NUTRITION KNOWLEDGE OF HOSPITAL NURSES IN PAYNE COUNTY OKLAHOMA

By

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TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

Proper nutrition is an important factor in health care. Malnutrition is significant in the etiology of many diseases which cause illness and death today. Vascular diseases, diabetes mellitus, cancer, obesity, and many degenerative processes are among the many causes of disability. All of these diseases are closely associated with nutrition.

In the less developed areas of the world due to economic disadvantage, many of the current health problems in large populations appear to be associated with nutritional deficiencies. Childhood nutrition due to calorie or protein lack in diets, iodide-deficient goiter, iron-deficient anemias, blindness, and a host of infectious diseases are recognized as the leading causes of impaired human function. However, some widespread disorders related to nutrition have neither geographic nor socioeconomic boundaries. Iron deficiency anemias, dental caries, trace element deficiencies, and alcoholism are some causes of lowered physical and mental performance in large segments of the population in developed societies.

Widespread epidemiological and experimental data provide evidence of the correlation between nutrition and health. The convening of the First White House Conference on Food, Nutrition and Health in the United

States is lauded as a significant step in the direction of health, and an important testimony of the subject of nutrition.

There is much in nutrition that relates to health. Nutrition relates directly to poor health if nutrition is poor; to good health if nutrition is good. Interest in nutrition as a means of maintaining health is a primary focus of both professional and lay people. No longer are the nurse and the doctor the primary symbols of health, nor the reservoirs of health knowledge. The much broader-based health team has emerged, where health practitioners from different disciplines pool and share resources and knowledge, aimed at enhancing the care of the sick. However, this care team remains under the direction of the physician.

Nutrition relates to better health if nutrition serves as a better guide to improved health, especially in illness. When ill and hospitalized, the patient's nutritional care is managed by the hospital dietary department, one of the many disciplines involved in the team approach to health. Formerly, nutrition was an aspect of nursing care handled directly by nurses. This traditional concept is not yet erased, since nurses are continually called upon to inform and educate patients and their relatives on the subject of nutrition, instead of reinforcing and supporting the role of the dietitian. Nurses, too, are more frequently available to the patient, and have closer contact with the patient than any other member of the health team.

Nutritionists and dietitians, who have availed themselves to the team approach to patient care, recognize the importance of nutrition knowledge to the nurse in administering care. Miriam (1957) observes that nutrition is correlated with diet therapy in nursing, and supports the teaching of nutrition in all nursing education.

In nursing education, a basic knowledge of nutrition is the minimum requirement for fulfilling a diploma or degree in nursing. Because of the demands made upon nurses by patients and their relatives for nutrition information, a basic level of nutrition often proves to be insufficient. Consequently, research is necessary to determine the nutrition knowledge of nurses to make recommendations and suggestions for academic inservice education in nutrition for nurses.

Purpose and Objectives in the Study

The purpose in this study is to determine the factors which influence the nutrition knowledge of hospital nurses in Payne County Oklahoma. Based on the results of the study, recommendations and suggestions are to be made for academic and inservice nutrition education for nurses.

The objectives of the study are as follows:

1. To determine nutritional knowledge of selected hospital nurses employed in Payne County Oklahoma.
2. To determine whether there is a difference between nutrition knowledge mean scores and the following variables: age, educational attainment, years of working experience, and sources of nutrition information.
3. To make suggestions and recommendations for academic and inservice nutrition education for nurses, based on the findings of the study.

Hypotheses

The hypotheses of this study are as follows:

H_1: There will be no significant different in nutrition knowledge

mean scores according to age.

H_2: There will be no significant difference in nutrition knowledge mean scores according to educational attainment.

H_3: There will be no significant difference in nutrition knowledge mean scores according to years of working experience.

H_4: There will be no significant different in nutrition knowledge mean scores according to sources of nutrition information.

Assumptions and Limitations

The following assumptions are applicable to this study.

1. That nurses have a role in the nutrition care of the hospitalized patient.

2. That the quality of hospital care is, to some extent, dependent upon the nurse's background in nutrition.

3. That findings of the study could provide an appropriate base to make suggestions and recommendations for academic and inservice nutrition education for nurses.

The study has been conducted with the knowledge of the following limitations.

1. Only the nurses employed by hospitals in Payne County Oklahoma have been included in the study.

2. Only nurses working between the hours of 7 a.m.-11 p.m. have been asked to participate in the study. This time period includes the major food service hours, as well as the most awake hours of hospitalized patients.

Definition of Terms

Health	- A condition of physical, mental, and social well-being, and the absence of disease or other abnormal condition. It is not a static condition. Constant change and adaptation to stress result in homeostasis (NRL 1983)
Health Education	- An educational program directed to the general public that attempts to improve, maintain, and safeguard the health of the community (NRL 1983)
Nutrition	- The sum of the processes involved in the taking in of nutrients, and their assimilation and utilization for proper body functioning and maintenance of health (NRL 1983)
Nutritional Care	- The substances, procedures, and setting involved in assuring the proper intake and assimilation of nutriments, especially for the hospitalized patient (NRL 1983)
Nutrition Education	- A process aimed at making it possible for everyone to learn and to use nutrition information through individual responsibility and action (NRL 1983)
Misconception	- An erroneous conception; mistaken notion (Random House Dictionary of the English Language 1979)
Registered Nurse	- A professional nurse who has completed a course of study at a school of nursing accredited by the National League of Nursing, and who has taken and passed the State Board Test Pool Examination. Registered nurses are licensed to practice by individual states
Licensed Practical Nurse	- A person trained in basic nursing technique and direct patient care, who practices under the supervision of a registered nurse (NRL 1983)

CHAPTER II

REVIEW OF LITERATURE

Introduction

Increasing research advances in the basic sciences have stimulated a widespread awakening of health consciousness among individuals everywhere. The enthusiasm it created was two-fold. First, this awakening involved an interest in health and an ardent desire to maintain health. Secondly, it provoked an active involvement at exploring methods to improve health standards, and thus decrease the occurrence of illness and death. Among the many major elements of good health recognized today, nutrition takes a place of prominence. Increasingly more people have become aware of the role of nutrition in procuring health. The availability of good nutrition for all people has been a focus of interest among world nations. At the Cancun Conference for rich and poor nations held in Mexico in 1981, conferees became familiar with global ideology - The New International Economic Order, a concept which called for the utilization of all the potential resources of individuals, so that each person could exhibit a full expression of himself/herself in a healthy and productive manner. This review of literature explored the place of nutrition in the care given by the hospital nurse. In the hospital, the combined efforts of health care professionals were made to restore the patient to health and wellness.

Nutrition in Nursing Care

Nursing began as a service profession in the mid-19th century. Very early in its progress, the role of the nurse in the nutrition care of the patient was defined. At that time, Florence Nightingale of Great Britain, the founder of modern nursing, recognized the necessity of proper nutrition in recovery from illness, and had since contributed immensely to the field of dietetics.

The nutritional care of the hospitalized patient was always under the domain of the hospital dietitian. Prescription dietary care consistently occupied the time, and warranted the availability of dietary personnel. Dietitians have been less available to the large percentage of patients who did not require specific diet therapy. These were the people who frequently enlisted the services of nursing personnel for nutritional care, essentially for nutrition information specific to their illness, and general nutrition knowledge. Thus of necessity, the nurse was forced to resume some aspect of the traditional role of the nurse--that of providing information relevant to health.

While commenting on the element of nutrition in health, Greene (1960) expressed a concern that nurses be prepared to use the science of nutrition in all patient relationships except in the complex therapeutic dietary management, when the dietitian should be recognized. It was further stated that the nurse was the health administrator who came face to face with patients and their problems for longer intervals of time, and thus had the greatest opportunity to understand patients' attitudes and anxieties. Because of this, the task of interpreting to patients and their relatives the physician's dietary orders and the dietitian's plan

to implement them, most logically fell to the nurse.

The East Tennessee League for Nursing (1971) conducted a survey among nurses in the area of East Tennessee in the United States to obtain information on the application of dietetics in nursing care. The findings of this survey showed that 20 to 30 percent of nurses were frequently asked information on nutrition. Forty to 60 percent of the nurses were occasionally asked for nutrition information, specific information on weight control, sodium restriction in the diet, diabetes, fat-controlled and bland diets. It was also reported that 65 percent of nurses were occasionally asked information on purchasing, food preparation, food exchanges lists, serving sizes, and vitamin supplementation. Five to 15 percent of nurses were consulted frequently on these topics.

Nutrition and health awareness have become a concern of a growing majority of people today. Hopefully, the thirst for information and knowledge would be translated into action and thus effectively improve the eating habits of people everywhere.

The Food Habits of People

Since the more serious infectious diseases associated with nutrition have been controlled, the importance of nutrition in establishing proper food habits have been accentuated. To many people, nutrition was viewed as a panacea for the apprehension they experienced from learning about widespread deficiencies in their diet. Several factors appeared to have enhanced this dilemma. Much was published about the relationship of degenerative diseases and nutrition, changes in the food supply, and a lack of wholesomeness in the food industry. In spite of this, however, there were more basic factors which influenced the food behavior

of people and their nutrition. Food availability, food acceptability and familiarity, and misconceptions about food were found to be the more fundamental factors which influenced the food habits of people than the fluctuating changes in the food system.

Food Availability

Generally, the availability of food was affected by environmental changes which altered the physical chain in food production. The food available to an individual might be affected by the spending ability of the food dollar. Any of life's crises, such as illness, placed demands on income, produced shifts in spending, and often reduced the allotment for food purchases. If land were not available, or soil nutrients were inadequate, then maximum effort was needed to produce a minimum amount of food to support life.

Food Acceptability and Familiarity

Familiar foods were known to be more acceptable than new or culturally different foods. When religion, class, ethnicity, or basic cultural conditions influenced a group and the food choices of its members, food patterns did not easily submit to change. This was stated by Hochbaum (1981). In some instances the need for food influenced food acceptability. It was less related to one's desire for proper nutrient intake than it was for satisfying taste or relieving hunger.

It was observed that the acceptance of unfamiliar food was particularly low among different cultures, even though the nutrient value of new foods introduced might be of recommended value in enhancing nutritional state. Hochbaum (1981) observed that food familiary was a

major dimension of food preference in the young. This was suggestive of earlier exposure to and experience with food, which more often persisted through life. In commenting on the social and psychological patterns of food behavior, it was stated that the single and potentially most important issue with food familiarity was that food purchasing, preparation, and consumption behaviors were determined more by psychosocial, cultural and situational factors than by physiological ones. Hochbaum continued to say that in more primitive organisms, nutritional intake was a function of organic needs, and the patterns of food selection and consumption which the organism made when needed, were mostly as a result of learned behaviors.

Helmick (1978) commented on food practices and choices made by individuals as a result of changing family composition and life styles, occasioned by the economic factors--inflation, unemployment, and scarce resources. These factors caused families to bond into larger households where decisions on food choices and the family meal were made by the few, whether they were or were not knowledgeable about making good family food selections.

Food Misconceptions

Food misconceptions emerged from a combination of facts, fears, frauds and fictions prompted by numerous people who claimed authority on food use. Needless to say, their ideas were not supported nor approved by scientific research.

From the Hanes Survey (1974), the following observations were revealed:

- that the public's belief in health fallacies were unsystematic;

- that there did not exist any one type of person who was particularly susceptible to food fallacies;
- that the basis for health beliefs was unfounded, and often unsupported even by specific beliefs;
- that trial and error was a fundamental method used for developing current questionable health practices;
- that many people believed diet was the most powerful single influence on health;
- that there was current belief in the stimulating effect of vitamins which were basic to a feeling of well-being;
- that the public generally accepted advertising claims in the health field because they believed those claims were government-regulated and therefore not likely to distort the truth.

Changing Food Habits

Fundamental to change in food habits of people was the interest to improve on health. Nutrition and health have never ceased to demonstrate a co-dependency. Changes in food habits which were affected by questionable beliefs remained a challenge to nutritionists. In an account on the current changes in the food habits of families in the United States, Parrish (1971) listed ten keys which led to changes. These were:

1. the decline in a wide variety of home-prepared foods;
2. the decline in a wide variety of home food production;
3. rise of preferred limited variety convenience foods;
4. rise in the percent of food consumed away from home;
5. a trend toward meal skipping, especially among teenagers;
6. the declining importance of food in the family budget;

7. the adverse effects of differential price changes on the consumption of selected items;
8. the increasing popularity of diet and food fads;
9. the declining availability of selected nutrients in the diet;
10. the nature of food preferences of an affluent urbanized mobile society.

Essential to the improvement of the eating habits of people so as to promote better nutrition was a recognition that potentially harmful attitudes and erroneous beliefs should be counteracted. Mass communication and marketing strategy from a recognized authority seemed essential to eradicate erroneous beliefs. However, some food habits which were based in certain traditions of culture need not be changed, but modified.

Cassell (1957) illustrated the need to consider socio-cultural factors which limited the educator and narrowed the scope for learning. Educators, it was learned, who were inclined to view disfavorably behavior patterns other than their own were ineffective in dispensing information, which would effect change in behavior related to food choices and habits.

At the turn of the century, nutrition intervention was used for curing deficiencies. Today, with great strides in scientific developments, it is used by both the professional and layman to prevent nutrition-related diseases and to make good health even better. Scientific research findings have made the public thirsty for nutrition information and knowledge. In the following pages, the nutrition knowledge of different groups of people was explored.

Nutrition Knowledge of Different Groups

Good nutrition was and still is a public health concern. Educational

programs aimed at promoting health were used to encourage the study of food and nutrition in career development. The public was exposed to learning increasingly more about this subject, and some segments of people have become practicing proponents of the nutrition cause.

Nutrition Knowledge of Physicians

From a study conducted by Krause and Fox (1977) it was reported that doctors who had a certain specialty area in medicine were knowledgeable about nutrition related to that specialty. While 83 percent of doctors in this study had access to nutrition education, their scores on a nutrition knowledge test were considerably low. There was also a low correlation between the length of medical practice, the age of the doctor, and nutrition knowledge, which indicated that older doctors who had not had access to newer concepts in nutrition were limited in current nutrition knowledge.

Nutrition Knowledge of Parents, Students

Parents have always been the primary agents from whom children received nourishment. Fundamental food patterns emerged from the home environment, but might be altered through circumstance (school and peer influences), and with time. In view of this, it was important to study the nutrition knowledge of parents and students.

In one study conducted by Sims (1976), the nutrition knowledge of mothers of preschool children was assessed through the use of a nutrition knowledge test based on the Four Food Groups. In that instance, it was found that socio-economic status correlated highly with levels of nutrition knowledge. Another observation made was that the mothers who

had less difficulty obtaining food also had a lower weekly food bill.

Phillips and Letley (1978) studied the use of nutrition knowledge by mothers of preschool children and found that family characteristics were associated with and helped to influence the mother's food purchasing behavior. In the purchasing of pre-sweetened cereal, the presence of a sibling older than the preschooler, influenced the decision. When the pre-schooler was the oldest child in the family, the mother used her judgment based on experience and values in making purchases.

In a study of 2000 university students conducted by Brewer and Deatherholtz (1975) to determine nutrition knowledge and attitudes of students, the following observations were made: 50% of students consumed a typical "sensible diet" daily; 10% of them used health foods; 17% ate what was available. There was some skepticism among students about natural foods and the typical American diet. Students who acknowledged an interest in nutrition made high scores on questions related to nutrition facts. They also expressed confidence in the relationship between diet and general health status.

Nutrition Knowledge of Other Groups

Farmers and grocers made the food supply available to us, the public. Pharmacists played an important part in the manner in which nutrients were made available to the body when food was combined with prescription drugs. There were many other groups in the community who contributed to the food supply, and information on their nutrition knowledge would be valuable in planning for public nutrition education.

Stansfield and Fox (1977) completed a study of grocers which revealed that this group had adequate nutrition knowledge but had misleading

information on general nutrition for the public. A significant correlation was found between the grocers' educational levels and nutrition knowledge. All grocers maintained a positive attitude toward practicing nutrition concepts, but expressed that it was not their job to teach good nutrition practices to the public. It was suggested that providing nutrition information to grocers would increase awareness of this topic and thus foster and maintain positive attitudes toward nutrition.

Spitze (1983) commented that many men chose or in some way influenced the foods they ate and, if married, the food choices made by wives and children. In a study which measured the nutrition knowledge of a group of university-employed men (randomly selected), it was found that there was more knowledge about general nutrition than there was of the sources and functions of specific nutrients. It was also observed that even though some men engaged in food-related activities, there was no correlation between nutrition knowledge and involvement in those activities.

Interest in nutrition as it related to health was apparent among people, and many groups of people. It was apparent that health practitioners, particularly physicians and nurses, who had close contact with people who sought health care, should have had a good background in nutrition in their fundamental education.

Nutrition in Nursing Education

An adequate preparation in nutrition education was essential to the nursing profession. Although the hospital nurse might not be expected to completely handle all therapeutic aspects of nutrition, the demand to respond to the need for nutrition information by patients and the public was indicative of a reason to evaluate the formal educational

preparation of nurses.

McDaniel and Savage (1974) studied diet therapy as applied to health in the nursing curriculum. Findings indicated that after completing their education and several years of work, nurses had very definite opinions about aspects of the curriculum which were valuable and which were not. An overwhelming ninety-nine percent of all nurses in this study, most of whom gave diet instruction to patients and relatives as part of their service, indicated that nutrition and diet therapy had a prominent place in nursing education.

Most of the respondents (88-100%) stressed the need to include the following points in the nursing education curriculum:

- the importance of teaching a patient about diet;
- the relationship between diet, disease, and/or diagnosis;
- the foods which should be allowed or avoided on special diets;
- shopping and cooking tips for particular diets;
- resources available from which a patient may obtain information on nutrition.

Other observations made in this study were reported. Forty-three percent of respondents gave diet instruction to at least one patient per month; 83 percent of associate degree nurses and 56.4 percent baccaulaureate degree nurses instructed patients on nutrition or diet therapy. Forty-six percent of respondents who did not give nutrition instruction reported that there was no access to a dietitian or nutritionist at their place of employment to validate instruction given to patients. Eighty-four percent of respondents responded favorably to the need for a program for courses in nutrition or diet therapy for nurses.

In reporting on the educational experiences of nurses, Trooboff

(1972) observed that nurses at various levels of work reported negative reactions to their educational experiences in nutrition. It was reported also that nurses who were most removed from active patient care on a daily basis placed a high verbal priority on nutrition care for patients.

Poolton (1972) suggested that for a valid assessment for the teaching method involved in nursing education as it related to the long range application of nutrition knowledge, the attitudes of nurses toward nutrition were a major criterion for evaluating the effects of nutrition education. Attitudes, it was determined, indicated the tendency toward the type of use that would be made of what was taught in the classroom.

In spite of the apparent need for nutrition education in the formal preparation of the nurse, some authors raised questions on the extent to which nutrition was included in the nursing curriculum. Newton (1970) argued that nutrition should be deleted from the responsibilities of the nurse. Nutrition, it was observed, was taught in isolation from other related subjects, and nurses developed negative impressions of that topic. As a result, nurses had been psychologically ill-prepared to meet the demands for information and instruction to patients. In addition, those who had negative feelings toward nutrition education vehemently upheld that all nutrition education belonged to the role of the hospital dietitian.

Ball in 1970 wrote that nutritional care from the nurse was a potential for implementing nutrition in nursing education. In addition, the nurse's attitude to the role of diet in the patient's recovery from illness was one of the major factors in their acceptance of the dietitian's regimen.

In a study by Harrison (1969), the nurse's nutrition knowledge was

assessed with the following variables: age, marital status, formal education in nutrition, years of working experience, recency of nursing education, and the size of public health agency in which the nurse worked. The findings of the study revealed the following: the level of education and years of working experience showed statistically significant relationships to the level of nutrition knowledge. Nurses with a baccaulaureate degree scored higher in nutrition knowledge tests scores than those without such a degree. The nurses who were employed in the larger health agencies were more knowledgeable about nutrition concepts, and this appeared to be related to educational level, since the majority of them had higher educational accomplishments than those employed in the smaller agencies. It was also reported that nurses with a degree were eager to increase their education and general knowledge of nutrition, and were more aware of the need to observe the psychological and social components of eating behavior than those who had diplomas in nursing. The nurses who had a working knowledge of the action of specific nutrients on the body learned more from courses in nutrition education than from experience. Educational attainment was a significant factor which accounted for difference in nutrition knowledge between nurses in the larger and smaller agencies.

Greene (1960) commented on the different trends in nursing and the changing focus in nursing education. One observation made was that since the role of the nurse in actual food service had changed, there was no need for courses in food preparation in nursing education. However, an area of unreality existed if food preparation methods were unknown to nurses who were involved in teaching nutrition to patients. Greene continued to emphasize the role of health services in all areas of

nursing practice. Since nutrition was an essential component of health it was evident that the nurse was prepared to use the science of nutrition in patient-centered nutrition education.

Patient education was a concept aimed at maintaining recovery from illness for a prolonged period of time. Nutrition education was a segment of patient education which occupied relatively limited space in the nursing curriculum. The continued demands made upon nurses for educating patients warrant an indepth study of nutrition and the relationship to health in nursing education.

Considerations for Patient Nutrition Education

Undoubtedly, good nutrition has proven to be an essential part of healthy living, and a safeguard from illness as it provided strong defense mechanisms against disease. Current concept of many of the diseases which lead to death suggested that environmental factors interacted with host factors in the development and progression of disease. When age and heredity were ruled out as the inevitable tendencies toward illness, other more potential factors such as the role of the diet or nutritional state were pronounced in the identification of disease processes.

One significant aspect of the service role of the nurse has been patient education. The length of stay for most hospital patients is short. In providing care and learning simultaneously, the nurse must capitalize on already limited time.

Some Effective Approaches to Patient Education

In the past, the Health Relief Model had been used successfully

for in-hospital patient education. There was the potential for it being serviceable in an informal education atmosphere. According to Syred (1981), the Model allowed for effective communication since it provided information, modified beliefs, prompted creating thinking, and thus aided in the acquisition of knowledge, allayed fears and anxieties, taught skills, and encouraged attitude change.

In further comments on patient education, Syred (1981) cited the nurse as an efficiently prepared patient educator. The nurse, it was stated, had the expertise, the image of credibility, and trustworthiness with the public, and as such was well suited to adopt the teaching role in educating patients.

The provision of information was a major aspect of education, but the method used and the relevance of the information according to the ability of the patient to receive and understand it was very critical to education.

Niehoff (1969) said that in educating, one should be aware that differences in approach should be adopted to suit individual needs, since food habits were strongly embedded in cultural traditions. Elliott's comment on patient education (1972) described factors which generally affected the acquisition of knowledge and change in behavior. These related to one's lifestyle, and the educator should recognize them as an educational system is planned. Poor housing, contamination, poor nutrition, mental factors such as superstition, fear, social displacement and alientation, limited educational experiences were factors identified which played a crucial part in learning.

Morris (1960) observed that in offering nutrition education to patients, nurses preached instead of taught. It was important to both

the nurse and the patient to establish what the nutrition problems were before planning a strategy to remove them, but above all, the patient with the problem should have a felt need to improve himself by solving the nutrition problem or there would be less incentive to learn.

Changing Food Habits

One of the many goals of patient education which needed to be included in nutrition education was changing some innocuous food habits or modifying seasoned or ingrained ones. There might also be a need to adopt new food habits which might eventually call for changes in life-style. The educator needed to be aware that individuals who were strongly based in cultural traditions which involved eating had notable difficulty in making changes required for promoting health.

Niehoff (1969) made the observation that for health practitioners to recognize success at their efforts in changing food habits, a working knowledge of cultural food traditions was necessary. It was further stated that it was poor practice and unrealistic for the educator to evaluate the acceptance of new foods only in terms of the nutritional value to the learner. To the person who was steeped in cultural food patterns, new foods or the introduction of new ideas on food needed to be perceived of as fitting into existing cultural patterns and be accommodated in those beliefs which generally gave meaning to an individual and his group's existence.

Another observation of Morris (1960) in discussing how the nurse taught to effect change in nutrition habits was that the nurse must be convinced about the subject of nutrition so as to stimulate interest and learning. Also, nursing educators needed to be aware of the role

emotions played in halting the learning process.

Pangborn (1971) studied food awareness and food image of ethnic groups. The food awareness and food image which some people had on cultures other than their own was limited, despite residential awareness of different cultures. In this study it was found that the younger people within an area had a limited knowledge of food eaten by their neighbors. The adults were more knowledgeable, but even that knowledge was limited when compared with their ages and the length of time they had lived in the area.

Hochbaum (1981) offered comments on strategies for changing eating habits through education. Ignorance, misconception, indifference, and other cognitive and effective behaviors were identified as likely to reduce the incentive to adopt sound nutritional habits. It was stated also that consideration be given to the individual's life style, economic status, occupational conditions, all of which influenced the responsiveness to education.

Hochbaum (1981) continued comments by saying that people were motivated to relinquish ineffective current nutritional habits and adopt new ones if educators alerted them to the potential health risks of their present food habits. In order that change occurred it was important that the benefits of new habits were relevant to health and understood by those who used them.

By placing a value on health benefits, people who valued health adopted practices commensurate with their convictions and ability to practice healthy concepts. The economy, culture, psychological and environmental pressures of the home and workplace, as well as the aspirations, interests, wishes, fears and goals of individuals, were stronger

motivators of daily food practices than was an appeal to a relatively unimportant nutrition practice which was not easily accommodated into a regular pattern of living.

Nutrition education for patients was not without flaw if current trends about food which involved the fads, fallacies and misconceptions which people harbored were ignored. Misinformation about food nutrition and health were present as most people had desired to learn self-help principles.

Fads, Fallacies and Misconceptions

Erroneous ideas about food and health had been around for a long time, and might possibly continue to be. These ideas arose because of the anxiety of people to share experiences with those who are just as anxious to learn, as a result of fears, hearsay, misguidance, fantasy, or even testimonials, most of which had no scientific foundation.

There was a rebirth of interest in food, nutrition, and its contribution to health. This fed the channels for lucrative business engineered by faddism, quackery, or charlatanism about food and health, and which emerged as being extensively rife for the past decade or more.

Nutrition was found to be essentially important a cause of many diseases which today led to disability and death. The cost of being ill had spiralled. This triggered interest in self-help precautions and remedies against illness, and prompted many people to follow the fickle fortunes of present day fads and misconception.

Overweight and obesity or the mere improvement of self image stimulated the interest of people and practice of weight reduction. The challenges were fad diets, unguided dieting which, when not medically

monitored had proven to be invalid, useless, and had consequences which were fatal. Natural, organic or health foods have had an aura of mystery attached to them. There was a lack of knowledge or mere misguidance in the appeals made for the magical significance of these foods. Mega doses of vitamins were currently being taken by a large number of people. The idea threatened the significance and place of a balanced diet and the worth of non-synthetic foods. Nutrients both synthetic and natural were currently taken by some individuals more as drugs than as food, for prevention measures.

Food and Drug Interactions

Within recent times there had been an upsurge of interest in the interaction between food and drugs within the body system. Supplemental synthetic nutrients which were used in large doses by many people were known to be of the same value to the body as were the natural food nutrients, but the presence of mega doses of nutrients such as some stored vitamins caused toxic levels of the nutrient in the blood.

Some foods inhibited the utility of drugs in the body, and vice-versa. Drugs interacted with food and affected the nutritional status of an individual by the influences upon either absorption, the appetite, metabolism, or a combination of reactions. Alcohol used as both food and/or drug affected the appetite. The continued use or abuse of alcohol caused depletion of certain nutrients which the body needed, such as the B-complex vitamins. Amphetamines were used as appetite suppressants in weight reduction. Antidepressants used for improving depression had the side effect of increasing the appetite and thus cause weight gain.

Several drugs interfered with the absorption of nutrients by

altering the absorptive surface of the small intestines. The continued use of such drugs as para-amino salicyclic acid, neomycin (which destroyed the natural bacterial of the gut), kanamycin, colchicine, caused nutrient deficiencies. Drugs affected the metabolism of nutrients. Potassium depletion was attributed to the prolonged use of adrenal corticosteroids, diuretics and purgatives. Frequently used oral contraceptives and some steroid compounds led to sodium retention, and some sulfur mixtures reduced iodide uptake by the thyroid. Drugs used for anticonvulsive therapy, and the prolonged use of antibiotics caused megalobastic anaemias and depletion of vitamin K, respectively. Other effects of drugs on nutrition were varied. Some drugs added substances such as salt and sugars to the body. This was important when planning for patients on restricted diets. Equally important was the fact that some foods affected the bioavailability of certain drugs. This was being studied extensively today.

Summary

Historically and well within recent times there was emphasis on relieving illness as a major measure of promoting health. Presently, the focus changed to health maintenance by prevention. Further, there is interest in making good health even better. In all of these instances, nutrition has a signal role.

The surge of interest in health and all it embodied by non-health professionals especially the larger lay population created a sense of need on their part and a major obligation by health practitioners to respond to that need. The response, however, needs to be capably divulged and backed by scientific findings which the majority of people

easily understood.

Having become more aware of the role of nutrition in many of the leading causes of disability and death, and the spiralling cost of illness, people were motivated to seek self-help measures to support health. Consequently, there was an increase in the risk methods used to protect and promote health. Potential risks existed in the use of mega doses of synthetic nutrients and unguided dieting unless the public received ready guidance from health practitioners.

Food habits need not be changed unless they proved to be detrimental to health. It seemed important that nutrition educators were aware of the different foods consumed by small packets of a population so as to acknowledge to people the food value available in uncommon foods.

Nutrition had long been neglected in the field of medicine and health in the less developed parts of the world as well as in affluent nations, where there was more ready access to health and medicine. Public education in nutrition as a major component of health needed to be addressed more today. Interest in nutrition as an important environmental factor in the health of man had been increasing rapidly.

CHAPTER III

METHODS AND PROCEDURES

Introduction

The purpose of this study was to determine the factors which influence the nutrition knowledge of nurses employed by hospitals in Payne County Oklahoma. The findings will be used to make recommendations and suggestions for academic and inservice nutrition education for hospital nurses in selected areas in Oklahoma. In this chapter, the research design, population sample, data collection which included: pilot survey, development of the instrument, establishment of content validity, pretesting and administration of the instrument, are presented.

Research Design

The research design used in the study was a descriptive survey. Descriptive surveys are used to determine and report the way things are (Fay, 1976). Data used in the study were obtained through the use of an objective questionnaire. This type of instrument is useful in gathering information from a population at a particular time (Best, 1981). Results from the survey may also be used to justify the need for improvement at a designated time (Best, 1981).

Population and Sample

In this study nurses, all employed by the three hospitals in Payne County Oklahoma, totalling 275, served as the population. The hospitals were the Stillwater Medical Center, Cushing Municipal Hospital, and Drumright Memorial Hospital. The sample in the study consisted of nurses who worked from 7 a.m.-11 p.m., when the majority of patients were awake. At the time of the study, there were 143 nurses who worked these hours. The following table identified the number of participants and the working hours at each of the three hospitals in the study.

TABLE I

BREAKDOWN OF PARTICIPANTS BY HOSPITAL AND WORKING HOURS

Name of Hospital	Number of Participants	Working Hours
Stillwater Medical Center	41	7 a.m.- 3 p.m.
	29	3 p.m.-11 p.m.
Cushing Municipal Hospital	24	7 a.m.- 3 p.m.
	15	3 p.m.-11 p.m.
Drumright Memorial Hospital	22	7 a.m.- 3 p.m.
	12	3 p.m.-11 p.m.
Total	143	

In April, 1983, the researcher personally contacted the director of nursing in each of the three hospitals to discuss the following: the

purpose and objectives of the study; a description and sample of the instrument designed to meet the objectives of the study; permission for nurses in each hospital who were employed during the hours 7 a.m.-11 p.m. to participate in the study. If permission were granted, the director was asked to distribute and collect the questionnaires.

Data Collection

Preliminary Study

As a basis for planning this study, the researcher conducted a pilot survey to determine the role of the hospital nurse in the nutritional care of the hospitalized patient. Twelve nurses from the Stillwater Medical Center--one of the hospitals in the study--responded to three open-ended questions as follows:

1. Are you frequently asked by patients or other relatives questions on nutrition, or diet related to the patient's illness?
2. When patients request nutrition information from you, what are some of your responses?
3. In your opinion, is a good knowledge of nutrition important in giving health care?

The majority of respondents (seven out of twelve) indicated that they were frequently asked questions about nutrition or diet related to the patient's illness. Four out of twelve respondents said that they would often try to answer questions but would inform the patient that since nutrition was not their specialty area, they would seek verification of their responses from a dietitian. Two respondents indicated

that for fear of giving incorrect information due to their limited nutrition knowledge, they would direct the questions to the dietary department of their hospital. Nine out of twelve respondents acknowledged that a good knowledge of nutrition was important to them in giving health care. Based on these findings and the review of literature, the researcher concluded that nurses may have a role in counseling the hospital patients and their relatives about nutrition.

Development of the Instrument

To meet the objectives of the study, an instrument in the form of a questionnaire was developed by the researcher. It was based on the review of literature and adaptations from a questionnaire from McCarthy and Sabre (1973). The instrument consisted of two parts. Part I was composed of nine objective and subjective questions designed to obtain demographic information, opinions on nutrition in relation to health care, and sources from which respondents received nutrition information. Part II consisted of twenty-four nutrition knowledge statements.

In developing the nutrition knowledge statements for Part II of the questionnaire, the researcher used the following three categories: diet and disease; nutrient-drug interaction; and general nutrition knowledge. Twenty statements for each category were developed. Three response choices were given for each statement and numerical values were designated as follows:

true to a true statement - 2 points

false to a true statement - 0 points

false to a false statement - 2 points

true to a false statement - 0 points

don't know to a question - 1 point

The "don't know" option was given so as to minimize guessing by participants and to differentiate between the lack of knowledge about a statement and a misconception.

Establishment of Content Validity for the Instrument

According to Compton and Hall (1972) content validity was used to determine appropriateness of the material presented for the individual under study. Two phases were used to establish content validity for the instrument in this study. In Phase I, the importance of nutrition knowledge to the hospital nurse was determined by using a Likert scale.

An expert panel of five persons was selected by the researcher to respond to sixty selected statements. Three faculty members from the Department of Food, Nutrition and Institution Administration at Oklahoma State University and two hospital dietitians from the Stillwater Medical Center, Stillwater, Oklahoma, comprised the panel. Members were asked to respond to each statement as "important," "somewhat important," and "not important" (for the hospital nurse to know). The numerical value for each level of importance was:

important	- 2 points
somewhat important	- 1 point
not important	- 0 points

A total possible score of two (2) was determined for each statement. All statements which received a score of 1.4 or above were included in the instrument. There were forty-eight statements.

In Phase II, the nutrition statements were classified into the categories of diet and disease, nutrient-drug interaction, and general nutrition knowledge, using the Q-Sort technique. Each of the forty-eight

nutrition statements was typed on a separate slip of paper. Three envelopes labelled for each category were prepared. A panel of three members of the Department of Food, Nutrition and Institution Administration at Oklahoma State University was selected by the researcher for applying the Q-Sort technique. Members were asked to read and categorize each statement to the appropriate category distinguished by the labelled envelopes. Members were asked to rewrite any statement for which clarity was doubtful and then categorize the rewritten statement accordingly (Appendix A).

The returns from the Q-sort procedure were reviewed for consistency of rating. If two or three members identified the statement for the same category, the statement was included in the instrument. Two statements were rewritten by one panel member. All forty-eight statements were categorized.

Randomization was used to select twenty-four statements for the questionnaire. Each slip of paper with the statements typed on it was placed in a large envelope. The envelope was shaken so that the slips of paper were mixed. They were then drawn alternately for each of the three envelopes labelled for the categories.

Pre-testing the Instrument

A pre-test was conducted to establish clarity of the instrument. Five nurses who were excluded from the study were asked to be members of a pre-test group. Each one was requested to respond to the instrument in the following manner:

1. Answer all questions and statements.
2. Offer suggestions for clarity by rewriting unclear statements.
3. Indicate the time in minutes to complete the entire instrument

without interruption.

The completed instruments were returned with all questions answered. There were no rewritten statements but there were suggestions to include two additional statements on maternal nutrition. The final form of the instrument was color-coded for each hospital and working shift, using a magic marker. Two straight lines were drawn across the lower right corner of the last page of the questionnaire. One color identified the hospital, the other indicated the shift hours. The three hospitals and shift hours were identified as follows:

Stillwater Medical Center	- red
Cushing Municipal Hospital	- green
Drumright Memorial Hospital	- yellow

The shift hours were:

7 a.m.- 3 p.m.	- black
3 p.m.-11 p.m.	- blue

A copy of the cover letter and completed instrument were included in Appendix B.

Administration of the Instrument

A cover letter accompanied each copy of the instrument. In it were identified the purpose of the study and directions for the instrument Appendix B. Instruments were delivered to the director of nursing of each hospital in May, 1983, for delivery to the participants in the study. A total of 143 instruments was distributed. Each respondent was given the opportunity to request a copy of the results of the study by giving name and address on a card provided by the researcher. Respondents were directed to deposit cards and completed instruments separately in collection boxes provided. The collection boxes for both the cards and the instruments were collected by the researcher one week after

delivery to the directors of nursing. A written reminder was given to those participants who had not responded within one week after receipt of the instrument.

Data Analysis

Procedure

Data were transcribed and coded onto computer data sheets. They were then keypunched onto computer cards which provided the researcher direct access to the mainframe computer (IBM 3081D). Appropriate programs were selected and data were analyzed using the Statistical Analysis System (SAS)(Hilwiq, 1979).

Standard Statistical procedures including frequency tables and analysis of variance (ANOVA) were used to analyze the data (Steele and Torrie, 1980). Level of significance was established at $p = <0.05$.

CHAPTER IV

RESULTS AND DISCUSSION

Introduction

This study was designed to determine the factors which influenced nutrition knowledge of hospital nurses in Payne County Oklahoma. Data were obtained using the research instrument described in Chapter III, "Methods and Procedures." The questionnaires were distributed to 143 nurses. The response rate was 69.9 percent (N = 100). This chapter provides a description of the respondents, analyses, and discussion of the results.

Characteristics of Survey Participants

Age

There were 100 respondents to the study. Fifty-three percent of the sample were registered nurses (RNs), and 47 percent licensed practical nurses (LPNs). The respondents ranged in age from 20 to over 40 years. The majority of them were between 25 and 39 years; the average age was 32 years. Thirty-four of the sample was over 35 years; 66 percent were under 35 years of age (Table II).

Educational Attainment

Forty-seven percent of the sample were licensed practical nurses.

Educational levels among the nurses were varied. Twenty-six percent of RNs had earned diplomas in nursing, 15 percent the associate degree, and 12 percent the Bachelor of Science degree. One who held a B.S. degree had also earned a M.S. degree in nursing. This respondent was included in the B.S. degree category (Table II).

Work Experience

Thirty-five percent of the respondents indicated that they had less than four years of hospital working experience; 65 percent had between five and eleven or more years of working experience (Table II).

TABLE II

FREQUENCIES AND PERCENTAGES OF RESPONSES ACCORDING TO AGE, EDUCATIONAL LEVEL AND WORK EXPERIENCE

Responses		Frequency	Percentage
Age in Years			
20-24		12	12
25-29		31	31
30-34		23	23
35-39		17	17
40 and over		17	17
	Total	100	100
Educational Level			
Diploma - LPN		47	47
Diploma - RN		26	26
Associate Degree		15	15
B.S.		12	12
	Total	100	100
Work Experience			
Less than 4		35	35
5- 7		28	28
8-10		20	20
11 plus		17	17
	Total	100	100

Perceived Importance of Nutrition to Health

The respondents were asked to indicate the importance of nutrition to health, using the following three categories: Important, Somewhat Important, or Not Important. All of the respondents indicated that nutrition was Important or Somewhat Important to health. Ninety-one percent indicated that nutrition was important to health; only nine percent indicated that it was somewhat important (Table III).

TABLE III

FREQUENCIES AND PERCENTAGES OF RESPONSES ACCORDING TO PERCEIVED IMPORTANCE OF NUTRITION TO HEALTH (N = 100)

Perceived Importance	Frequency	Percentage
Important	91	91
Somewhat Important	9	9
Not Important	0	0
Total	100	100

Perceived Nutrition Knowledge

The respondents were asked to identify their perceived level of nutrition knowledge according to the following categories: Sufficient, Somewhat Sufficient, and Insufficient. Twenty-one percent responded that they had insufficient knowledge. About one-half of the respondents (46%) acknowledged that they were somewhat knowledgeable about nutrition (Table IV).

TABLE IV

FREQUENCIES AND PERCENTAGES OF RESPONSES ACCORDING TO PERCEIVED LEVEL OF NUTRITION KNOWLEDGE
(N = 100)

Perceived Nutrition Knowledge	Frequency	Percentage
Sufficient	21	21
Somewhat Sufficient	46	46
Insufficient	33	33
Total	100	100

Benefit of Continuing Education

Respondents were asked if continuing education courses in nutrition would be beneficial to them. All (100%) responded affirmatively to the benefit of continuing education courses in nutrition (Table V).

TABLE V

BENEFIT OF CONTINUING EDUCATION COURSES IN NUTRITION BY FREQUENCIES AND PERCENTAGES
(N = 100)

Benefit of Nutrition Courses	Frequency	Percentage
Yes	100	100
No	0	0
Total	100	100

Nutrition in the Nursing Curriculum

All correspondents (100%) indicated that a basic nutrition course was included in their nursing education. In addition, 12 respondents (12%) also had a course in advanced nutrition (Table VI).

TABLE VI

STUDY OF NUTRITION IN THE NURSING CURRICULUM
BY FREQUENCIES AND PERCENTAGES
(N = 100)

Nutrition Course	Frequency	Percentage
Basic Nutrition	100	100
Advanced Nutrition	12	12

Sources of Nutrition Information

Approximately 50 percent (48%) of respondents used the media and nutrition journals as sources from which nutrition information was obtained. Nineteen of them used professional journals and 29 used the media. Forty-eight respondents identified "people" as a source of nutrition information. Although respondents were not required to identify specific groups of people, two of them named physicians, three named the dietitian, and one named the pharmacist as sources tapped for information (Table VII).

TABLE VII

SOURCES OF NUTRITION INFORMATION BY FREQUENCIES AND PERCENTAGES

Source of Information	Frequency	Percentage
Professional Nutrition Journals	19	19
Media	29	29
People	48	48
Other	11	11
Total	100	100

Nutrition Knowledge Scores

The respondents indicated their nutrition knowledge through scores from nutrition knowledge statements. These statements were developed in three categories. They were Diet and Disease, Food and Drug, and General Nutrition. The respondents were asked to identify statements as: True, Fals, or Don't Know. The scores allotted for the statements were:

True to a true statement - 2 points
False to a true statement - 0 points
False to a false statement - 2 points
True to a false statement - 0 point
Don't know to a statement - 1 point

The Don't Know option was given to avoid guessing by respondents. The total score for the nutrition statements was 48, based on a 2.0 for each statement.

Fifty percent or more of the respondents answered the following nutrition statements correctly. In descending order of percent of correct responses, these were:

Number on Questionnaire	Statement	Percentage of Correct Responses
17.	A large meal with gas-forming foods can restrict breathing for the patient with acute heart disease	95
8.	Foods rich in calcium and vitamin D should be included in the diet of the patient suffering from hypocalcemic tetany	93
20.	Diuretics could deplete the body of vitamin minerals	87
22.	Persons suffering from gall-bladder disease should avoid highly seasoned food	86
5.	A low protein diet reduces blood urea nitrogen in the patient with renal disease	85
19.	Motrin, an antiarthritic agent, should always be taken with food	83
6.	Antacids, such as amphojel, enhance iron absorption	77
11.	Even though one eats a wide variety of foods, a vitamin supplement is needed at least every other day	74
3.	Adults do not require milk in their diets	72
16.	Anti-depressants such as lithium carbonate are effective for weight loss	68
13.	A patient suffering from cirrhosis of the liver requires a high carbohydrate diet	63
24.	A pregnant teenager requires the same proportions of essential nutrients as does a pregnant adult	59
7.	When a patient is receiving furadantin, and anti-infective agent, it is important to reduce his protein intake	56
9.	Hypochromic-microytic anemia is caused from a deficiency of iron	56
21.	Raw eggs are more nutritious than cooked eggs	52

The statements which were most often answered correctly pertained to "Diet and Disease," which indicated that hospital nurses were perhaps better trained in diet therapy; their work experience had increased their knowledge in this area. Nurses might have had home economics education or physical education. One-third or more answered eight out of 24 statements either incorrectly, or that they did not know the answer. In descending order of percent of correct responses, these were:

Number on Questionnaire	Statement	Percent of Incorrect Responses
23.	Cortiocosteroids decrease the absorption of calcium	48
4.	Frozen orange juice is just as nutritious as fresh orange juice	47
2.	Injectable glucagon stimulates the synthesis of protein	44
15.	Meat is not essential to an adequate diet	41
14.	Silicone additives in cooking oil inhibit the absorption of Warfarin, an anti-coagulant	32
		Percent of Don't Know Responses
10.	When a person ceases to exercise, muscle tissue turns into fat	26
1.	Apresoline, an anti-hypertensive agent, is more effective when administered without food	19
12.	Cycloserine, an anti-tubercular agent, increases protein synthesis in the body	14
18.	An athlete requires more protein in the diet than a person less active of the same weight, sex, and agr	12

Statements related to nutrition and drug interaction and general

nutrition were the least known to the nurses. Since nurses routinely medicate patients, they apparently were not aware of the significance of food and drug interactions. The nurses' knowledge about general nutrition might have been influenced by foods or fallacies about nutrition. In Table VIII the nutrition statements were listed in rank order of mean scores for statements.

TABLE VIII

RANK ORDER OF MEAN SCORES FOR RESPONSES TO THE NUTRITION STATEMENTS

Number on Questionnaire	Statement	Mean Scores
17.	A large meal with gas-forming foods can restrict breating for the patient with acute heart disease	1.92
8.	Foods rich in calcium and vitamin D should be included in the diet of the patient suffering from hypocalcemic tetany	1.90
20.	Diuretics could deplete the body of vitamin minetals	1.77
22.	Persons suffering from gall-bladder disease should avoid highly seasoned food	1.74
5.	A low protein diet reduces blood urea nitrogen in the patient with renal disease	1.72
19.	Motrin, an antiarthritic agent, should always be taken with food	1.71
6.	Antacids, such as amphojel, enhance absorption	1.64
11.	Even though one eats a wide variety of foods, a vitamin supplement is needed at least every other day	1.61
3.	Adults do not require milk in their diets	1.54

TABLE VIII (Continued)

Number on Questionnaire	Statement	
16.	Anti-depressants such as lithium carbonate are effective for weight loss	1.54
13.	A patient suffering from cirrhosis of the liver requires a high carbohydrate diet	1.48
24.	A pregnant teenager requires the same proportions of essential nutrients as does a pregnant adult	1.43
7.	When a patient is receiving furadantin, an anti-infective agent, it is important to reduce his protein intake	1.38
9.	Hypochromic-microytic anemia is caused from a deficiency of iron	1.36
21.	Raw eggs are more nutritious than cooked eggs	1.28
23.	Corticosteroids decrease the absorption of calcium	1.27
4.	Frozen organge juice is just as nutritious as fresh orange juice	1.21
2.	Injectable glucagon stimulates the synthesis of protein	1.14
15.	Meat is not essential to an adequate diet	1.01
14.	Silicone additives in cooking oil inhibit the absorption of Warfarin, an anti-coagulant	.99
10.	When a person ceases to exercise, muscle tissue turns to fat	.93
1.	Apresoline, an anti-hypertensive agent, is more effective when administered without food	.89
12.	Cycloserine, an anti-tubercular agent, increases protein synthesis in the body	.86
18.	An athlete requires more protein in the diet than a person less active of the same weight, sex, and age	.57

Other Responses

Responses pertaining to other items in the study were examined by total scores for responses, and by the categories Diet and Disease, Food and Drug, and General Nutrition. These were subsequently discussed.

Importance of Nutrition to Health

Nutrition knowledge scores were calculated for the respondents' perceived importance of nutrition to health. A score of 34.1 was obtained from the 91 respondents who answered affirmatively to the importance of nutrition to health. Those who indicated that nutrition was somewhat important to health had a total score of 32.98. When the nutrition knowledge scores were analyzed according to categories, the category "Diet and Disease" received a mean score of 11.95 compared to mean scores of 11.6 and 9.66, respectively, for the other two categories, "Food and Drug" and "General Nutrition" (Table IX. These findings indicated that the respondents were more knowledgeable about nutrition related to disease than about general nutrition.

TABLE IX

NUTRITION KNOWLEDGE MEAN AND TOTAL SCORES OF RESPONDENTS BY CATEGORY AND IMPORTANCE OF NUTRITION TO HEALTH

Importance of Nutrition to Health	Number of Respondents	Mean Scores			
		Diet/Disease	Food/Drug	General Nutrition	Total Score
Important	91	11.91	12.04	10.14	34.10
Somewhat	9	12.00	11.16	9.81	32.98
Not	0	0.00	0.00	0.00	0.00

Sufficiency of Nutrition Knowledge

The respondents were asked to identify their sufficiency of nutrition knowledge. Twenty-one percent who identified sufficiency of nutrition knowledge obtained a total score of 34.33, while the total score of 32.86 was obtained by the respondents who identified that they were somewhat sufficient in nutrition knowledge (Table X). When the nutrition knowledge scores were analyzed according to categories, the category "Diet and Disease" received a score of 12.06 compared to 11.60 and 6.67 for the other two categories, "Food and Drug" and "General Nutrition" (Table X). These findings indicated that the respondents were least knowledgeable about general nutrition.

TABLE X

MEAN AND TOTAL NUTRITION KNOWLEDGE SCORES BY CATEGORY AND SUFFICIENCY OF NUTRITION KNOWLEDGE

Level of Sufficiency	Number of Respondents	Mean Scores			
		Diet/Disease	Food/Drug	General Nutrition	Total Score
Sufficient	21	12.71	11.57	10.04	34.33
Somewhat	46	11.80	11.34	9.71	32.86
Insufficient		11.69	11.90	10.27	33.87

Continuing Education

The respondents were asked to indicate their perceived need for continuing education in nutrition. All of them answered affirmatively to

this need. The total score was 33.51. When the nutrition knowledge scores were analyzed according to categories, the category "Food and Drug" received a score of 12.66, compared to 11.80 and 9.05 for the other two categories, "Diet and Disease" and "General Nutrition." This indicated that the respondents were more knowledgeable about food and drug interactions than they were of nutrition in disease or general nutrition.

TABLE XI

MEAN AND TOTAL NUTRITION KNOWLEDGE SCORES BY CATEGORY AND CONTINUING EDUCATION IN NUTRITION (N = 100)

Continuing Education	Number of Respondents	Mean Scores			Total Score
		Diet/Disease	Food/Drug	General Nutrition	
Yes	100	11.80	12.66	9.05	33.51
No	0	-	-	-	-

Courses in Nutrition

When respondents were asked to indicate the courses of nutrition they had had in nursing education, the majority of them (88%) responded to "Basic Nutrition." Twelve of them also indicated an advanced course in nutrition. Those respondents who indicated basic nutrition obtained a score of 33.57, while those who also had advanced, acquired a score of 33.00. When nutrition knowledge scores were analyzed by categories,

the category "Diet and Diseases" received a score of 12.24, compared to 10.89 and 10.17 for the other two categories, "Food and Drug" and "General Nutrition," thus indicating that the respondents were most knowledgeable about nutrition in disease (Table XII).

TABLE XII

MEAN AND TOTAL NUTRITION KNOWLEDGE SCORES BY CATEGORY AND LEVEL OF NUTRITION COURSES
(N = 100)

Level of Nutrition Course	Respondents	Mean Scores			
		Diet/Disease	Food/Drug	General Nutrition	Total Score
Basic Nutrition	88	12.56	10.01	11.00	33.57
Advanced Nutrition	12	11.92	11.74	9.34	33.00

Testing the Hypotheses

H_1: There will be no significant difference in nutrition knowledge mean scores according to age.

Age

It was observed that the highest nutrition knowledge score, 34.23, was obtained from the respondents who were 40 years of age and over. The average score for respondents in the age group 30-34 was 34.17. This was the second highest total score (Table XIII).

TABLE XIII

NUTRITION KNOWLEDGE MEAN AND TOTAL SCORES BY CATEGORY AND AGE OF RESPONDENTS
(N = 100)

Age Range	Number of Respondents	Mean Scores			Total Score
		Diet/Disease	Food/Drug	General Nutrition	
20-24	12	12.41	11.50	10.16	33.51
25-29	31	11.96	11.90	9.48	33.35
30-34	23	12.08	11.47	10.60	34.17
35-39	17	11.47	10.70	9.58	31.76
40 and above	17	11.94	12.05	10.23	34.23

Analysis of variance (ANOVA) was used to determine if age of the respondant was associated with his/her nutrition knowledge score. Since the F-score of 0.78 was not significant at the .05 level (Table XIV), the researcher failed to reject H_1.

TABLE XIV

ANALYSIS OF VARIANCE FOR NUTRITION KNOWLEDGE BY AGE
(N = 100)

Variable	d.f.	Mean Square	F-Score
Age	4	18.88	0.78

H_2: There will be no significant difference in nutrition knowledge mean scores according to educational attainment.

Educational Attainment

In the study, the LPNs obtained the highest nutrition knowledge score, 34.10. The respondent RNs who had earned associate degrees and Bachelor of Science degrees received lower scores--33.73 and 32,33, respectively (Table XV).

TABLE XV

NUTRITION KNOWLEDGE SCORES BY CATEGORY AND EDUCATIONAL LEVEL OF THE RESPONDENTS

Education Level	Number of Respondents	Scores			Total Score
		Diet Disease	Food/Drug	General Nutrition	
RN - Diploma	26	11.53	11.03	10.26	32.84
LPN - Diploma	47	11.91	12.04	10.14	34.10
A. A.	15	12.53	11.40	9.80	33.73
B. S.	12	12.33	11.16	8.33	32.33

Analysis of variance (ANOVA) was used to determine if the educational attainment of the respondent was associated with his/her nutrition knowledge score. Since the F-Score of 1.08 was not significant at the .05 level (Table XVI), the researcher failed to reject H_2.

TABLE XVI

ANALYSIS OF VARIANCE FOR NUTRITION KNOWLEDGE BY EDUCATIONAL LEVEL

Variable	d.f.	Mean Square	F-Score
Educational Attainment	3	6.23	1.08

H_3. There will be no significant difference in nutrition knowledge mean scores according to years of working experience.

Years of Working Experience

The respondents who had 11 years or more of working experience obtained the highest total score, 34.23. The lowest score was earned by respondents having 8-10 years of working experience (Table XVII).

TABLE XVII

NUTRITION KNOWLEDGE TOTAL SCORE BY CATEGORY AND YEARS OF WORKING EXPERIENCE
(N = 100)

Years of Experience	Number of Respondents	Scores			
		Diet/Disease	Food/Drug	General Nutrition	Total Score
1- 4	35	11.54	11.65	10.20	33.48
5- 7	28	12.28	11.92	10.00	34.21
8-10	20	12.00	11.00	8.95	31.95
11 and above	17	12.23	11.52	10.47	34.23

An analysis of variance (ANOVA) was used to determine if the years of working experience of the respondent was associated with his/her nutrition knowledge score. Since the F-Score of 1.00 was not significant at the .05 level (Table ZVII) the researcher failed to reject H_3.

TABLE XVIII

ANALYSIS OF VARIANCE FOR NUTRITION KNOWLEDGE BY YEARS OF WORKING EXPERIENCE (N = 100)

Variable	d.f.	Mean Square	F-Score
Years of working experience	3	23.83	1.00

H_4. There will be no significant difference in nutrition knowledge mean scores according to sources of nutrition information.

Sources of Nutrition Information

Professional journals were cited as the most frequently sought source of nutrition information by 19 percent of the respondents. The total score of this group was 34.10, the highest score. The media as a source of nutrition information was cited by 29 percent of respondents, who had the second highest score, 33.36 (Table XIX).

TABLE XIX

NUTRITION KNOWLEDGE TOTAL AND MEAN SCORES BY CATEGORY AND SOURCES OF NUTRITION INFORMATION (N = 100)

Sources of Information	Number of Responses	Mean Scores			Total Score
		Diet/Disease	Food/Nutrition	Nutrition	
Professional Journals	19	12.42	11.73	9.94	34.10
Media	29	11.85	11.54	9.97	33.36
People	48	11.96	11.58	9.-0	32.54
Other	11	10.30	11.68	11.05	33.03

Note: Total number of respondents does not equal 100, due to the fact that respondents could choose more than one category.

Analysis of variance (ANOVA) was used to determine if the source of nutrition information was associated with the nutrition knowledge score of the respondent. Since the F-Score of 0.78 was not significant at the .05 level (Table XX), the researcher failed to reject the hypothesis.

TABLE XX

ANALYSIS OF VARIANCE FOR NUTRITION KNOWLEDGE BY SOURCE OF NUTRITION INFORMATION (N = 100)

Variable	d.f.	Mean Square	F-Score
Sources of Nutrition Information	2	18.79	0.78

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Summary

The purpose of this study was to determine the factors which influenced the nutrition knowledge of hospital nurses in Payne County Oklahoma. Analysis of variance (ANOVA) was used to determine if there were significant differences in nutrition knowledge scores and the variables: age, educational attainment, years of working experience, and sources of nutrition information.

The sample in this study consisted of hospital nurses in Payne County Oklahoma who were employed during the hours 7 a.m.-11 p.m. One hundred and forty-three questionnaires were delivered to nurses in each of the three hospitals in Payne County. The researcher collected 100 completed questionnaires, all of which were usable.

The data were tablulated by frequencies and percentages to identify background and demographic information and nutrition knowledge scores. Analysis of Variance statistical technique was used to analyze the difference between nutrition knowledge mean scores and age, educational attainment, years of working experience, and sources of nutrition information. The level of significance was set at $p = <0.05$ level of confidence.

The sample consisted of 100 nurses 63 (63%) of whom were registered

nurses, 47 (47%) were licensed practical nurses. A diploma in nursing was acquired by 26 percent of respondents; 15 (15%) had obtained Associate degrees in nursing, and 12 (12%) had a Bachelor of Science degree in nursing. All licensed practical nurses (47%) received diplomas in practical nursing. Most of the respondents (63%) had seven years or less of hospital work experience. Forty-eight percent of the respondents cited the category "people" as the most frequently tapped source for nutrition information.

Forty-six percent (46%) of the respondents felt that their nutrition knowledge was insufficient for responding to patients' need for nutrition information. All respondents (100%) indicated a need for continuing education in nutrition.

Nutrition knowledge scores ranged from 22-46, with the majority of respondents (59%) obtaining a total score of 33.51 out of a possible 48.00. There was no perfect score. It was observed that respondents 30-40 years of age received the highest nutrition knowledge scores. They were also those with 11 years or more of hospital work experience. The older respondents, with less educational accomplishments, compared to those who were younger and had degrees in nursing, consistently had higher nutrition knowledge scores.

The category "Diet and Disease" had more correct responses than either of the other two categories, namely "Food and Drug" and "General Nutrition." The respondents were more knowledgeable with nutrition related to disease than about general nutrition. There was no significant difference in nutrition knowledge scores of respondents according to age, educational attainment, years of working experience and source of nutrition information.

Recommendations

The following recommendations were made by the researcher based on the findings of the study.

1. That increased emphasis be placed on nutrition in nursing education, especially basic nutrition.

2. That nutrition and nutrition education be included in inservice education programs for nurses.

3. That professional nutrition journals be made available to hospital nurses.

4. That more nutrition articles appropriate for nurses be published in nursing journals.

The following recommendations for further research were identified by the researcher:

1. to determine the nutrition knowledge of all hospital nurses in the State of Oklahoma, using variables other than those used in the study;

2. to validate a nutrition knowledge instrument to assess nutrition knowledge of hospital nurses;

3. to determine the relationship between nutrition knowledge of hospital nurses and the effectiveness of the delivery of nutritional care;

4. to assess the extent that nutrition was included in the health care team training for personnel in Oklahoma hospitals;

5. to determine the perceived importance of nutritionby all members of the health care teams in Oklahoma hospitals;

6. to determine whether there were differences in nutritional knowledge among nurses from hospitals which allowed for continuing education in nutrition and those which did not.

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APPENDIX A

CORRESPONDENCE TO THE Q-SORT TEAM

Oklahoma State University

Department of Food, Nutrition and Institution Administration

STILLWATER, OKLAHOMA 74078
405 624 5039

April 19, 1983

Esther Winterfeldt, Ph.D., R.D.
Professor and Head, Department
of Food, Nutrition and
Institution Administration
Campus

Dear Dr. Winterfeldt:

I am a M.S. degree student in the Department of Food, Nutrition and Institution Administration at Oklahoma State University. To complete the research requirement for the degree, I have selected to study the factors which influence nutrition knowledge of hospital nurses in Payne County, Oklahoma. Based on the findings, suggestions and recommendations will be made for academic and inservice nutrition education for nurses.

A nutrition knowledge test is being developed as part of a questionnaire for this study. Because of your expertise in nutrition, you have been selected as a person who can identify nutrition statements applicable to the following categories:
1. diet and disease, referring to those statements which pertain to disease conditions which require dietary monitoring as part of effective patient care.
2. Nutrient-drug interaction, referring to those statements which pertain to interactions between food and drugs which may enhance or inhibit patient recovery.
3. General nutrition information, referring to those statements which pertain to nutrition knowledge important in maintaining health.

In the enclosed material, there are three envelopes, one labeled for each category. Please use the following procedure for assisting in the study:

1. Read each statement, then categorize by inserting the sheet of paper on which it is typed into the corresponding envelope.
2. Rewrite any statement which you could not readily categorize and place it in the category to which it would apply.

I will appreciate comments, and your constructive criticism aimed at improving this instrument. Please return the material to me in the envelope provided by April 27th.

Thank you for using your expertise and your time.

Sincerely yours,

Josine Hussey, Graduate Student

Bernice Kopel, Ed.D., Advisor
Associate Professor

APPENDIX B

COVER LETTER ACCOMPANIED BY THE QUESTIONNAIRE

Oklahoma State University

Department of Food Nutrition and Institution Administration

STILLWATER OKLAHOMA 74078
405/624-5039

May 18, 1983

Dear Nurse:

I am a M.S. degree student in the Department of Food, Nutrition and Institution Administration at Oklahoma State University. To complete the research requirement for the degree, I have selected to study the factors which influence nutrition knowledge of hospital nurses in Payne County Oklahoma, for the purpose of making suggestions and recommendations for nutrition education.

Because of your training and employment you are an invaluable person who can contribute necessary information for this study. In the enclosed material there is an objective questionnaire, to which I am asking you to respond. You may wish to have a summary of the results of this study. For this purpose, I have enclosed a card on which you should write your name and address.

In order to identify hospitals and shift hours, colours have been preapplied to each questionnaire. To preserve anonymity, two labelled containers have been placed at the Information Desk of the hospital, one for collection of the completed questionnaire and the other for the cards.

The average time taken for completing the questionnaire in a preliminary trial was 14 minutes. Please return the completed material by May 25th.1983.

Thank you for your time and cooperation.

Sincerely,

Josine Hussey
Graduate Student

Bernice Kopel

Bernice Kopel, Ed.D.
Associate Professor and
Advisor

NUTRITION KNOWLEDGE QUESTIONNAIRE

Directions : Please use an X to check one response to each of the following questions.

1. To which age group do you belong?

_____(a) 20 to 24 years

_____(b) 25 to 29 years

_____(c) 30 to 34 years

_____(d) 35 to 40 years

_____(e) 40 years and over

2. What educational level have you attained?

_____(a) R.N. Diploma

_____(b) L.P.N. Diploma

_____(c) Associate degree

_____(d) B.S. Nursing

_____(e) B.A. Nursing

_____(f) M.S. Nursing

_____(g) Ph. D or Ed.D. in Nursing.

3. In which year did you receive your present nursing qualification?

_____

4. How many years of actual hospital nursing experience have you had ?

_____

5. To what extent do you feel nutrition is important to health ?

_____ (a) Important

_____ (b) Somewhat IMportant

_____ (c) Not Important

6. Do you feel that your level of nutrition knowledge is sufficient for responding to patients' requests for nutrition information?

_____(a) Sufficient

_____(b) Somewhat sufficient

_____(c) Insufficient

7 Do you feel that continuing education courses in nutrition would be of benefit to you ? (Continuing education refers to : one-day workshops, inservice classes, teleconference(s) etc.

_____(a) Yes

_____(b) No.

Directions : Please indicate your response to the following by using the check mark X to all that apply.

8. Select the course or courses which you have had in your nursing curriculum.

_____(a) Basic Nutrition (Examples of topics included are. The function of nutrients in the human body, food and personal health, the four food groups.)

_____(b) Advanced Nutrition (Examples of topics covered are: Diet therapy, Nutrition in the life span).

_____(c) Other. Please specify.

_____

9. Which of the following sources do you use for nutrition information at present?

_____ (a) Nutrition Journals (Professional nutrition journals).

_____ (b) The Media (INservice education, Television, radio, newspaper, other journals).

_____ (c) People (Dietitians, physicians, friends, family etc.)

_____ (d) Other. Please specify.

_____

PLEASE USE AN 'X' IN THE COLUMN AT RIGHT FOR YOUR ANSWER.

STATEMENTS	RESPONSES		
	True	False	Don't Know
1. Apresoline, an anti-hypertensive agent, is more effective when administered without food.			
2. Injectable glucagon stimulates the synthesis of protein.			
3. Adults do not require milk in their diets.			
4. Frozen orange juice is just as nutritious as fresh orange juice.			
5. A low protein diet reduces blood urea nitrogen in the patient with renal disease.			
6. Antacids, such as amphojel, enhance iron absorption.			
7. When a patient is receiving fu. adantin, an anti-infective agent, it is important to reduce his protein intake.			
8. Foods rich in calcium and vitamin D should be included in the diet of the patient suffering from hypocalcemic tetany.			
9. Hypochromic-microytic anemia is caused from a deficiency of iron.			
10. When a person ceases to exercise, muscle tissue turns into fat.			
11. Even though one eats a wide variety of foods, a vitamin supplement is needed at least every other day.			

STATEMENTS	RESPONSES		
	True	False	Don't Know
12. Cycloserine an anti-tubercular agent, increases protein synthesis in the body.			
13. A patient suffering from cirrhosis of the liver requires a high carbohydrate diet.			
14. Silicone additives in cooking oil inhibit the absorption of Warfarin, an anti-coagulant.			
15. Meat is not essential to an adequate diet.			
16. Anti-depressants such as lithium carbonate are effective for weight loss.			
17. A large meal with gas-forming foods can restrict breathing for the patient with acute heart disease.			
18. An athlete requires more protein in the diet than a person less active of the same weight, sex and age.			
19. Motrin, an antiarthritic agent, should always be taken with food.			
20. Diuretics could deplete the body of vitamin minerals.			
21. Raw eggs are more nutritious than cooked eggs.			

STATEMENTS	RESPONSES		
	True	False	Don't Know
22. Persons suffering from gall-bladder disease should avoid highly seasoned food.			
23. Corticosteroids decrease the absorption of calcium.			
24. A pregnant teenager requires the same proportions of essential nutrients as does a pregnant adult.			

APPENDIX C

RANK ORDER OF SCORES FOR STATEMENTS ON THE QUESTIONNAIRE

RANK ORDER OF MEAN SCORES FOR RESPONSES TO THE NUTRITION STATEMENTS

	Statement	Mean Scores
17.	A large meal with gas-forming foods can restrict breathing for the patient with acute heart disease.	1.92
8.	Foods rich in calcium and vitamin D should be included in the diet of the patient suffering from hypocalcemic tetany.	1.90
20.	Diuretics could deplete the body of vitamin minerals.	1.77
22.	Persons suffering from gall-bladder disease should avoid highly seasoned food.	1.74
5.	A low protein diet reduces blood urea nitrogen in the patient with renal disease.	1.72
19.	Motrin, an antiarthritic agent, should always be taken with food.	1.71
6.	Antacids, such as amphojel, enhance iron absorption.	1.64
11.	Even though one eats a wide variety of foods, a vitamin supplement is needed at least every other day.	1.61
3.	Adults do not require milk in their diets.	1.54
16.	Anti-depressants such as lithium carbonate are effective for weight loss.	1.54
13.	A patient suffering from cirrhosis of the liver requires a high carbohydrate diet.	1.48
24.	A pregnant teenager requires the same proportions of essential nutrients as does a pregnant adult.	1.43
7.	When a patient is receiving furadantin, and anti-infective agent, it is important to reduce his protein intake.	1.38
9.	Hypochromic-microytic anemia is caused from a deficiency of iron.	1.36
21.	Raw eggs are more nutritious than cooked eggs.	1.28
23.	Corticosteroids decrease the absorption of calcium.	1.27

	Statement	Mean Scores
4 .	Frozen orange juice is just as nutritious as fresh orange juice.	1.21
2.	Injectable glucagon stimulates the synthesis of protein.	1.14
15.	Meat is not essential to an adequate diet.	1.01
14.	Silicone additives in cooking oil inhibit the absorption of Warfarin, an anti-coagulant.	.99
10.	When a person ceases to exercise, muscle tissue turns to fat.	.93
1.	Apresoline, an anti-hypertensive agent, is more effective when administered without food.	.89
12.	Cycloserine, an anit-tubercular agent, increases protein synthesis in the body.	.86
18.	An athlete requires more protein in the diet than a person less active of the same weight, sex, and age	.57

VITA

Mavis Josine Hussey

Candidate for the Degree of

Master of Science

Thesis: NUTRITION KNOWLEDGE OF HOSPITAL NURSES IN PAYNE COUNTY OKLAHOMA

Major Field: Food Nutrition and Institution Administration

Biographical:

Personal Data: Born in San Fernando, Trinidad and Tobago, West Indies, the daughter of Mr. and Mrs. A. Joseph Hussey.

Education: Received a Bachelor of Nursing degree from McGill University, Montreal, Canada, in May, 1977, with a major in Community Health Education; completed requirements for the Master of Science degree at Oklahoma State University, Stillwater, Oklahoma, in July, 1984.

Professional Experience: Civil Service in the Trinidad and Tobago Government services, 1960-1964; Community Health Coordinator Montreal, Canada, 1967-1969; Social Service-Psychiatric and Substance Abuse Counsellor, Wichita, Kansas, 1973; Public Health Nurse and Midwife, Montreal, Canada, 1976; Unit Health Coordinator, St. Joseph Hospital, Barbados, West Indies, 1979-1981.