than 6 cups

28. Please check <u>any</u> and <u>all</u> of the following chronic illnesses you have.

____ High blood pressure
____ Diabetes (high blood sugar)
____ Ulcer
____ Arthritis
____ Cancer
____ Gout
____ Heart disease
____ Obesity
____ Kidney disease
____ Alcoholism
____ Emphysema
____ Other (write in)
_____

29. Please list any prescribed and over-the-counter medications you are currently using:

_____ _____

_____ _____

30. How frequently do you leave your home?

____ Every day
____ 2 to 5 days/week
____ On the average less than 2 days/week

31. What type of home do you live in?

____ Own home
____ Condominium
____ Apartment
____ Senior citizen housing
____ With family member other than spouse
_____ Other (write in)

32. How many other people live with you?

____ None
____ One
____ Two
____ 3 or 4
____ More than 4

33. What type of education have you completed?

____ College
____ High school
____ Grammar school
____ Did not complete grammar school

34. How much is your yearly income?

____ Less than $5,000 a year
____ $5,000 to $10,000 a year
____ $10,001 to $20,000 a year
____ $20,001 to $30,000 a year
____ More than $30,000 a year

35. Are you .....

____ Retired
____ Working full time
____ Working part time
____ Homemaker

36. Are you .....

____ Married
____ Widow/widower
____ Divorced
____ Single

Thank you for taking the time to complete this questionnaire.

APPENDIX B

DATA ANALYSIS

APPENDIX B

DATA ANALYSIS

Sex: 32% male (#13)
67% female (#27)

Age: Mean 73.4

1. Regular time for retiring

   60% Yes (#24)
   40% No (#16)

2. What time do you usually go to bed?

   Range: 8:00 p.m. to 12 midnight
   Mean: 10:50 p.m.

3. What time do you usually fall asleep?

   Range: 10:00 p.m. to 3:00 a.m.
   Mean: 10:34 p.m.

4. What time do you usually wake up?

   Range: 2:00 a.m. to 9:00 a.m.
   Mean: 6.42 a.m.

5. Trouble falling asleep:

   10% always
   80% sometimes
   10% never

6. How many times do you wake up?

   50% 1 or 2
   35% 3 or 4
   13% more than 4
   2% never

7. Difficulty falling asleep if awakened:

   5% always
   75% sometimes
   20% never

8. How long does it take to fall asleep if awakened?

   28% 0-15 min.
   38% 16-30 min.
   26% 31-60 min.
   8% more than 1 hr.

9. How often/week do you awaken too early:

38%	0-1 times
42%	2-3 times
20%	4 or more

10. Do you feel rested when you awaken in the a.m.?

35%	always
65%	sometimes
0%	never

11. How do you rate your health?

5%	excellent
13%	very good
32%	good
48%	fair
2%	poor

12. How many times/week do you nap?

30%	never
20%	1-2 times
18%	3-4 times
18%	5-6 times
15%	7 or more

13. When do you nap?

4%	morning
71%	mid-afternoon
18%	evening
2%	noon

14. Factors that interfere with sleep:

36%	restlessness
33%	anxiety
5.5%	depression
5.5%	spouse
17.5%	noise
11%	light
50%	temperature
58.3%	humidity
19.4%	pain
8.3%	fatigue
5.5%	other

10%	0 factors
90%	1 factor
67.5%	2 factors
45%	3 factors
25%	4 factors

15. If you have difficulty sleeping, how long have you experienced:

62.5%	no difficulty sleeping
37.5%	responded
5%	6 mos.
2.5%	1 yr.
30%	more than 1 yr.

16. What symptoms occur the next day?

41% fatigue
6% forgetfulness
6% uncoordination
6% other
41% no symptoms

17. If you have trouble falling asleep, do you see this as a health problem?

16% yes
84% no

18. Do you feel a doctor is able to help with a sleep problem?

72% yes
28% no

19. Is sleep something you would discuss with your doctor?

69% yes
31% no

20. Have you discussed your sleep problem with your doctor?

33.3% yes (6)
66.7% no (12)

21. If yes, were you satisfied with help?

83% yes (5)
17% no (1)

22. Have you tried something yourself?

39% yes (7)
61% no (11)

23. Please check any and all the items used to help you sleep:

		100% used items	
17.5%	shower/bath		
5%	night light		
35%	sleep alone	32%	1 self-help
15%	snack	22%	2 self-help
12.5%	beverage (non-alcoholic)	20%	3 self-help
7.5%	beverage (alcoholic)	25%	4 self-help
7.5%	exercise		
12.5%	music		
15%	T.V.		
40%	reading		
7.5%	sleeping medication		
5%	OTC sleeping medication		

24. Do you feel your doctor is able to help with problems related to sleep?

76% yes
24% no

25. Do you drink warm milk before retiring?

15% sometimes
85% never

26. How frequently do you get regular exercise?

21% regular
44% walk, but not regular
3% less than 5 days/wk.
33% less than 3 days/wk.

27. How much coffee, tea, soda per day?

45% 1-2 cups
47% 3-4 cups
8% 5-6 cups

28. Chronic diseases:

42% 1 C.D.
40% 2 C.D.
10% 3 C.D.
7% 4 C.D.

40% HTN
15% DM
5% ulcer
45% arthritis
5% Ca
15% gout
12.5% obesity
7.5% kidney disease
0% alcoholic
12.5% emphysema
12.5% heart disease
12.5% other

29. Current medications:

2.5% anticonvulsant
17.5% digitalis prep.
5% antiarrhymetic
10% antidiabetic
2.5% antidepressant
7.5% antiarthritic
7.5% antiasthmatic
50% antihypertensives
12.5% vasodilators
7.5% electrolyte
7.5% vitamins
5% hormone
7.5% thyroid

0% tranquilizer
0% narcotic
0% sedatives
15% diuretic
7.5% hypnotic
12.5% benzodiazepine
7.5% antispasmodic-anticholinergics
7.5% histamine H_2 receptor blocker
12.5% bronchodilator
7.5% analgesic
2.5% xanthine oxidase inhibitor

29. Current medications (cont'd):

15%	antianginal
2.5%	antilipidemic
2.5%	psychotherapeutic
2.5%	quinine prep.
5%	uricosuric blocking agent
2.5%	Ca drug

85%	on meds
15%	0 meds
20%	1 med
18%	2 meds
18%	3 meds
20%	4 meds
5%	5 meds
2%	6 meds
2%	7 meds

OTC meds currently using:

35%	vitamins
2.5%	laxative
20%	analgesic
0%	sleeping med

65%	0 OTC meds
18%	1 OTC med
13%	2 OTC meds
5%	3 OTC meds

30. How frequently do you leave your home?

32%	every day
45%	2-5 days/week
22%	less than 2 days/week

31. What type of home do you live in?

63%	own home
2%	condominium
15%	apartment
10%	senior citizen housing
7%	with family member other than spouse
2%	other

32. How many people do you live with?

48%	none
40%	one
10%	3-4
2%	more than 4

33. What type of education have you completed?

13%	college
48%	high school
35%	grammar school
10%	did not complete grammar school

34. What is your yearly income?

27%	less than $5,000/yr.
30%	$5,001-10,000/yr.
32%	$10,001-20,000/yr.
2%	$20,001-30,000/yr.
5%	more than $30,000/yr.

35. Are you . . .

63%	retired
35%	homemaker
2%	working full time

36. Are you . . .

52.5%	married
40%	widow/widower
7.5%	single

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