A STUDY OF HEALTH PROBLEMS
IN A SELECTED CLASS
OF DIPLOMA SCHOOL STUDENT NURSES
1962-65

by

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CHAPTER I

INTRODUCTION

Introduction to the Problem

The nature of nursing requires a healthy mind and body. The need to select healthy individuals for admission to schools of nursing, and the importance of maintaining this state of well-being, have been recognized through studies of the health problems among student nurses. (12, 28, 36)

The findings of these studies have led to improvements in the living and working conditions for student nurses. Health facilities have been established to provide preventive measures against illness, and to care for the sick nurse. Mental and personal health education have been integrated into the curriculum of the majority of schools. (32, 36)

There have been few recent studies of health problems among student nurses. However, in these recent studies, an increased incidence of health problems in certain clinical areas has been reported. (8, 20, 38) A seasonal incidence of health problems has been indicated in some studies. (1, 8, 20, 26, 37)

Educators in many fields now recognize that physical and emotional problems can hinder the development of the student's

abilities. (5, 17, 19, 31, 37)

Current studies relating student nurse health problems to the curriculum and time of year may identify contributing environmental factors or new patterns of disease incidence.

Statement of the Problem

This study was an analysis of health problems and resultant absences as they related to the curriculum and time of year among a selected group of students from admission through graduation in one diploma school of nursing. Described in the study were the effect of the health problems on the students in terms of number of episodes, resultant absences, and hospitalizations; the relationship of the students' grade point ratios to the number of absences; and students' utilization of the health service.

The health service has become an essential part of every nursing school's program. The major purpose of the service is to help the student keep well by providing preventive measures, by counseling the student, and by caring for her health problems. Such a program can be effective only if the students are utilizing these services.

Studies concerning student health problems have been done elsewhere but not in this selected setting. It is not known whether these students have more or less illnesses than students in other

settings or what types of illness cause their health problems and resultant absences.

The school policies require that time be made up for certain absences which may affect the number of reported illnesses, the absences, and the use of the health service. The school recommends but does not require health insurance, although free hospitalization is provided for only a limited time for illnesses other than those incurred in the line of duty. It is not known if many actual occurrences in the clinical areas cause health problems among the students.

Illness and absence interrupts the students' program. It is not known whether this influences the students' grade point ratio, or if the students' academic achievement influences the number of health problems and absences. A significant relationship must first be found between grade point ratios and absences before attempting to determine causal factors.

A study of health problems, illnesses and absences may have implications for curricular adjustments, changes in individual teaching methods, guidance, review and possible revision of the health service policies.

Before considering the implications of increased health problems in relation to any area in the curriculum, the distribution of the health problems among the students, the significance of possible

seasonal trends, and the homogeneity of the groups in the rotation must first be determined because students in this setting are not in the same clinical area at the same time. For this reason, persistent health problems may not be recognized until they have been identified and compiled in relation to the specific clinical areas.

Health is frequently given as a reason for withdrawal from school.

Purpose of the Study

This study was developed as a consequence of a previous study by Sharon Wilder. (38) Because of the pertinence of identifying the nature of health problems among student nurses in a selected school of nursing, it is hypothesized that:

1. Peak rates of health problems in relation to the course rotations are not significantly affected by the time of year or individual differences within the student groups.

2. The number of days absent during the freshman year do not differ significantly between students with low, medium, and high grade point ratios.

3. The number of days absent during the junior year do not differ significantly between students with low, medium, and high grade point ratios.

4. The number of days absent during the senior year do not differ significantly between students with medium and high grade point ratios.

5. The number of days absent during 12 terms do not differ significantly between students with medium and high grade point ratios.

For the purpose of this study, information was needed as to:

1. The identity of the health problems and the frequency of the episodes and resultant absences due to these health problems during 12 terms, and each class year, school term, month, and course rotation.

2. The distribution of the episodes and days absent due to health problems among the students during the total three years and each class year and course rotation.

3. The actual occurrences in the clinical areas causing health problems among the students.

4. The grade point ratios for each student in relation to the number of days absent in each class year and during 12 terms.

5. The health problems that required hospitalization, the number of students with and without health insurance, and the number of hospitalizations among the students.

6. The number of visits to the health service by the students, whether the visits were for therapeutic or preventive reasons, and who administered this care.

7. The identity of the specific health problems among any students who withdrew from school for reasons of health.

Justification for the Study

The health of a student nurse can be a major factor in determining her happiness and satisfaction with nursing. The quality of care that she gives her patient may certainly be affected by her own state of well-being. (17, 31) Furthermore, time lost from class or clinical experience robs the student of needed learning experiences that also affect the kind of nursing care that she is able to give. The

type of health teacher that she becomes may be determined by the management of her own health during student days. (8, 36)

For many years, despite improvements in nursing education, an average of 30 per cent of the students entering nursing schools have withdrawn before graduation; nine per cent of these students give health as a reason for withdrawal. (2, 34) Withdrawal is not only an economic loss to the student and the school, but also a serious reduction in the number of much-needed nurses.

The need for more nurses is reported in almost every newspaper today. With the advent of Medicare, even more will be needed. The Report of the Surgeon General--Toward Quality Nursing stated that present school capacities cannot fulfill the number of graduate nurses needed by 1970 to care for the population. (33) The withdrawal of students prevents full utilization of the inadequate available school space.

Very little information has been reported on the actual illnesses responsible for the higher incidence of health problems and days absent during certain clinical rotations. While conjectures have been made, their validity has not been established through research.

Very little information has been reported about specific health problems of students who withdraw from school for reasons of health.

By identifying the specific health problems as they occurred in relation to the course rotations or among the students who withdrew

for health reasons, it was hoped that this school might be helped both in planning the curriculum and the programs in health and guidance, and to be better able to counsel the students in their own health management.

By relating health problems to the time of year, a pattern of occurrence might be noted, helpful in alleviating or preventing such problems.

Definition of Terms

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

A Health Problem was a change in a person's state of well-being that caused her to seek therapeutic assistance or to be absent from class or clinical practice.

Episode was the measure in this study of one health problem, which was recorded on the health record as a complaint or disease, and included any follow-up visits for that one problem.

A Health Service was the service within the school of nursing devoted to the prevention of illness, direct medical care, and counseling for the students.

A Diploma School of Nursing offers a three year basic course in nursing. On admission, the student is required to be a high school graduate with a specified grade average and be determined mentally and physically fit by her physician.

Classification of class membership as used in this school was:

A Freshman Student for the first year of the basic program, which included a six-month pre-clinical period.

A Junior Student for the second year of the basic program.

A Senior Student for the third year of the basic program.

A Course Rotation was the concurrent course of study and clinical practice related to a specific type of nursing or was designated as pre-clinical.

Classification of the course rotations in this school were:

Pre-Clinical I and II were the first two terms in which the student was in class or the laboratory, learning basic sciences and skills that would apply in caring for patients.

Medical-Surgical Nursing I, II, III consisted of nine months in which the students cared for patients with various medical and surgical conditions. Four weeks of additional time were spent in the diet laboratory during the I and II rotations.

Advanced Medical-Surgical Nursing was one term in which the student cared for patients with neurological; orthopedic; urological; and eye, ear, nose, and throat conditions.

Advanced Clinical Practice I was one term in which the student chose the area she wished to work with the head nurse and assumed administrative responsibility.

Advanced Clinical Practice II consisted of nine weeks in which the student cared for patients in the intensive care unit, the emergency room, and intravenous therapy. The student could elect to spend one week in public health observation. The remainder of this term was vacation time.

Operating Room, Pediatrics, and Psychiatry were each twelve-week rotations in which the student cared for patients in these specialized areas.

Obstetrics was usually a thirteen-week rotation, consisting of giving pre- and post-natal care, assisting in the delivery room, and caring for the newborn infants.

A Person Day was the presence of one student for one day in school. The total person days were determined by multiplying the number of students in school by the number of days in the total three years, the class year, term, month, or course rotation.

Grade Point Ratio was the description of the student's academic standing. A grade point ratio of 2.00 or C was required of the student to graduate.

The grade of A secured 4 quality points, B secured 3 quality points, C secured 2 quality points, D secured 1 quality point, and F secured minus 1.

Abbreviations

For the purpose of this study, certain abbreviations were found to be useful in setting up the tables. They were U.R.I. for upper respiratory infections; G.I. for gastrointestinal; G.U. for genito-urinary; Bones, M. for bones and organs of movement; Strep. for streptococcus; Med-Surg. for medical-surgical; Adv. for advanced; Clin. for clinical; O.R. for operating room; O.B. for obstetrics; Peds. for pediatrics; Psych. for psychiatry; E for episode; A for days absent; S.E. for standard error; N.S. for not significant; o.d. for on duty; NLNE for National League of Nursing Education.

Assumptions

For the purpose of this study it was assumed that:

1. The health records were reasonably accurate and complete.

2. The student was in good physical and mental health when admitted to the school of nursing.

3. There was a relationship between the student's achievement and state of well-being, and the number of episodes and days absent due to health problems.

Limitations

This study was limited to the 46 students who were admitted in September of 1962 and graduated in 1965, and the two students who withdrew for reasons of health before graduation. Students who withdrew or had leaves of absence for reasons other than health were not included. For this reason, the data were probably skewed in a favorable direction because the students in this study maintained adequate grade point ratios and had enough dedication to nursing to remain in school.

The study was limited to the data obtained from the health records, rotation and vacation schedules, and grade point ratios which were on file in the school of nursing.

The conclusions drawn were limited to the comparisons of the totals, percentages, rates, and statistical findings for the categories established in the data-collection tool.

No attempt was made to identify reasons for increased health problems in any area or the reasons for the types of health problems in relation to a particular area.

No attempt was made to identify the reasons that the students did or did not use the health service.

No attempt was made to evaluate the effectiveness of the health service.

Design for Research

Sources of Data

The primary sources of the data were the health service records and the grade point ratios of the selected class of diploma school students who were admitted in September of 1962 and graduated in September or December of 1965. The records had been maintained by the nurse in the health service until the students had graduated. She was available to interpret the records when there was a need for clarification. The records had been added to the students' folders, which contained the course rotation schedules and grade point ratios and were on file in the nursing education office. Information concerning dates of term changes and vacations was obtained from the secretary in the nursing education office.

Collection of Data

The procedure used to collect data was to transfer the information from the student health record onto an individual sheet for each

student. This sheet was a modified form of the tool developed by Sharon Wilder for her study. (38) Factors such as year, term, course rotation, number of days absent, date of episode, complaint, who cared for the problem, whether the care was for a therapeutic or preventive measure, grade point ratio, and insurance coverage were used as the basic framework of categories.

Procedure

The design for this study is described in the following steps.

1. An investigation was made of available literature to determine what should be studied, what factors have been identified that contribute to the development of health problems, and what changes have occurred in relation to student health problems.

2. Comments and suggestions concerning student health problems were obtained from one physician director of a medical school student health service; one director of nursing education in a diploma school of nursing; and one student health nurse in each of the following types of schools: a general college, a collegiate school of nursing, and a diploma school of nursing.

3. A statement of the problem was formulated.

4. Permission to conduct the study in the selected diploma school was secured from the director of nursing education.

5. A modified form of the data-collection tool used by Sharon Wilder (38) was found to be applicable in the collection of the data for this study by examining a sample health record from the school selected.

6. Permission to use a modified form of the data-collection tool was secured from Mrs. Sharon Wilder.

7. The data were collected on an individual sheet for each student. A number was assigned at random to each sheet so that the identity of the student was known only to the writer.

8. The data from the individual sheets were transferred in code to master sheets for the established categories. The coded numbers were totaled and treated statistically to interpret the findings.

9. The findings were presented in tables or figures.

10. Conclusions were drawn and recommendations made.

Overview of the Study

Chapter II contains a review of the literature and related studies providing a background of both problems and changes occurring in the health and care of the student nurse. Chapter III gives a description of the treatment of the data and an interpretation of the findings. Chapter IV presents a summary, conclusions drawn, and recommendations for further studies.

CHAPTER II

SURVEY OF LITERATURE AND RELATED STUDIES

Major improvements have been made in nursing education with the recognition of factors causing health problems in student nurses. These factors were identified through studies conducted for a variety of reasons.

Recognition of Factors Causing Health Problems

In 1923, Josephine Goldmark reported the findings of an intensive study of 23 nursing schools made by the Committee for Study of Nursing Education. A disproportionate number of the "best" schools had been included in this study to determine what changes could be made in nursing education to attract and keep students in the profession. Education and age were found to be the only requirements for admission to the schools. There was no mention of a health facility nor recommendation for care of the sick nurse, although a significant relationship between the number of working hours and health had been established by the National League of Nursing Education. (12)

Concern over the loss of nursing service time through illness led to an analysis of the existing conditions under which the students lived and worked at Bellevue Hospital in a 1926 study by Marian

Rottman. As a result of this study, a health facility was established with a director in charge. Records were kept, physical examinations given after admission, with X-rays, basal metabolic tests, and attention to individual diets the major preventive measures established. As control of the sick nurse was included in the program, courses were given in mental and personal hygiene, hopefully encouraging students to promote their own health. (28) Miss Rottman reported saving 1,536 nursing service days in 1927 due to this emphasis on health. (29)

A study of the health facilities for nurses was made by the Public Health Service in 1930, since some insurance companies had cancelled disability benefits for nurses due to the high incidence of tuberculosis in the profession. The incidence rate of tuberculosis among nurses at that time was one third higher than in women of the general population. In the report, the Public Health Service stated that the hospital and the school of nursing had a responsibility in the matter of the students' health. Since the schools had accepted the students, the schools were bound to keep the students fit and to teach them to keep themselves fit, so that the students might be examples, as well as apostles of health, when they graduated. The report stated that it was good business to attend to the students' health. The report established a criterion measure for judging health conditions in a given school as to the number of days lost through illness per

student per year. The average time lost reportedly was 6.7 days per year for nurses, compared with 1.8 days among college women. (36)

Hilda M. Torrop conducted a study in 1939 of the everyday problems among students for one month in ten schools. (35) The purpose of her study was to suggest the need for planned guidance in schools of nursing. She stated that the complaint of fatigue was persistent in all groups of nurses. Students on night duty were attending classes in the morning and in the afternoon, with illnesses reportedly being hidden because of the dread of lost time that must be made up later.

In the first Helen Fuld Lecture in 1960, Dr. Herman E. Hilleboe stated that rules requiring students to make up time were unsound, making students reluctant to seek medical attention. This lecture was under the auspices of the Helen Fuld Foundation, whose major interest is the health of student nurses. (17)

Changes in Health Management

An improvement in health concern among nursing schools was reported at the mid-century (1950) by the Subcommittee on School Data Analysis for the National Committee for the Improvement of Nursing Services. The data for analysis were obtained through a questionnaire on current practices submitted to all of the accredited

nursing schools in the United States, Hawaii, and Puerto Rico. Ninety-seven per cent or 1,156 schools voluntarily completed the questionnaire. In the survey, the schools were asked to report their practices in giving health examinations and chest X-rays, their policies on sick leave and vacations, and length of assignments to evening and night duty. The committee reported that physical examinations and chest X-rays or other tuberculosis screening tests were being given in most of the schools with some variations in the frequency. Time was being granted for vacations and sick leaves; however, in one third of the schools only one week or less was granted for sick leave during the entire program. In only a few schools was the students' week, including time spent in the classroom, laboratory, and clinical practice but not study time, limited to the 40 hour standard which was generally accepted both in educational and in industrial fields. Although students in some schools were no longer being assigned to evening and night duty, the range of assigned time among the schools extended to more than a year for each type of experience. The health practice findings of the committee are shown in Table 1.

Table 1. Health Programs in Nursing Schools in 1950

Health Programs	Per cent of Schools Surveyed
(1)	
Physical examination, on or before admission; annually thereafter	96
Chest X-rays (or other tuberculosis screening tests)	
on admission and semi-annually	30
on admission and annually	66
less often	4
Sick leave, during the entire program	
of three weeks	33
of two weeks	33
of one week or less	33
Vacations, annually	
of four weeks	37
of three weeks	57
of two weeks or less	6
Student week, including laboratory, class, and clinical experience (not study time)	
40 hours or less	8
42-44 hours	24
48 hours	68
Evening assignment (3 to 11 p. m. approximately)	
Range from 0 to more than a year	...
Median assignment, 20 weeks	...
Night duty assignment	
Range from 0 to more than a year	...
Median assignment, 14 weeks	...

Progress in the control of tuberculosis among nurses at the University of Minnesota School of Nursing was reported by Dr. Ruth Boynton and other staff members of the student health service, (4) who stated that the number of reactors on admission and on graduation had decreased during the period of 1939 to 1946. Those who were reactors after admission were the problem in nursing schools. Dr. Boynton and staff reported 37.5 per cent reactors in 1939 and 3.8 per cent reactors in 1950.

Heineman, Birkbeck, and Sheehey stated that if others confirmed their findings of a five-year study in one tuberculosis hospital, the danger of contracting tuberculosis while on clinical rotation was no greater for the student nurse than if she were only a member of the larger community. They reported 7.2 per cent reactors in 1959, stating that, "Probably the most important part of the protective program (isolation technique) was the education of the patients and personnel." (13)

Doris I. Stephensen, in her unpublished master's thesis, (32) An Analysis of the Student Health Programs in Forty-eight Hospital Schools of Nursing Located in Nine Western States submitted to the University of Oregon in 1957, reported that:

> The preventive health factors of health instruction, guidance, medical examinations, and immunizations were found to be generally considered as essential to the effective function and optimum preparation of the nurse. The extensive incorporation of these factors throughout the length of the school's educational program appeared to coincide with the emphasis being placed on the positive aspects of health.

She stated that while there were adequate dietary provisions in the schools, very few provided single rooms for each student, and study time was not incorporated into the weekly work hours. Further, she found that dental care was almost non-existent. Three fourths of the schools allowed the minimum amount of sick leave, only one third allowing the recommended time of two weeks sick leave per

year per student.

She stated that, "Health records were considered an essential and valuable record, however, maximum use has not been made of this valuable information." (32)

Importance of the Health Record

Mary E. Lewis, while counselor and director of the student health service at George Peabody College in Nashville, Tennessee, stated that research and study are needed to improve health programs and guidance for students. The health record provides objective evidence of the effectiveness or weakness in a program. (22)

A. Barr, a member of the Oxford Regional Hospital Board in England, emphasized the value of statistics of absences due to sickness collected over some time in forming sound preventive programs by studying the epidemiological picture. (3)

Changes in Health Problems

In 1923, Josephine Goldmark reported tonsillitis and minor infections were the leading causes of illness, but noted that pneumonia was not uncommon and that there had been many deaths due to influenza. Other leading causes of health problems among nurses were rheumatism, arthritis, anemia, scarlet fever, heart lesions, and both digestive and nervous disorders. (12)

Table 2 has been constructed to show the occurrence and changes of health problems among students from 1923 to 1966, as reported in the literature or related studies.

In the studies from 1920 to 1930, the reports of fatigue and exhaustion indicated the long working hours. Minor infections and infected fingers were leading causes of health problems. Communicable diseases were listed by Marian Rottman. Reports of vaccine reactions in columns (2) and (3) give evidence of beginning preventive programs. Rheumatism and arthritis were not listed in any study after 1930.

Table 2. Health Problems in Rank Order of Frequency as Reported in Studies from 1923-1965

Author of Study	Goldmark	Rottman	U. S. Public Health Service	Hereford	de la Chapelle
Number of Schools and Type	23 Diploma	1 Diploma	33 Diploma	1 Collegiate	1 Diploma
Year	1923	1927	1930	1940	1941
	(1)	(2)	(3)	(4)	(5)
	Tonsillitis Minor infections Pneumonia Influenza Anemia Rheumatism Arthritis Scarlet fever Heart lesions Digestive and Nervous disorders	Respiratory disorders Digestive disorders Dysmenorrhea Infections Headache Communicable diseases Rheumatism Injuries Vaccine reaction Exhaustion Eye conditions	Respiratory disorders Infected fingers Dysmenorrhea Rheumatism Vaccine reactions Exhaustion	Episodes of: Undulent fever Diphtheria Typhoid fever Rheumatic fever	Respiratory disorders Minor surgery Dysmenorrhea Bone and muscle disorders Sinusitis Tonsillitis Dental conditions Digestive disorders Obesity and underweight

(Concluded on next page)

Table 2. (Concluded)

Author of Study	Wellington	Jacobson	Barr	Wilder	Farnsworth
Number of Schools and Type	1 Diploma	1 Collegiate Nursing	103 Hospitals Graduates and Students	1 Collegiate Nursing	1 General College
Year	1955	1956-57	1960	1964	1965
	(6)	(7)	(8)	(9)	(10)
	Respiratory disorders Digestive disorders Dysmenorrhea Influenza Sore throat Headache Poliomylitis Infectious mononucleosis Ulcer Major and minor surgery	Respiratory disorders Digestive disorders Eye, ear, and dental conditions Bone and muscle disorders Other--one each of: Measles Scarlet fever Immunization reaction Kidney infection	Respiratory disorders Digestive disorders Injuries	Respiratory disorders Gynecological disorders Digestive disorders Skin disorders Eye conditions Bone and muscle disorders Counseling Injuries Headache Allergies Fatigue Ear, nose, and throat conditions Genito-urinary infections Other*	Respiratory disorders Injuries Skin disorders Digestive disorders Ill-defined Nervous disorders Infectious diseases Bone and muscle disorders Allergies Neoplasms Genito-urinary infections Other

*Infectious mononucleosis, infectious hepatitis, measles, mumps

Dr. Clarence de la Chapelle, director of the Bellevue Student Health Service, reported those illnesses causing the greatest loss of time during the years since the Rottman study. Exhaustion, infections, and communicable diseases were not listed. (9)

Although the studies in Table 2 represent only a small per cent of the total schools at any one time, a changing pattern can be

noted in the kind of infectious diseases reported over a period of years.

In 1923, scarlet fever was a leading cause of illness; a single episode was reported by Margaret Jacobson in a master's thesis done in 1956-57 at Vanderbilt University School of Nursing. (20) Julia Hereford reported incidents of undulent fever, diphtheria, typhoid, and rheumatic fever in this same school in 1940. (16) None of these illnesses was reported in the more recent studies.

Bertha Wellington, student health director at Methodist-Kahler School of Nursing in Rochester, Minnesota, reported five cases each of poliomyelitis and infectious mononucleosis in 1955. (37) This was the first study in Table 2 to mention these diseases.

Sharon Wilder reported incidents of infectious mononucleosis, infectious hepatitis, measles, and mumps in her master's thesis done at the University of Oregon School of Nursing in 1964. (38) She did not state the number of cases, but did report that infectious hepatitis had been the leading cause of days absent, with infectious mononucleosis ranking third. Respiratory infections had been the leading cause of days absent, leading as well in most studies reporting time lost due to illness. (9, 10, 20, 37, 38)

Infectious diseases among students were discussed by Dr. Orrin Levin in a recent book on College Health Administration, written by the staff of the Harvard College health service and edited

by Dr. Dana L. Farnsworth. (10) Dr. Levin stated that infectious diseases affect more students than any other illness. A steady, but low incidence of measles, mumps, and chicken pox, without any peak incidences, were found among the students at Harvard and Radcliffe. He stated that a larger number of students not immune to these diseases could be expected in areas drawing from rural communities. He noted that there had been a marked increase in incidence of infectious hepatitis in this country and in college institutions since World War II, but that there had been a decrease in incidence at Harvard over the past 25 years, attributed to improved methods of sterilization.

Dr. Levin stated that the increasing incidence of infectious mononucleosis was a major concern of all members of the American College Health Association. In 1964, it was the most common infectious disease at Harvard and Radcliffe, second only to colds and the "grippe", the leading cause of days absent, and the cause of the greatest number of days absent. (10)

According to Dr. Farnsworth, respiratory illnesses are expected to be higher in a college health service than in a general hospital, because the students are seeking advice or care that would be given by a parent or sibling in the home setting. (10)

Dr. Farnsworth stated that in a young adult student population, infectious diseases, skin disorders, trauma, and adolescent

emotional problems are higher than average. He considered the emotional turbulence and adolescent skin disorders to be part of the transitional period from youth to adulthood. (10)

Digestive problems were listed as the second leading cause of illness in five studies in Table 2. In these studies there were no attempts to establish a relationship of these problems to emotional disturbances. (3, 20, 28, 36, 37)

In Sharon Wilder's study, dermatological problems were the fourth leading cause of visits to the health service; however, only 3 per cent of the visits to the health service were for injuries with a loss of only two days. (38)

A. Barr reported in his study including graduates and student nurses from 103 hospitals in England that injuries had been the most important in terms of days absent, exceeding respiratory infections. (3)

Body Weight as a Health Problem

At a meeting of the American Hospital Association in 1924, Dr. Caroline Hedger stressed the need for nutritional supervision of nurses who were overweight or underweight. (14)

Dr. Clarence de la Chapelle stated in his study in 1941 that overweight and underweight persons were either rejected or closely observed at the Bellevue Hospital School of Nursing. Students who

gained 25 pounds over their maximum standard weight were given leaves of absence until the excessive weight was lost. (9)

Bertha Wellington reported that special classes were conducted for obese students in the Methodist-Kahler School of Nursing in Rochester, Minnesota. (37)

Dr. Herman E. Hilleboe, commissioner for the New York State Department of Health, stated in the 1960 Helen Fuld Lecture that the cause for obesity should be determined before placing the overweight student on a reducing diet because psychological counseling is the only fair treatment to the student and the school if the student's obesity is a manifestation of a deep emotional problem. (17)

Relationship to the Curriculum

Incidence of Health Problems

Several studies have reported the incidence of health problems among student nurses in relation to the curriculum.

The incidence of illness in the clinical period higher than in the pre-clinical period was reported by Elsie Davies and Harriett Frost of the New York Hospital School of Nursing, (8) and was noted in the Wilder study. (38)

The highest incidence of illness occurred during the pediatric rotation, exclusive of the communicable disease service, in a survey

of 223 schools in 1938 by the National League of Nursing Education. (26) Jacobson (20) concurred with the findings of high incidence during the pediatric rotation, as did Davies and Frost (8), who also reported a high incidence of illness during the obstetric rotation. Wilder (38) reported that the most days lost due to illness were during the pediatric rotation, yet she found that the most visits to the health service were made during the tuberculosis-operating room rotation. The second highest number of visits were found to be made during the obstetric rotation, with the third highest during the pediatric rotation.

In relation to school terms, Wilder reported the highest number of visits to the health service during the fifth term and the greatest number of days lost in the seventh term. The fifth, sixth, and seventh terms were all higher than other terms in the number of visits to the health service and in the number of days lost due to illness. As used in Wilder's study, these three terms coincided with the junior year. (38)

During the junior year, the highest incidence of illness and the greatest number of days lost due to illness were reported by Davies and Frost (8), Jacobson (20), and Wilder (38). All stated that the pediatric and obstetric rotations were in this year.

Illness Absences Among the Students

Jacobson (20) and Wilder (38) found that a few students were responsible for the majority of days absent. In both studies, the interquartile range was from 0-5 days absent. Jacobson reported a range of 0-36 days absent for the junior students and from 0-20 days absent for the senior students. Wilder reported a range of 0-182 days absent.

Jacobson found a significant difference in the means of days absent in relation to low and high grade point ratios at the .05 level of probability among the junior students. The difference between the means of days absent in relation to the grade point ratios was not significant among senior students. (20)

Student Attitudes and Problems

Alice E. Ingmire, of the University of California School of Nursing, found that students doing D work in theory and clinical work attributed part of their problems to health. (19)

Both students and faculty of the Lakenau School of Nursing in Philadelphia, Pennsylvania expressed the belief that the heaviest curricular load was carried in the junior year, and requests for consultation with the mental hygiene leader were greater during that year. In their study of one aspect of the mental hygiene program,

Mitchell, Mutch, and Wood (24) found significant transitional points from year to year in the students' perception of their "chief complaint." Concurring with these findings were those reported by Marilyn D. Willman in an unpublished doctoral dissertation, (39) Attitudes and Problems of Student Nurses submitted to the University of Texas in 1960. Attitudes of students toward nursing and nursing education were elicited by a set of open-end questions in three diploma schools and three degree schools. Problem areas had been selected from the Problem Check List, Form for Schools of Nursing by Luella J. Morison. By over-all consideration of numbers and types of problems among the educational levels, Miss Willman stated that the junior year was the most difficult for students in terms of personal and social adjustment and clinical practice, and that differences in responses revealed changes in attitudes on progression through the educational program. She also stated that the educational program of the degree school seemed to have a greater influence on the development of problems than that of the diploma school.

Dorothy Maxson, in an unpublished master's thesis, A Study of Motivations and Feelings of Students at the University of Colorado Toward Nursing as a Vocation submitted to the University of Colorado School of Nursing in 1954, reported that senior students had more positive attitudes toward nursing than sophomore and junior students.

All three groups of students expressed a need for guidance and counseling. (23)

Physical Fitness

Physical fitness tests over a five-year period from 1959-64, using the bicycle working tests developed in Sweden and the Harvard Step Test among student nurses at the Winnepeg Children's Hospital, Manitoba, Canada, revealed no significant differences in work capacity between first, second, and third year students. (7) Dr. Gordon Cummins and Linda Young, staff members of the hospital, concluded that the "hard" life of nursing students does not contribute to physical fitness. However, they pointed out that one in every five nurses does not have the working capacity of an eight-year old boy or an eleven-year old girl. They stated that perhaps there was good reason for the complaints of excessive fatigue and lack of enjoyment of daily activities, and when put in this perspective, it would seen that every nursing school should maintain an interest in physical education and fitness.

Seasonal Relationship

A seasonal incidence of health problems was reported in several studies.

Davies and Frost found that the highest incidence of respiratory

diseases among students coincided with the peak incidence among patients having the same diseases. (8)

The National League of Nursing Education survey in 1938 of 223 schools found the highest incidence of illness in both graduate and student nurses was in January, February, and March, with the lowest incidence during August and September. (26) Wellington reported that their students lost the most days in July and the fewest in October, (37) while Jacobson reported differences in seasonal incidence between the junior and senior students. (20)

The incidence of respiratory diseases in college students over a four-year period was found to be highest on return to the campus following a recess. (1)

Tables 3 and 4 have been constructed to show this variability among the studies of the highest and lowest monthly incidence of illness.

Table 3. Months of Highest Incidence of Illness Reported in Four Health Studies

Author	Months of Highest Incidence						
	Jan.	Feb.	March	July	Sept.	Oct.	Nov.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
NLNE	x	x	x				
Wellington				x			
Summerskill and Alexander (Respiratory only)		x	x		x		
Jacobson:							
Juniors			x			x	
Seniors						x	x

Table 4. Months of Lowest Incidence of Illness Reported in Three Health Studies

Author	Months of Lowest Incidence					
	Jan.	Feb.	April	Aug.	Sept.	Oct.
(1)	(2)	(3)	(4)	(5)	(6)	(7)
NLNE				x	x	
Wellington						x
Jacobson:						
Juniors					x	
Seniors	x	x	x			

Utilization of the Health Service

Many writers have expressed concern about the reception and management of the care given the student in the health service.

In Counseling in Schools of Nursing, (13) Gordon, Densford, and Williamson have suggested four reasons why a student might report minor physical needs to the health service. They include:

1. Recognition of the importance of early care for physical ailments.
2. A need for reassurance that the ailment was not a serious one.
3. An expression of psychological tension.
4. A manufactured ailment to achieve certain goals. (Considered to be of minor importance in comparison with the other reasons.)

Mary E. Lewis noted that every visitor to the health service had questions about his health and that the student's anxiety was often incommensurate with the immediate health problem. She concluded that

> Advances in medicine, the emphasis on disease prevention, the deep concern for the individual as a social unit, and the influence of environmental and emotional factors have contributed to a greater interest in their health. (22)

Dorothy Smith, Dean of the College of Nursing at the University of Florida, stated that the attitudes formed about health and illness by the student nurse from the kind of help and understanding given her in the health service may be related to the kind of nursing care she wants to give or is able to give. (31)

Dr. Hilleboe noted that in some centers there was a tendency to belittle nurses' complaints because psychosomatic complaints are considered common among medical and nursing students. He stated that psychosomatic complaints often warn of severe emotional stress which may interfere with the student's progress if not relieved. (17)

Dr. Farnsworth stressed the importance of early recognition of emotional, adjustment, or maturational disorders, stating that with sympathetic treatment of high quality, the failure and drop-out rates in student groups could be lowered. (10)

Dr. Hilleboe also stated that students permitted to work in hospitals or elsewhere in order to earn money should have special health surveillance. (17)

Several studies have reported on the use of the health service among students. Feeney and Solon, of Beth Israel Hospital in Boston, stated that the nursing students used the medical services in a

cluster around episodes of illness or for long-term illnesses, and seldom for an isolated incident. (11) Schmidt reported in a curricular study (30) that 37 per cent of the students in one school were distressed by the difficulty in obtaining needed health services. Students in Jacobson's study (20) utilized the health service for 40 per cent of their illnesses in one year, while Wilder (38) found that an average number of visits to the health service among one group of student nurses during a three-year period was two per term or six per year. Farnsworth reported that in recent years, students in the general college averaged three visits to the health service, while students in the medical school averaged five visits per year. (10)

The health service was visited twice as often for therapeutic reasons as for preventive measures in the Wilder study. (38) A physician and nurse provided an equal amount of care for the therapeutic visits, but the nurse cared for the majority of preventive measures. Farnsworth reported that one third of the total visits to the health service at Harvard were for immunizations given by the nurse. (10)

Health Insurance

For many years, hospital schools of nursing have been providing medical care for their students at no cost to the student. Hospitalization has been provided for conditions incurred during clinical

practice or for a specified length of time for other types of illness. Doris Stephensen reported in 1957 that the hospital schools in nine western states had been slow to require health insurance. (32)

College health services have generally adopted a plan of prepayment for medical expenses. The idea of a medical care program supplemented with an insurance program was not widely accepted by colleges, according to Dr. John Butler, a staff member of the Harvard College health service. (10) He further stated that an important measure of the success of any health program was its protection of the individual from excessive financial loss, and thus from unwarranted concern during an illness.

Some insurance companies are now developing health plans for college students, while several years ago casualty companies were the only ones interested. (10)

Summary of the Literature

Improvements have been effected during the past forty years in the living and working conditions for student nurses and in their health management.

Used effectively, health records can provide valuable information about the effectiveness of a health program and for the establishment of a sound preventive program.

Infectious diseases, skin disorders, trauma, and emotional

disturbances can be expected to be high in a young adult population. Respiratory infections have continuously been the most common cause of illness among nursing and general college students. The pattern of occurrence of other infectious diseases has changed throughout the years. Current studies show a steady increase in the incidence of infectious mononucleosis, as is infectious hepatitis, which have become a major concern because of the severity of these illnesses.

Digestive disturbances and dysmenorrhea have been the second and third most common causes of illness among nursing students.

In relating health problems to the curriculum, the highest incidence of illness occurred in the junior year and during the pediatric, obstetric, or in one study, the tuberculosis-operating room rotation. A significant difference in the mean average of days absent for students with high and low grade point ratios in the junior year was reported in one study. Studies of student attitudes indicated that the junior year was the most difficult in adjustment to clinical and social situations.

Concern has been expressed by many about the reception and care that the student receives in the health service. One study reported that the students used the health service for 40 per cent of their illnesses.

The average number of illnesses reported per student per year varied from six in one collegiate school of nursing to 2.5 in another,

and from five in one medical school to three in one general college. There was little agreement among the studies reporting a seasonal incidence of health problems. Both hospital schools of nursing and college health services have been slow to adopt health insurance programs.

CHAPTER III

PROCEDURE AND FINDINGS

Introduction

The health of a student nurse is important, both in the development of her nursing ability and her personal qualities. Problems of health may affect the care that she gives her patients and the parallel satisfaction earned from nursing. Health problems may figure importantly in a student's decision to withdraw from school before graduation. It may be possible to discover ways to alleviate or prevent many of these health problems by pinpointing where they occur in relation to the curriculum and the time of year.

Because of the pertinence of identifying the nature of health problems among student nurses in a selected school of nursing it was hypothesized that:

1. Peak rates of health problems in relation to the course rotations are not significantly affected by the time of year or individual differences within student groups.

2. The number of days absent during the freshman year do not differ significantly between students with low, medium, and high grade point ratios.

3. The number of days absent during the junior year do not differ significantly between students with low, medium, and high grade point ratios.

4. The number of days absent during the senior year do not differ significantly between students with medium and high grade point ratios.

5. The number of days absent during 12 terms do not differ significantly between students with medium and high grade point ratios.

The areas for study have been listed in Chapter I and will be considered individually as the findings are reported.

Procedure

Description of the Selected School

The selected school of nursing is located in a 480-bed hospital in a metropolitan area. The hospital cares for all types of illnesses, including children's and communicable diseases. The school is affiliated with a state hospital for psychiatric nursing.

To be eligible for admission to the school, the student must be between 18 and 35 years of age and be a high school graduate with a grade point average of not less than 2.5 or C+.

Before a student is accepted for admission, she is interviewed personally and given a battery of tests predicting aptitude and success. The student must be in good health, indicated by examination reports from her dentist and physician, and have had designated immunizations.

The nursing curriculum is arranged in three-month terms; 12

terms or three years comprise the program. The first six months of the program is a pre-clinical period, spent in the classroom and laboratory learning basic knowledge and skills applied to the care of a patient.

Following the pre-clinical period, the students spend nine months in a combined course of instruction and nursing care of patients with various medical and surgical conditions. To complete the program, students learn in concurrent classes and by experience to care for patients in each of the following clinical areas: the operating room; obstetrics; pediatrics; psychiatry; eye, ear, nose, and throat; neurology; urology; orthopedics; intensive care; emergency room; and intravenous therapy.

Students are assigned to some evening and night clinical practice during the junior and senior years. They are on call with graduate nurses for emergencies in the operating room and obstetrics for a few deliveries. Because students are assigned to work some week-ends, classes may coincide with their days off from clinical practice. The students may work for nursing service during their free time if they so desire.

Twelve weeks of vacation time is given during the three years. The vacation time is arranged with consideration of class schedules and clinical practice.

Faculty members counsel the students; a chaplain is also

available for counseling and guidance.

The health program for student nurses is under the supervision of a member of the hospital medical staff. A staff physician is assigned to care for an individual student during her three years in school. This care is given at no cost to the student. If she elects instead to consult her family physician, her parents are responsible for the fees. Hospitalization, not exceeding four weeks or for conditions received in the line of duty, is provided at no charge. Expenses for pre-existing conditions, repeated illnesses, and illnesses due to the student's disregard of accepted rules are the parents' responsibility. For the students in this study, health insurance was recommended, but was not required.

A nurse is available in the health service to the students for five days a week. A physician is always available in the emergency room of the hospital if students need care during the hours that the health service is closed.

The student health nurse is responsible for compiling the health records, making appointments with the assigned physicians, giving treatments for minor ailments, and for the preventive health program.

The health records included all the time that was missed from the nursing program. Absences were reported to the health nurse by the nursing supervisors, clinical instructors, or the student, when she sought treatment for her illness. Time lost from the clinical

program for more than twenty-one days of illness, for reasons of dysmenorrhea, or for unexcused absences was to be made up.

Physical examinations and preventive measures were recorded on the health record. Because the assigned physicians had offices away from the hospital, the health record was carried to him by the student and returned by her to the health nurse.

The preventive health program included annual physical examinations, chest X-rays, tuberculin tests, and influenza vaccine. Any student reacting to the tuberculin test had a chest X-ray every six months.

Weights were checked each month. Students with weight problems were given special diets and counseling. If a student gained over 20-25 pounds, she was given a leave of absence until the excessive weight was lost.

Concepts of mental and personal hygiene were integrated in all courses during the three years. Students needing or desiring assistance with mental health problems were referred to their assigned physician. Depending upon his decision, the student was assisted by him, a staff psychiatrist, or, in some instances, the Mental Health Institute.

Visits made to the health nurse for counseling were not recorded on the health records.

Procedure of the Study

This study was developed according to the steps described in Chapter I.

The tool used to collect the data from the health records was a modified form of the one used by Sharon Wilder. (38) (Appendix B) The tool was modified by deleting a column denoting the time lag in reporting a health problem and by adding a column for the grade point ratios and a line on which health insurance coverage could be noted.

An individual sheet was used to record the data from each student record. The data-collection sheet was identified by a number assigned at random to each student. Identification of the student numbers was confidential and available only to the writer.

The students' age was recorded to establish the homogeneity of the group. The ages varied from 17 through 20 years on admission.

On a separate sheet in the student file, the year and term of each course rotation were recorded, and the grade point ratios had been calculated for each class year and for the total 12 terms. The dates for the beginning and end of each term were obtained from master sheets on file in the nursing education office.

The health record (Appendix B) included sections for reports of physical examinations, chest X-rays, preventive measures, comments by the physician, and for the health problems as recorded by

the nurse. Health problems were recorded in the form of the complaint of the student or the specific disease, with the date of occurrence, number of days absent, and whether care was administered by the nurse, a physician, in the emergency room, or not reported. The complaints were copied on the data-collection sheet as they had been recorded. The term and the course rotation were determined by the date of the complaint.

The records of the 89 students admitted in September of 1962 were all reviewed. Data were collected from the records of students who were in school continuously until graduation, from those who were granted leaves of absence for health reasons, or those who withdrew for reasons of health. Forty students graduated in September of 1965 and six in December of 1965. Three students had repeated one term because of low grades and three students had been given leaves of absence for reasons of health. The 41 students who were granted leaves of absence or withdrew for reasons other than health were not included. Data from the records of the 46 students who graduated in 1965 were utilized for the major portion of this study. The data from the records of the two students who withdrew for reasons of health were treated separately.

Plan for Analysis

The data were tabulated in categories to meet the objectives of

this study. A code system was devised to identify each complaint in the categories described by Farnsworth. (10) A master sheet was made for each course rotation and each term. The code numbers were placed on a line by the students' assigned number on each master sheet. Each line was totaled to obtain the number of episodes and days absent in each term or course rotation. The term number was placed by the student's number on each rotation master sheet so that cross references could be made when needed. An example of the code used is: $\frac{1.1}{3}$ indicated that there were three days absent for the number one complaint in the number one category. To obtain the monthly totals, the initial of the month of occurrence had been placed by each coded complaint on the term master sheets. The totals for the class years were also obtained by using the term master sheets. Hospitalizations and occurrences in the clinical areas were indicated with an initial by the coded number on the rotation master sheets. Health service visits and types of care were tabulated on a separate master sheet.

Comparisons between class years, terms, months, and course rotations were made regarding the number of episodes and days absent due to health problems by computing the rates per 100 person days. This method was chosen because of the variations in the length of the class years, terms, months, and course rotations. The number of students in school also varied during these times because

of vacations and leaves of absence. A ratio of the episode or days absent frequency to the total person days in school times 100 gave the rate per 100 person days. The following example shows how the episode rate was obtained in a course rotation.

$$\frac{\text{Number of episodes of health problems during the obstetric rotation}}{\text{Number of total person days in the obstetric rotation}}$$

x 100 equals the episode rate per 100 person days in the obstetric rotation.

The total person days were determined by multiplying the number of students in school by the number of days in the class years, terms, months, or course rotations. The number of vacation days were subtracted from the class years, terms, and months. Leaves of absence affected only the total person days in the months.

There was a discrepancy of 19 more days in the total person days determined for the terms and class years, than in the total person days for the course rotations. This difference might have been due to students making up absent days during vacation time. However, the difference was not great enough to affect the rates. The total person days in the course rotations had been determined by the length of each rotation as described in the school catalog.

The distribution of the number of episodes and days absent among the students was determined by tallying the number of students in relation to the number of episodes or days absent due to health problems during the class years and course rotations. The mean,

median, mode, range, and interquartile range were determined to describe the distribution.

An analysis of variance was used to test the homogeneity of the groups for the course rotations with peak numbers of health problems.

The *t*-test was used to test for significant differences between the means of days absent for students with low, medium, and high grade point ratios.

See Appendix F for statistical formulae.

Analysis of the Data

Total Health Problems During 12 Terms

The first information collected was a compilation of the distribution of health problems in categories for 46 students during 12 terms as to the number of episodes and days absent. (Appendix C) The health problems of four students during the one term repeated were listed separately and were included only in the determination of the health problems for each month.

From this information, the average number of days absent per episode for the health problems was determined. Comparisons were made by category.

Respiratory problems caused the greatest number of episodes and days absent. This was in agreement with the findings in the

literature. The average of 1.3 days absent per episode indicated that the majority of the respiratory problems were of short duration.

Ill-defined problems were the second leading cause of episodes, yet were the third leading cause of days absent. Digestive problems ranked second as a leading cause of days absent and third in the number of episodes. The differences in number between these two categories for episodes and days absent were small. In three related studies (3, 20, 37) digestive disturbances had been the second leading health problem among nurses. Jacobson reported a not-defined system as the fourth leading cause of episodes of illness. (20) Farnsworth listed digestive problems as the fourth and ill-defined problems as the fifth leading causes of health problems among students in the general college. (10)

There was a relatively low number of gynecological problems. Related studies have reported that gynecological problems were the second or third leading cause of illness or of visits to the health service among nurses. (20, 38) The fact that students must make up any time lost because of dysmenorrhea in this selected school may have influenced the number of reported episodes.

In the category of bones and organs of movement, the number of episodes was greater in relation to the numbers in the other categories than were reported for two collegiate nursing schools and one general college. (10, 20, 38)

Injuries and skin disorders were the fifth and sixth leading causes of health problems among these 46 students. Farnsworth had stated that these categories were a common cause of health problems among a young adult population. (10) Episodes of health problems in these categories were of short duration in terms of days absent.

Although the number of episodes of infectious diseases was small, the average number of days absent of 16.8 per episode was much greater than for any other category. Surgery, with an average of 7.5 days absent per episode was the only other category in which there appeared to be episodes of long duration.

Among the eight categories--gynecological, skin, allergies, dental, eye, ear, neoplasms, and miscellaneous problems--the range was from 0 to 0.6 for the average number of days absent per episode.

The average number of days absent per episode during 12 terms for these 46 students was 1.2, verifying that the majority of the health problems were of short duration. The findings are shown in Table 5.

The percentage distributions were determined as another means for comparing the health problems by category.

Table 5. Comparison by Category of the Health Problems of 46 Students During 12 Terms as to the Number of Episodes and Days Absent and the Mean of Days Absent per Episode

Category	Number of Episodes	Number of Days Absent	Mean of Days Absent per Episode
(1)	(2)	(3)	(4)
Respiratory	307	390.5	1.3
Ill-Defined	147	149	1
Digestive	136	161	1.2
Bones, M.	52	83	1.6
Injuries	45	57.5	1.3
Gynecological	42	22	0.5
Skin	21	4	0.2
Allergies	18	5	0.3
Surgery	13	98	7.5
Genito-Urinary	13	20	1.5
Dental	12	5	0.4
Eye	11	1.5	0.1
Ear	9	1	0.1
Neoplasm	8	0	0
Infectious	5	101	16.8
Miscellaneous	15	9	0.6
Total	854	1,107.5	1.2

Respiratory infections were responsible for 36 per cent of the total number of episodes, which is in close agreement with the 30 per cent reported by Barr (3), Wilder (38), and Farnsworth (10), and less than the 50 per cent reported by Jacobson (20). Respiratory infections represented twice the percentage of episodes in either of the ill-defined or digestive categories. Health problems in these three leading categories were responsible for 66 per cent or two thirds of the total number of episodes. The six leading categories of respiratory, ill-defined, digestive, bones and organs of movement, gynecological, and injuries, represented 75 per cent of the total episodes of health problems during 12 terms. The ten categories of

skin, allergies, surgery, genito-urinary, dental, infectious, neoplasms, eye, ear, and miscellaneous represented the remaining 25 per cent of the total number of episodes of health problems. Figure 1 is a graphic representation of the percentage distribution of the episodes of health problems by category.

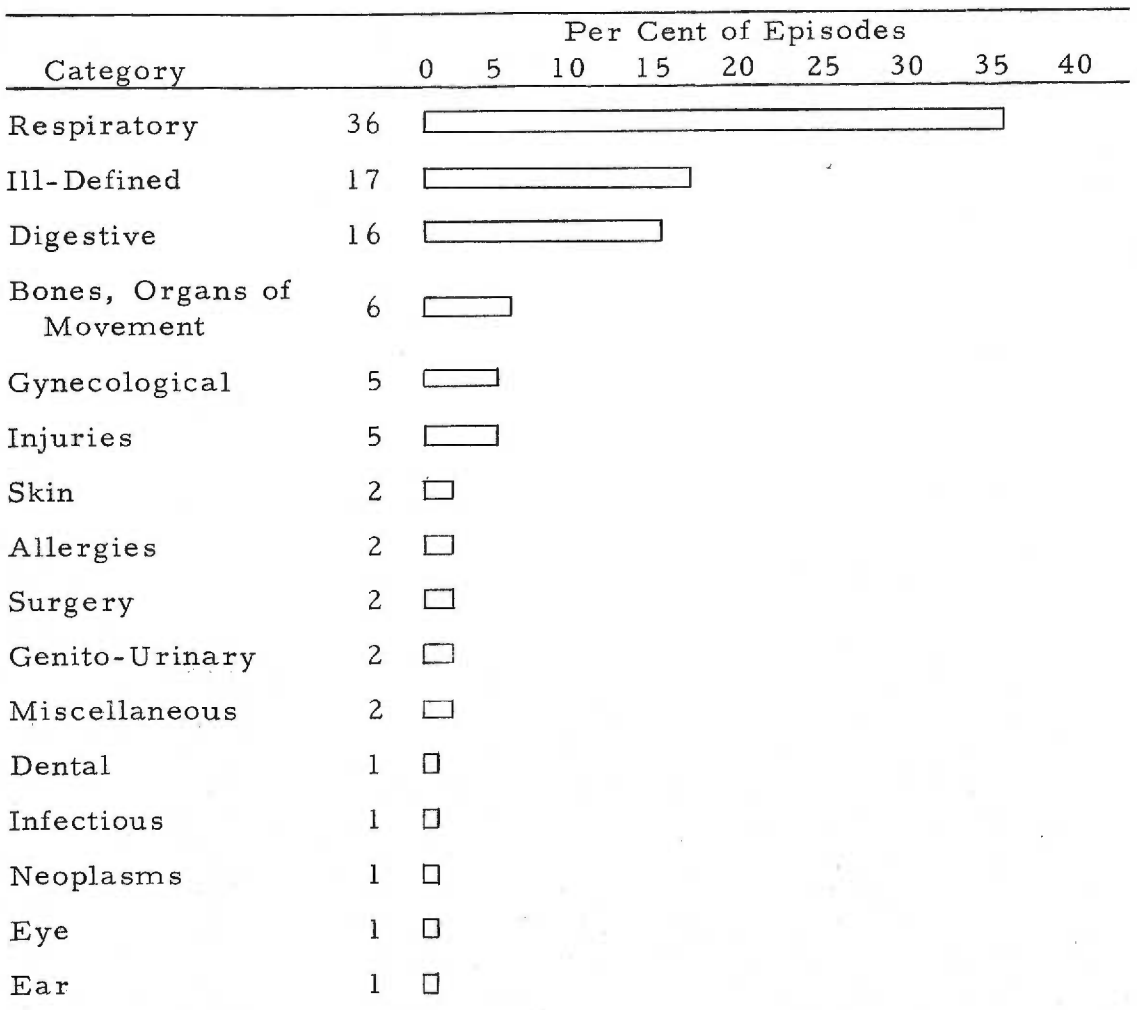


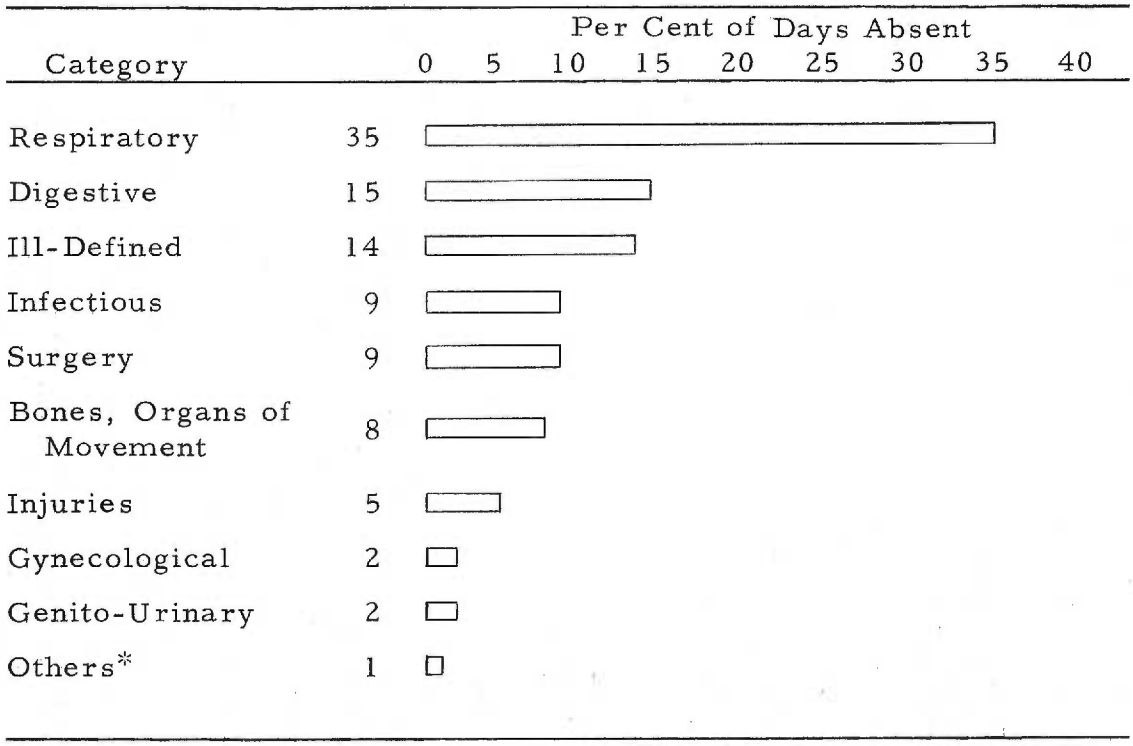
Figure 1. Percentage Distribution by Category for the Episodes of Health Problems of 46 Students During 12 Terms

In terms of days absent, the respiratory category represented 35 per cent of the total number of health problems and more than twice the percentage of the next two leading categories. Again, as for the episodes, there was only a 1 per cent difference between the digestive and ill-defined categories.

Respiratory, digestive, and ill-defined problems caused 64 per cent, or almost two thirds, of the total days absent. The four categories of infectious diseases, surgery, bones and organs of movement, and injuries caused 31 per cent of the total days absent. The combined six categories of skin, allergies, dental, eye, ear, and miscellaneous were responsible for only 1 per cent of the total days absent. The percentage distribution of the days absent is shown in Figure 2 by category.

Leaves of Absence

Not included in the health problems during the 12 terms was that of excessive body weight. The school ruling that students must leave until weight exceeding the maximum standard was lost caused two students to lose more time during the nursing program than any other single health problem. Each student lost 104 days or one full term. This was as much time lost as the combined categories of ill-defined and digestive problems caused among the 46 students.



*Skin, Allergies, Dental, Eye, Ear, Neoplasms, Miscellaneous

Figure 2. Percentage Distribution by Category of the Days Absent due to the Health Problems of 46 Students During 12 Terms

Another student repeated one term due to a great loss of time caused by surgery and pneumonia.

Comparisons by Class Years

The second information collected was the frequency distribution by category of the episodes and days absent due to health problems during the freshman, junior, and senior years.

Respiratory problems occurred in a fairly equal frequency during the three years; however, the number of days absent during the junior year was higher in relation to the number of episodes than during the freshman and senior years. In each class year, respiratory problems caused the most episodes and days absent.

Ill-defined problems increased in number in each successive year so much that the senior year had more than twice as many as the freshman year. However, they ranked second in causing health problems during the freshman, as well as during the senior, year. They were the third leading cause of health problems during the junior year. They were also the second leading cause of days absent during the senior year. An average of one day was lost for each episode during the three years.

Digestive problems increased sharply, from 19 episodes in the freshman year to 58 in the junior year, and up to 59 in the senior year. The relationship of the days absent to the number of episodes

during the junior year was higher than the one day per episode during the freshman and senior years. Digestive problems were the second leading cause of episodes and days absent during the junior year. They were the third leading cause of episodes and days absent during the senior year and fourth in the number of episodes and days absent during the freshman year.

Problems with bones and organs of movement occurred most frequently during the freshman year and were the third leading cause of absences during this year. The greatest number of injuries occurred during the senior year and were the fourth leading cause of days absent. Gynecological problems occurred in a fairly constant number with less than one day lost per episode during the three years. Skin disorders, allergies, and dental problems occurred most frequently in the freshman year, but caused more days absent during the junior and senior years.

Genito-urinary problems occurred twice as often during the senior year as during the freshman or junior year, but caused the most days absent per episode during the freshman year.

Episodes of surgery occurred during each class year with the greatest number during the freshman year, however causing the most days absent during the junior year.

The number of episodes of eye, ear, neoplasms, and infectious diseases was small in each class year and was fairly equal in

distribution. With the exception of infectious disease, these categories caused very few days absent in any class year. The two episodes of infectious diseases in each of the freshman and junior years caused the most days absent per episode among the categories.

The relatively high number of nine miscellaneous problems in the senior year was due to the fact that four episodes with eight days absent were reported during the psychiatric affiliation for which there was no available information about the complaint. These findings are shown in Table 6.

Table 6. Frequency Distribution by Category of the Episodes and Days Absent due to the Health Problems of 46 Students During Their Freshman, Junior, and Senior Years

Category	Number of Episodes			Number of Days Absent		
	Freshman	Junior	Senior	Freshman	Junior	Senior
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Respiratory . .	102	110	95	95.5	181.5	113.5
Ill-Defined . .	30	46	71	25.5	46	77.5
Digestive . . .	19	58	59	19.5	80.5	61
Bones, M. . . .	21	16	15	10.5	55.5	17
Injuries	11	13	21	8.5	4	45
Gynecological	14	11	17	2.5	5	14.5
Skin	14	3	4	0	2	2
Allergies. . . .	8	6	4	3	1	1
Surgery.	6	4	3	27	49	22
Genito-Urinary	3	3	7	10	0	10
Dental	7	3	2	1	2	2
Eye	4	1	6	0	0	1.5
Ear	3	2	4	0	1	0
Neoplasms. . .	3	2	3	0	0	0
Infectious . . .	2	2	1	46	48	7
Miscellaneous.	4	2	9	0	0	9
Total . .	251	282	321	249	475.5	383

Table 7 is a list of the total person days in each class year. The total number of 1,107.5 days absent due to health problems was 2 per cent of the total number of person days in school; clearly, the school of nursing program was not greatly affected by the time lost due to health problems.

Table 7. Frequency of the Episodes and Days Absent due to the Health Problems of 46 Students in relation to the Total Person Days in Each Class Year

Class Year	Total Person Days	Number of Episodes	Number of Days Absent
(1)	(2)	(3)	(4)
Freshman	15,414	251	249
Junior	15,721	282	475.5
Senior	15,252	321	383
Total	46,387	854	1,107.5

The rates were determined for each class year and the total three years. The rate of episodes increased in each succeeding year to a peak rate in the senior year. However, the rate of days absent, was highest during the junior year, when the rate reached twice that of the freshman year. In the literature, the most episodes and days absent had been found to occur during the junior year. (8, 20, 38) The findings are shown in Figures 3 and 4.

Class Year	Episode Rate per 100 Person Days	0	1	2	3
Freshman	1.6				
Junior	1.8				
Senior	2.1				
Three Years	1.8				

Figure 3. Episode Rate per 100 Person Days of the Health Problems of 46 Students During Each Class Year and the Total Three Years

Class Year	Days Absent Rate per 100 Person Days	0	1	2	3
Freshman	1.6				
Junior	3.0				
Senior	2.5				
Three Years	2.6				

Figure 4. Days Absent Rate per 100 Person Days due to the Health Problems of 46 Students During Each Class Year and the Total Three Years

The third information collected was the distribution of the episodes and days absent due to health problems among the students during each class year and for the total three years. (See Appendix D for the distribution.)

The means and medians indicated the gradual increase in the number of episodes in each class year. The mode was almost the same in each year with three episodes per student in the freshman and senior years, and bimodal of two and four in the junior year. The distribution of episodes among the students was somewhat skewed in the freshman and junior years with wide ranges of episodes, but with interquartile ranges from 2-7 and 8 episodes. The distribution of episodes among the students was fairly normal during the senior year with a smaller range of 1-16 episodes, and an interquartile range of 3-10 episodes, meaning that more students had episodes of health problems in the senior year, but none had a great many, such as there were during the freshman and junior years.

For the three years the range in the number of episodes was wide, with 2-60 episodes per student, and an interquartile range of 9-25 episodes, indicating that a few students had a great many problems. All 46 students had some health problems during the three years. The mean, median, and mode were very close, indicating that the distribution of episodes was fairly normal. These findings are shown in Table 8.

Table 8. The Numerical Distribution of the Episodes of Health Problems Among 46 Students During Each Class Year and for Three Years

Class Year	The Episodes Among 46 Students as to:				
	Mean	Median	Mode	Range	Interquartile Range
(1)	(2)	(3)	(4)	(5)	(6)
Freshman	5.5	3	3	0-30	2-7
Junior	6.1	4.5	2, 4	0-26	2-8
Senior	7	6	3	1-16	3-10
Three Years....	15.5	15.5	12	2-60	9-25

The distribution of the days absent for this small number of students over such wide ranges during each of the three years and for the total three years was skewed, indicated by the variations in the means, medians, and modes. During the three years, all students missed some time from school, although one student missed only one day and a few students were absent a great many days. In each class year there were some students who had no days absent. The wide range of days absent during the junior year was reflected in the mean of 10.3 days absent; although, the interquartile range was 2-10 days absent.

During the three years, three fourths (or 35) of the students had less than 30 days absent. One fourth (or 11) of the students had less than 8.5 days absent, and one fourth of the students had from 30 to 119.5 days absent. One fourth of the students accounted for 56 per cent of the days absent. These findings concur with those of Jacobson (20) and Wilder (38) who found that a few students accounted for the majority of the days absent. The findings are shown in Table 9.

Table 9. The Numerical Distribution of the Days Absent due to the Health Problems Among 46 Students During Each Class Year and for Three Years

Class Year	The Days Absent Among 46 Students as to:				
	Mean	Median	Mode	Range	Interquartile Range
(1)	(2)	(3)	(4)	(5)	(6)
Freshman	5.4	3	0	0-41	1-7
Junior	10.3	5	3	0-64.5	2-10
Senior	8.3	6	3	0-37	3-12
Three Years	24	16.5	9	1-119.5	8.5-29

Comparisons by Terms

For a more definitive analysis of the class years, the fourth information collected was the identity and frequency distribution of the health problems in categories for each term. Although the students were in different course rotations during the junior and senior years, they had classes together in sociology, psychology, nursing history and trends, and nursing and community health services. Other common factors among the students in each term were the time of year and the length of time in school with the exception of the six irregular students. The health problems for these students were added to the proper term number for the student even though the time of year was not the same. None of these students had enough health problems in any one term or in any one category to affect a seasonal trend.

The greatest number of respiratory problems occurred in the three winter terms with 33 episodes in the second term, 36 episodes

in the sixth term, and 32 episodes in the tenth term. During the sixth term, respiratory problems caused 64 days absent. This was the highest number of days absent in any term and was almost twice the number occuring during any other term, with the exception of the 58 days absent for 29 episodes in the eighth term. Both of these terms were in the junior year. The lowest number of respiratory problems occurred in the first and twelfth terms.

In each term respiratory problems caused the greatest number of health problems with the exception of the twelfth term. During the twelfth term, digestive problems caused the most episodes, followed by ill-defined problems, with respiratory problems ranking third.

Ill-defined problems began to increase in number in the fourth or summer term of the freshman year and remained at a fairly constant number through each term of the junior year. The peak number occurred in the ninth or fall term of the senior year, followed by a lesser peak in the twelfth term.

Digestive problems increased sharply in number during the fifth or fall term of the junior year, remaining constant through the ninth or fall term of the senior year, with a drop in number during the tenth term and an increase to the peak numbers in the eleventh and twelfth terms. Only during the fifth or fall term of the junior year was there more than an average of one day absent per episode.

The number of episodes of problems with bones and organs of movement fluctuated from three to seven in the various terms, with no regular seasonal peaks. The lowest number of two occurred in the twelfth term. They caused increased numbers of days absent during the fifth, sixth, and tenth terms.

The number of injuries was low in each term, with very few days absent. The highest number of episodes was seven in the twelfth term, with the most days absent during the ninth and tenth terms. There was a low incidence of gynecological problems in each term, causing few days absent. The incidence of skin problems was low, causing little or no loss of time, most occurring in the first four terms, with seven episodes during the second term. There were very few episodes of surgery in any one term; no episodes occurred in four of the terms. The greatest number of episodes was three in the third term, and the most days absent were 35 in the sixth term. Genito-urinary problems caused few episodes and days absent in any one term, with the exception of the ten days absent in the third term and seven days absent in the eleventh term. Dental, eye, and ear problems caused few episodes and very few, if any, days absent. The five episodes of dental problems in the first term were due to a pre-existing gum disease. Single episodes of neoplasms occurred throughout the terms with no loss of time.

In each of the spring terms there was at least one episode of

Table 10. Frequency Distribution by Category for the Episodes and Days Absent due to the Health Problems of 46 Students During Each Term

Category	Term																							
	Fall 1		Winter 2		Spring 3		Summer 4		Fall 5		Winter 6		Spring 7		Summer 8		Fall 9		Winter 10		Spring 11		Summer 12	
	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
1. Respiratory . . .	11	5	33	30	30	25.5	28	35	22	33.5	36	64	23	26	29	58	27	34	32	39	22	19	14	21.5
2. Ill-Defined . . .	3	2	6	4	7	7	14	12.5	12	12	9	8	12	12	13	14	26	29	14	14	13	14.5	18	20
3. Digestive	3	2	6	7	3	5	7	5.5	15	29.5	17	23	13	14	13	14	14	14	7	5	19	17.5	19	24.5
4. Bones, M. . . .	3	0	7	2	7	6	4	2.5	4	14	3	29.5	6	6	3	6	3	1	7	13	3	3	2	0
5. Injuries	1	0	1	0	4	2	5	6.5	3	0	4	0	2	2	4	2	6	15	3	17	5	7	7	6
6. Gynecological .	2	1	2	0.5	7	1	3	0	2	0.5	7	1.5	1	3	1	0	4	3.5	3	3	7	6.5	3	1.5
7. Skin	2	0	7	0	3	0	2	0	2	2	1	0							1	2	1	0	2	0
8. Allergies	1	0	2	0			5	3	3	1	1	0	1	0	1	0	2	0	1	0			1	1
9. Surgery			1	3	3	21	2	3	2	14	2	35					1	3	1	10	1	9		
10. Genito-Urinary.					2	10	1	0	1	0	1	0			1	0	1	1			2	7	4	2
11. Dental	5	0	1	0	1	1			1	0	1	1	1	1							1	1	1	1
12. Eye	1	0	3	0					1	0									1	1	2	0	3	0.5
13. Ear			1	0	2	0			2	1							1	0	1	0	2	0		
14. Neoplasms . . .			1	0	1	0	1	0			1	0			1	0	1	0	1	0	1	0		
15. Infectious					2	46					1	13	1	35							1	7		
16. Miscellaneous .	1	0	1	0			2	0	1	0	1	0					5	7	1	1	1	0	2	1
Total. . .	33	10	72	46.5	72	124.5	74	68	71	107.5	85	175	60	99	66	94	91	107.5	73	105	81	91.5	76	79

an infectious disease, but this could not be considered a seasonal trend because of the small number of episodes. The only other episode of an infectious disease occurred in the sixth or winter term.

The only notable seasonal trend among the categories was the increased number of respiratory problems in the winter terms. Noticeable, too, were the many categories with few or no episodes in the seventh and eighth terms, the spring and summer of the junior year. The findings are shown in Table 10.

The total person days in each term are shown in Table 11 in relation to the number of episodes and days absent, from which the rates were determined.

Table 11. Frequency of the Episodes and Days Absent due to the Health Problems of 46 Students in Relation to the Total Person Days in Each Term

Term	Total Person Days	Number of Episodes	Number of Days Absent
(1)	(2)	(3)	(4)
First	3,864	33	10
Second	3,808	72	46.5
Third	3,496	72	124.5
Fourth	4,246	74	68
Fifth	4,232	71	107.5
Sixth	4,058	85	175
Seventh	3,542	60	99
Eighth	3,889	66	94
Ninth	4,285	91	107.5
Tenth	3,230	73	105
Eleventh	3,999	81	91.5
Twelfth	3,738	76	79
Total	46,387	854	1,107.5

The rates of episodes did not vary markedly between the terms. The low rate of 0.9 in the first term showed the greatest deviation, while the highest rate occurred in the tenth or winter term of the senior year, with a rate of 2.3 per 100 person days. The rates for the other three terms in this year were also high. The highest episode rate in the junior year was in the sixth or winter term, with a rate of 2.1 in contrast to the consistent rates of 1.7 in the other three terms during this year. In the freshman year, the third or spring term, with a rate of 2, was slightly higher than the second or winter term, which had a rate of 1.9. A comparison of the episode rates for each term is shown in Figure 5.

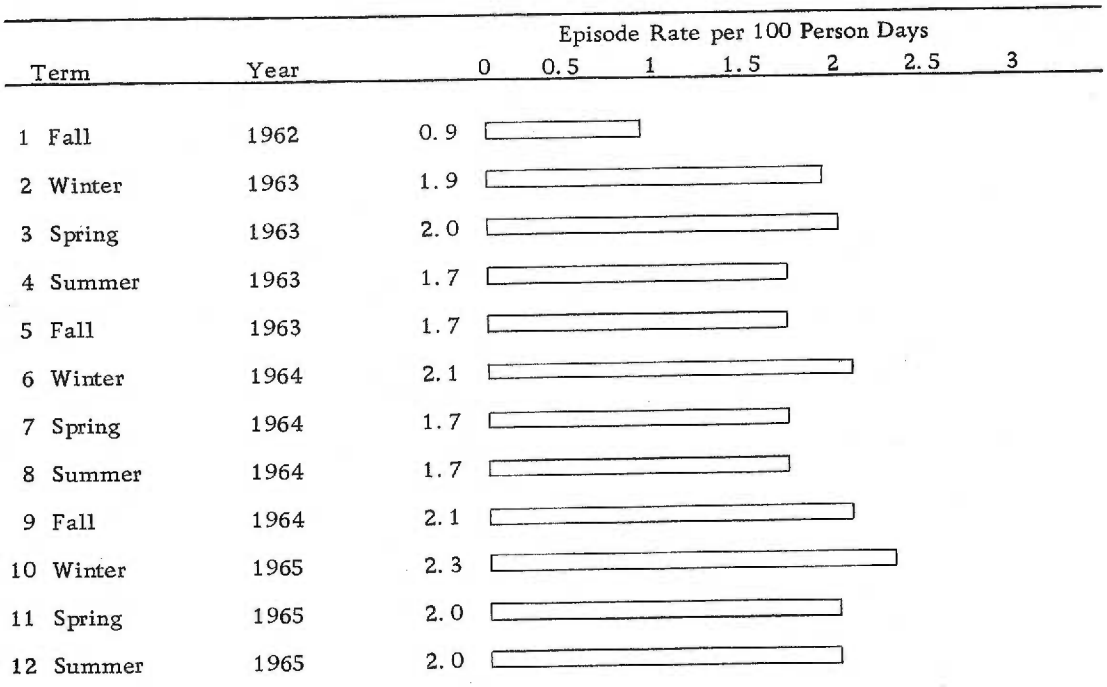


Figure 5. Episode Rate per 100 Person Days of the Health Problems of 46 Students in Each Term

Wilder (38) found that the greatest number of visits to the health service occurred in the three terms of the junior year, the peak number being in the winter term.

When the rate of days absent in each term was determined, it was found that notable peak rates occurred in the sixth or winter term of the junior year, with a rate of 4.3 days absent per 100 person days; in the third or spring term of the freshman year with a rate of 3.6; and in the tenth or winter term of the senior year with a rate of 3.3. The rates of days absent were 2.8, or less in all of the other terms. The rate of 3.6 in the spring term was twice the rate of any other freshman term. The rates are shown in Figure 6.

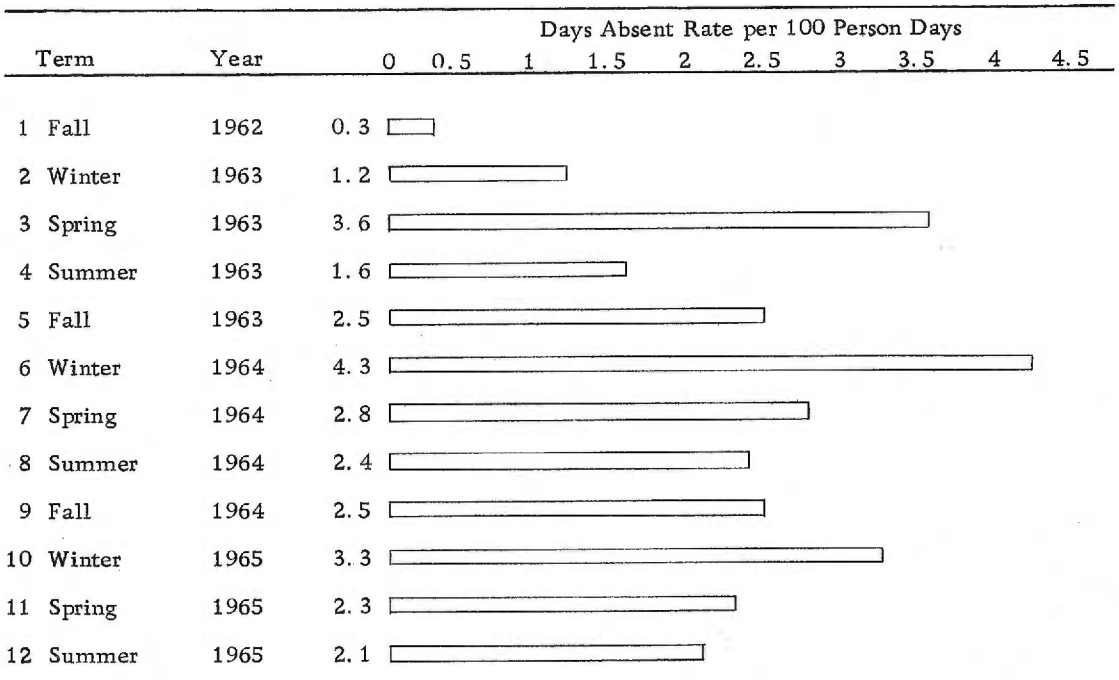


Figure 6. Days Absent Rate per 100 Person Days due to the Health Problems of 46 Students in Each Term

In determining what health problems caused the increased rates of absence, the frequency distribution by category for the episodes and days absent in the sixth or winter term in the junior year was examined.

The 36 respiratory problems accounted for 42 per cent of the episodes and 37 per cent of the days absent. This was almost twice the number that was in any other category in this term. Six episodes in the categories of surgery, bones and organs of movement, and infectious diseases accounted for 44 per cent of the days absent. In one half of the categories, there were only single episodes, and in almost one half of the categories in which there were episodes, there were no days absent. The distributions are shown in Figures 7 and 8.

The specific health problems in the categories were identified. More than one half of the respiratory problems were due to upper respiratory infections, but episodes of influenza and laryngitis were responsible for more days absent per episode. Three episodes--a low back pain, an appendectomy and mesenteric adenitis, and infectious mononucleosis--were the actual cause of 44 per cent of the days absent. These findings are shown in Table 12.

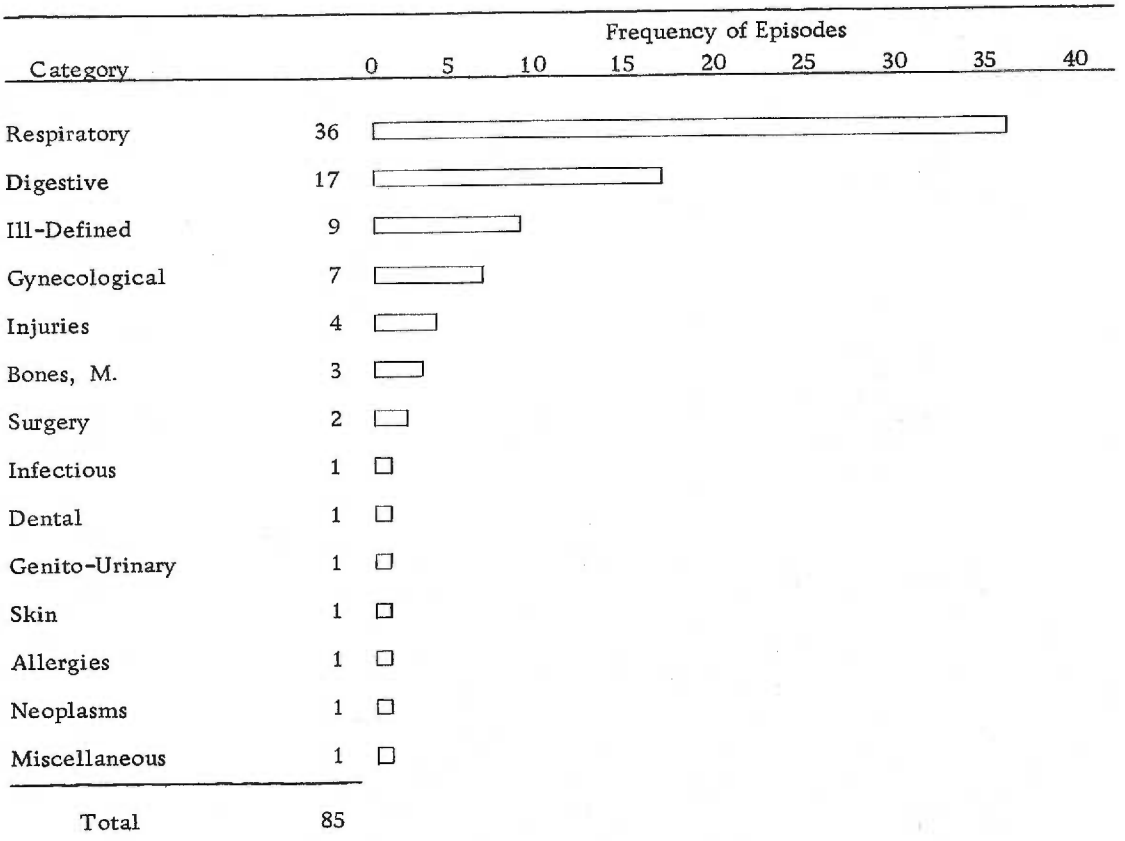


Figure 7. Frequency Distribution by Category for the Episodes of the Health Problems of 46 Students During the Sixth or Winter Term of the Junior Year

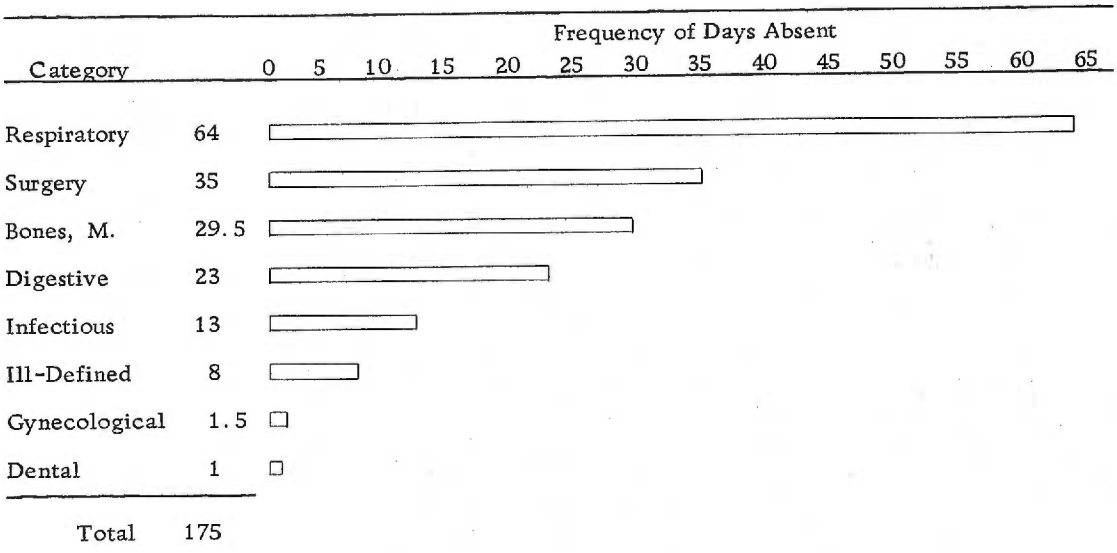


Figure 8. Frequency Distribution by Category for the Days Absent due to the Health Problems of 46 Students During the Sixth or Winter Term of the Junior Year

Table 12. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students During the Sixth or Winter Term in the Junior Year

Specific Health Problems in Categories	E	A
(1)	(2)	(3)
Respiratory		
U. R. I.	23	33
Influenza	9	21
Sore throat	2	2
Laryngitis	2	8
Digestive		
Nausea, vomiting, diarrhea	12	20
Nausea, vomiting	3	2
Nausea	1	1
Upper G. I. series	1	0
Ill-Defined		
Headache	4	3
Insomnia	2	1
Malaise	1	3
Ill	1	1
Swollen glands	1	0
Gynecological		
Dysmenorrhea	3	1.5
Infection	3	0
Examination	1	0
Injuries		
Laceration	2	0
Knee	1	0
Burn, (from autoclave)	1	0
Bones, Organs of Movement		
Low back pain	1	27.5
Muscle pain	1	2
Wry neck	1	0
Surgery		
Appendectomy and mesenteric adenitis	1	35
Excision of finger growth	1	0
Infectious		
Mononucleosis	1	13
Dental		
Toothache	1	1
Genito-Urinary		
Cystitis	1	0
Skin		
Contact dermatitis	1	0
Allergies		
Rash (arm)	1	0
Neoplasm		
Nevus, benign	1	0
Miscellaneous		
Endocrine study	1	0
Total	85	175

In the third or spring term of the freshman year, the 30 episodes of respiratory problems accounted for 42 per cent of the total episodes and were four times the number in any other category; however, they accounted for only 20 per cent of the days absent. Two episodes of infectious diseases caused 46 days absent, which was almost twice the 25.5 days absent due to respiratory problems. Surgery was the third leading cause of days absent, and genito-urinary problems were fourth. During this term there were only three episodes of digestive problems and seven ill-defined problems. The frequency distribution of the episodes and days absent are shown by category in Figures 9 and 10.

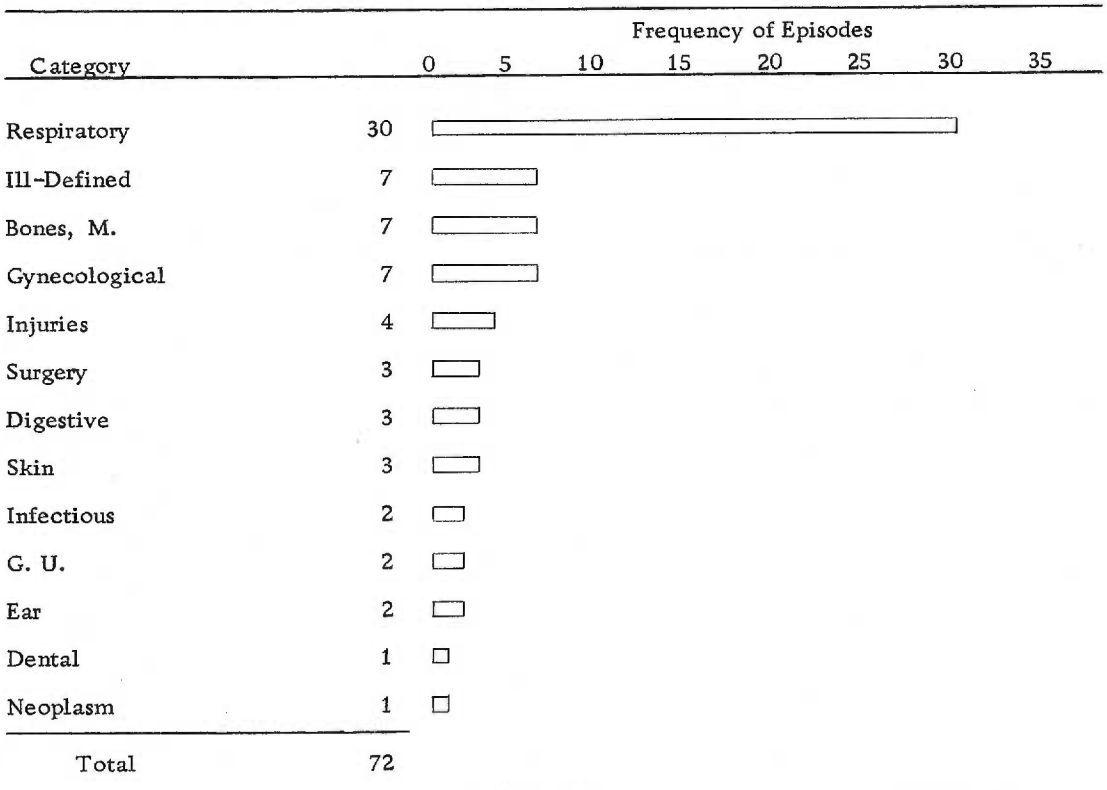


Figure 9. Frequency Distribution by Category for the Episodes of the Health Problems of 46 Students During the Third or Spring Term of the Freshman Year

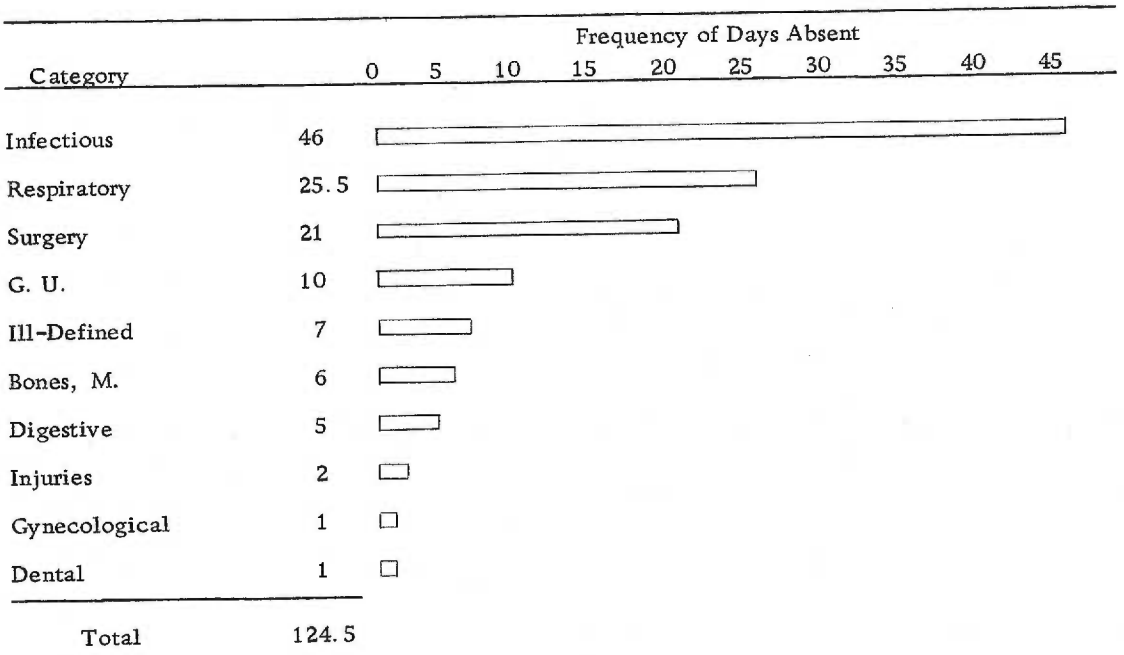


Figure 10. Frequency Distribution by Category for the Days Absent due to the Health Problems of 46 Students During the Third or Spring Term of the Freshman Year

The specific health problems in the categories during the third term were identified. In the respiratory category, influenza caused one half of the episodes, but less than one day of absence per episode. Five episodes in other categories caused 60 per cent of the total days absent during this term. They were: infectious mononucleosis and hepatitis, an oopherectomy, and two episodes of cystitis. The health problems are listed in Table 13.

Table 13. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students During the Third or Spring Term in the Freshman Year

Specific Health Problems in Categories	E	A
(1)	(2)	(3)
Respiratory		
Influenza	15	13.5
U. R. I.	7	7
Sore throat	5	5
Tonsillitis	2	0
Bronchitis	1	0
Ill-Defined		
Swollen glands	3	3
Absent	2	2
Ill	1	1
Headache	1	1
Bones, Organs of Movement		
Low back pain	3	6
Muscle pain	3	0
Painful foot	1	0
Gynecological		
Infection	5	0
Dysmenorrhea	1	1
Bartholin cyst	1	0
Injuries		
Back (at home)	1	1
Sliver	1	1
Laceration	1	0
Head (hit)	1	0
Surgery		
Oopherectomy	1	19
Incision and Drainage	1	2
Excision of muscle mass	1	0
Digestive		
Pain	2	4
Nausea, vomiting	1	1
Skin		
Mole	1	0
Papilloma, excised	1	0
Abscess	1	0
Infectious		
Mononucleosis and hepatitis	1	36
Mononucleosis	1	10
Genito-Urinary		
Cystitis	2	10
Ear		
Impacted ceramen	1	0
Earache	1	0
Dental		
Toothache	1	1
Neoplasm		
Node	1	0
Total	72	124.5

During the tenth or winter term of the senior year, the 32 respiratory problems accounted for approximately 42 per cent of the episodes and 37 per cent of the days absent. These were twice the numbers in any other category. The number of days absent was distributed among several categories during this term. Although injuries were the second leading cause of days absent, the categories of ill-defined, bones and organs of movement, and surgery caused only a slightly smaller number of days absent. Figures 11 and 12 show the frequency distribution of the episodes and days absent by category.

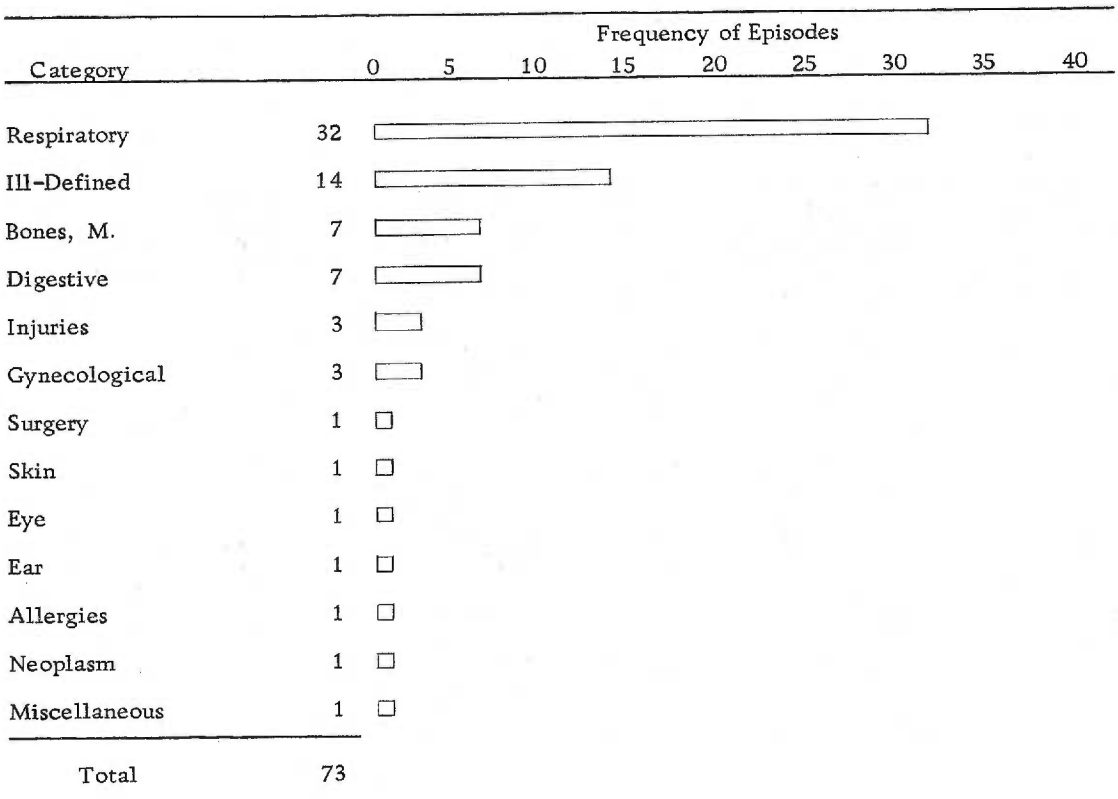


Figure 11. Frequency Distribution by Category for the Episodes of the Health Problems of 46 Students During the Tenth or Winter Term of the Senior Year

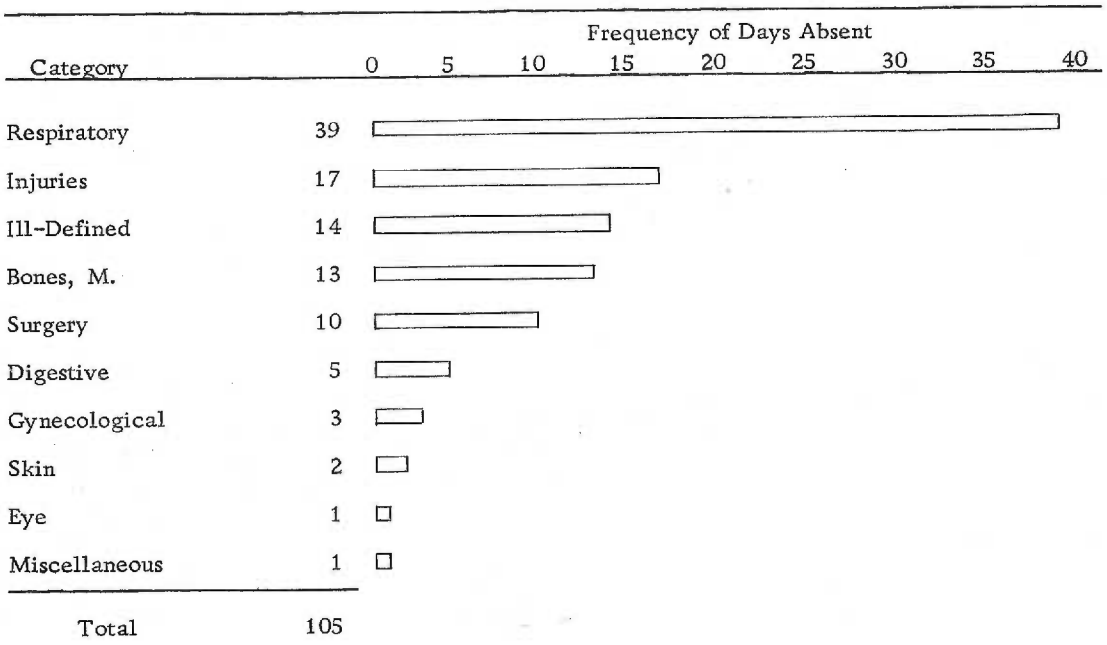


Figure 12. Frequency Distribution by Category for the Days Absent due to the Health Problems of 46 Students During the Tenth or Winter Term of the Senior Year

Identification of the specific health problems in the categories during the tenth term revealed that one half of the respiratory problems were caused by upper respiratory infections, most of which caused slightly more than one day of absence per episode. A knee laceration and a tonsillectomy were the cause of the days absent in the categories of injuries and surgery. Unexplained absences accounted for more than one half of the ill-defined problems. As in the other peak terms, there were episodes of swollen glands, headaches, and malaise. Three episodes of low back pain and a painful ankle caused 13 days absent. The health problems are listed in Table 14.

Table 14. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students During the Tenth or Winter Term in the Senior Year

Specific Health Problems in Categories	E	A
(1)	(2)	(3)
Respiratory		
U. R. I.	16	22
Influenza	8	10
Sore throat	6	5
Strep. throat	1	2
Tonsillitis	1	0
Injuries		
Lacerated knee	1	17
Needle prick	1	0
Laceration, (o. d.)	1	0
Ill-Defined		
Absent	8	8
Swollen glands	2	3
Malaise	2	2
Headache	1	1
Emotional upset	1	0
Bones, Organs of Movement		
Low back pain	3	8
Swollen joint	2	2
Painful ankle	1	3
Swollen feet	1	0
Digestive		
Nausea, vomiting, diarrhea	3	3
Pain	3	1
Nausea, vomiting	1	1
Gynecological		
Dysmenorrhea	2	2
Infection	1	1
Surgery		
Tonsillectomy	1	10
Skin		
Hand infection	1	2
Eye		
Corneal abrasion	1	1
Ear		
Earache	1	0
Allergies		
Rash, arm	1	0
Neoplasm		
Cystic mastitis	1	0
Miscellaneous		
No information	1	1
Total	73	105

Therefore, in the terms with the peak numbers of episodes and days absent, the respiratory problems caused approximately 40 per cent of the total number of episodes, higher than the 35 per cent for the total 12 terms. Several single episodes occurred in the categories of infectious diseases, surgery, injuries, or bones and organs of movement, causing comparatively high numbers of days absent. Three of the total five episodes of infectious diseases, two thirds of the total days absent due to surgery, and more than one half of the total days absent due to problems with bones and organs of movement were accounted for in these three peak terms.

Comparisons by Months

The fifth information collected was the distribution of the health problems in categories for each month of each year for a more definitive analysis of seasonal trends or peak occurrences.

Because the distribution was to be examined for seasonal trends, the health problems of those students who repeated one term were included in each month just as they occurred. This means that the nine episodes and 18.5 days absent that occurred in the repeated term were added to the totals that had been determined for the 12 terms. The five health problems that occurred in September of 1962 were not included, because the students were in school only four days of this month. The ten health problems with eight days absent that

occurred in the fall term of 1965 when only the six irregular students remained in school, were not included. Thus, the total number of episodes distributed throughout the 36 months was 848 with 1,118 days absent, rather than the total of 854 episodes and 1,107.5 days absent that had been determined for the class years, terms, and course rotations.

In examining the distribution of the health problems during the 36 months, only the respiratory seasonal trend could be noted for any of the categories. There were episodes of respiratory problems in every month, while ill-defined problems occurred in every month, with the exception of December during the freshman year. Digestive problems occurred in every month with the exception of November, December, February, and March of the freshman year. Among the other categories, there were a few or many months in which no episodes occurred. The greatest number of digestive problems occurred in October of 1963 and May of 1965. The greatest number of ill-defined problems occurred in December of 1964 and August of 1965, with a high number in November of 1964. Three of the episodes of infectious disease occurred in May, with two in 1963 and one in 1965. The other two episodes of infectious diseases occurred in February and April of 1964. During these three years, none of the students had surgery in June, July, August, and December.

Table 15 shows the distribution of the episodes and days absent

Table 15. Frequency Distribution by Category for the Episodes and Days Absent due to the Health Problems of 46 Students During the Freshman Year of 1962-63

Category	Months in the Freshman Year 1962-63																							
	Oct.		Nov.		Dec.		Jan.		Feb.		March		April		May		June		July		Aug.		Sept.	
	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
1. Respiratory	3	1	4	3	2	1	4	3	14	14	16	13	14	13	9	9	7	4.5	19	31	4	5	6	6
2. Ill-Defined	1	1	2	1			3	2	2	1	1	1	2	2	5	5	4	4	2	1	4	2.5	4	5
3. Digestive	1	2					6	7					1	1	1	1	2	4	2	2	1	0	4	4
4. Bones, M.	3	0					3	1	2	0	2	1	3	6	3	0	1	0			1	1	3	1.5
5. Injuries	1	0							1	0			3	1	1	1			3	5.5	1	0		
6. Gynecological	1	1	1	0					1	0	1	0.5			5	0	2	1	3	0				
7. Skin			1	0			1	0	5	0	1	0	1	0	2	0	1	0	1	0				
8. Allergies	1	0									2	0					2	1	2	0.5	1	0		
9. Surgery											1	3			3	21							2	3
10. Genito-Urinary . . .															2	10								
11. Dental	3	0	1	0	1	0	1	0					1	1										
12. Eye			1	0			1	0	1	0	1	0												
13. Ear											2	0	1	0										
14. Neoplasms									1	0							1	0					1	0
15. Infectious															2	46								
16. Miscellaneous			1	0					1	0									1	0	1	0		
Total.	14	5	11	4	3	1	19	13	28	15	27	18.5	26	24	33	93	20	14.5	33	40	13	8.5	20	19.5

Table 16. Frequency Distribution by Category for the Episodes and Days Absent due to the Health Problems of 46 Students During the Junior Year of 1963-64

Category	Months in the Junior Year 1963-64																							
	Oct.		Nov.		Dec.		Jan.		Feb.		March		April		May		June		July		Aug.		Sept.	
	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
1. Respiratory	6	18	6	5.5	9	14	4	10	15	29	19	31	9	7	8	11	11	12	11	22	5	13	10	18
2. Ill-Defined	5	4	1	1	2	1	1	1	3	1	5	6	2	2	5	5	6	6	4	4	6	7	2	2
3. Digestive	10	19	2	3	4	8	8	9	4	6	5	8	3	5	8	7	3	5	5	5	5	4	3	3
4. Bones, M.	3	14					1	2	1	0	1	27.5	2	1	2	4	2	1	1	5	2	1		
5. Injuries	1	0			2	1			3	0	1	0			1	1	1	1	1	0	2	2	1	0
6. Gynecological			1	0.5	1	0	6	1.5			1	0	1	3									1	0
7. Skin			1	0					1	0														
8. Allergies	1	0	1	1	1	2					1	0					2	0						
9. Surgery	1	0	1	14			1	35	1	0														
10. Genito-Urinary . . .					2	0					1	0									1	0		
11. Dental	1	0			1	1									1	1								
12. Eye					1	0																		
13. Ear			2	1																				
14. Neoplasms							1	0															2	0
15. Infectious									1	13			1	35										
16. Miscellaneous	1	0							1	0														
Total	29	55	15	26	23	27	22	58.5	30	49	34	72.5	18	53	25	29	25	25	22	36	21	27	19	23

Table 17. Frequency Distribution by Category for the Episodes and Days Absent due to the Health Problems of 46 Students During the Senior Year of 1964-65

Category	Months in the Senior Year 1964-65																							
	Oct.		Nov.		Dec.		Jan.		Feb.		March		April		May		June		July		Aug.		Sept.	
	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
1. Respiratory	12	15	12	16	2	0	4	6	14	18	16	17	14	12	3	2	6	9	3	4.5	5	8	3	3
2. Ill-Defined	6	5	9	11	11	15	5	5	3	3	8	8	2	4	8	7.5	2	2	5	6	11	12	1	1
3. Digestive	3	2	5	7	4	3	2	2	3	2	4	4	5	6.5	10	7	6	9	5	4	9	10.5	1	2
4. Bones, M.	2	1			1	0	5	12	2	1					2	3	1	0	2	0				
5. Injuries	3	3	2	0	2	12	2	17	1	0			1	0	4	7			6	5	1	1		
6. Gynecological			1	1	3	2.5	1	1	1	1	1	1	3	2	2	2.5	2	2	2	0.5	1	1		
7. Skin					1	2					1	2	1	0					1	0	1	0		
8. Allergies	2	0			1	0					1	0											1	1
9. Surgery			1	3			1	10					1	9										
10. Genito-Urinary . . .															2	7					2	1	2	1
11. Dental											1	1					1	1						
12. Eye							1	1					1	0	1	0			3	0.5				
13. Ear							1	0					1	0	1	0								
14. Neoplasms									1	0	1	0												
15. Infectious															1	7								
16. Miscellaneous	1	0	2	6	2	1			1	1					1	0							2	1
Total	29	26	32	44	27	35.5	22	54	26	26	33	33	29	33.5	35	43	18	23	27	20.5	30	33.5	10	9

in the categories for the health problems in each month during the freshman year of 1962-63; Table 16 shows the distribution during the junior year of 1963-64; Table 17 shows the distribution during the senior year of 1964-65.

The seasonal trend of the respiratory problems was examined in greater detail. The greatest number of respiratory problems were in March and July of 1964, each having 19 episodes and 31 days absent. Respiratory problems occurred in a fairly consistent pattern throughout the three years with a low rate of episodes during the months of September, October, and November. With the exception of a slight rise in 1963, the lowest frequency was during the months of December. There was a low incidence in January, with a sharp rise in February, which peaked in each year during March and declined again, slightly, in April. The decline was more acute in April of 1964. The decline in episodes continued through May. The summer months varied at a low incidence frequency with the exception of July in 1964, which was mentioned earlier. Line graphs depicting the frequency are shown in Figure 13.

These findings do not agree with the findings of Alexander and Summerskill (1), who reported that college students had a higher incidence of respiratory diseases on returning to campus following a recess; however, they reported a high incidence in February and March. Among these 46 students, the high incidence occurred

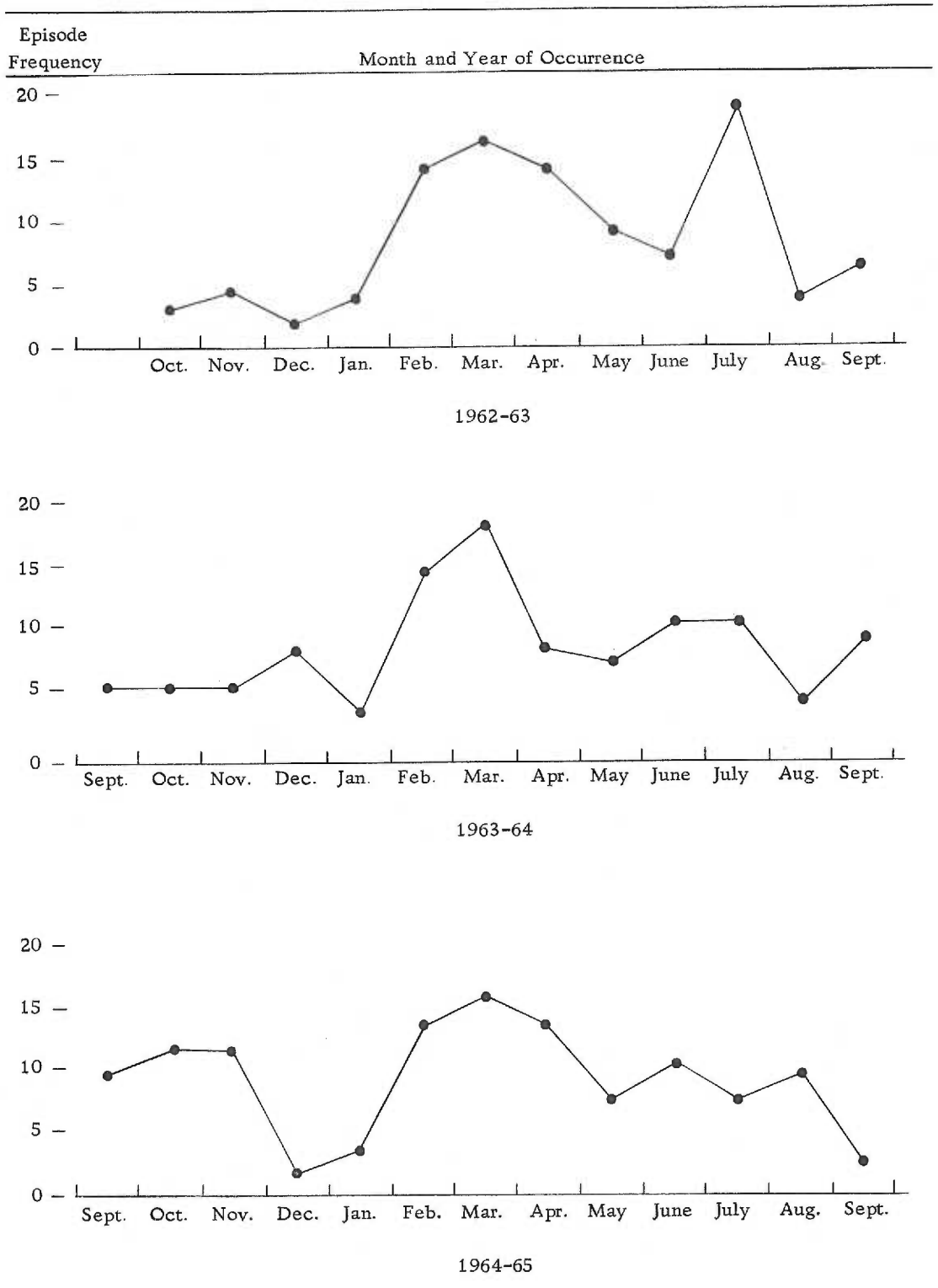


Figure 13. Episode Frequency of the Respiratory Diseases of 46 Students During Each Month for Three Years

midterm and in the winter months when there were few, if any, students on vacation. It was not within the scope of this study to determine if the peak incidence coincided with the peak incidence in patients with the same disease as reported by Davies and Frost. (8)

The total person days for each month are shown in Table 18 in relation to the number of episodes and days absent, from which the rates were determined.

There were no notable peak rates for the episodes of health problems in any month during the three years. The pattern was consistent in all three years as to a comparatively low rate in January, rising in February, and peaking in March. There was a decline in April with a rise again in May. This pattern was the same as that shown for the occurrence of respiratory problems, with the exception of the rise in May and July of each year. The rate of episodes was highest in July of 1965, with the second highest rate in May of 1965. In the freshman year, May and July had the second and third highest rates of episodes; March had the highest rate of episodes in the freshman and junior years, but ranked third during the senior year. Figure 14 shows these findings, which coincide with some of the varied reports in the literature as shown in Tables 3 and 4 in Chapter II.

During July of 1965, in which the highest rate had occurred, there were episodes in many categories. The three categories of

Table 18. Frequency of the Episodes and Days Absent due to the Health Problems of 46 Students in Relation to the Total Person Days in Each Month During 12 Terms

Month	Year	Total Person Days	Number of Episodes	Number of Days Absent
(1)	(2)	(3)	(4)	(5)
October	1962	1,426	14	5
November		1,380	11	4
December		874	3	1
January	1963	1,426	19	13
February		1,288	28	15
March		1,094	27	18.5
April		1,380	26	24
May		1,426	33	93
June		1,380	20	14.5
July		1,395	33	40
August		1,185	13	8.5
September		945	20	19.5
October		1,426	29	55
November		1,380	15	26
December		1,426	23	27
January	1964	1,426	22	58.5
February		1,344	30	49
March		1,426	34	72.5
April		1,380	18	53
May		1,426	25	29
June		1,301	25	25
July		1,141	22	36
August		1,135	21	27
September		987	19	23
October		1,393	29	26
November		1,380	32	44
December		1,272	27	35.5
January	1965	1,390	22	54
February		1,288	26	26
March		1,394	33	33
April		1,380	29	33.5
May		1,394	35	43
June		1,001	18	23
July		976	27	20.5
August		1,345	30	33.5
September		937	10	9
Total		46,147	848	1,118

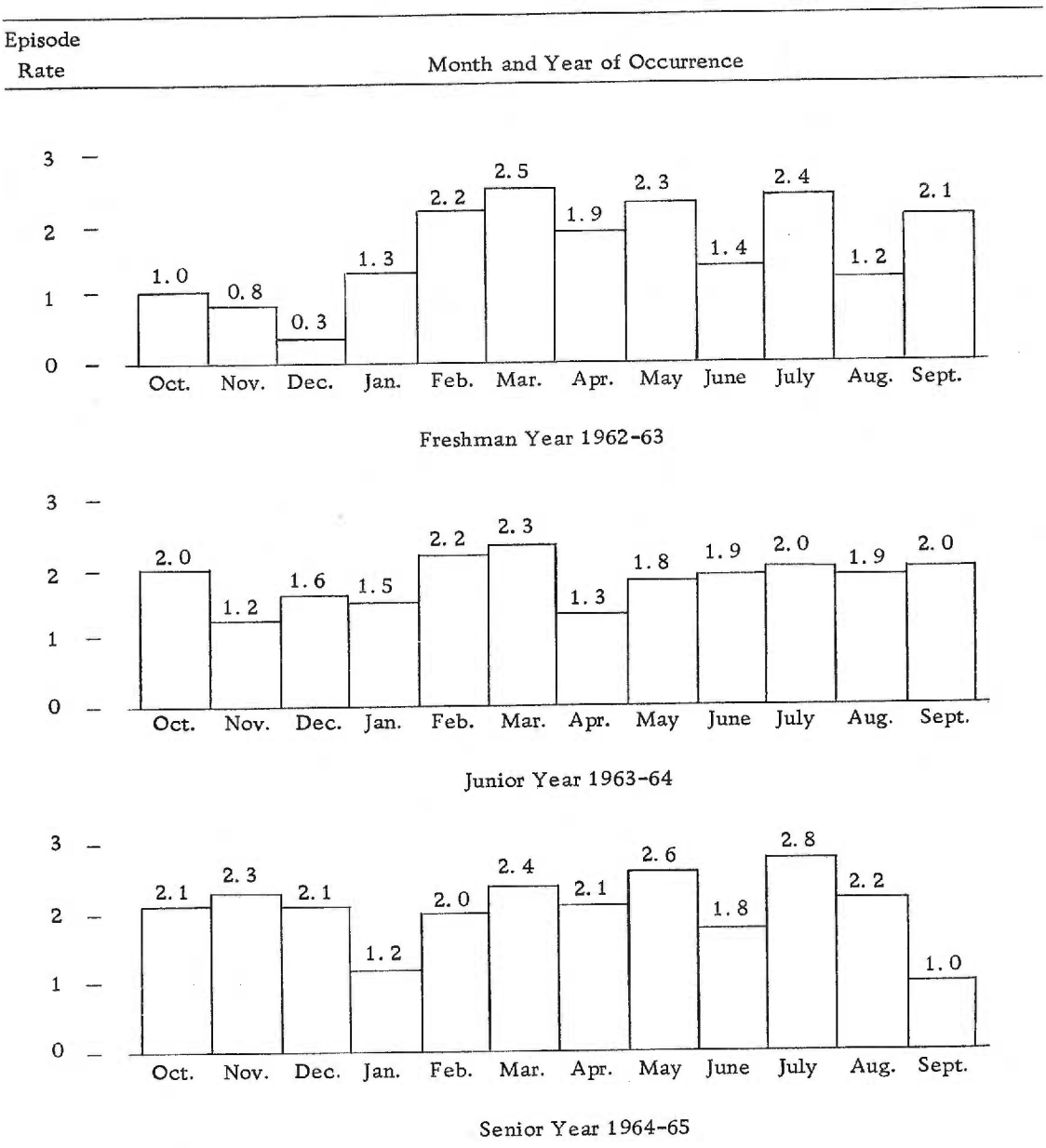


Figure 14. Episode Rate per 100 Person Days of the Health Problems of 46 Students During Each Month for Three Years

injuries, ill-defined, and digestive problems accounted for one half of the episodes. There were very few days absent due to these episodes. The incidence of respiratory disease was very low, with only three episodes. The six injuries were caused by one automobile accident. The specific health problems are identified in Table 19.

Table 19. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students in July of 1965

Specific Health Problems in Categories	E	A	Specific Health Problems in Categories	E	A
(1)	(2)	(3)	(1)	(2)	(3)
Injuries			Bones, Organs of Movement		
Multiple bruises, (automobile accident) . .	4	5	Swollen feet	1	0
Cervical strain, (automobile accident) . .	2	0	Muscle pain	1	0
			Gynecological		
			Dysmenorrhea	1	0.5
Ill-Defined			Pelvic examination	1	0
Absent	4	5			
Malaise	1	1	Eye		
			Blurred vision	1	0
Digestive			Conjunctivitis	1	0.5
Nausea, vomiting, diarrhea	3	3	Examination	1	0
Pain	2	1	Skin		
			Contact dermatitis	1	0
Respiratory					
U. R. I.	2	1.5	Total	27	20.5
Sore throat	1	3			

The second highest rate of episodes had occurred in May of 1965. Again, there were episodes in many categories. Digestive and ill-defined problems accounted for one half of the episodes. Identification of the specific health problems, shown in Table 20, revealed the most days absent for any episode were seven due to cystitis and rubella.

Table 20. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students in May of 1965

Specific Health Problems in Categories	E	A	Specific Health Problems in Categories	E	A
(1)	(2)	(3)	(1)	(2)	(3)
Digestive			Genito-Urinary		
Nausea, vomiting, diarrhea	6	6	Cystitis	1	7
Diarrhea	2	0	Pyelogram	1	0
Nausea	1	1	Bones, Organs of Movement		
Upper G.I. series	1	0	Muscle pain	1	3
Ill-Defined			Low back pain	1	0
Absent	4	4	Infectious		
Headache	3	2.5	Rubella	1	7
Reaction to "shot"	1	1	Ear		
Injuries			Plugged eustachian tube	1	0
Back, (lifting patient)	1	4	Eye		
Knee	1	2	Corneal abrasion	1	0
Sprain	1	1	Miscellaneous		
Fall	1	0	Thyroid study	1	0
Respiratory					
Sore throat	3	2	Total	35	43
Gynecological					
Dysmenorrhea	2	2.5			

Among the rates of days absent for each month, a notable peak of 6.5 days absent per 100 person days occurred in May of 1963. With the exception of a rate of 2.9 days absent in July of 1963, the rates of days absent for the other ten months during the freshman year were consistently lower than the rates of episodes.

March of 1964 in the junior year had the second highest rate with 5.1 days absent. The rates of days absent were consistently higher than the rates of episodes for each month during the junior

year, particularly for the month of January with a rate of 4.0 days absent for a rate of 1.5 episodes. This was the third highest rate of days absent during the three years.

January of 1965 had the highest rate of days absent during the senior year and the fourth highest rate during the three years. The rate of 3.8 was much greater than the episode rate of 1.2 during this month.

The rates of days absent in each month are depicted in Figure 15.

The specific health problems were then identified for these four peak months. In May of 1963, which had the highest rate of days absent, there were four of the five episodes causing 60 per cent of the days absent during the third term. These were the episodes of infectious mononucleosis, infectious mononucleosis and hepatitis, an oopherectomy, and cystitis, and were the cause of 80 per cent of the days absent during this month. The remaining 29 episodes or 87 per cent of the episodes caused few or no days absent. These findings are shown in Table 21.

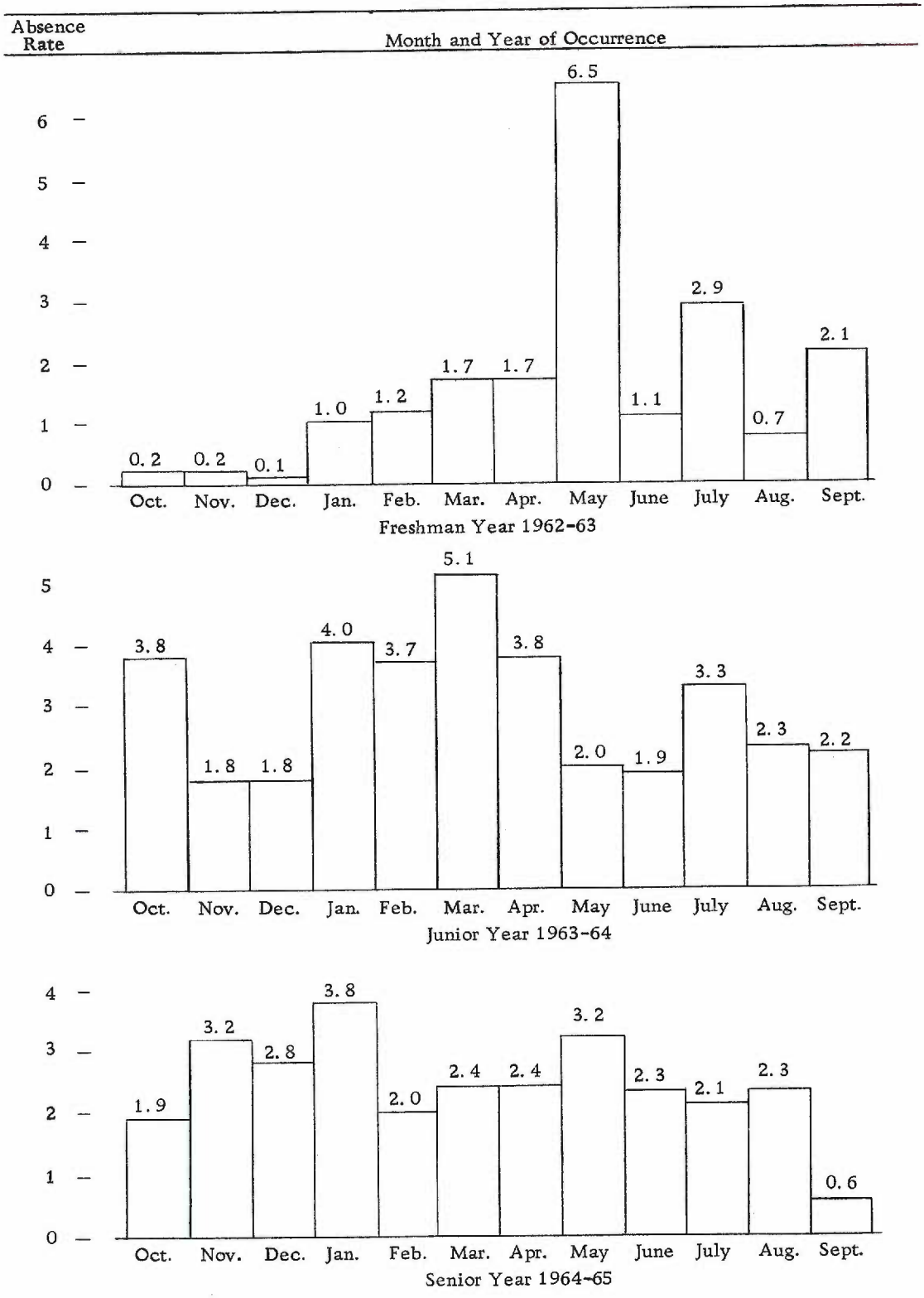


Figure 15. Absence Rate per 100 Person Days due to the Health Problems of 46 Students During Each Month for Three Years

Table 21. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students in May of 1963

Specific Health Problems in Categories	E	A	Specific Health Problems in Categories	E	A
(1)	(2)	(3)	(1)	(2)	(3)
Infectious			Digestive		
Mononucleosis and hepatitis	1	36	Pain	1	1
Mononucleosis	1	10	Injuries		
			Back, (at home)	1	1
Surgery					
Oopherectomy	1	19	Bones, Organs of Movement		
Incision and Drainage	1	2	Muscle pain, hip	3	0
Excision of masses	1	0			
			Gynecological		
Genito-Urinary			Infection	4	0
Cystitis	1	10	Bartholin cyst	1	0
Cystitis	1	0			
			Skin		
Respiratory			Mole	1	0
Influenza	4	4	Papilloma, excised	1	0
U. R. I.	3	3			
Sore throat	2	2	Total	33	93
Ill-Defined					
Absent	2	2			
Ill	1	1			
Swollen glands	1	1			
Headache	1	1			

March of 1964 had the second highest rate of days absent. One half of the episodes and days absent due to respiratory problems that occurred in the sixth or winter term of the junior year were accounted for in this month. Only one of the single episodes, a low back pain causing many of the days absent in the sixth term, was during this month, but was the cause of 37 per cent of the days absent in that month. This meant that one half of the episodes were in two categories, accounting for 80 per cent of the days absent in this month

and 42 per cent of the days absent during the sixth term. These findings are shown in Table 22.

Table 22. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students in March of 1964

Specific Health Problems in Categories	E	A	Specific Health Problems in Categories	E	A
(1)	(2)	(3)	(1)	(2)	(3)
Respiratory			Gynecological		
U. R. I.	13	12	Infection	1	0
Influenza	4	12			
Strep. throat	1	5	Genito-Urinary		
Sore throat	1	2	Cystitis	1	0
Bones, Organs of Movement			Injuries		
Low back pain	1	27.5	Laceration (o. d.)	1	0
Digestive			Allergies		
Nausea, vomiting, diarrhea	5	8	Rash, arm	1	0
			Total	34	72.5
Ill-Defined					
Insomnia	2	1			
Malaise	1	3			
Headache	1	1			
Ill	1	1			

January of 1964 had the third highest rate of days absent. One episode of surgery, an appendectomy and mesenteric adenitis accounted for 60 per cent of the days absent in this month. Although there were only four episodes of respiratory problems, one of the upper respiratory infections had caused six days of absence. Respiratory and digestive problems caused one third of the total days absent. There were episodes in only seven categories; episodes in four of the categories accounted for only 4.5 days absent. This month

accounted for 33 per cent of the days absent during the sixth term. The specific health problems are listed in Table 23.

Table 23. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students in January of 1964

Specific Health Problems in Categories	E	A	Specific Health Problems in Categories	E	A
(1)	(2)	(3)	(1)	(2)	(3)
Surgery			Ill-Defined		
Appendectomy and mesenteric adenitis	1	35	Headache	1	1
Respiratory			Bones, Organs of Movement		
U. R. I.	3	9	Muscle pain	1	2
Sore throat	1	1	Neoplasm		
Digestive			Nevus, benign	1	0
Nausea, vomiting, diarrhea	5	8	Total	22	58.5
Nausea, vomiting	2	1			
Upper G. I. series	1	0			
Gynecological					
Dysmenorrhea	3	1.5			
Infection	2	0			
Examination	1	0			

January in 1965 had the highest rate of days absent in the senior year and the fourth highest rate during the total three years. Table 24 shows that there were episodes in many categories; however, three of the episodes caused two thirds of the days absent. These episodes included a lacerated knee, a tonsillectomy, and a low back pain.

Table 24. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students in January of 1965

Specific Health Problems in Categories	E	A	Specific Health Problems in Categories	E	A
(1)	(2)	(3)	(1)	(2)	(3)
Injuries			Digestive		
Lacerated knee	1	17	Nausea, vomiting, diarrhea	1	1
Needle prick (o. d.)	1	0	Nausea, vomiting	1	1
Bones, Organs of Movement					
Low back pain	1	8	Gynecological		
Low back pain	1	0	Infection	1	1
Painful ankle	1	3			
Swollen joint	1	1	Eye		
Swollen feet	1	0	Corneal abrasion	1	1
Surgery			Ear		
Tonsillectomy	1	10	Earache	1	0
Respiratory			Total	22	54
Sore throat	3	5			
U. R. I.	1	1			
Ill-Defined					
Absent	2	2			
Malaise	2	2			
Headache	1	1			

In each month with a high rate of days absent, a single episode in one or more of four categories was largely responsible. These categories were: infectious diseases, surgery, injuries, and bones and organs of movement. The exception was in March of 1964, in which several episodes of respiratory problems caused a major number of the days absent. Each of the peak months occurred in one of the peak terms. Two peak months, January and March, accounted for 75 per cent of the days absent in the sixth and leading term. May accounted for 76 per cent of the days absent in the third term, while January accounted for 50 per cent of the days absent in the tenth or third leading term.

The two months with the highest episode rates did not occur in terms with the highest episode rates, but did occur in the senior year which had the highest rate of episodes for the class years.

Comparisons by Course Rotations

The sixth information collected was the identity and frequency of the health problems and resultant absences in relation to the course rotations to determine if there were areas in which peak numbers of health problems occurred and if there were any health problems specific to one area.

The 46 students were together as a group during the pre-clinical period. They had medical-surgical nursing I, II, and III at the same time, but were assigned to different medical-surgical areas in the hospital. For the remaining seven course rotations, the students were rotated in small groups. The psychiatric rotation during the senior year was the only one of these seven occurring entirely in one class year.

A comparison of the course rotations as to the frequency distribution by category revealed that respiratory problems occurred most frequently during the advanced medical-surgical rotation, with 59 days absent, and during the operating room rotation, with 50.5 days absent. Diseases of the respiratory system caused the most health problems in all of the course rotations with the exception of

during the obstetric and advanced clinical practice II rotations.

Ill-defined problems peaked during the obstetric rotation, with 28 episodes and 31 days absent, and during the advanced clinical practice II with 23 episodes and days absent, and were the cause of the greatest number of health problems during these two rotations. The deviations in the number of ill-defined problems among the course rotations were more marked than they were between the school terms, with the exception of the ninth, or fall term of the senior year.

Digestive problems increased from seven during the medical-surgical II rotation, to 15 during the medical-surgical III rotation, and peaked during the advanced medical-surgical rotation with 21 episodes. The number of episodes was high during the pediatric and advanced clinical practice II rotations. The peak of days absent due to digestive problems occurred during the medical-surgical III rotation. The deviations in the number of digestive problems between the course rotations were greater than they were between the school terms.

Injuries were notably high during the operating room rotation with 12 episodes and 18 days absent; however, six episodes caused 21 days absent during the obstetric rotation.

Two episodes of infectious disease occurred during the medical-surgical I rotation, one during the advanced medical-surgical

rotation, one during the advanced clinical practice I rotation, and one during the obstetric rotation.

Seven skin problems during the pre-clinical II rotation was the highest number in any course rotation.

The small number of problems due to bones and organs of movement occurring in each course rotation caused only a few days absent with the exception of the 29.5 days during the advanced medical-surgical rotation, and 14 days during each of the medical-surgical III and pediatric rotations.

A few students had surgery in each of the medical-surgical rotations, and in some of the other rotations. The most days absent due to surgery was during the advanced medical-surgical rotation and the medical-surgical I rotation.

In the other categories, the number of problems and the days absent was small and widely distributed through the course rotations. These findings are shown in Table 25.

The total number of person days in each course rotation is listed in Table 26 in relation to the number of episodes and days absent, from which the rates were determined.

Table 25. Frequency Distribution by Category for the Episodes and Days Absent due to the Health Problems of 46 Students During Each Course Rotation

Category	Course Rotation																					
	Pre-Clin. I		Pre-Clin. II		Med-Surg. I		Med-Surg. II		Med-Surg. III		Adv. Med-Surg.		Adv. Clin. I		Adv. Clin. II		O. R.		O. B.		Peds.		Psych.	
	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A	E	A
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
1. Respiratory . .	11	5	33	30	30	25.5	28	35	21	33.5	34	59	26	29.5	16	24	28	50.5	22	34	39	45	19	19.5
2. Ill-Defined . .	3	2	6	4	7	7	14	12.5	9	6	10	11	18	18	23	23	11	13	28	31	13	15	5	6.5
3. Digestive . . .	3	2	6	7	3	5	7	5.5	15	29.5	21	22	10	9	18	19	11	16	15	22	20	19	7	5
4. Bones, M. . .	3	0	7	2	7	6	4	2.5	3	14	3	29.5	5	6	4	0	5	6	3	3	7	14	1	0
5. Injuries	1	0	1	0	4	2	5	6.5	2	0	2	0	3	1	2	0	12	18	6	21	4	1	3	8
6. Gynecological	2	1	2	0.5	7	1	3	0	2	0.5	5	1.5	1	3	2	1	4	1	3	3	5	6	6	3.5
7. Skin	2	0	7	0	3	0	2	0	1	0	1	0			1	0	1	2			1	0	2	2
8. Allergies . . .	1	0	2	0			5	3	2	1			2	0	1	1	3	0	1	0			1	0
9. Surgery.			1	3	3	21	2	3	2	14	2	35							1	9	1	10	1	3
10. Genito-Urinary					2	10	1	0	2	0			1	0	5	3			1	7	1	0		
11. Dental	5	0	1	0	1	1			1	0	2	2			1	1					1	1		
12. Eye	1	0	3	0					1	0					3	0					2	1	1	0.5
13. Ear			1	0	2	0			2	1											2	0	2	0
14. Neoplasms . .			1	0	1	0	1	0			1	0			1	0	1	0	1	0	1	0		
15. Infectious . .					2	46					1	13	1	35					1	7				
16. Miscellaneous	1	0	1	0			2	0	1	0	1	0			2	1			2	0	1	0	4	8
Total . .	33	10	72	46.5	72	124.5	74	68	64	99.5	83	173	67	101.5	79	73	76	106.5	84	137	98	112	52	56

Table 26. Frequency of the Episodes and Days Absent due to the Health Problems of 46 Students in Relation to the Total Person Days in Each Course Rotation

Course Rotation	Total Person Days	Number of Episodes	Number of Days Absent
(1)	(2)	(3)	(4)
Pre-Clinical I	3,542	33	10
Pre-Clinical II	3,542	72	46.5
Medical-Surgical I	4,508	72	124.5
Medical-Surgical II	4,508	74	68
Medical-Surgical III	3,864	64	99.5
Advanced Medical-Surgical	3,864	83	173
Advanced Clinical Practice I	3,864	67	101.5
Advanced Clinical Practice II	2,898	79	73
Operating Room	3,864	76	106.5
Obstetric	4,186	84	137
Pediatric	3,864	98	112
Psychiatric	3,864	52	56
Total	46,368	854	1,107.5

The highest rate of episodes occurred during the advanced clinical practice II with a rate of 2.7 episodes per 100 person days. This was the shortest rotation, consisting of nine weeks. The remainder of this term was vacation time.

The pediatric rotation had the next highest rate of 2.5, followed by the rate of 2.1 during the advanced medical-surgical rotation. The obstetric, operating room, and pre-clinical II rotations all had rates of 2, which ranked fourth. Among the clinical rotations, the psychiatric rate was lowest. The episode rates are shown in Figure 16.

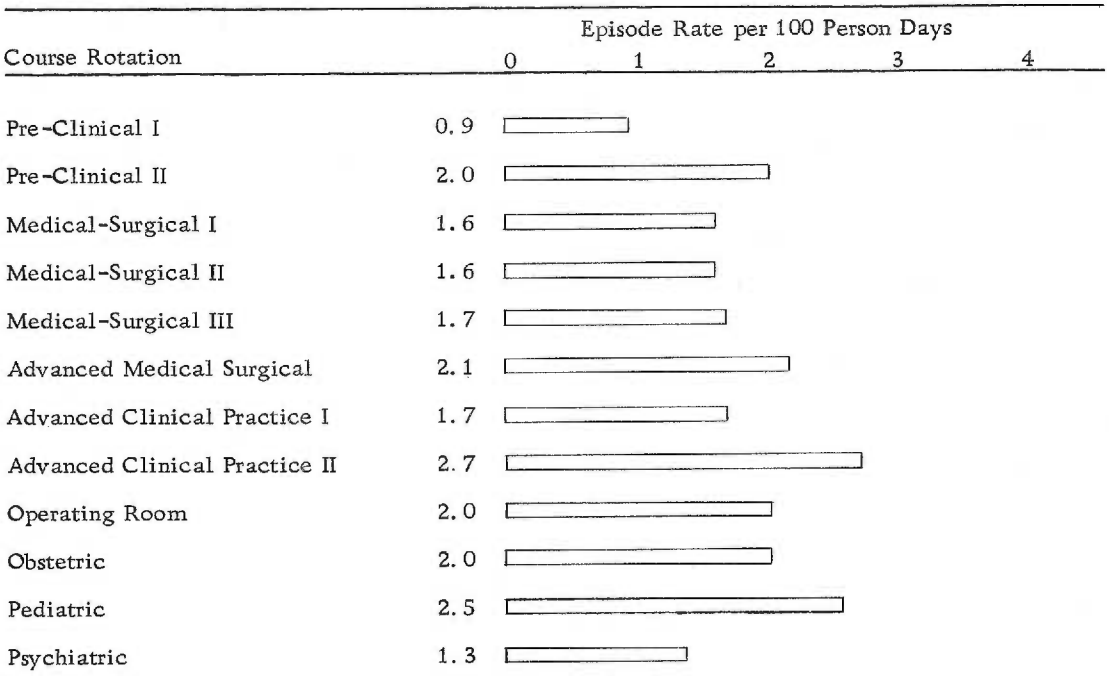


Figure 16. Episode Rate per 100 Person Days of the Health Problems of 46 Students During Each Course Rotation

Related studies (8, 20, 26) found the pediatric rotation ranking first and the obstetric rotation ranking second in the number of health problems with the exception of Wilder (38), who found the highest incidence of illness during the tuberculosis-operating room rotation, with the pediatric rotation ranking third.

A comparison of the rates of days absent during the course rotations revealed a very notable peak of 4.5 during the advanced medical-surgical rotation. The obstetric rotation had a less notable peak, with a rate of 3.3, while the pediatric rate of 2.9 ranked third. The operating room and medical-surgical I rotations ranked fourth, with rates of 2.8. Again, the psychiatric rate was lowest among the

clinical rotations. The rates are shown in Figure 17.

Related studies found the greatest loss of time during the pediatric rotation, with the obstetric rotation ranking second or third. (8, 20, 38) Wilder (38) found that the tuberculosis-operating room rotation ranked second in days absent.

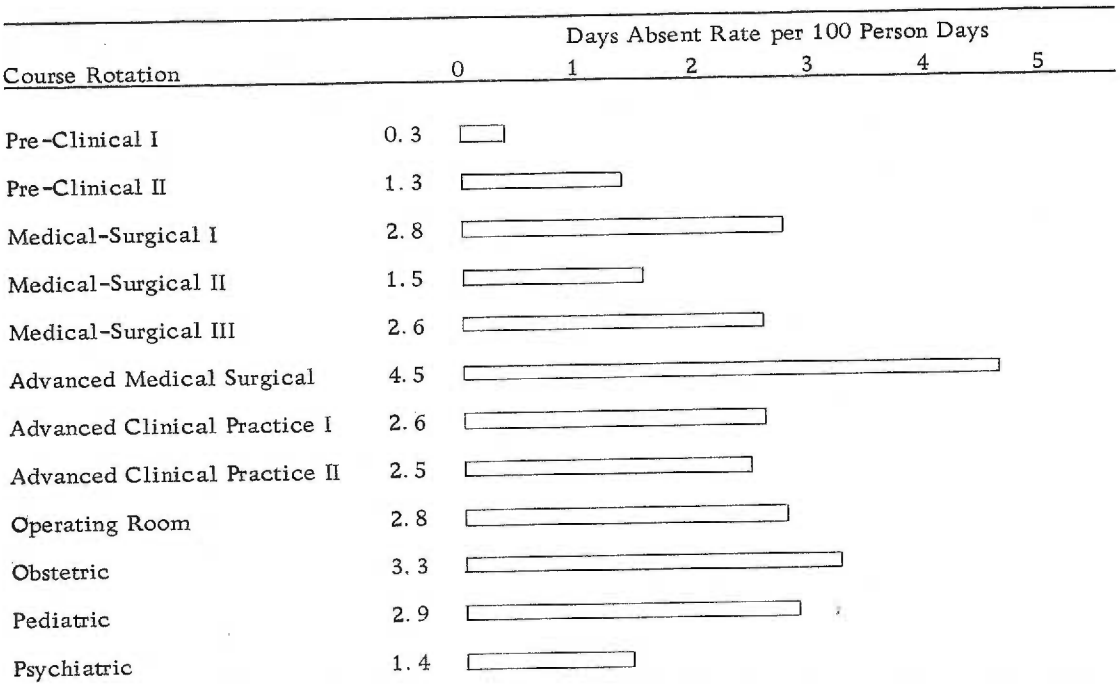


Figure 17. Days Absent Rate per 100 Person Days due to the Health Problems of 46 Students During Each Course Rotation

Because the students were rotated in small groups for their nursing experiences, the number of health problems in relation to a course rotation occurred among the students at different times of the year. The increased rates of health problems for any of the three peak rotations might have occurred in relation to one term, as

a seasonal factor, rather than in relation to the particular rotation, or a few students might have had many health problems effecting an increased rate. To test the null hypothesis that peak rates of health problems in relation to the course rotations were not significantly affected by the time of year or individual differences within the student groups, F-tests were computed for the groups in the three peak rotations of advanced clinical practice II, pediatrics, and advanced medical-surgical nursing. The analyses of variance in the number of episodes among the students revealed that the differences between the groups in each of these rotations were not significantly different, and that the greatest amount of variation had occurred within the groups. The F-ratios revealed that these individual variations were not great enough or had not occurred frequently enough in any one group to affect the mean of that group to differ significantly from the mean of the total group in the course rotation. These findings are shown in Table 27. The null hypothesis was accepted, substantiating the evidence that the increased rates of health problems were related to the course rotations but were not significantly affected by the time of year and individual differences within the student groups.

Table 27. Analyses of the Variance of the Episodes of Health Problems Among the Student Groups in the Peak Course Rotations

Source	$(X-\bar{X})^2$	Degrees of Freedom	Mean Square	F	Probability Level
(1)	(2)	(3)	(4)	(5)	(6)
Advanced Clinical Practice II					
Between groups in terms 8, 9, 10, 11, 12	23	4	5.6	1.64	N.S.
Within groups	140	41	3.4		
Total	163	45	3.6		
Pediatrics					
Between groups in terms 8, 9, 10, 11, 12	5	4	1.25	.43	N.S.
Within groups	118	41	2.88		
Total	123	45	2.73		
Advanced Medical-Surgical					
Between groups in terms 6, 7, 8	3	2	1.50	.36	N.S.
Within groups	170	41	4.20		
Total	173	45	3.80		

The seventh information collected was the distribution of the episodes and days absent due to health problems among the 46 students in each course rotation. See Appendix D for the distribution.

The means, medians, and modes indicated that the central tendency of the distribution of the episodes was from 0-2 episodes per student per rotation. The ranges of episodes disclosed that in each course rotation there were some students with no episodes of health problems. The greatest number of episodes for any one student was 11 during the pre-clinical II rotation. The interquartile

range was low and small during each course rotation, verifying that the majority of the students had very few health problems in each course rotation, as already indicated by the central tendencies. The number of episodes was the most evenly distributed among the students during the operating room rotation with a range of 0-5 episodes and an interquartile range from 0-3. The findings are shown in Table 28.

Table 28. The Numerical Distribution of the Episodes of Health Problems Among 46 Students During Each Course Rotation

	The Episodes Among 46 Students as to:				
Course Rotation	Mean	Median	Mode	Range	Interquartile Range
(1)	(2)	(3)	(4)	(5)	(6)
Pre-Clinical I	0.72	0	0	0-6	0-1
Pre-Clinical II	1.6	1	0	0-11	0-2
Medical-Surgical I	1.6	1	0,1	0-8	0-2
Medical-Surgical II	1.6	1	0	0-7	0-3
Medical-Surgical III	1.4	1	0	0-8	0-2
Advanced Medical-Surgical	1.8	1	1	0-10	0.5-2
Advanced Clinical Practice I	1.5	1	1	0-5	0.5-2
Advanced Clinical Practice II	1.7	1	0,1	0-10	0-3
Operating Room	1.7	1.5	0	0-5	0-3
Obstetric	1.9	2	1,2	0-7	1-3
Pediatric	2.1	2	1	0-7	1-3
Psychiatric	1.1	1	0	0-5	0-2

The central tendency shown by the means, medians, and modes, and the interquartile ranges revealed that the majority of students had very few days absent in any course rotation. The relatively high mean of 3.8 days absent during the advanced medical-surgical rotation reflected the wide range of 0-39.5 days absent; however, the

interquartile range denoted that three fourths of the students had 0-3 days absent. In the medical-surgical I rotation, the range was 0-38 days absent, but the interquartile range was 0-2 days absent. In all of the course rotations, with the exception of the pediatric rotation, the mode was 0 days absent. The findings are shown in Table 29.

Table 29. The Numerical Distribution of the Days Absent due to the Health Problems Among 46 Students During Each Course Rotation

	The Days Absent Among 46 Students as to:				
Course Rotation	Mean	Median	Mode	Range	Interquartile Range
(1)	(2)	(3)	(4)	(5)	(6)
Pre-Clinical I	0.22	0	0	0-2	0-0
Pre-Clinical II	1.0	0	0	0-8	0-1
Medical-Surgical I	2.7	1	0	0-38	0-2
Medical-Surgical II	1.5	0.75	0	0-7	0-2
Medical-Surgical III	2.2	0	0	0-17	0-1.5
Advanced Medical-Surgical	3.8	1	0	0-39.5	0-3
Advanced Clinical Practice I	2.2	1	0	0-35	0-3
Advanced Clinical Practice II	1.6	1	0	0-10	0-2
Operating Room	2.3	1	0	0-18	0-3
Obstetric	3.0	2	0	0-20	0-5
Pediatric	2.4	2	1	0-12	1-3
Psychiatric	1.2	1	0	0-6.5	0-2

Therefore, the same distribution occurred during each course rotation as during each class year; that is, a few students had many health problems and days absent, while the majority of students had few, if any, episodes or days absent due to health problems. This does not mean that the same students accounted for the greatest or least number of episodes or days absent in each course rotation; however, a few students must have had a high number of health

problems in several course rotations to attain the total number of episodes and days absent for some of the students during the three years.

The specific health problems were identified for the course rotations with peak rates of episodes or days absent by identifying the coded numbers on the master sheets.

Figures 18 and 19 show the frequency distribution of the episodes and days absent during the advanced clinical II rotation, which had the highest rate of episodes. Ill-defined, digestive, and respiratory problems accounted for 72 per cent of the health problems in this rotation. In terms of days absent, 90 per cent of the days absent were caused by problems in these three categories, with an average of one day absent per episode.

Fifteen of the 23 episodes in the ill-defined category were for unexplained absences. The other eight episodes were distributed among varied complaints. In the digestive category, nausea, vomiting, and diarrhea were responsible for the most episodes. There were three episodes of pain and one upper gastro-intestinal series was done with negative findings. The relatively few episodes of respiratory infections, sore throats, and influenza were of short duration in terms of days absent. The number of episodes of cystitis was comparatively high during this course rotation. The specific health problems are listed in Table 30.

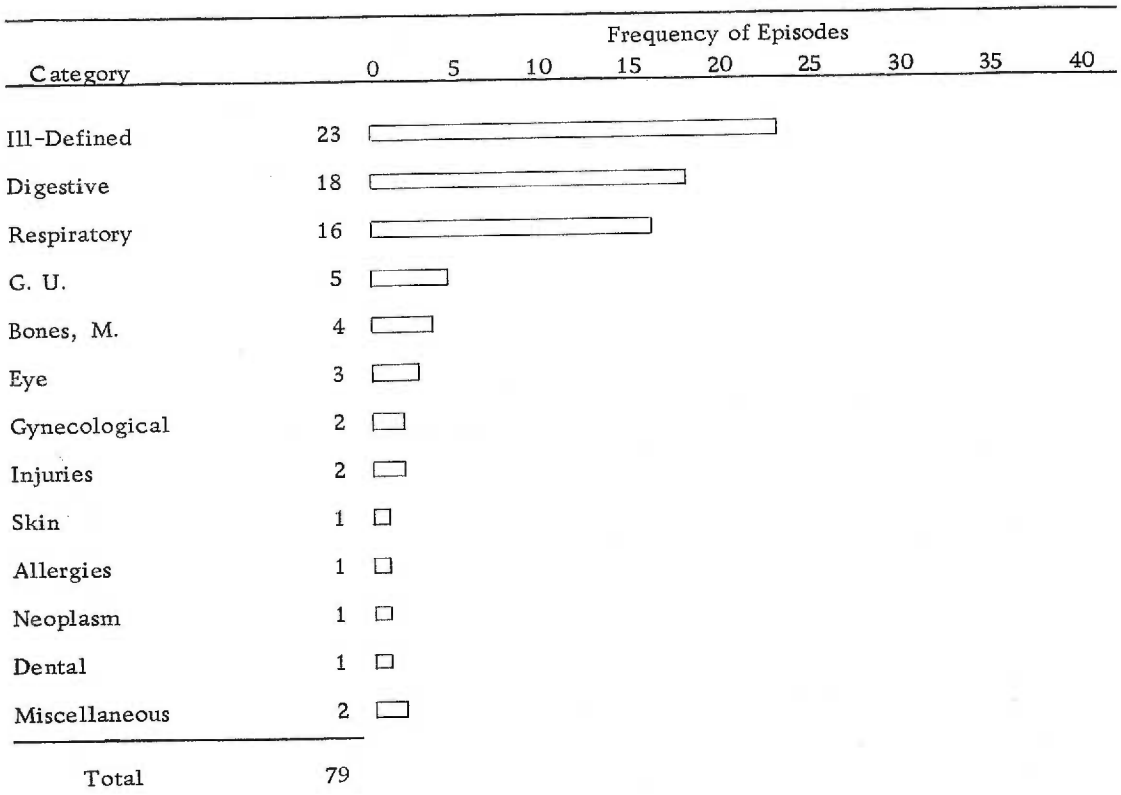


Figure 18. Frequency Distribution by Category for the Episodes of the Health Problems of 46 Students During the Advanced Clinical Practice II Rotation

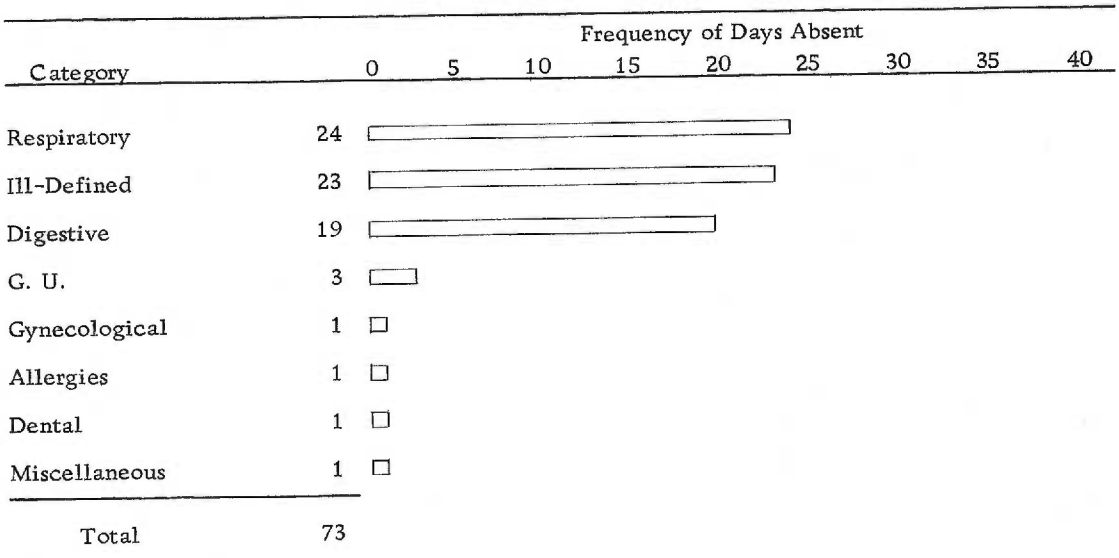


Figure 19. Frequency Distribution by Category for the Days Absent due to the Health Problems of 46 Students During the Advanced Clinical Practice II Rotation

Table 30. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students During the Advanced Clinical Practice II Rotation

Specific Health Problems in Categories	E	A	Specific Health Problems in Categories	E	A
(1)	(2)	(3)	(1)	(2)	(3)
Ill-Defined			Gynecological		
Absent	15	16	Dysmenorrhea	1	1
Ill	3	3	Examination	1	0
Malaise	2	2			
Insomnia	1	1	Injuries		
Emotional	1	1	Multiple bruises, (automobile accident)	1	0
Swollen glands	1	0	Cervical strain, (automobile accident)	1	0
Digestive					
Nausea, vomiting, diarrhea	8	8	Skin		
Nausea, vomiting	3	2	Infected hand	1	0
Pain	3	4			
Nausea	2	2	Allergies		
Diarrhea	1	2	Hayfever	1	1
Upper G. I. series	1	1			
			Neoplasm		
Respiratory			Cystic mastitis	1	0
U. R. I.	7	8			
Sore throat	5	6	Dental		
Influenza	4	10	Toothache	1	1
Genito-Urinary			Miscellaneous		
Cystitis	5	3	Anemia	1	0
			Laboratory tests	1	1
Bones, Organs of Movement					
Muscle pain	1	0	Total	79	73
Swollen feet	1	0			
Numbness, thumb	1	0			
Swollen joint	1	0			
Eye					
Blurred vision	1	0			
Corneal abrasion	1	0			
Examination	1	0			

Identification of the specific health problems did not establish any relationship between the course rotation and the health problems. Repeated studies would be needed to determine if ill-defined and digestive problems occurred in a high frequency rate during this rotation among other groups of students.

The highest rate of days absent and the third highest rate of episodes occurred during the advanced medical-surgical rotation. Respiratory problems accounted for 42 per cent of the total episodes and 34 per cent of the days absent. Seventy-eight per cent of the total episodes were in the leading categories of respiratory, digestive, and ill-defined problems. The remaining 22 per cent of the episodes were distributed throughout eight categories. The frequency distribution of the episodes is shown by category in Figure 20.

The findings differed for the frequency of days absent. The categories of surgery and bones and organs of movement had the second and third highest frequency, with infectious diseases ranking fifth. Digestive and ill-defined problems ranked fourth and sixth. The total number of days absent was distributed among these six categories, with the exception of 3.5 days for dental and gynecological problems. The findings are shown in Figure 21.

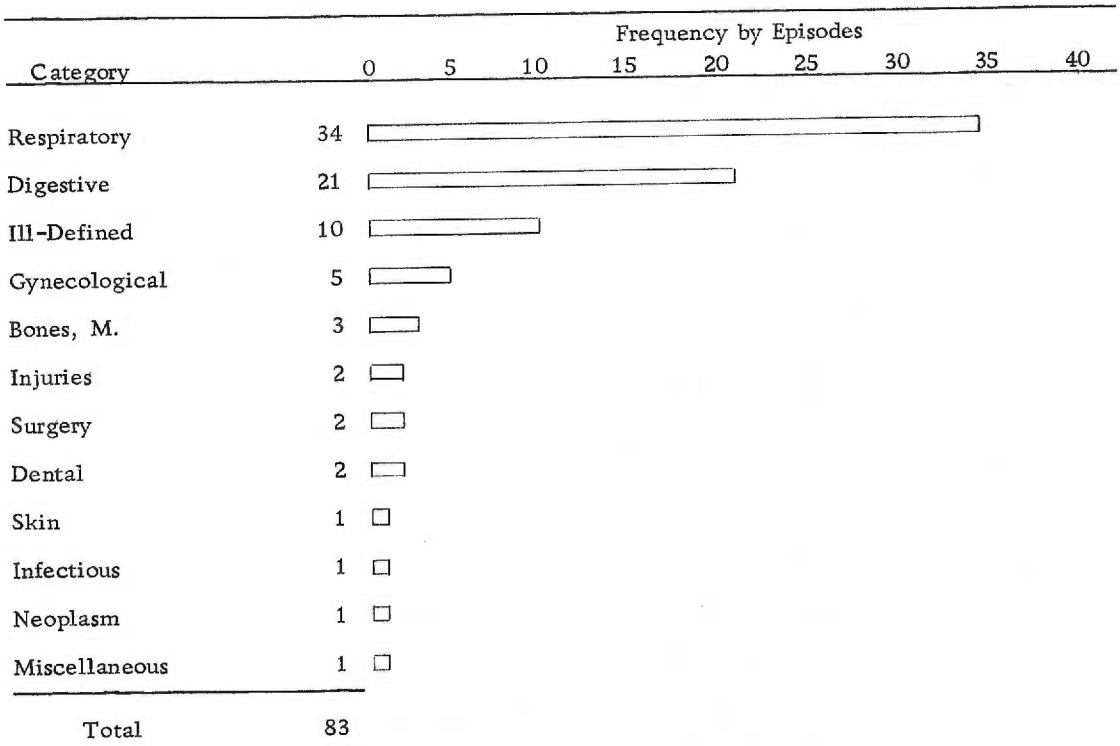


Figure 20. Frequency Distribution by Category for the Episodes of the Health Problems of 46 Students During the Advanced Medical-Surgical Rotation

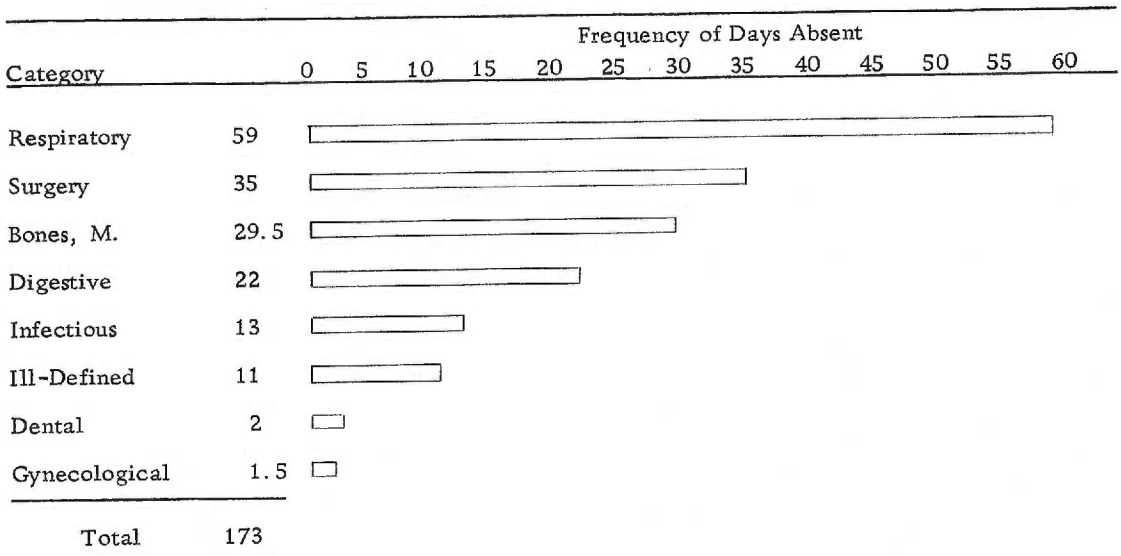


Figure 21. Frequency Distribution by Category for the Days Absent due to the Health Problems of 46 Students During the Advanced Medical-Surgical Rotation

By identifying the specific health problems, it was found that in the respiratory category, upper respiratory infections were responsible for the greatest number of episodes but were of short duration in terms of days absent. Episodes of influenza, laryngitis, and a streptococcus infection caused several days absent. The single episodes of an appendectomy and mesenteric adenitis, low back pain, and infectious mononucleosis, which caused 44 per cent of the days absent in the sixth term, also caused 44 per cent of the days absent during this course rotation. In the digestive category, the episodes were distributed among the various complaints, causing one or less days absent per episode. One student had an upper gastro-intestinal X-ray series during this rotation, with negative findings. The frequency of problems in the ill-defined category was distributed among varied complaints. There were two days of unexplained absence. The findings are shown in Table 31.

The establishment of any relationship between these health problems and the course rotation was beyond the scope of this study. The episode of low back pain was not accounted for by any incident during clinical practice.

Table 31. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students During the Advanced Medical-Surgical Rotation

Specific Health Problems in Categories	E	A
(1)	(2)	(3)
Respiratory		
U. R. I.	21	25
Influenza	8	21
Sore throat	3	2
Laryngitis	1	6
Strep. throat	1	5
Digestive		
Nausea, vomiting, diarrhea	11	16
Nausea, vomiting	4	3
Nausea	4	2
Pain	1	1
Upper G. I. series	1	0
Ill-Defined		
Headache	3	3
Malaise	2	3
Ill	2	2
Absent	2	2
Insomnia	1	1
Gynecological		
Dysmenorrhea	3	1.5
Infection	1	0
Examination	1	0
Bones, Organs of Movement		
Low back pain	1	27.5
Muscle pain	1	2
Wry neck	1	0
Injuries		
Knee	1	0
Laceration	1	0
Surgery		
Appendectomy and mesenteric adenitis	1	35
Excision of finger growth	1	0
Dental		
Toothache	2	2
Skin		
Contact dermatitis	1	0
Infectious		
Mononucleosis	1	13
Neoplasm		
Node	1	0
Miscellaneous		
Endocrine study	1	0
Total	83	173

Figures 22 and 23 show the frequency distribution by category for the pediatric rotation, which had the second highest rate of episodes and the third highest rate of days absent. The frequency of episodes and days absent for respiratory problems was almost the same as for the combined frequencies of the next three categories of digestive, ill-defined, and bones and organs of movement.

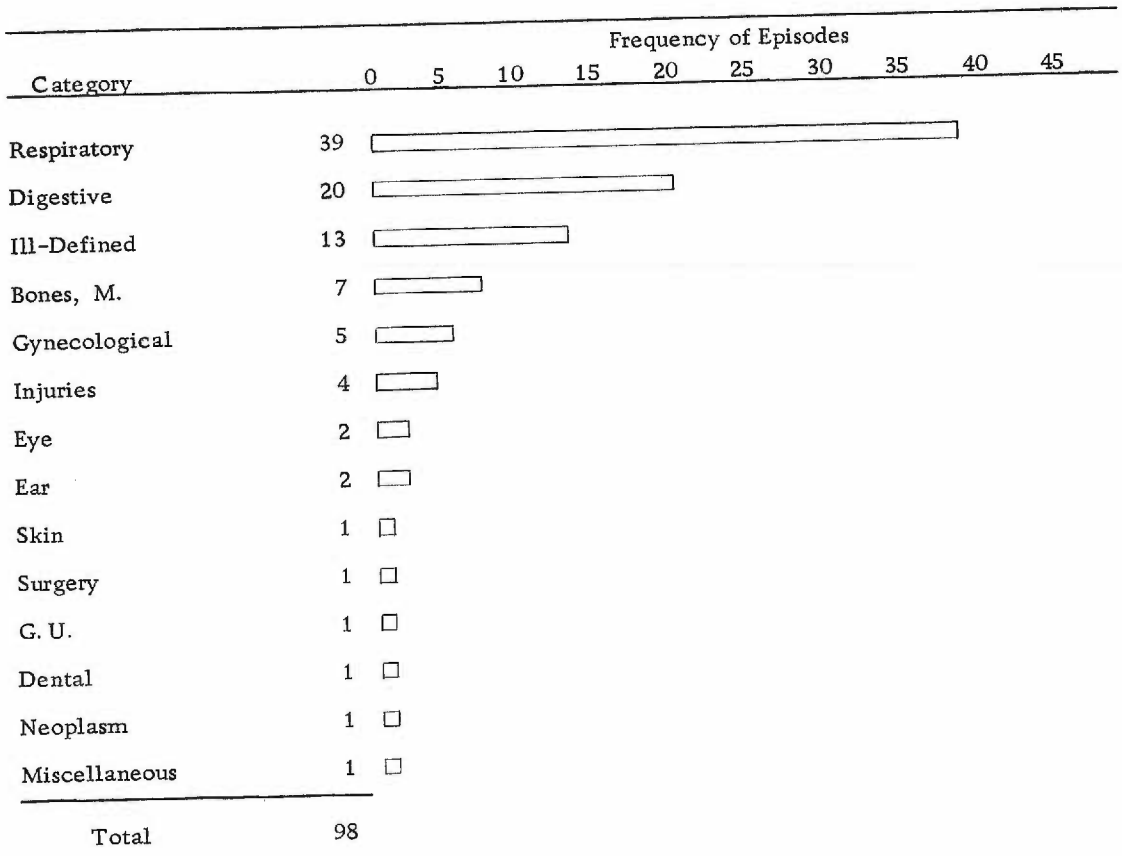


Figure 22. Frequency Distribution by Category for the Episodes of the Health Problems of 46 Students During the Pediatric Rotation

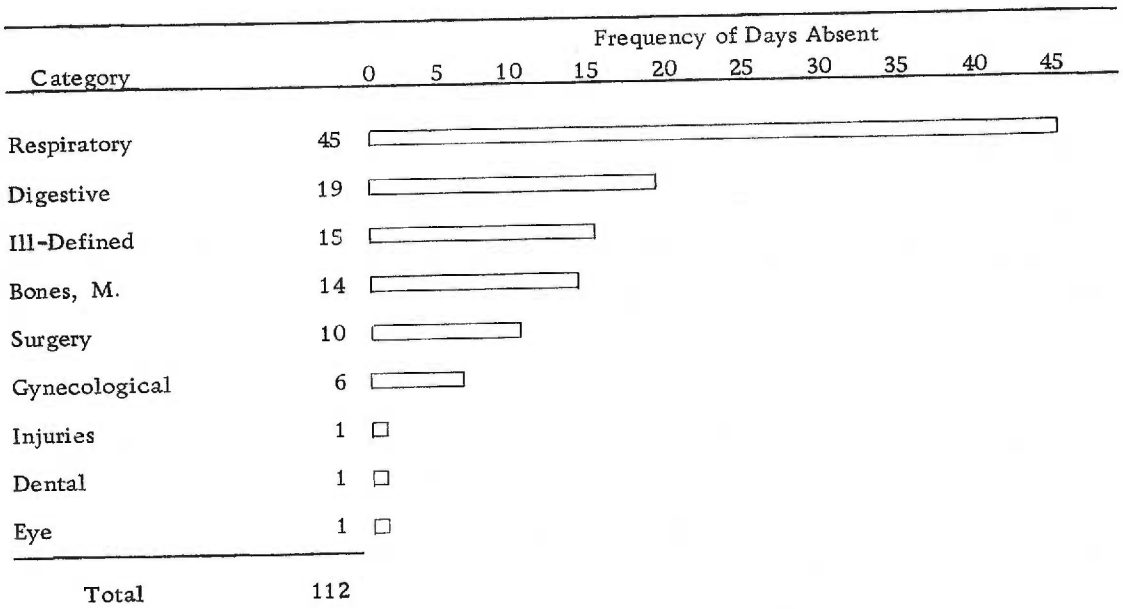


Figure 23. Frequency Distribution by Category for the Days Absent due to the Health Problems of 46 Students During the Pediatric Rotation

The specific health problems in the categories were identified. The respiratory category was comprised of many types of problems. Upper respiratory infections were the most common, but there were several episodes of sore throats and influenza. The only respiratory problem causing many apparent days absent was that of bronchitis. In only two categories, infectious diseases and allergies, were there no episodes. There were many types of digestive and ill-defined problems, with five unexplained absences. One injury, a needle prick, occurred during clinical practice. This type of injury could have occurred in any clinical area. The one episode of scabies might have been related to the clinical area, but was not so identified on the health record. The health problems are listed in Table 32.

Table 32. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students During the Pediatric Rotation

Specific Health Problems in Categories	E	A
(1)	(2)	(3)
Respiratory		
U. R. I.	15	16
Sore throat	11	11
Influenza	9	12
Tonsillitis	2	0
Laryngitis	1	2
Bronchitis	1	4
Digestive		
Nausea, vomiting	9	10
Nausea, vomiting, diarrhea	6	6
Diarrhea	3	1
Nausea	1	1
Pain	1	1
Ill-Defined		
Absent	5	5
Ill	2	2
Headache	2	2
Swollen glands	1	3
Reaction to "shots"	1	1
Malaise	1	1
Insomnia	1	1
Bones, Organs of Movement		
Low back pain	4	8
Muscle pain	1	3
Painful ankle	1	3
Painful foot	1	0
Gynecological		
Dysmenorrhea	3	5
Infection	2	1
Injuries		
Sprain	1	1
Multiple bruises (automobile accident)	1	0
Needle prick (o. d.)	1	0
Thumb	1	0
Eye		
Corneal abrasion	1	1
Conjunctivitis	1	0
Ear		
Wax	2	0
Skin		
Scabies	1	0
Surgery		
Tonsillectomy	1	10
Neoplasm		
Cystic mastitis	1	0
Genito-Urinary		
Pyelogram	1	0
Dental		
Toothache	1	1
Miscellaneous		
Anemia	1	0
Total	98	112

Again, no relationship can be established between these health problems and the course rotation within the scope of this study.

The rate of days absent was second highest during the obstetric rotation, although the episode rate ranked fourth. Ill-defined problems accounted for one third of the total episodes. Respiratory and digestive problems ranked second and third in frequency. These three categories accounted for 77 per cent of the total episodes. Although these three categories accounted for almost two thirds of the days absent, there were 21 days absent due to injuries. Single episodes in the categories of surgery, genito-urinary, and infectious diseases caused several days absent. The distributions are shown in Figures 24 and 25.

One half of the episodes in the ill-defined category were due to unexplained absences. The remaining number of episodes was distributed among the complaints that have been noted repeatedly during the other course rotations. These were: ill, headache, swollen glands, and malaise. In the respiratory category, upper respiratory infections caused the majority of episodes with less than one day absent per episode. Episodes of influenza, sore throats, and tonsillitis were all of short duration. In the digestive category, nausea, vomiting, and diarrhea caused an average of two days absent per episode. Other episodes in this category were distributed among varied complaints. Two episodes were for complaints of pain. Single

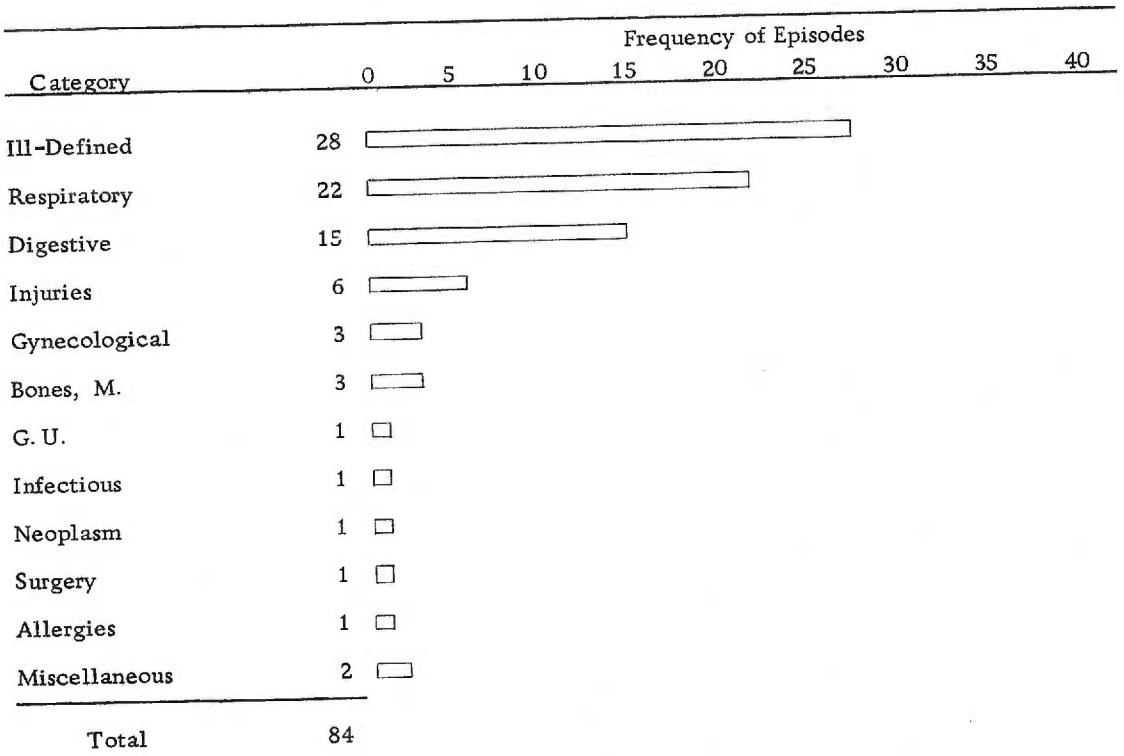


Figure 24. Frequency Distribution by Category for the Episodes of the Health Problems of 46 Students During the Obstetric Rotation

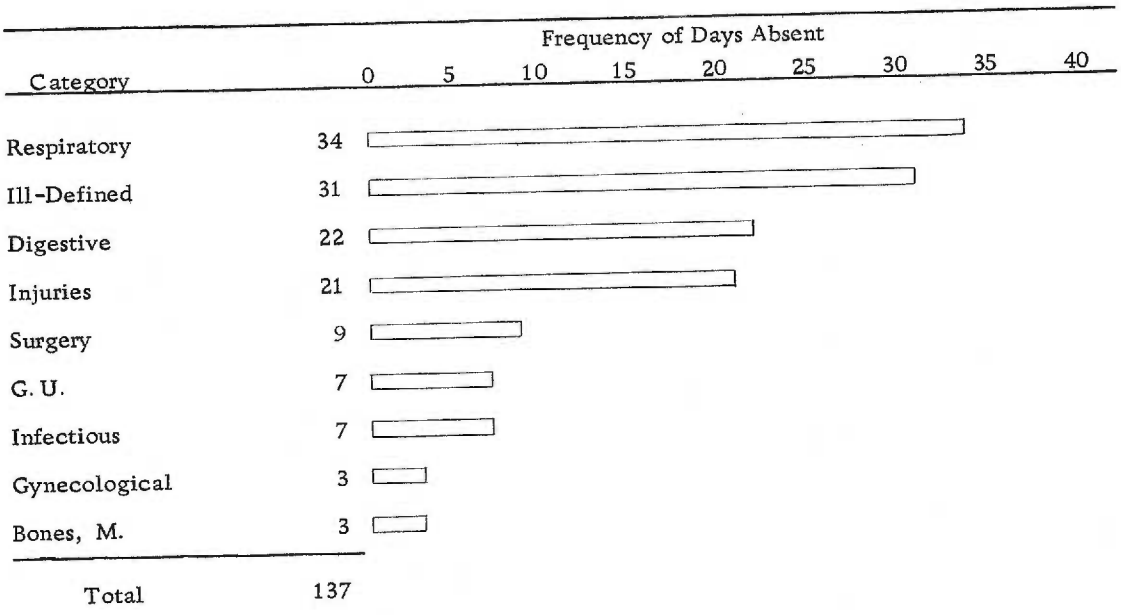


Figure 25. Frequency Distribution by Category for the Days Absent due to the Health Problems of 46 Students During the Obstetric Rotation

episodes of a lacerated knee, cystitis, rubella, and a tonsillectomy caused many of the days absent. One episode of back injury was caused by lifting a patient during clinical practice. The other injuries did not occur during clinical practice. None of these health problems could be established as being related to this particular rotation; the back injury could have occurred in any clinical area. These findings are shown in Table 33.

Although the operating room rotation ranked fourth in the rate of episodes and days absent, the specific health problems were identified because of the high incidence of injuries and days absent due to respiratory problems noted earlier in the comparison of the course rotations by category.

The health problems comprised a comparatively small number of categories. Respiratory problems accounted for 36 per cent of the episodes and 50 per cent of the days absent. Injuries ranked second in frequency of episodes and days absent, with digestive problems ranking third and ill-defined problems ranking fourth. The frequency distribution for the episodes and days absent are shown in Figures 26 and 27.

Table 33. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students During the Obstetric Rotation

Specific Health Problems in Categories	E	A
(1)	(2)	(3)
Ill-Defined		
Absent	13	15
Ill	5	6
Headache	4	4
Swollen glands	3	4
Malaise	3	2
Respiratory		
U. R. I.	11	15
Influenza	5	7
Sore throat	4	8
Tonsillitis	2	4
Digestive		
Nausea, vomiting, diarrhea	7	14
Nausea, vomiting	3	2
Nausea	2	3
Pain	2	2
Diarrhea	1	1
Injuries		
Multiple bruises (automobile accident)	2	0
Lacerated knee	1	17
Back, lifting patient	1	4
Strain, cervical	1	0
Sliver	1	0
Gynecological		
Dysmenorrhea	3	3
Bones, Organs of Movement		
Swollen extremities	2	2
Swollen feet	1	1
Genito-Urinary		
Cystitis	1	7
Infectious		
Rubella	1	7
Neoplasm		
Nevus, benign	1	0
Surgery		
Tonsillectomy	1	9
Allergies		
Rash, body	1	0
Miscellaneous		
Anemia	1	0
Thyroid Study	1	0
Total	84	137

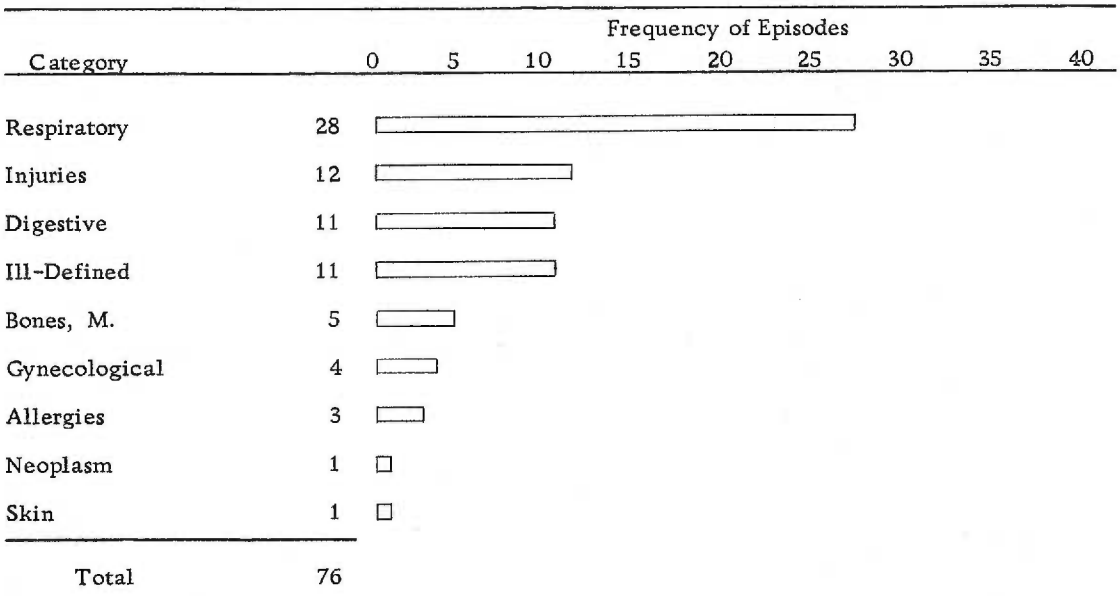


Figure 26. Frequency Distribution by Category for the Episodes of the Health Problems of 46 Students During the Operating Room Rotation

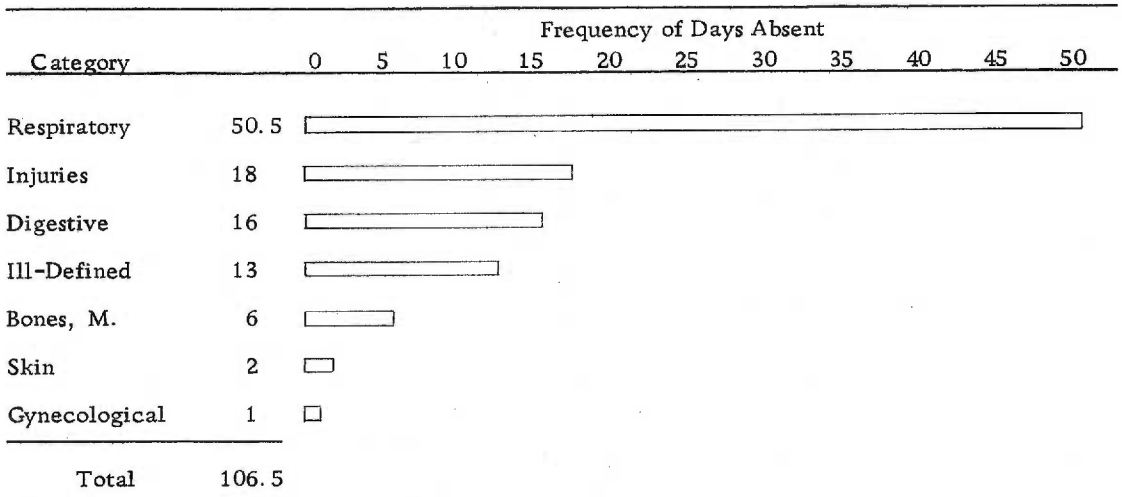


Figure 27. Frequency Distribution by Category for the Days Absent due to the Health Problems of 46 Students During the Operating Room Rotation

Upper respiratory infections accounted for one half of the respiratory problems. With the exception of sore throats and tonsillitis, the average episode caused more than one day of absence. Seven of the 12 injuries occurred during clinical practice. The four lacerations occurred during four different terms. One student accounted for the two episodes of back injury which resulted in 12 days absent. There was a time span between complaints of back pain relating to the one injury so that this had been counted as two episodes. This was the only injury during the clinical rotation causing any loss of time. The specific health problems are listed in Table 34.

Lacerations and burns might be expected to occure more frequently in the operating room because of the frequent handling of sharp instruments and the autoclaves. However, these injuries cannot be considered specific to this area because they could occur in other clinical areas.

Although few specific health problems were definitely attributable to the clinical areas, there was a different pattern in the distribution of the health problems in the categories in each of the areas that were analyzed. Repeated studies would be needed to establish these as differing significantly, rather than having occurred by chance among this one group of students.

Table 34. The Specific Health Problems in the Categories Causing the Episodes and Days Absent for 46 Students During the Operating Room Rotation

Specific Health Problems in Categories	E	A	Specific Health Problems in Categories	E	A
(1)	(2)	(3)	(1)	(2)	(3)
Respiratory			Bones, Organs of Movement		
U. R. I.	14	20	Low back pain	2	6
Influenza	6	22	Muscle pain	1	0
Sore throat	5	3.5	Swollen feet	1	0
Strep. throat	1	2	Swollen joint	1	0
Tonsillitis	1	1			
Laryngitis	1	2	Gynecological		
			Dysmenorrhea	2	1
Injuries			Infection	2	0
Laceration (o. d.)	4	0			
Knee	3	3	Allergies		
Back (lifting patient)	2	12	Hayfever	1	0
Toe	1	2	Rash, arm	1	0
Burn, hand (autoclave)	1	0	Rhinitis, sinusitis, bronchitis	1	0
Eye (automobile accident)	1	1			
			Neoplasm		
Digestive			Cystic mastitis	1	0
Nausea, vomiting, diarrhea	6	11			
Nausea	3	3	Skin		
Nausea, vomiting	2	2	Hand infection	1	2
			Total	76	106.5
Ill-Defined					
Absent	5	7			
Headache	4	3			
Malaise	1	2			
Insomnia	1	1			

Occurrences in the Clinical Areas

The seventh information collected was the health problems resulting from actual occurrences in the clinical areas. Fourteen of the total 854 episodes or 1.8 per cent of the health problems had been identified in the health records as being caused by actual incidents occurring during clinical practice. The only time lost was due to two back injuries causing 16 days absence, which was 1 per cent of the total 1,107.5 days absent. The findings are shown in Table 35.

Table 35. Frequency of the Episodes and Days Absent for the Specific Health Problems Occurring in the Clinical Area of the Course Rotations Among 46 Students During Three Years

Course Rotation	Specific Health Problems	E	A
(1)	(2)	(3)	(4)
Operating Room	Finger laceration	4	0
	Back injury, lifting patient	1	12
	Burn, from autoclave	1	0
Advanced Clinical Practice I	Finger laceration	1	0
	Needle puncture	1	0
Advanced Clinical Practice II	Corneal abrasion	1	0
Pediatric	Needle puncture	1	0
Obstetric	Back injury, lifting patient	1	4
Advanced Medical-Surgical	Finger laceration	1	0
Medical-Surgical I	Finger laceration	1	0
Pre-Clinical II	Arm injury, lifting patient	1	0
	Total	14	16

Six episodes in the operating room accounted for 43 per cent of these occurrences. There were occurrences in eight of the 12 course rotations. It was assumed that the one episode in the pre-clinical area caused from lifting a patient occurred during practice in the

laboratory. Table 36 shows the percentage distribution of occurrences in the eight clinical areas.

Table 36. Number and Per Cent Distribution by Course Rotation for the Episodes of Health Problems Occurring in the Clinical Area Among 46 Students During Three Years

Course Rotation	Number of Episodes	Per Cent of Total Occurrences in the Clinical Area
(1)	(2)	(3)
Operating Room	6	43
Advanced Clinical Practice I	2	15
Advanced Clinical Practice II	1	7
Pediatric	1	7
Obstetric	1	7
Advanced Medical-Surgical	1	7
Medical-Surgical I	1	7
Pre-Clinical II	1	7
Total	14	100

Grade Point Ratios in Relation to Absences

The eighth information collected was the grade point ratios and the number of days absent per student in the freshman, junior, and senior years, and during 12 terms. The grade point ratio is a description of the student's academic standing. For the purpose of this study, a grade point ratio below 2.00 was designated as low. The range from 2.00 to 3.00 was designated as medium. The range from 3.00 to 4.00 was designated as high.

The grade point ratios of the 46 students for the freshman year were ranked and placed in the groups mentioned earlier with the

number of days absent per student. In all three groups, there were students who had no days absent. In the low group, there were only two students with more than ten days absent; one of these students had 41 days absent. In the medium group, three students had more than ten days absent; two of these students had 30 and 27 days absent. The findings are shown in Table 37.

Table 37. Ranking of 46 Students' Grade Point Ratios in Relation to the Days Absent due to their Health Problems During the Freshman Year

Low Grade Point Ratio	Days Absent	Medium Grade Point Ratio	Days Absent	High Grade Point Ratio	Days Absent
N=16		N=24		N=6	
(1)	(2)	(3)	(4)	(5)	(6)
1.68	7	2.00	9	3.03	6
1.70	41	2.00	13	3.41	0
1.76	13	2.00	2.5	3.45	3
1.88	3	2.02	27	3.59	2
1.89	3	2.09	3	3.72	0
1.91	8	2.10	1	4.00	3
1.93	7.5	2.14	7	. . .	. . .
1.93	1	2.18	0	. . .	. . .
1.93	1	2.20	0	. . .	. . .
1.93	8	2.23	1	. . .	. . .
1.93	4	2.24	4.5	. . .	. . .
1.93	2	2.24	30	. . .	. . .
1.94	0	2.28	1	. . .	. . .
1.95	0	2.35	3.5	. . .	. . .
1.96	4.5	2.47	2.5	. . .	. . .
1.98	0	2.70	5	. . .	. . .
. . .	. . .	2.80	2	. . .	. . .
. . .	. . .	2.87	0	. . .	. . .
. . .	. . .	2.88	4	. . .	. . .
. . .	. . .	2.90	1.5	. . .	. . .
. . .	. . .	2.90	0	. . .	. . .
. . .	. . .	2.93	6	. . .	. . .
. . .	. . .	2.95	0.5	. . .	. . .
. . .	. . .	2.96	8	. . .	. . .

To test the null hypothesis that the number of days absent during the freshman year do not differ significantly between students with low, medium, and high grade point ratios, t-tests were calculated of the means of the three groups given in Table 38.

Table 38. Mean of the Days Absent due to Health Problems According to the Grade Point Ratio Grouping of 46 Students During the Freshman Year

Grade Point Ratio Grouping	Mean of Days Absent
(1)	(2)
Low, below 2.00	6.44
Medium, 2.00 to 3.00	5.50
High, 3.00 to 4.00	2.33

The means indicated that the students with low grade point ratios had a higher mean of days absent than in the other two groups, although the difference between the means for the groups with low and medium grade point ratios was quite small. When t-tests were done between the groups, the differences between the means were found to be not significant, as shown in Table 39. The null hypothesis was not disproved and must be accepted.

Table 39. Comparison of the Means of Days Absent due to Health Problems Between the Grade Point Ratio Groups for 46 Students During their Freshman Year

Groups Compared	Difference in Means	S.E. of Difference	t score	Degrees of Freedom	Probability Level
(1)	(2)	(3)	(4)	(5)	(6)
Low vs. High	4.11	2.44	1.68	20	N.S.
Medium vs. High	3.17	1.73	1.83	28	N.S.
Low vs. Medium	0.94	2.81	0.33	38	N.S.

Table 40. Ranking of 46 Students' Grade Point Ratios in Relation to the Days Absent due to their Health Problems During the Junior Year

Low Grade Point Ratio	Days Absent	Medium Grade Point Ratio	Days Absent	High Grade Point Ratio	Days Absent
N=2		N=31		N=13	
(1)	(2)	(3)	(4)	(5)	(6)
1.87	11	2.00	2	3.00	8
1.91	1.5	2.00	56	3.03	9
. . .	. . .	2.04	5	3.03	4
. . .	. . .	2.06	64	3.09	3
. . .	. . .	2.06	1	3.17	2
. . .	. . .	2.09	3	3.19	8
. . .	. . .	2.12	0	3.20	0
. . .	. . .	2.16	4	3.30	2
. . .	. . .	2.20	8	3.43	3
. . .	. . .	2.25	17	3.53	3
. . .	. . .	2.25	7	3.90	3
. . .	. . .	2.30	1	3.93	3
. . .	. . .	2.30	14.5	3.95	3
. . .	. . .	2.32	0	. . .	. . .
. . .	. . .	2.38	9	. . .	. . .
. . .	. . .	2.41	8	. . .	. . .
. . .	. . .	2.53	12	. . .	. . .
. . .	. . .	2.60	5	. . .	. . .
. . .	. . .	2.65	5.5	. . .	. . .
. . .	. . .	2.68	64.5	. . .	. . .
. . .	. . .	2.68	6	. . .	. . .
. . .	. . .	2.69	4	. . .	. . .
. . .	. . .	2.74	0	. . .	. . .
. . .	. . .	2.78	26.5	. . .	. . .
. . .	. . .	2.78	9	. . .	. . .
. . .	. . .	2.78	13	. . .	. . .
. . .	. . .	2.79	0	. . .	. . .
. . .	. . .	2.88	35	. . .	. . .
. . .	. . .	2.90	17	. . .	. . .
. . .	. . .	2.91	2	. . .	. . .
. . .	. . .	2.99	13	. . .	. . .

The grade point ratios were ranked in the designated groups with the number of days absent per student for the 46 students during their junior year. By this time, a student must have a grade point ratio of 2.00 to remain in school. The grade point ratios of the two students in the low group had nearly attained this ratio. There was great variation in the number of days absent in the medium group, ranging from 0-64.5. In the high group, the number of days absent ranged from 0-9. The findings are shown in Table 40.

Testing the null hypothesis that the number of days absent during the junior year do not differ significantly between students with low, medium, and high grade point ratios, t-tests were calculated of the means for the three groups given in Table 41.

Table 41. Mean of the Days Absent due to Health Problems According to the Grade Point Ratio Grouping of 46 Students During the Junior Year

Grade Point Ratio Grouping	Mean of Days Absent
(1)	(2)
Low, below 2.00	6.25
Medium, 2.00 to 3.00	13.29
High, 3.00 to 4.00	3.92

The mean of 13.29 for the medium group indicated that the students with medium grade point ratios had a higher mean of days absent than did students with low or high grade point ratios. However, these differences between the means of the groups were found

to be not significant as shown in Table 42. Again, the null hypothesis was accepted.

Table 42. Comparison of the Means of Days Absent due to Health Problems Between the Grade Point Ratio Groups for 46 Students During their Junior Year

Groups Compared	Difference in Means	S.E. of Difference	t score	Degrees of Freedom	Probability Level
(1)	(2)	(3)	(4)	(5)	(6)
Low vs. High	2.33	2.42	0.96	13	N.S.
Medium vs. High	9.37	5.02	1.87	42	N.S.
Low vs. Medium	7.04	12.88	0.55	31	N.S.

In the senior year, all of the students had grade point ratios of 2.00 or higher. When the grade point ratios were ranked in the two groups of medium and high with the number of days absent per student, it was found that the number of days absent ranged from 0-37 for the students with medium grade point ratios, and from 1-17 for the students with high grade point ratios. The findings are shown in Table 43.

The means of days absent for the two groups were determined to test the null hypothesis that the number of days absent during the senior year do not differ significantly between students with medium and high grade point ratios. The mean of 10.65 for the medium group indicated that the students with medium grade point ratios had a higher mean of days absent than did students with high grade point ratios as shown in Table 44.

Table 43. Ranking of 46 Students' Grade Point Ratios in Relation to the Days Absent due to their Health Problems During the Senior Year

Medium Grade Point Ratio	Days Absent	High Grade Point Ratio	Days Absent
N = 26		N = 20	
(1)	(2)	(3)	(4)
2.00	30.5	3.00	2
2.18	25	3.00	3.5
2.20	3	3.00	3
2.20	37	3.00	3.5
2.20	4	3.16	12
2.22	0	3.18	1
2.33	9	3.20	4
2.35	14	3.20	3
2.37	5	3.22	3
2.40	5	3.25	6
2.41	12	3.25	1
2.41	16	3.25	6
2.46	2	3.25	6
2.50	17.5	3.30	3
2.55	9	3.33	17
2.55	7	3.35	12
2.56	8	3.37	7.5
2.67	5	3.56	5.5
2.72	15	3.66	4
2.75	3	3.67	3
2.75	7	. . .	. . .
2.78	12	. . .	. . .
2.80	11	. . .	. . .
2.80	7	. . .	. . .
2.80	5	. . .	. . .
2.80	8	. . .	. . .

Table 44. Mean of the Days Absent due to Health Problems According to the Grade Point Ratio Grouping of 46 Students During the Senior Year

Grade Point Ratio Grouping	Mean of Days Absent
(1)	(2)
Medium, 2.00 to 3.00	10.65
High, 3.00 to 4.00	5.30

A significant difference between the means was found by t-test. The t-score of 2.52 (df 44) was found to be significant at the probability level of less than .02, but greater than the probability level of .01. The findings are shown in Table 45.

Table 45. Comparison of the Means of Days Absent due to Health Problems Between the Grade Point Ratio Groups for 46 Students During their Senior Year

Groups Compared	Difference in Means	S.E. of Difference	t score	Degrees of Freedom	Probability Level
(1)	(2)	(3)	(4)	(5)	(6)
Medium vs. High	5.35	2.12	2.52	44	$<.02$ $>.01$

Students with medium grade point ratios did have a significantly higher mean of days absent than students with high grade point ratios. The null hypothesis was rejected.

The students' final grade point ratios were ranked with the total number of days absent per student during 12 terms. The days absent for the students with medium grade point ratios ranged from 1-119.5. The days absent for the students with high grade point ratios ranged from 1.5-38. The findings are shown in Table 46.

Table 46. Ranking of 46 Students' Grade Point Ratios in Relation to the Total Days Absent due to their Health Problems During 12 Terms

Medium Grade Point Ratio	Days Absent	High Grade Point Ratio	Days Absent
N=36		N=10	
(1)	(2)	(3)	(4)
2.04	100.5	3.10	3
2.04	76	3.11	1.5
2.18	41	3.15	36.5
2.21	1	3.22	38
2.22	24	3.29	13.5
2.23	56	3.39	9
2.25	20	3.40	8
2.25	14	3.65	15
2.30	13.5	3.68	9
2.31	33	3.78	23
2.34	9	. . .	. . .
2.36	36	. . .	. . .
2.36	26.5	. . .	. . .
2.36	119.5	. . .	. . .
2.37	2	. . .	. . .
2.37	25.5	. . .	. . .
2.41	7	. . .	. . .
2.42	15	. . .	. . .
2.44	59	. . .	. . .
2.50	29.5	. . .	. . .
2.55	30.5	. . .	. . .
2.56	28	. . .	. . .
2.64	28.5	. . .	. . .
2.67	6	. . .	. . .
2.67	4	. . .	. . .
2.70	8	. . .	. . .
2.71	6	. . .	. . .
2.75	3	. . .	. . .
2.76	22	. . .	. . .
2.77	14	. . .	. . .
2.78	16.5	. . .	. . .
2.91	16.5	. . .	. . .
2.91	12	. . .	. . .
2.93	22	. . .	. . .
2.93	17	. . .	. . .
2.95	9	. . .	. . .

To test the null hypothesis that the number of days absent during 12 terms do not differ significantly between students with medium and high grade point ratios, the means of the two groups were determined as given in Table 47.

Table 47. Means of the Total Days Absent due to Health Problems According to the Grade Point Ratio Grouping of 46 Students at the Completion of 12 Terms

Grade Point Ratio Grouping	Mean of Days Absent
(1)	(2)
Medium, 2.00 to 3.00	26.41
High, 3.00 to 4.00	15.65

The mean of 26.41 for the medium group indicated that the students with medium grade point ratios had a higher mean of days absent than did the students with high grade point ratios. This difference was found to be not significant by t-test as shown in Table 48. The null hypothesis must be accepted.

Table 48. Comparison of the Means of the Total Days Absent due to Health Problems Between the Grade Point Ratio Groups for 46 Students at the Completion of 12 Terms

Groups Compared	Difference in Means	S.E. of Difference	t score	Degrees of Freedom	Probability Level
(1)	(2)	(3)	(4)	(5)	(6)
Medium vs. High	10.76	8.87	1.21	44	N.S

These findings revealed that only during the senior year was there a significant relationship between the student's academic standing and the amount of time lost from the nursing program. No

inferences could be made regarding the causative factor. Jacobson (20) found a significant difference between students with low and high grade point ratios in the junior year but no significant differences between groups in the senior year.

To gain some perspective of the possible effect of the health problems causing leaves of absence for three students, the total number of health problems and the resultant days absent during 12 terms, with the final grade point ratios for these students were examined individually. Students 1 and 2 were given leaves of absence to lose excessive weight. Student 3 was given a leave of absence to recover from pneumonia and a previous surgery.

Student 1 had very few health problems, with very little loss of time. Student 2 had slightly more than the average number of 15.5 episodes per student as shown in Table 8. The number of days absent approximated the mean of 26.41 for students with medium grade point ratios. Apparently, there was little or no relationship between excessive weight and the incidence of other health problems for these two students.

Student 3 had more than the average number of health problems, but had an average number of days absent for her grade point ratio group. All three students had a medium grade point ratio or a C average. The findings are shown in Table 49.

Table 49. Number of Episodes and Days Absent due to Health Problems During 12 Terms and the Final Grade Point Ratios for Three Students Given Leaves of Absence for Health Reasons

Student	Number of Episodes	Number of Days Absent	Final Grade Point Ratio
(1)	(2)	(3)	(4)
1	4	4	2.67
2	18	25.5	2.22
3	26	26.5	2.36

Health Insurance and Hospitalizations

The need of health insurance for students was emphasized by Butler (10) because medical expenses may be a financial burden and cause unwarranted worry for the student during an illness at a time when he has little or no income. Although health insurance was not required for the student nurses in this study, it had been recommended by the director in a letter to the parents. The ninth information collected was the number of students with health insurance. Fifty four per cent of the students had some type of health insurance. The type of insurance carried was not determined for this study. The findings are shown in Table 50.

Table 50. Number and Per Cent of 46 Students With or Without Some Type of Health Insurance

Health Insurance	Number of Students	Per Cent of Students
(1)	(2)	(3)
With	25	54
Without	21	46
Total	46	100

The tenth information collected was the identity of the specific health problems requiring hospitalization. Of the total 854 health problems, 28 or 3 per cent required hospitalization. The total number of days of actual hospitalization were not clearly identified on all of the health records. These episodes accounted for a great many of the days absent. The health problems are listed in Table 51.

Table 51. Episodes that Required Hospitalization Among 46 Students During 12 Terms*

Specific Health Problems in Categories (1)	E (2)	Specific Health Problems in Categories (1)	E (2)
Surgery		Digestive	
Tonsillectomy	3	Abdominal pain	2
Appendectomy	1	Nausea, vomiting, diarrhea	1
Appendectomy and mesenteric adenitis	1		
Oopherectomy	1	Bones, Organs of Movement	
Thyroidectomy	1	Low back pain	3
Infectious		Genito-Urinary	
Mononucleosis	2	Cystoscopy	1
Mononucleosis and hepatitis	1	Pyelogram	1
Possible mononucleosis	1	Injuries	
Rubella	1	Lacerated knee	1
Respiratory		Miscellaneous	
Strep. throat	1	Infected hand	1
Pneumonia	1	Laboratory tests	1
U. R. I.	1		
Viral infection	1	Total	28
Bronchitis	1		

*Actual time spent in the hospital was not indicated on all records.

The number of hospitalizations per student with and without health insurance was the eleventh information collected. Nine of the 21 students who were hospitalized had some type of health insurance. Among these nine students, one was hospitalized three time and two were hospitalized twice. Among the 12 students without health insurance, there were three students who were hospitalized twice. The findings are shown in Table 52.

Table 52. Number of Hospitalizations per Student With and Without Health Insurance

Number of Students	Health Insurance	Number of Hospitalizations
(1)	(2)	(3)
1	With	3
2	With	2
6	With	1
3	Without	2
9	Without	1

It was beyond the scope of this study to determine if any of these 21 students were obligated for any part of their hospitalization fee, or if their insurance covered any of these hospital expenses. These findings were indicative only of the number of students requiring hospitalization, and the possible financial burden to those without insurance.

Use of the Health Service

The use of the health service by these 46 students according to the type of care and the administrator of that care was the twelfth information collected. The students sought assistance for 87 per cent of their health problems. This was much greater than the 40 per cent reported by Jacobson (20) in one collegiate school of nursing; however, she also stated that their students were not required to report to the health service for minor ailments.

The nurse cared for 43 per cent of the health problems, while the physicians assigned to the students, or family physicians, were seen for 23 per cent of the health problems. Twenty-one per cent of the health problems were cared for in the emergency room by a physician because the health service was closed at the time of occurrence, or the health problem was of an emergency nature. Physicians administered care for 380 health problems, while 358 problems were cared for by the health nurse. This difference concurred with Wilder's findings. (38) The student health nurse administered 81 per cent of the preventive care measures.

There were 116 absences from clinical practice for which the students did not report to the health nurse, her assigned physician, or the emergency room; therefore, the administrator of care, if any, was unknown. The findings are shown in Table 53.

Table 53. Numerical and Per Cent Distribution for the Health Problems and Preventive Care of 46 Students During 12 Terms as to the Type of Administrator

Administrator	Number of Health Problems	Per Cent of Total Problems	Preventive Care	Per Cent of Preventive Care
(1)	(2)	(3)	(4)	(5)
Nurse	358	43	475	81
Physician	199	23	113	19
Emergency Room	181	21	. . .	. . .
Unknown	116	13	. . .	. . .
Total	854	100	588	100

A total of 1,326 visits were made either to the health service or a physician for therapeutic or preventive health care by these 46 students during 12 terms. Table 54 shows that 56 per cent of the visits were for therapeutic reasons. Wilder had reported almost twice as many visits for therapeutic reasons as for preventive measures. (38)

Table 54. Numerical and Per Cent Distribution of the Total Visits for Therapeutic and Preventive Health Care by 46 Students During 12 Terms

Type of Visit	Number of Visits	Per Cent of Visits
(1)	(2)	(3)
Therapeutic	738	56
Preventive	588	44
Total	1,326	100

Withdrawal for Health Reasons

The specific health problems of the two students who withdrew at the end of their second term for reasons of health was the final

information collected.

Student 1 had many problems related to the digestive system or an ill-defined system. Two upper gastro-intestinal X-ray series were done with negative findings. The student was taking thyroid tablets prescribed by her family physician for a weight problem when she was admitted to school. She had a total of 21 days absent.

Student 2 had several health problems related to an ill-defined system and only one digestive problem. Her four respiratory problems caused little loss of time. She had a total of six days absent.

It was noted on the health record that both of these students had personality problems in contact with patients and others. Leaves of absence had been recommended for these students to obtain help with interpersonal relationships. It was recommended that Student 2 have psychiatric help. The amount and type of counseling that these students had was not reported on the health records.

Both of these students maintained passing grade point ratios. Student 1 had a 2.59, and Student 2 had a 2.0 grade point ratio for the two terms.

These health records indicated that many factors other than their specific health problems entered into the students' decision to withdraw from school, giving health as a reason. The findings are shown in Table 55.

Table 55. The Episodes of the Specific Health Problems in Categories for Two Students Who Withdrew from School at the Completion of Two Terms for Reasons of Health

Specific Health Problems in Categories for Student 1	E	Specific Health Problems in Categories for Student 2	E
(1)	(2)	(3)	(4)
Digestive		Ill-Defined	
Vomiting	2	Fainting	1
Diarrhea	2	Dizzy	1
Pain	1	"Popping" in chest on respiration	2
Upper G. I. series (neg.)	2	Reaction to "shot"	1
Hospitalized for possible peptic ulcer	1	Respiratory	
Ill-Defined		U. R. I.	2
Itching	2	Influenza	1
Headache, dizzy	1	Sore throat	1
Weight fluctuation	1	Digestive	
Took overdose of thyroid tablets	1	Nausea, vomiting	1
Reaction to "shot"	1	Total	10
Gynecological			
No menses	1		
Pelvic examination	1		
Injuries			
Burn (in laboratory)	1		
Knee	1		
Respiratory			
Influenza	1		
Total	19		

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Study

This study was developed for the purpose of analyzing the health problems and resultant absences as they related to the curriculum and time of year among a selected group of students from admission through graduation in one diploma school of nursing. Described in the study were the effect of the health problems on the students in terms of number of episodes, resultant absences, and hospitalizations; the relationship of the students' grade point ratios to the number of absences; and students' utilization of the health service. Health problems of students who withdrew from school for reasons of health were identified. Health records and grade point ratios were the primary sources of the data.

The problems to be studied were identified by reviewing the literature and related studies, and through interviews with people knowledgeable in the student health field.

Permission to conduct the study was obtained from the advisor of the selected school. Permission was obtained by a personal request to use a modified form of the data-collection tool developed by Mrs. Sharon Wilder. (38)

Data were copied from the health records onto individual sheets for each student in the form of the complaint or disease in relation to the class year, school term, date of occurrence, and course rotation. In addition, information was obtained as to the types and administrator of the health care, and health insurance coverage.

A code was devised for transfer of the complaints or diseases in sixteen categories to master sheets for tabulation and statistical treatment of the data so that comparisons could be made and the following hypotheses could be tested:

1. Peak rates of health problems in relation to the course rotations are not significantly affected by the time of year or individual differences within the student groups.

2. The number of days absent during the freshman year do not differ significantly between students with low, medium, and high grade point ratios.

3. The number of days absent during the junior year do not differ significantly between students with low, medium, and high grade point ratios.

4. The number of days absent during the senior year do not differ significantly between students with medium and high grade point ratios.

5. The number of days absent during 12 terms do not differ significantly between students with medium and high grade point ratios.

The results of the tabulations and statistical tests are presented in Chapter III of this study. A summary of the findings follows:

1. Identification and comparison of the health problems by category.

a. Respiratory problems were the primary cause of illness in all three class years and occurred in a definite seasonal pattern with the lowest incidence in December and the highest incidence in March. Respiratory illnesses were, with few exceptions, of short duration.

b. Ill-defined and digestive problems were the second and third leading causes of episodes and days absent due to health problems, with very small differences in number between the two categories. The illnesses were of short duration.

(1) Ill-defined problems were the second leading cause of health problems during the freshman and senior years. They increased numerically with each succeeding class year, with greater deviations in the numbers between the course rotations than between the school terms, with the exception of the ninth term in the senior year.

(2) Digestive problems were the second leading cause of health problems during the junior year. They notably increased at the onset of the junior year with another slight increase in the senior year. There were greater deviations in the numbers between the course rotations than between the school terms.

c. Problems in the three categories of respiratory, ill-defined, and digestive diseases caused two thirds of the total episodes and days absent.

d. Single episodes in the categories of infectious diseases, surgery, injuries, and bones and organs of movement, caused many days absent.

e. Obesity caused the loss of one term for two students, the greatest loss of time from the nursing program for any single health problem.

2. Effect on the nursing program in terms of days absent.

Health problems caused a loss of 2 per cent of the total person days from the nursing program.

3. Peak periods and specific health problems.

a. The peak rates of episodes per 100 person days occurred during:

   (1) The senior year

   (2) The tenth, ninth, and sixth terms, in rank order

   (3) The months of May and July during the senior year

   (4) The course rotations of advanced clinical practice II, pediatrics, and advanced medical-surgical nursing, in rank order.

b. The hypothesis that peak rates of health problems in relation to the course rotations are not significantly affected by the time of year or individual differences within the groups was accepted.

c. The peak rates of days absent occurred during:

   (1) The junior year

   (2) The sixth, third, and tenth terms in rank order

   (3) The months of March and January of the junior year and January of the senior year, in rank order

   (4) The course rotations of advanced medical-surgical nursing, obstetrics, and pediatrics, in rank order.

d. Specific health problems in relation to the curriculum:

   (1) Of the 14 incidents causing health problems from actual occurrences in the clinical area, six occurred in the operating room.

   (2) No health problems could be related specifically to a particular course rotation by this type of study, but there were noticeable differences in the patterns of the distribution of the health problems among the categories in each of the course rotations that were analyzed.

4. Specific illnesses causing increased rates in episodes and days absent.

a. Increased rates of episodes were caused by multiple episodes in many categories, and usually in the three leading categories of respiratory, ill-defined, or digestive problems in varied rank orders.

b. Increased rates of absences were caused by multiple episodes in one or all of the three leading categories, usually in the respiratory category, plus the following:

(1) Infectious mononucleosis

(2) Infectious mononucleosis and hepatitis

(3) Surgery for various reasons

(4) Low back pain or injury

(5) A knee laceration

(6) Cystitis.

c. Infectious mononucleosis and hepatitis caused the most days absent for any episode.

5. Effect upon the students:

a. One fourth of the students accounted for 56 per cent of the days absent.

b. All students had some health problems, ranging from 2-60 with an interquartile range of 9-25.

c. All students missed some time from school, ranging from 1-119.5 days absent, with an interquartile range of 8.5-29.

d. The average number of health problems was five per year per student.

e. The hypothesis that the number of days absent during the freshman year do not differ significantly between students with low, medium, and high grade point ratios was accepted.

f. The hypothesis that the number of days absent during the junior year do not differ significantly between students with low, medium, and high grade point ratios was accepted.

g. The hypothesis that the number of days absent during the senior year do not differ significantly between students with medium and high grade point ratios was rejected. The mean of days absent for students with medium grade point ratios was significantly higher at the probability level of less than .02 than the mean of days absent for students with high grade point ratios.

h. The hypothesis that the number of days absent during 12 terms do not differ significantly between students with medium and high grade point ratios was accepted.

i. Twenty-one, or almost one half, of the students were hospitalized at some time during the three years. Some students had two and three hospitalizations; less than one half of the students who were hospitalized had some type of health insurance.

6. Use of the health service:

a. Students sought assistance from a physician or the health nurse for 87 per cent of their health problems.

b. The health nurse administered 81 per cent of the preventive health care.

c. Physicians cared for more therapeutic problems than did the health nurse.

d. Fifty-six per cent of the visits to the health service or physician were for therapeutic reasons.

7. Specific health problems of students withdrawing from school for reasons of health:

The health problems were of a digestive and ill-defined nature; leaves of absence had been recommended for the two students to obtain assistance for socio-psychological problems.

Conclusions

It is recognized that no wide-spread generalizations could be made from a study of this scope. However, the findings did merit a few conclusions pertinent largely to the setting in which the study was done.

1. The findings were not remarkedly different from those of other studies done in recent years. The seniors did seem to have more health problems than indicated for seniors in related studies. This slight difference could be ascribed to the four-term senior year in the school of this study in contrast to a three-term senior period in some of the other studies, or possibly to the longer intervals between vacations, which in some instances were six or seven terms, in contrast to vacation time at the end of each term and for the full summer term between the junior and senior years in some of the other studies.

2. With few exceptions, students had not had to interrupt their educational programs due to health problems. The records indicated few illnesses of any marked duration. There did seem to be some relationship between the rate of illness and some rotations, particularly during advanced clinical practice II, pediatrics, and advanced medical-surgical nursing; however, it is not known whether the nature of the clinical area or other factors contributed to the rate of illness. Further study does seem warranted in view of the number of rather ill-defined and digestive problems reported by students during some of the rotations.

3. Since this study was based on the health records of 48 students only, it may not represent findings of as much significance as a more extensive study. The limitations of the study deterred investigations of such questions as:

    a. Among the students who withdrew from the class of 1962-65 for reasons other than health, were there some physical and emotional problems that were not recognized? If such problems had been recognized and treated, could the withdrawal rate have been decreased?

b. Does the policy of "making up time" for time lost due to dysmenorrhea result in unreported health problems? Does this policy lead students to assume clinical assignments when they are not in optimum health? Does this action affect the nature of the care that the students give their patients?

Recommendations

Based on the findings and conclusions of this study, the following recommendations for further study were made:

1. A cost study be made of the student health service. Such a study might have implications for health fees, required insurance, and/or other health policies.

2. A study be made of students' attitudes toward "making up time" especially for dysmenorrhea.

3. A study be made to determine the causative factors of the increased rates of health problems among the students in relation to some course rotations.

4. A study be made of student utilization of health services in an attempt to identify unreported health problems.

5. In view of an increase in the size of the school, it is plausible to propose that the existing health program be reviewed by the faculty with the objective of refining or revising any policies which may have become out-dated and of establishing new policies consistent with current needs.

6. Repeated studies be done among several classes in this school to determine if there are significant differences in the patterns of the distribution of health problems in relation to the course rotations.

7. A thorough study be made of the ill-defined and digestive problems among the students in relation to the curriculum and time of year.

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APPENDICES

APPENDIX A

CORRESPONDENCE

Letter to the Director Requesting Permission to Study the Health Records

Dear

In partial fulfillment of requirements for a Master of Science degree at the University of Oregon School of Nursing, I am undertaking a study of health problems in a group of student nurses in a diploma school of nursing. I would like your permission to study the health records of the class of 1965. A self-addressed post card is enclosed for your convenience in indicating your willingness to have this study done.

Upon completion of the study, copies will be placed in the library at the University of Oregon Medical School.

Yours sincerely,

Benarda M. Rice

Benarda M. Rice is a regularly enrolled graduate student at the University of Oregon School of Nursing. Any assistance you can offer her will be greatly appreciated.

_____

Lucile Gregerson
Associate Professor
Thesis Adviser

Sample Postcard for Director's Reply

I am willing to have Benarda M. Rice do a study of health problems in a group of student nurses at _____ School of Nursing.

_____

Director of Nursing Education

APPENDIX B

INSTRUMENT FOR DATA-COLLECTION AND SAMPLE HEALTH RECORD

Health Ins. _____ Student Number _____

Age _____

Grade Pt. /R.	Year	Term	Clinical Service	Days Lost	Date	Complaint	RN	MD	R_x	P_x	Date

Cumulative Health Record

School of Nursing _____

Address _____

Date _____, 19____

A. General Information

1. Name in full _____
   Last name First name Middle name

2. Home address _____
   Number and street City Zone State

3. Date of entrance _____
   Month Day Year

4. Place of birth _____
   City State Country

   Date of birth _____ Age _____ Sex _____
   Month Day Year

5. Religious preference, if any _____ Nationality _____

6. Single _____ Married _____ Separated _____ Divorced _____ Widowed _____

7. In case of illness, notify _____

   Relationship _____ Telephone number _____

   Address _____
   Number and street City Zone State

B. Family Health Record

Member of Family	Year of Birth	Country of Birth	History of tuberculosis, mental or nervous disease, epilepsy, hypertension, heart disease, diabetes	If Deceased	
				Date of Death	Cause
Father					
Mother					
Brothers					
Sisters					

C. Personal Health Record (To be Compiled by Student or Health Director)

1. Diseases or Abnormal Conditions

Disease or Abnormal Condition	Check	Approximate Age	Disease or Abnormal Condition	Check	Approximate Age
Allergy			Infectious mononucleosis		
Asthma			Jaundice		
Drug			Malaria		
Eczema			Measles		
Hay fever			German measles		
Horse serum			Moles		
Urticaria			Kidney disease		
Other (specify)			Migraine		
			Mumps		
Birthmarks			Nervous disorders, including nervous breakdowns		
Bronchitis			Pleurisy		
Chickenpox			Pneumonia		
Chorea (St. Vitus' dance)			Poliomyelitis		
Convulsions			Rheumatic fever or rheumatism		
Diabetes			Scarlet fever		
Diphtheria			Skin conditions (specify)		
Ear diseases or infections					
Endocrine gland imbalance			Tonsillitis		
Thyroid			Tuberculosis		
Ovary			Typhoid fever		
Other (specify)			Undulant fever		
			Varicose veins		
Foot trouble—corns, etc.			Warts		
Grippe or influenza			Whooping cough		
Heart disease					
Hemorrhoids					
Hepatitis					

2. Operations and Injuries

Operation	Check	Approximate Age	Injuries	Approximate Age
Nasal			Injury due to accident (specify)	
Tonsillectomy				
Adenoidectomy				
Appendectomy			Other (specify)	
Other (specify)				

3. Immunization

Immunization	Check	Date	Immunization	Check	Date
Smallpox			Diphtheria		
Typhoid-Paratyphoid			Poliomyelitis		

4. General Health and Habits _____

Present general health _____ Appetite _____ Indigestion _____

Sleep: Usual time of retiring _____ Number of hours (average) _____ Insomnia _____

Usual exercise: Type _____ Frequency _____

Age smoking commenced _____ Cigarettes per day _____ Cups of coffee per day _____ Cups of tea _____

Take alcoholic beverage _____ Kind _____ How often _____

Menstrual periods: Age when started _____ Frequency of periods _____

Duration _____ Any pain _____ Incapacitating _____

Date of last dental examination _____ Frequency of examinations _____

Wear glasses: For reading _____ Constantly _____ Date of last eye examination _____

Do eyes give trouble _____ How _____

Color blind _____

Subject to:

Condition	Check	Condition	Check	Condition	Check
Backaches		Fainting		Shortness of breath	
Boils		Fatigue		Spitting of blood	
Colds		Fever		Swelling of ankles and feet	
Consciousness of heartbeat		Headache		Weight gain	
Constipation		Hoarseness		Weight loss	
Diarrhea		Nausea and vomiting			
Dizziness		Night sweats			
Emotional upsets		Nosebleeds			

Medications regularly used for:

Condition	List Medication	Condition	List Medication	Condition	List Medication
Allergies		Dysmenorrhea		Insomnia	
Blood dyscrasia				Nervous disorders	
Colds		Endocrine gland imbalance		Overweight	
Constipation				Underweight	
Cough		Headache			
Diabetes		Indigestion			

D. Medical Record

1. Medical Examination

Please indicate normal by check

Physical Status	First Examination		Subsequent Examinations					
			Second		Third		Fourth	
	Date		Date		Date		Date	
Physique								
Height and weight	Ht. Wt.		Ht. Wt.		Ht. Wt.		Ht. Wt.	
Nutrition								
Skin								
Posture								
Spine								
	R	L	R	L	R	L	R	L
Eyes: Vision (Snellen)								
Vision corrected (Snellen)								
Pupil reactions Light								
Distance								
Ocular movements								
Color vision								
Test used								
Ears: Discharge								
Hearing								
Throat: Tonsils								
Nose: Obstruction								
Discharge								
Sinuses								
Thyroid: Normal								
Enlarged								
Lymph nodes: Axillary								
Epitrochlear								
Inguinal								
Mouth: Gums								
Tongue								
Teeth								
Signature of Dentist								
Date								

Medical Examination, continued

Physical Status	First Examination	Subsequent Examinations		
		Second	Third	Fourth
Chest Shape				
Lungs Abnormal signs				
X-ray				
Breasts Right				
Left				
Heart Sounds				
Murmurs				
Rate and rhythm before and after exercise				
Blood pressure	Sys. Dias.	Sys. Dias.	Sys. Dias.	Sys. Dias.
Abdomen Organs or masses palpable				
Tenderness				
Scars				
Extremities Pallor				
Cyanosis				
Rubor				
Edema				
Varicose veins				
Feet				
Deformities				
Hemorrhoids				

Medical Examination, continued

Physical Status	First Examination	Subsequent Examinations		
		Second	Third	Fourth
Nervous system Reflexes				
Knee jerks	R L	R L	R L	R L
Other (specify)				
Tremors				
Remarks and recommendations				
Signature of School Physician				

2. Laboratory Findings

Urinalysis	Findings			
	Date	Date	Date	Date
Color				
Reaction				
Specific gravity				
Albumin				
Sugar				
Acetone				
Microscopic				
Other (specify)				

Blood Picture	Findings			
	Date	Date	Date	Date
Hemoglobin Gms				
Hematocrit %				
Red blood cells				
White blood cells				
Neutrophiles				
Lymphocytes				
Monocytes				
Eosinophiles				
Juveniles				

Blood Type _____ RH _____

3. Immunizations and Tests

Space is provided below to record the types of immunizations and/or tests given as part of the health program of the school. These might include blood serology, tuberculin and Schick tests, B.C.G., diphtheria and tetanus toxoids, poliomyelitis vaccine, etc.

Immunization or Test	Date and Dosage or Reaction	Date and Dosage or Reaction	Date and Dosage or Reaction	Date and Dosage or Reaction

4. Special Tests

Test	Date and/or Findings			
Basal metabolic rate				
Electrocardiogram				
Special blood studies				
Urinalysis (other than the annual one)				
Other				

5. Record of Special Examinations and Treatments

Write on this page results of examinations and treatments other than those administered in routine examinations.

E. Record of Illnesses, Injuries, or Other Health Conditions

1. Indispositions and Injuries Not Necessitating Absence from Class or Wards

Date	Condition	Date	Condition

2. Absence due to Illness or Other Health Reasons

Date Begun	Date Ended	Explanation	Diagnosis, Treatment, etc.

F. Consultations

G. Progress in Health Attitudes and Health Practices of Student as Noted during Program

First Year:

Second Year:

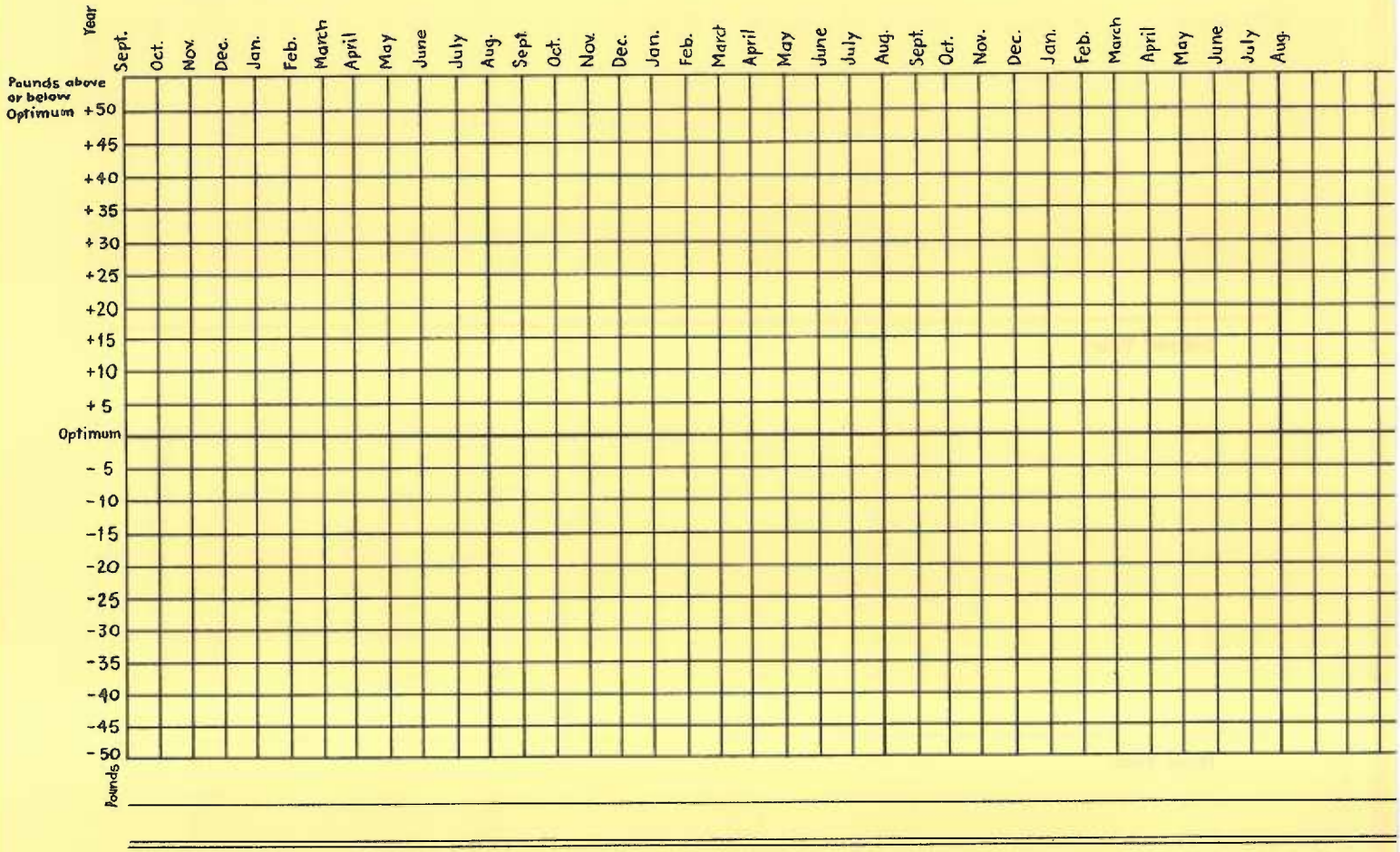
Third Year:

Fourth Year:

H. Weight Chart

Maximum weight_____ Minimum weight_____

Optimum weight_____



I. Statement by School Physician of Emotional and Physical Condition on Graduation

Date_____ Signature of school physician_____

Month Day Year

APPENDIX C

COMPILATION OF THE SPECIFIC HEALTH PROBLEMS BY CATEGORY AS TO THE NUMBER OF EPISODES AND DAYS ABSENT FOR 46 STUDENTS DURING 12 TERMS AND ONE TERM REPEATED BY FOUR STUDENTS

Specific Health Problems by Category	Episodes	Days Absent	Totals for Category Episodes	Days Absent
Respiratory			307	390.5
Upper respiratory infection	142	163		
Influenza	91	131.5		
Sore throat	54	61		
Tonsillitis	10	7		
Laryngitis	4	11		
Strep. throat	3	11		
Bronchitis	3	6		
Ill-Defined			147	149
Absent	59	64		
Headache	27	29.5		
Ill	15	16		
Malaise	12	12		
Swollen glands	9	10		
Insomnia	9	5		
Fainting	8	5.5		
Reaction to "shots"	4	4		
Emotional upset	2	1		
Vertigo, palpitation	1	1		
Face flushed, heart pounding	1	1		
Digestive			136	161
Nausea, vomiting, diarrhea	57	86		
Nausea, vomiting	31	32		
Pain	18	20		
Nausea	18	16		
Diarrhea	9	6		
Upper G.I. series	3	1		
Bones, Organs of Movement			52	83
Pain, back	14	60.5		
muscle	14	9		
foot	3	1.5		
ankle	1	3		
Swelling, feet	10	1		
joints	4	2		
Wry neck	5	6		
Numbness, thumb	1	0		

Specific Health Problems by Category	Episodes	Days Absent	Totals for Category Episodes	Days Absent
Injuries			45	57.5
Multiple bruises (automobile accident)	8	7		
Laceration	8	17		
Knee	6	5		
Sprain	3	5.5		
Back (lifting patient)	3	16		
Back (at home)	3	2		
Needle prick	2	0		
Strain, cervical	2	0		
Sliver, superficial	2	0		
Arm (lifting patient)	1	0		
Burn (autoclave)	1	1		
Eye (automobile accident)	1	1		
Nose, fractured	1	1		
Fall	1	0		
Head (hit)	1	0		
Toe	1	2		
Thumb	1	0		
Gynecological			42	22
Dysmenorrhea	22	21		
Infection	15	1		
Bartholin cyst	1	0		
Examination	4	0		
Skin			21	4
Infection	4	4		
Warts	4	0		
Contact dermatitis	4	0		
Abscess	4	0		
Bites	2	0		
Scabies	1	0		
Mole	1	0		
Papilloma	1	0		
Allergies			18	5
Rash	9	2		
Hayfever	5	2		
Rhinitis, sinusitis, bronchitis	1	0		
Hives	2	0		
Histamine headache	1	1		

Specific Health Problems by Category	Episodes	Days Absent	Totals for Category Episodes	Totals for Category Days Absent
Surgery			13	98
Tonsillectomy	3	19		
Excision of masses	3	6		
Appendectomy and mesenteric adenitis	1	35		
Oopherectomy	1	19		
Thyroidectomy	1	14		
Appendectomy	1	3		
Incision and Drainage of abscess	1	2		
Sigmoidoscopy	1	0		
Excision of finger growth	1	0		
Genito-Urinary			13	20
Cystitis	11	20		
Pyelogram	1	0		
Cystoscopy	1	0		
Dental			12	5
Toothache	6	5		
Gum disease (pre-existing)	6	0		
Eye			11	1.5
Pain	2	0.5		
Blurred vision	2	0		
Corneal abrasion	2	1		
Conjunctivitis	1	0		
Examination	4	0		
Ear			9	1
Earache	4	1		
Impacted cerumen	4	0		
Eustachian tube, plugged	1	0		
Neoplasms			8	0
Node, inferior pectoralis	3	0		
Cystic mastitis	2	0		
Nevus, benign	2	0		
Tissue mass	1	0		
Infectious			5	101
Mononucleosis	3	58		
Mononucleosis and hepatitis	1	36		
Rubella	1	7		

Specific Health Problems by Category	Episodes	Days Absent	Totals for Category Episodes	Totals for Category Days Absent
Miscellaneous			15	9
Anemia	3	0		
Thyroid study	3	0		
Endocrine study	2	0		
Laboratory test series	2	1		
Exposed to hepatitis	1	0		
No information	4	8		
Total During 12 Terms			854	1,107.5
Term Repeated by Four Students				
Respiratory			6	16
Upper respiratory infection	3	5		
Sore throat	2	0		
Pneumonia	1	11		
Digestive			2	2
Nausea, vomiting	1	1		
Nausea, vomiting, and diarrhea	1	1		
Allergies			1	0.5
Hayfever	1	0.5		
Total for Repeated Term			9	18.5

APPENDIX D

DISTRIBUTIONS OF THE EPISODES AND DAYS ABSENT AMONG 46 STUDENTS

Class Years and Total Three Years

Year	Number of Episodes	Number of Students
Freshman	0	4
	1	6
	2	3
	3	7
	5	4
	6	6
	7	5
	8	4
	9	3
	10	2
	18	1
	30	1
Junior	0	1
	1	5
	2	6
	3	5
	4	6
	5	4
	6	2
	7	2
	8	4
	9	1
	10	2
	11	1
	12	2
	13	2
	16	2
	26	1
Senior	1	1
	2	4
	3	7
	4	4
	5	5
	6	5
	7	2
	8	4
	10	4
Senior (continued)	11	1
	12	2
	13	1
	14	5
	16	1
Total Three	2	1
	3	1
	4	2
	5	1
	7	3
	8	2
	9	2
	12	4
	13	2
	14	2
	15	3
	16	3
	17	1
	19	2
	21	1
	22	1
	23	1
	24	1
	25	1
	26	3
	28	2
	29	1
	30	1
	34	1
	37	1
	42	1
	50	1
	60	1

Year	Number of Days Absent	Number of Students
Freshman	0	9
	0.5	1
	1	5
	1.5	1
	2	3
	2.5	2
	3	5
	3.5	1
	4	2
	4.5	2
	5	1
	6	2
	7	2
	7.5	1
	8	3
	9	1
	13	2
	27	1
	30	1
	41	1
Junior	0	5
	1	2
	1.5	1
	2	4
	3	7
	4	3
	5	2
	5.5	1
	6	1
	7	1
	8	4
	9	3
	11	1
	12	1
	13	2
	14.5	1
	17	2
	26.5	1
	35	1
	56	1
	64	1
	64.5	1
Senior	0	1
	1	2
	2	2
	3	7
Senior (continued)	3.5	2
	4	3
	5	4
	5.5	1
	6	3
	7	3
	7.5	1
	8	2
	9	2
	11	1
	12	4
	14	1
	15	1
	16	1
	17	1
	17.5	1
	25	1
	30.5	1
	37	1
Total Three	1	1
	1.5	1
	2	1
	3	2
	4	1
	6	2
	7	1
	8	2
	9	4
	12	1
	13.5	2
	14	2
	15	2
	16.5	2
	17	1
	20	1
	22	2
	23	1
	24	1
	24.5	1
	26.5	1
	28	1
	28.5	1
	29.5	1
	30.5	1

Year	Number of Days Absent	Number of Students
Total Three (continued)	33	1
	36	1
	36.5	1
	38	1
	41	1
	56	1
	59	1
	76	1
	100.5	1
	119.5	1

Course Rotations

Rotation	Number of Episodes	Number of Students
Pre-Clinical I	0	27
	1	13
	2	2
	3	2
	4	1
	6	1
Pre-Clinical II	0	16
	1	12
	2	10
	3	3
	4	1
	5	2
	6	1
	11	1
Medical-Surgical I	0	13
	1	13
	2	9
	3	7
	4	3
	8	1

Rotation	Number of Episodes	Number of Students
Medical-Surgical II	0	18
	1	7
	2	8
	3	6
	4	4
	5	2
	7	1
Medical-Surgical III	0	19
	1	14
	2	5
	3	4
	4	1
	8	3
Advanced Medical-Surgical	0	11
	1	15
	2	10
	3	4
	4	1
	5	2
	6	2
	10	1

Rotation	Number of Episodes	Number of Students
Advanced Clinical I	0	11
	1	17
	2	11
	3	2
	4	3
	5	2
Advanced Clinical II	0	14
	1	14
	2	5
	3	5
	4	5
	5	2
	10	1
Operating Room	0	14
	1	9
	2	12
	3	6
	4	3
	5	2
Obstetric	0	10
	1	12
	2	12
	3	6
	4	2
	5	2
	6	1
	7	1
Pediatric	0	5
	1	16
	2	10
	3	6
	4	3
	5	5
	7	1
Psychiatric	0	19
	1	13
	2	8
	3	2
	4	3
	5	1

Rotation	Number of Days Absent	Number of Students
Pre-Clinical I	0	38
	1	6
	2	2
Pre-Clinical II	0	24
	0.5	1
	1	10
	2	5
	3	2
	4	3
	8	1
Medical-Surgical I	0	20
	1	12
	0.5	1
	2	4
	3	3
	4	1
	6	1
	10	1
	17	1
	19	1
	38	1
Medical-Surgical II	0	22
	0.5	1
	1	5
	1.5	3
	2	4
	2.5	1
	3	2
	4	2
	4.5	1
	5	2
	6	2
	7	1
Medical-Surgical III	0	25
	0.5	1
	1	8
	1.5	1
	3	2
	4	1
	5	1
	6	3
	11.5	1
	13	1
	16	1
	17	1

Rotation	Number of Days Absent	Number of Students
Advanced Medical-Surgical	0	18
	0.5	1
	1	9
	2	5
	3	3
	4	1
	5	1
	6	1
	7	3
	13	1
	18	1
	38	1
	39.5	1
Advanced Clinical I	0	15
	1	13
	2	7
	2.5	1
	3	4
	4	3
	5	1
	8	1
	35	1
Advanced Clinical II	0	17
	1	11
	2	8
	3	3
	4	4
	5	1
	6	1
	10	1
Operating Room	0	15
	0.5	1
	1	13
	2	3
	3	6
	4	2
	5	2
	7	1
	10	1
	16	1
	18	1
Obstetric	0	14
	1	8
	2	7
	3	2
	4	3
	5	4
	6	2
	7	2
	8	1
	9	1
	15	1
	20	1
Pediatric	0	10
	1	12
	2	11
	3	3
	4	3
	6	2
	7	2
	9	1
	10	1
	12	1
Psychiatric	0	21
	0.5	1
	1	9
	1.5	3
	2	2
	2.5	1
	3	6
	5	1
	6	1
	6.5	1

APPENDIX E

INDIVIDUAL DATA

Rotation:	Pre-Clinical I			Pre-Clinical II			Medical-Surgical I		
Student Number	Term	E	A	Term	E	A	Term	E	A
1	1	1	1	2	0	0	3	2	1
2	1	0	0	2	2	3	3	1	10
3	1	0	0	2	2	2	3	1	1
4	1	3	2	2	3	2	3	2	4
5	1	0	0	2	2	0	3	0	0
6	1	2	1	2	1	1	3	1	1
7	1	0	0	2	1	0	3	1	0
8	1	0	0	2	1	1	3	1	1
9	1	2	1	2	2	1	3	1	1
10	1	0	0	2	5	3	3	0	0
11	1	1	0	2	0	0	3	2	1
12	1	0	0	2	0	0	3	0	0
13	1	1	0	2	4	4	3	0	0
14	1	0	0	2	1	0	3	0	0
15	1	0	0	2	0	0	3	0	0
16	1	0	0	2	1	0	3	3	6
17	1	0	0	2	0	0	3	0	0
18	1	3	1	2	6	4	3	4	2
19	1	1	0	2	0	0	3	1	1
20	1	0	0	2	0	0	3	1	0
21	1	0	0	2	2	1	3	2	2
22	1	0	0	2	0	0	3	2	1
23	1	4	0	2	2	0	3	0	0
24	1	6	2	2	11	8	3	8	17
25	1	1	0	2	1	1	3	3	38
26	1	1	0	2	3	1	3	2	3
27	1	0	0	2	0	0	3	0	0
28	1	0	0	2	0	0	3	4	3
29	1	1	0	2	3	1	3	2	19
30	1	1	1	2	1	0.5	3	3	1
31	1	0	0	2	0	0	3	1	1
32	1	0	0	2	2	4	3	1	0
33	1	0	0	2	2	2	3	4	2
34	1	1	0	2	1	0	3	1	2
35	1	1	0	2	2	2	3	3	3
36	1	0	0	2	1	1	3	3	1.5
37	1	0	0	2	1	1	3	0	0
38	1	0	0	2	0	0	3	0	0
39	1	0	0	2	5	2	3	3	0
40	1	1	1	2	0	0	3	0	0
41	1	0	0	2	0	0	3	3	0
42	1	0	0	2	0	0	3	1	1
43	1	0	0	2	0	0	3	0	0
44	1	0	0	2	1	0	3	2	0
45	1	1	0	2	1	0	3	1	0
46	1	1	0	2	2	1	3	2	1
Total . .		33	10		72	46.5		72	124.5

Rotation:	Medical-Surgical II			Medical-Surgical III			Advanced Medical-Surgical		
Student Number	Term	E	A	Term	E	A	Term	E	A
1	4	0	0	5	0	0	6	1	1
2	4	0	0	5	2	1.5	6	1	0
3	4	0	0	5	0	0	6	2	3
4	4	1	0	5	3	3	6	5	6
5	4	3	2.5	6	1	0	7	3	1
6	4	2	4	5	3	16	6	1	0
7	4	1	0	5	1	0	7	0	0
8	4	1	1	5	1	1	6	2	2
9	4	2	4.5	5	8	17	6	6	38
10	4	4	6	5	2	6	6	6	7
11	4	7	5	5	4	11.5	7	0	0
12	4	2	2	5	1	1	6	0	0
13	4	0	0	5	1	0	6	1	2
14	4	0	0	6	1	1	7	0	0
15	4	0	0	5	0	0	6	0	0
16	4	1	0	5	0	0	6	0	0
17	4	0	0	5	0	0	6	0	0
18	4	5	6	6	2	0	8	3	3
19	4	0	0	5	1	0	6	1	1
20	4	0	0	5	1	1	6	3	4
21	4	2	1.5	5	0	0	7	2	1
22	4	0	0	5	1	4	6	2	7
23	4	1	0.5	5	0	0	6	1	0
24	4	5	3	5	8	5	6	4	39.5
25	4	3	2	5	1	1	6	1	0
26	4	4	4	5	8	6	6	10	18
27	4	0	0	5	0	0	6	0	0
28	4	4	5	5	1	1	7	2	1
29	4	3	7	7	2	3	8	0	0
30	4	2	1	5	1	0	7	3	7
31	4	0	0	5	0	0	6	2	0
32	4	0	0	5	1	1	6	1	1
33	4	1	1	5	0	0	6	2	5
34	4	3	1	5	0	0	6	1	1
35	4	2	2	5	3	6	6	1	1
36	4	2	2	5	1	1	7	2	2
37	4	4	1.5	5	0	0	7	1	2
38	4	1	0	5	0	0	6	1	0
39	4	0	0	5	0	0	7	2	2
40	4	0	0	5	0	0	7	0	0
41	4	3	3	5	0	0	6	1	1
42	4	0	0	5	0	0	6	0	0
43	4	0	0	5	0	0	6	1	0
44	4	0	0	5	0	0	6	1	13
45	4	3	1.5	5	3	13	6	5	3
46	4	2	1	5	2	0.5	6	2	0.5
Total . .		74	68		64	99.5		83	173

Rotation:	Advanced Clinical Practice I			Advanced Clinical Practice II			Operating Room		
Student Number	Term	E	A	Term	E	A	Term	E	A
1	7	0	0	10	2	2	9	1	1
2	7	0	0	8	0	0	9	5	5
3	7	2	2.5	12	4	3	8	1	0
4	7	2	2	11	1	0	8	2	2
5	8	5	4	12	5	5	9	2	3
6	7	1	35	12	1	1	9	3	4
7	8	1	0	9	1	2	6	4	16
8	7	4	4	11	1	1	8	1	1
9	7	3	8	8	3	4	6	3	3
10	11	2	1	12	2	2	7	2	2
11	10	1	0	12	0	0	6	3	10
12	7	0	0	12	1	1	9	0	0
13	7	1	1	12	0	0	9	2	1
14	8	0	0	9	0	0	10	1	3
15	7	0	0	11	1	1	8	0	0
16	7	1	1	9	4	1	8	1	1
17	11	1	0	12	0	0	7	0	0
18	10	4	3	12	3	4	7	0	0
19	7	1	1	8	0	0	9	0	0
20	7	1	1	12	2	2	8	1	3
21	10	0	0	12	1	1	6	0	0
22	7	0	0	8	0	0	9	2	1
23	7	0	0	8	1	0	9	2	1
24	7	2	2	12	2	6	8	2	18
25	7	2	2	12	4	2	8	2	3
26	7	5	4	12	1	1	8	3	7
27	7	2	3	8	0	0	9	3	1
28	10	3	1	12	5	2	6	3	1
29	10	2	5	12	0	0	6	0	0
30	8	1	1	12	4	3	6	2	1
31	7	1	1	12	1	2	10	4	4
32	7	1	1	12	1	0	9	4	3
33	7	4	3	12	1	1	8	2	1
34	7	1	1	11	0	0	8	2	1
35	10	2	1	12	3	1	7	1	0.5
36	10	1	1	12	3	4	6	3	5
37	10	1	2	12	2	2	6	0	0
38	7	2	3	12	1	1	9	0	0
39	9	1	2	12	3	3	6	1	0
40	10	1	0	12	0	0	6	1	0
41	10	2	2	12	10	10	7	1	0
42	7	0	0	8	0	0	10	1	1
43	7	0	0	8	0	0	9	3	2
44	7	0	0	11	1	1	8	0	0
45	10	2	2	12	0	0	7	2	1
46	7	1	1	12	4	4	9	0	0
Total . .		67	101.5		79	73		76	106.5

Rotation:	Obstetric			Pediatric			Psychiatric		
Student Number	Term	E	A	Term	E	A	Term	E	A
1	11	1	0	8	1	1	12	0	0
2	11	1	1	10	2	4	12	2	1
3	9	3	2	11	0	0	10	0	0
4	12	2	0	9	5	7	10	0	0
5	10	4	20	12	1	3	11	4	2.5
6	11	1	0	8	4	2	10	1	0
7	10	0	0	11	5	4	12	1	0
8	12	1	1	9	1	1	10	0	0
9	11	2	6	10	7	12	12	1	3
10	9	7	8	8	2	2	10	2	1
11	8	2	5	11	3	1	9	1	3
12	10	1	1	8	2	2	11	1	1
13	10	0	0	8	1	0	11	2	1
14	11	1	1	12	1	1	12	0	0
15	12	0	0	9	1	1	10	0	0
16	10	3	2	11	4	2	12	1	0.5
17	9	1	1	8	2	2	10	0	0
18	9	5	5	12	2	2	11	5	3
19	11	0	0	10	2	3	12	0	0
20	9	2	2	10	2	2	11	2	1.5
21	8	0	0	11	1	1	9	3	1.5
22	11	3	9	10	2	1	12	3	6.5
23	11	0	0	10	1	0	12	0	0
24	10	3	4	9	5	9	11	4	6
25	10	2	2	9	3	2	11	2	3
26	9	6	7	10	3	3	11	4	5
27	11	1	1	10	1	10	12	0	0
28	8	2	2	11	1	0	9	1	1
29	11	0	0	12	1	0	9	2	1
30	9	2	3	11	4	6	10	2	2
31	11	0	0	8	2	6	9	1	1
32	11	3	15	10	0	0	12	1	1
33	9	4	5	11	1	2	10	0	0
34	12	1	1	9	0	0	10	1	2
35	8	5	7	11	5	7	9	0	0
36	8	2	4	11	3	4	9	1	3
37	8	2	6	11	5	2	9	0	0
38	10	2	3	8	1	1	11	0	0
39	8	1	2	11	0	0	10	1	1
40	9	0	0	11	0	0	9	0	0
41	8	2	2	11	3	2	9	1	3
42	12	1	1	9	1	1	11	0	0
43	11	1	0	10	2	1	12	0	0
44	12	3	5	9	1	1	10	0	0
45	9	0	0	8	3	0	11	2	1.5
46	10	2	4	8	1	1	11	0	0
Total . .		84	137		98	112		52	56

APPENDIX F

STATISTICAL FORMULAE

Analysis of Variance

$$F = \frac{S_b^2}{S_w^2}$$

$$S^2(\text{Total}) = \Sigma\Sigma X^2 - \frac{(\Sigma\Sigma X)^2}{N}$$

$$S^2(\text{within}) = \Sigma\Sigma X^2 - \Sigma\frac{(\Sigma X)^2}{m}$$

$$S^2(\text{between}) = \Sigma\frac{(\Sigma X)^2}{m} - \frac{(\Sigma\Sigma X)^2}{N}$$

t-test

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{s^2}{n_1} + \frac{s^2}{n_2}}} \qquad s = \frac{\Sigma (X - \bar{X})^2_1 + (X - \bar{X})^2_2}{n_1 + n_2 - 2}$$

Typed by Eula Weathers

AN ABSTRACT OF THE THESIS OF

Benarda M. Rice

for the Master of Science in Nursing

Date of receiving this degree: June 8, 1967

Title: A Study of Health Problems in a Selected Class of Diploma School Student Nurses 1962-65

APPROVED: [redacted]

Lucile Gregerson, Associate Professor
(in charge of Thesis)

THE PROBLEM

The health of a student figures importantly in the satisfaction that she earns from nursing, in the care that she gives her patients, and in the development of her personal qualities.

This study was an analysis of health problems and resultant absences as they related to the curriculum and time of year among a selected group of students from admission through graduation in one diploma school of nursing. Described in the study were the effect of the health problems on the students in terms of number of episodes, resultant absences, and hospitalizations; the relationship of the students' grade point ratios to the number of absences; and students' utilization of the health service. Health problems of students who withdrew from school for reasons of health were identified.

Health studies have been done elsewhere but not in this particular setting. The school policies require that time be made up for certain absences which may affect the number of reported illnesses, the absences, and the use of the health service. Health insurance was recommended but not required for the students in this study, although hospitalization was provided for a limited length of time for illnesses other than those incurred in the line of duty. The students were rotated in small groups for their nursing experiences so that

the health problems in relation to a course rotation occurred among the students at different times of the year.

DESCRIPTION OF THE PROCEDURE

The study was limited to those students who were admitted in 1962 and graduated in 1965, and to the students who were granted leaves of absence or withdrew from school for reasons of health, so that data concerning 48 of the 89 students admitted in 1962 comprised this study.

The health records and the grade point ratios were the primary sources of the data for analysis. A modified form of the tool developed by Mrs. Sharon Wilder was used for data-collection. Data were copied from the health records onto individual sheets for each student in the form of the complaint or disease in relation to the class year, school term, date of occurrence, and course rotation. In addition, information was obtained as to the types and administrator of the health care, and health insurance coverage.

A code was devised for transfer of the complaints or diseases in sixteen categories to master sheets for tabulation and statistical treatment of the data so that comparisons could be made and the hypotheses could be tested by analyses of variance and t-tests.

FINDINGS

The summarized findings were that only 2 per cent of the total person days of the nursing program were lost due to health problems. Respiratory infections caused one third of the health problems and occurred in a definite seasonal pattern, with the highest incidence in March and the lowest incidence in December. Ill-defined and digestive problems caused one third of the health problems. They increased in number in each successive class year, with greater deviations between the numbers in relation to the course rotations than to the school terms. Single episodes in the categories of infectious diseases, surgery, injuries, and bones and organs of movement caused many days absent. Because of a school policy, the greatest loss of time was due to obesity. Hepatitis and infectious mononucleosis caused the greatest loss of time for any single illness.

The hypothesis that peak rates of health problems in relation to the course rotations are not significantly affected by the time of year or individual differences among the students was accepted. The peak course rotations tested were advanced clinical practice II, pediatrics, and advanced medical-surgical nursing. Peak rates of days absent occurred during the course rotations of advanced medical-surgical nursing, obstetrics, and pediatrics. In each of these course rotations, there were different patterns in the

distribution of the health problems among the categories.

Students had more health problems during their senior year, although they missed more time from school during the junior year. The rates of illness and absence peaked in the winter terms of these years, and in the spring term of the freshman year. The average number of health problems was five per year per student. One fourth of the students accounted for 56 per cent of the total days absent, although all students missed some time from school, ranging from 1-119.5 days absent.

The hypothesis that the number of days absent during the freshman year do not differ significantly between students with low, medium, and high grade point ratios was accepted.

The hypothesis that the number of days absent during the junior year do not differ significantly between students with low, medium, and high grade point ratios was accepted.

The hypothesis that the number of days absent during the senior year do not differ significantly between students with medium and high grade point ratios was rejected. The mean of days absent for students with medium grade point ratios was significantly higher than the mean of days absent for students with high grade point ratios.

The hypothesis that the number of days absent during 12 terms do not differ significantly between students with medium and high grade point ratios was accepted.

Students utilized the health service for 87 per cent of their health problems. Almost one half of the students were hospitalized at some time during the three years, and of these students, less than one half had some type of health insurance.

According to the records, students who withdrew from school for reasons of health had problems that were more socio-psychological than physical in origin.

CONCLUSIONS

Although no wide-spread generalizations could be made from a study of this scope, the findings did merit a few conclusions pertinent largely to the setting in which the study was done.

1. The findings were not remarkedly different from those of other studies done in recent years. The seniors did seem to have more health problems than indicated for seniors in related studies. This slight difference could be ascribed to the four-term senior year in the school of this study in contrast to a three-term senior period in some of the other studies, or possibly to the longer intervals between vacations, which in some instances were six or seven terms, in contrast to vacation time at the end of each term and for the full summer term between the junior and senior years in some of the other studies.

2. With few exceptions, students had not had to interrupt their educational programs due to health problems. The records indicated few illnesses of any marked duration. There did seem to be some relationship between the rate of illness and some rotations, particularly during advanced clinical practice II, pediatrics, and advanced medical-surgical nursing; however, it is not known whether the nature of the clinical area or other factors contributed to the rate of illness. Further study does seem warranted in view of the

number of rather ill-defined and digestive problems reported by students during some of the rotations.

3. Since this study was based on the health records of 48 students only, it may not represent findings of as much significance as a more extensive study. The limitations of the study deterred investigations of such questions as:

   a. Among the students who withdrew from the class of 1962-65 for reasons other than health, were there some physical and emotional problems that were not recognized? If such problems had been recognized and treated, could the withdrawal rate have been decreased?

   b. Does the policy of "making up time" for time lost due to dysmenorrhea result in unreported health problems? Does this policy lead students to assume clinical assignments when they are not in optimum health? Does this action affect the nature of the care that the students give their patients?

Based on the findings and conclusions of this study, the following recommendations for further study were made:

1. A cost study be made of the student health service. Such a study might have implications for health fees, required insurance, and/or other health policies.

2. A study be made of students' attitudes toward "making up time" especially for dysmenorrhea.

3. A study be made to determine the causative factors of the increased rates of health problems among the students in relation to some course rotations.

4. A study be made of student utilization of health services in an attempt to identify unreported health problems.

5. In view of an increase in the size of the school, it is plausible to propose that the existing health program be reviewed by the faculty with the objective of refining or revising any policies which may have become out-dated and of establishing new policies consistent with current needs.

6. Repeated studies be done among several classes in this school to determine if there are significant differences in the patterns of the distribution of health problems in relation to the course rotations.

7. A thorough study be made of the ill-defined and digestive problems among the students in relation to the curriculum and time of year.