

AN ABSTRACT OF THE THESIS OF

TIMOTHY JOHN STANAWAY for the degree of DOCTOR OF EDUCATION

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STATE UNIVERSITY HEALTH SERVICES IN RELATION TO SELECTED

CHARACTERISTICS OF STUDENTS

Abstract approved:   
Dr. Morris LeMay

The purpose of this study was to identify some of the factors associated with student usage of the Student Health Services (SHS) and of the Infirmary at Oregon State University.

The population for the study was the freshman class entering Oregon State University in September, 1968. The original enrollment of this group was 3282 students--1830 males and 1452 females. The study covered a five year period to account for students who took five years to graduate or who were enrolled in five-year programs.

Nine student characteristics were used as variables: sex, college class, socio-economic level, SAT verbal and math scores, distance of permanent residence from campus (tested for Oregon residents only), state of residence, OSU college or school from which graduated, graduation versus non-graduation, change of major versus non-change of major. Each of these characteristics was tested to determine relationship to frequency of utilization of the SHS and

the Infirmary. The records from the Student Health Services, the Dean of Students Office, and the Office of the Registrar provided the data for the study. The staff determined the number of times each student in the sample used any of the SHS and the number of times each student used the Infirmary during each of the five years under study.

The Chi Square Test of Independence was used to determine the significance of the relationship between the selected student characteristics and the frequency of visits to the SHS and also to the Infirmary.

The following conclusions were drawn concerning overall usage:

1. By the end of the fifth year 91% of the students who graduated had made at least one visit to the SHS and 38% were admitted to the Infirmary at least one time.
2. Of those who did not graduate, 72% made use of the SHS during the time they were on campus and 20% were admitted to the Infirmary.
3. The average number of visits per year for the male graduates ranged from 2.55 to 3.42 while the average number of SHS visits per year for the female graduate ranged from 2.53 to 4.24.

Significant findings as to student characteristics associated with usage of the Student Health Services were as follows:

1. Females utilized the SHS more than males.
2. Freshman students utilized the SHS more than upperclassmen.
3. Female graduates who did not change majors utilized the SHS more than female graduates who changed majors.
4. Graduates from geographic areas outside the Corvallis area utilized the SHS more than the graduates from the Corvallis area.

Significant findings as to student characteristics associated with usage of the Infirmary were as follows:

1. Freshman students utilized the Infirmary more than upperclassmen.
2. Female graduates who were non-residents utilized the Infirmary more than female graduates who were residents of the State of Oregon.

Explanations concerning the results of the study are offered, and further research recommendations are proposed.

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UTILIZATION OF THE OREGON STATE UNIVERSITY  
HEALTH SERVICES IN RELATION TO SELECTED  
CHARACTERISTICS OF STUDENTS

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Timothy John Stanaway

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APPROVED:

*Morris L. May*

Professor of Education  
in charge of major

*Harley C. Williams*

Dean of School of Education

*Emory R. Castle*

Dean of Graduate School

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Typed by Rosalie R. Bean for Timothy John Stanaway

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A STUDY OF THE FREQUENCY OF UTILIZATION  
OF THE OREGON STATE UNIVERSITY HEALTH SERVICES IN RELATION  
TO SELECTED CHARACTERISTICS OF STUDENTS

I. INTRODUCTION

Health services are an auxiliary function performed by most colleges and universities, and the growth of these services at American institutions of higher education has been sporadic. The first colleges and universities established in America left health promotion to the students, who derived what they could from the gymnastic approach to physical development taught in physical education classes. By 1860 many institutions of higher education began a required program to improve student health. Various physical exercise programs had begun to appear in schools and colleges in the United States, and gymnastic programs and gymnasia became popular. In the early twentieth century, following an outbreak of some epidemics on campuses, the emphasis began to change from physical training to medical care. College and university health services have continued to grow in number and in the diversity of services offered. Today, institutions of higher education have expanded their concept of health service to include the student's physical, mental, and social well being. The type of service to be found on a campus will depend upon the needs of the students, the philosophy of the institution, and the availability of health services in the community.

The Student Health Service (SHS) at Oregon State University has been in existence since 1916. The original SHS was housed in a one room office in the Men's Gym with one physician and one registered nurse. As the enrollment increased at Oregon State University, so did the demand for health services. Today the SHS is an important part of the Student Services Program and is available to all registered students. The SHS, located in Plageman Hall, maintains a forty-two bed infirmary and has nine full-time physicians, seventeen registered nurses, a physical therapist, two pharmacists, two psychologists, a social worker, laboratory and x-ray technicians, and consultants in radiology, orthopedic surgery, and internal medicine. The SHS also maintains a Gynecology Clinic, a Cold Clinic, and an Allergy Clinic.

#### Statement of the Problem

Despite the rapid growth of the Oregon State University Health Services, extensive studies have not been conducted on the services provided to the students. Furthermore, although general investigations of the utilization of student health services have been conducted at other institutions, there are few reported studies that have been well controlled and directed at the long-term utilization of health facilities by students.

The primary mission of the Oregon State University Student Health Service is to maintain the health of the student population through immunization, preventive medicine procedures, education, and treatment of injury and illness. Since the staff of SHS wishes to

provide the best possible medical care for the Oregon State community, staff directors are interested in knowing which segments of the student population are most likely to use the health facilities and which segments are least likely. Utilizing the information provided in this study, the SHS can perhaps improve its services to all students.

#### Purpose of the Study

The purpose of this study was to test certain hypotheses concerning the characteristics of students who used the Oregon State University Student Health Services. The analysis of the relationship that existed between student use of the health services and academic, cognitive, and socio-economic background factors was central to this investigation. In addition, the study attempted to provide information concerning possible needs for medical education programs and the means to understand the health needs of the students.

#### Importance of the Study

Institutions of higher education are assuming responsibility for more aspects of student welfare than intellectual development alone. Additional services, such as the health services, make it possible for students to receive help in overcoming physical problems that may be hindering their academic progress. The college community as reflected at Oregon State University is a useful setting for the study of student health service utilization. The population

is relatively stable, identifiable, knowledgable and resourceful. The health care facility is readily accessible with a comprehensive range of services which includes well documented, reasonably objective medical records and reports.

Student health services today have provided minimal research on the actual use of the services by students. Even less is known about the relationship between student characteristics and their use of the health services over an extended period of time. Research involving students who are using the student health services, as well as those who are not, can enable administrators to evaluate more fully their programs and determine the extent to which they are meeting stated goals.

College and university administrators need to know how much and in what ways the objectives of the student health services relate to the overall goals of the institution. It is important to know if the student health services program complements the educative mission of the college.

The administrators of the health services have an interest in meeting the needs of the students, so that information about student utilization of the health center can help determine the types of services needed. It is also essential to know what students are not using the health services and to be able to determine ways of reaching these students. The data serve a descriptive purpose, giving information on the number of students using the health services and the changing patterns of usage as the students progressed from

one school year to the next. Increased knowledge of the health service programs can lead to better educated students who are willing to participate in community health concerns after they leave the university.

Since student health services are frequently financed through incidental fees assessed the students, it is important that the student fees committee be able to determine to what extent the students use the health services. This would enable the committee to determine if additional funds are needed or if funds for the health service need to be reduced.

Research and evaluation is a basic component of any effective student personnel program. Increased knowledge of students and the effectiveness of programs will enable student personnel administrators to improve their services to students and gain support for their programs.

#### Limitations of the Study

Although this study analyzes student use of the health services at Oregon State University, the study is limited to one five-year period. The study deals with all students in the "class of 1972"--the students who entered OSU in the Fall of 1968 as freshmen directly from high school. Transfer students were not included. The study covered a five-year period from September 1968 to June 1973. A five-year period was used because research has shown that large numbers of OSU students require more than four years to



graduate. In addition, OSU offers several programs that require five years to complete.

Information concerning student use of the community hospital and visits to private physicians in the community was not included in the study. In addition, the study was limited to information on a total group and therefore did not consider any individual differences that could account for a student's use or non-use of the health services.

While certain variables were controlled in the comparison of the groups (i.e., sex, socio-economic level, residence, distance of home to college, college class, academic major, changing major, graduation versus non-graduation and scholastic aptitude) other potentially important factors relating to health problems were not considered. Because this research involved events which had already occurred, there was no control over the variables to permit the conclusive interpretation of a cause and effect relationship between student characteristics and utilization of the health services.

The study did not attempt to determine what medical problems brought the students to the health services, but it does distinguish those who used the infirmary from those who were outpatients.

Conclusions are based on an investigation of one class of students at one state university over a five-year period. Replications of this study at other institutions would demonstrate the extent to which valid generalizations can be made.

### Hypotheses

Eighteen null hypotheses relating to selected student characteristics and use of the student health services were tested in this study. For purposes of clarity, the hypotheses have been organized into two primary groups. Listed first are nine hypotheses dealing with significant differences in selected student characteristics and use of the Student Health Services. Listed second are an additional nine hypotheses dealing with significant differences in selected student characteristics and use of the Infirmary.

1. There are no significant differences in the frequency of utilization of the SHS facility by male and female students.
2. There are no significant differences in the frequency of utilization of the SHS facility by students who graduated from OSU and students who did not graduate from OSU.
3. There are no significant differences in the rate of utilization of the SHS facility by students as Freshmen, Sophomores, Juniors, Seniors and Fifth Year.
4. There are no significant differences in the SHS utilization rates of the students who graduated in each of the nine OSU Schools and Colleges.
5. There are no significant differences in the utilization of the SHS by the graduates who changed majors while at OSU and those who did not change majors.

6. There are no significant differences in the utilization of the SHS by graduates who have low SAT-Verbal and Mathematics scores and those who have high scores.
7. There are no significant differences in the SHS utilization rates of the graduates who are grouped into estimated socio-economic level categories of Low, Middle, and High.
8. There are no significant differences in the utilization of the SHS by the graduates who are residents of the state of Oregon and those who are not residents.
9. There are no significant differences in the utilization of the SHS by Corvallis area residents and residents from other geographic areas in Oregon.
10. There are no significant differences in the frequency of utilization of the Infirmary by male and female students.
11. There are no significant differences in the frequency of utilization of the Infirmary by students who graduated from OSU and students who did not graduate from OSU.
12. There are no significant differences in the rate of utilization of the Infirmary by students as Freshmen, Sophomores, Juniors, Seniors, and Fifth Year.
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16. There are no significant differences in the Infirmary utilization rates of the graduates who are grouped into estimated socio-economic level categories of Low, Middle, and High.
17. There are no significant differences in the utilization of the Infirmary by the graduates who are residents of the state of Oregon and those who are not residents.
18. There are no significant differences in the utilization of the Infirmary by Corvallis area residents and residents from other geographic areas in Oregon.

#### Definition of Terms

Oregon State University Oregon State University (OSU), one of three state universities, is located in Corvallis. A land-grant institution, it emphasizes programs in agriculture, science, and technical fields and has approximately 15,000 students.

Class of 1972 In the Fall of 1968, a total of 1830 males and 1452 females entered OSU as first term freshmen directly from high school and were selected as subjects for this study.

Student Health Services All programs and activities which the University supports and directs or coordinates or cooperates with, and which are used to meet the health needs of the community for which the institution has assumed responsibility.

Student Utilization The number of visits each student made to the Student Health Services for diagnosis, treatment, or follow-up purposes. This includes the number of visits to the infirmary plus the number of visits as an outpatient.

Utilization of Infirmary Visit to the health services when illness required a student to spend one or more nights in the infirmary.

Family Socio-Economic Level For the purpose of this study, the socio-economic position was estimated by the use of a modified version of the Hollingshead Index of Social Position.

Geographical Areas For purposes of comparison the state of Oregon was divided into four geographical areas: 1) Corvallis area; 2) Willamette Valley which included Salem and Eugene areas; 3) Portland area; 4) Southern, Eastern, Central, and the Coast.

Scholastic Aptitude Test The Scholastic Aptitude Test (SAT) is purported to measure the basic verbal and mathematical abilities that a student has acquired over many years both in and out of school and to test ability to reason rather than to remember facts. For the purpose of this study the SAT-V and the SAT-M were used and scores divided into thirds: Lower Third (200-470); Middle Third (471-555); and Upper Third (556-800).

Significant Difference Differences between group scores will be defined as significant if  $p < .05$ .

## II. REVIEW OF RELATED LITERATURE

This review of literature is designed to provide a brief overview of the works pertaining to health services offered by institutions of higher education and the use of these services by the students. Little attention has been given to the extent of use and/or non-use of the health service programs studied. The review reveals surprisingly few investigations concerned with longitudinal studies of the use of the health services by students.

The review of the literature has been divided into three sections. The first section deals with student use of institutional health services as determined by medical records. The second section deals with attitudes of students toward utilization of health services. These studies collected information by means of questionnaires sent to the students or given to them at the time they visited the health services. The third section is concerned with the use of medical services by the general public. This section is included to determine if the use of the health services on campuses are in accord with the use of the health services available to the public. The review of the literature indicates more research has been conducted through the use of questionnaires than through the use of medical records.

Student Utilization of  
University Health Services

Weiner (1973) identified some of the characteristics of the students who used the health services at Northern Illinois University. He tested sixteen variables for male students and seventeen variables for female students. The results showed that for male students six variables were statistically significant in producing high usage of the health services: a) oldest born; b) low American College Test scores; c) dependency upon family for financial support; d) fathers in poor health or deceased; e) fathers in white collar occupations; f) mothers better educated than fathers. Seven variables among the females were statistically significant in producing high usage of health services: a) high number of extra-curricular activities in high school; b) low high school graduation rank; c) high number of physical problems; d) high number of allergies; e) high number of menstrual difficulties; f) fathers in blue collar occupations; g) fathers better educated than mothers. The sample group of students made an average of 1.02 visits per semester and by the end of their fourth year all but sixteen percent of the sample had visited the health service.

Another study of student utilization of a university health clinic, conducted by Gold (1973) at Dalhousie University in Nova Scotia, produced different kinds of statistics. The results showed that female students visited the center slightly more than males,



but not significantly so. Students from families with an income below \$5,000 and those from families with incomes over \$10,000 visited more often than others. Students living in residence halls visited significantly more than any other group while those living with relatives or in a fraternity house visited the least. The farther from campus the student's home was, the more likely he was to visit the clinic. Students between the ages of 19 and 20 visited the clinic more frequently than did those in other age brackets. The study reported that eighty percent of the students visited the student health clinic during the three years under investigation.

Factors that influenced the use of the Ohio State University Health Services were studied by Solleder (1961). The results showed the greatest percentage of users were in the following categories: freshmen, women, single students, students living in dormitories or fraternity or sorority houses, and residents of a city within 120 miles of the campus. In addition, the study indicated that graduate students and students enrolled in the colleges of Engineering, Dentistry, and Law made the fewest visits to the health services. Students enrolled in the colleges of Arts and Sciences used the services more than students enrolled in the other colleges. A combined College of Commerce and the College of Agriculture were in the next two places. However, the investigator felt that the differences apparently related to the college of enrollment were actually sex differences caused by the sex distribution of the enrollment in particular colleges. More than fifty percent of

the students sampled utilized the health services and facilities.

LeMay and Gibson (1974) reported the use of student health services at Oregon State University by samples of full-time graduate and undergraduate students. Females used the health services more than males and higher percentages of the students in the undergraduate samples used the student health services than did the students in the graduate samples. Among the graduate students the percent of full-time Graduate Assistants who used the health services was found to be higher than that of the regular graduate students and almost identical to the percentage for the full-time undergraduate students.

White (1964) reported the frequency of student use of the health center at the University of North Carolina. One of the purposes of the study was to determine the relationship between student academic achievement and frequency of use of the medical services. The results of the study showed no significant relationship between use of the medical services and academic achievement.

A study conducted over a four year period at Washington State University by Breeding (1971) revealed that freshmen male students utilized the services of the student health center more frequently and required more medical treatment than did the freshmen women students. The results indicated that the number of visits made by women increased each year, while male visits dropped from an average of 6.0 per person as freshmen to 1.4 times per person as

seniors. The average number of health service visitations for women was 8.8 for a total of four years and the average number of visitations for men was 11.1 for all four years.

Erickson (1972) studied the use of the student health center at the University of Northern Colorado. The results indicated freshmen and sophomore utilization of the health center was high and graduate student utilization was low. The study also found females used the health services more than males. Approximately fifty percent of the students used the health services.

Piccard and Cable (1970) investigated how an increase in enrollment at the University of Missouri would affect the use of the Student Health Center. The study covered the use of the Health Center from July, 1962 through June 20, 1968, during which time the enrollment grew from 14,052 to 19,407. The study showed the increase in enrollment did not significantly change the proportional use of the Health Center. Use of the health service by sex did not change significantly over the five year period. Approximately 63 percent of the student population used the health service. The females used the medical category of the health services at a significantly higher rate than the males; there were no significant differences in use between males and females for the surgical and orthopedical categories.

Klotz (1972), at San Fernando Valley State College in California, studied the effect on student use of the college health center when the health service was moved off-campus. After an initial

drop in daily visits following the move, the utilization by students rose within three months to the same level as before and continued to reflect the increase in enrollment. The only decrease noted was in the number of visits for minor complaints.

Data from Cornell University reported by Summerskill (1967) indicated that more than ninety percent of the student body sought medical attention during the four-year college stay and forty-two percent were hospitalized at least briefly. The Cornell study attempted to determine if students who withdrew from the university or who were failing academically had a higher percentage of medical problems than did the student population as a whole. Summerskill's data showed no significant differences among withdrawals, academic failures, and other students with reference to deviations in medical histories, chronic disorders found in pre-entrance physical examinations, physique ratings by physicians, number of clinic visits at colleges, and incidence of most common medical complaints at college.

Two studies on illness behavior and academic performance were conducted by Lewis (1966) at the University of Kansas Medical Center. The first study analyzed the use of the health services by medical students. The results showed students in the "average academic achievement" group had a significantly lower rate of visitation than those classified as above average or below average. Second year students exhibited a significant increase in frequency of visits when compared to the first year. The rate of utilization

decreased slightly the third year and dropped off to a rather low level during the fourth year. The average number of visits for medical students per year was 6.7, while the average number of visits per year for all of the students was 7.7.

In his second study Lewis reviewed the health records of nursing students at the University of Kansas Medical Center. Using grade point average as a measure of academic performance, he did not find any statistical significance between academic performance and use of the health services. The study also indicated there was no difference between junior and senior student nurses in their rate of utilization of the health service.

Chilton (1972) investigated the health practices of a selected group of college students at the University of Tennessee and explored the possibility that these health practices affected the students' level of academic achievement. He found no significant correlation between health utilization and academic achievement. The mean grade point average for students who reported they were in good health was higher than the mean grade point average for students of poor health.

#### Attitudes of Students Toward

#### Utilization of Student Health Services

The second section of this review of the literature deals with those studies that collected data through use of questionnaires which asked students if they used university health services

and which surveyed student attitudes about the services provided. These studies did not review the actual medical records to determine student usage of the health services.

A study conducted by Lopater (1972) at the University of Illinois analyzed student views of the University Health Services. Lopater surveyed the entire student body concerning the health services and also gave a questionnaire to those students seen as outpatients by health service physicians. The results showed students who used the service rated it as good while those who had only heard about the service from their peers rated it as bad. Twenty-two percent of the students reported they would consult a private physician rather than seek aid at the health service. Almost twenty-four percent of the students had not utilized the health services.

Storrs (1972) surveyed the attitudes of students at Alabama State University concerning utilization of the University Health Center. She found students' perception of the need for the health service is based on socio-economic background as well as family ability to pay for health services. Eighty-three percent of those surveyed came from families who earned less than \$9,000 and over 50 percent of these students said they would try self-medication before they would go to the health services. The study also revealed that freshmen and sophomores reported they would use the health services more than upperclassmen.

The utilization of the Student Health Center at the University of Texas and student attitudes toward it were reported by Franklin and McLeMore (1968). The study indicated that although students would go to the health service before they would go to a private physician, the tendency to seek outside help for medical problems increased with length of enrollment. Over a period of time females had a tendency to develop a less favorable attitude than males toward the health service. Socio-economic status, political ideology, autonomy, and grade point average were not found to be associated with attitudes toward or utilization of the health services.

A similar study was conducted at the University of Kentucky by Burke (1974). He sent a questionnaire to five percent of the students enrolled at the University in the fall of 1969. His results showed a greater utilization of the health services by females. The proportion of students with positive attitudes who visited the health services was greater than the proportion with negative attitudes. The study found no significant association between the type of service used and possession of health insurance, knowledge concerning health services, residence during school term, distance from the health services, and sex. He also found that medical need is the most important factor in the use of the health services, while attitude appeared to be the second most important factor.

A survey of ten percent of the Harvard undergraduates was conducted by King (1973) during the spring term 1971. The purpose of the study was to determine the attitudes held by students regarding the student health services at Harvard. There was no significant difference found in the utilization of the health services among the sexes, among the four classes, or among students in various fields of study. Seventy-five percent of the students reported at least one visit to the health services during the semester preceeding the survey and the average number of visits was 1.95.

The utilization of the health services at Otterbein College was studied by Day (1968) by means of a questionnaire sent to all students enrolled in the college during the 1966-1967 academic year. The results of the study showed that 85.4 percent of the students reported using the health services for an average of 5.2 visits per person. Day also analyzed the use of the infirmary and found thirty-eight percent of the students used the infirmary for a total of .75 visits per person. The greatest percentage of users of the Otterbein service were in the following categories: freshmen, women, students living in the dormitories, and residents of a city 120 miles or more from the campus. Good care, availability, and low cost were reasons students reported for being satisfied with the health services.

Two nationwide surveys, one by Moore and Summerskill (1954) and the other by the American College Health Association and the



Continental Casualty Company (1958), indicated that the average number of visits to the health services per student per year was between three and four. In approximately 70 percent of the institutions reporting, the majority of students used the health services programs available on the campuses.

In another survey concerning the use of the health services Sidhu and Klotz (1971) found that at San Fernando Valley State College 53 percent of the students reported using the health services. Twenty-two percent of the students reported they did not use the health services because they had experienced no illness, and seven percent reported they were unaware of the health services. Fifty-six percent indicated they would use the services again.

Comstock and Slome (1973) surveyed students regarding their satisfaction with attitudes toward and knowledge of the health services at the University of North Carolina at Chapel Hill. The results of the survey showed no statistically significant differences in satisfaction among race groups or sexes or among users of health facilities versus non-users, members of sororities or fraternities versus non-members, and on campus versus off-campus residents. Eighty percent of the student respondents demonstrated incorrect knowledge about more than one-half of the areas of inquiry about the infirmary services.

Since few institutions provide health services for spouses and dependents of students, the above studies have centered only on student use of institutional health centers. Clark (1965)

surveyed the members of the American College Health Association and found only six to eight percent of the 200 institutions replying indicated they provided any health services for the spouses and children of students. Kripke (1971) and Osborne and Kirksen (1969) investigated the health services available to families of students, and both studies showed that families did not take advantage of the student health services.

General Use of  
Health Services in  
the United States

The previous two sections dealt with the use of health services at institutions of higher education. In this section, the general use of health services in the United States was examined. This health service usage includes hospitals, medical clinics, and visits to private physicians.

The relationship between socio-economic status and the use of health services was investigated by Koos (1954). He found higher socio-economic classes make greater use of health services than did lower socio-economic classes.

Aday and Eichhorn (1972) reported sex, age, and education as important determinants of overall use of health services. The study also indicated in general higher socio-economic status groups consume more physicians' services than lower groups, although there is evidence showing this gap is narrowing.

Andersen (1972) analyzed data regarding the distribution of medical care in the United States according to age, sex, income, race, and residence. The results showed the proportion of females seeing a physician was higher than the proportion of males. The study also pointed out that those who had a low income and lived in a central city constituted the greatest number of people who reported no regular source of care. However, once they see a physician, individuals in low income groups average more visits than those of higher incomes.

Anderson (1963) and Anderson and Andersen (1972) investigated the relationship of socio-demographic characteristics and use of health services in the United States. They reported that in the past admission rates to hospitals had been higher for higher income groups but that this has been changing and that admission rates are now largely independent of income. The study also found females use the hospital services more than males, even after correcting for maternity. The study also indicated that females use physicians' services more than males and that higher income groups use more physician services than lower income groups although the disparity between the number of physician visits per person and family income is not as great as it once was.

A study of the health care of low income families in the state of Maine was conducted by Bolaria (1971). The results showed a majority of the families have a low rate of utilization of existing

health services. Lack of financial resources was the primary reason reported for not using the health facilities available.

Poverty, illness, and the use of health services in the United States was investigated by Richardson (1969). He found the differences in use of health services between high and low income groups to be moderate. Sixty-four percent of the low income group had visited a physician the year prior to the survey, while seventy-three percent of the high income group had visited a physician within the previous year. The results showed those with low incomes were three times as likely as those with high incomes not to have seen a physician within the previous five years.

A study of family spending patterns and health care was conducted by Weeks (1961). The results indicated that females see a physician more often than males. The study showed income groups did not differ in their utilization of health services, except for dental and optical services; as income rises, utilization of these two services increases.

Wirrick and Barlow (1964) surveyed family budgets to determine expenditures for medical services. The results showed females had higher expenditures than males. Both high and low income families reported greater expenditures for health services than did middle income families.

Kriesberg (1963) investigated the relationship of cultural and situational factors, both social and non-social, to differences

in health service utilization. The results indicated that hospital admission rates for the different income classes have tended to equalize over the past few decades. While physician office visits per person have tended to equalize among the different social classes there was still a slightly significant relationship between utilization of physician services and socio-economic rank. Kriesberg did find a strong relationship between socio-economic rank and dental utilization.

### III. METHODOLOGY

The purpose of this study was to test certain hypotheses concerning the characteristics of students who used the Oregon State University Student Health Services. The analysis of the relationship that existed between student use of the health services and academic, cognitive and certain socio-economic background factors was central to this study.

The subjects in this study were the freshmen who entered Oregon State University fall term 1968. The 1968 matriculating freshmen were selected because complete records of graduation from Oregon State University were available for a four and five-year period, and literature concerning college attrition and graduation indicated that a study of this sort should be conducted over at least a five-year period.

#### Description of Student Characteristics

##### Use of the Student Health Service

Use of the SHS was the principal dependent variable in this study. "Use" was defined as the number of visits each student made to the SHS for diagnosis, treatment, or follow-up purposes.

##### Sex

The variable of sex is almost universally included in studies of health service use. It was included in this study because

other studies do not agree whether or not male and female students differ in the extent to which they make use of college health services. In addition, analysis by sex permitted analysis of the other variables by this dimension.

#### Socio-Economic Level

The socio-economic position was estimated by the use of a modified version of the Hollingshead Index of Social Position (1957). The occupation of the main wage-earner, usually the father, was used as the basic estimator of socio-economic status. This information was available and complete for slightly over ninety percent of the subjects. This variable was included because recent studies of the general population show little difference between use of health services and socio-economic level. The investigator wanted to determine if this was true for college students as well as the general population.

#### Residence

Oregon students were compared to students from other states. This information was included to determine agreement with other studies that found non-resident students will use health services more frequently than resident students.

### Distance from University within the State

This variable was selected to determine if students from the Corvallis area use the health services less frequently than Oregon students who live farther away from the University. This information was included to determine agreement with other studies that found students whose homes are a considerable distance from the University will use health services more frequently than will students whose homes are close to the University.

### College Class

Studies comparing health service usage by members of one class more than another class have revealed different results. Some studies have found freshmen use the health services more frequently than other students while other studies have found no difference in use by any particular class. In addition to the traditional four classes, this study included the fifth year to account for students who take five years to graduate and for those students who are enrolled in five-year programs.

TABLE 1 NUMBER AND PERCENTAGE OF THE MALES AND FEMALES OF THE CLASS OF 1972 WHO GRADUATED THE FIFTH YEAR.

|        | Graduated<br>Fifth Year | Percent<br>of Total<br>Graduates | Total<br>Graduates |
|--------|-------------------------|----------------------------------|--------------------|
| Female | 145                     | 25%                              | 577                |
| Male   | 325                     | 40%                              | 803                |



### Major Field

Very few studies have selected this variable and those that have studied it have not been able to determine if there are significant differences among the various majors. This variable was included to determine if students enrolled in the nine OSU Schools and Colleges differ in their use of the health services.

### Changes in Major Field

This variable, not found in any other study, was included here to determine if students who change their major use the health services more than students who do not change their major. Table 2 indicated the number and percentage of male and female graduates who changed their major at OSU.

TABLE 2 NUMBER OF MALE AND FEMALE GRADUATES FROM THE CLASS OF 1972 WHO CHANGED AND DID NOT CHANGE MAJOR.

|        | Changed | No Change | % Change | Total Graduated |
|--------|---------|-----------|----------|-----------------|
| Female | 155     | 422       | 27%      | 577             |
| Male   | 304     | 499       | 38%      | 803             |

### Graduates versus Non-Graduates

No studies were found that analyzed the use of health services by graduates versus non-graduates. This variable was included to determine if those who matriculated but did not graduate from OSU

used the health services more than those who did graduate. Table 3 indicates the number of non-graduates in the class of 1972 who were eligible to use the SHS each year they were on campus.

TABLE 3 NUMBER OF NON-GRADUATES IN THE CLASS OF '72 WHO WERE ELIGIBLE TO USE THE SHS DURING THE TIME THEY WERE ON CAMPUS

| Did Not Graduate | N<br>Eligible<br>Frosh<br>Year | N<br>Eligible<br>Soph.<br>Year | N<br>Eligible<br>Junior<br>Year | N<br>Eligible<br>Senior<br>Year | N<br>Eligible<br>Fifth<br>Year |
|------------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|--------------------------------|
| Females          | 875                            | 427                            | 223                             | 111                             | 60                             |
| Males            | 1027                           | 324                            | 224                             | 125                             | 81                             |

#### Scholastic Aptitude Test (SAT) Scores

This variable was included as a partial index of academic ability. Analysis was carried out on the basis of lower, middle and upper third of the distribution of scores.

#### Sources of the Data

Records from the Oregon State University Student Health Services, Dean of Students Office and Registrars Office provided data which were analyzed in this study.

In order not to compromise privileged or confidential information available only to SHS staff members, a list of students who entered OSU in the fall of 1968 was given directly to the SHS staff. Thus SHS staff members determined who had used the Student Health Services and who had been admitted to the Infirmary during each of the five

years under study. This information was then coded and became the basic data on which the rest of the study was based.

The data regarding the sex of the student, major field, SAT scores, socio-economic level, residence, Oregon high school graduated from, and graduation date or date of withdrawal from the university were obtained from the records of the Office of the Dean of Students and the Registrar.

### Treatment of the Data

#### Preparation of the Data

The keypunched data were analyzed by computer using the Statistical Interactive Programming System (SIPS). In the first deck, cards contained the following data: student's code number, name, OSU school or college entered as a freshman, sex, and the number of times the SHS was utilized over the five year period. The second deck included the following data: the student code number, name, high school grade point average, parent's socio-economic level, and SAT scores. The third deck had the code number, name, grade point average for sophomore, junior, and senior year, OSU College or School from which the student graduated, and high school from which the student graduated.

### Analysis of the Data

Most of the variables used in this study are represented through discrete data, with no expectation of a normal distribution.

The statistical design used to analyze the data and determine the relationships in this study was the Chi square ( $\chi^2$ ) test of independence in contingency tables. In the statistical analysis the .05 level of confidence was accepted as being significant. Actual levels of confidence between .05 and .001 were reported in order to indicate the degree of significance associated with each test.

#### IV. RESULTS

The purpose of the study was to investigate the use of the Oregon State University Student Health Service (SHS) over an extended period of time and to test certain hypotheses concerning the characteristics of the students who used the facilities of the SHS. All hypotheses were tested at the .05 level of significance.

Hypotheses One through Nine were related to the use of the SHS and selected student characteristics. Hypotheses Ten through Eighteen were related to the use of the Infirmary and selected student characteristics.

Hypothesis 1 stated that there are no differences in the frequency of utilization of the SHS facility by male and female students. As indicated in Table 4, statistically significant differences in the proportion of users were found between female and male students at the Freshman, Junior, Senior, and Fifth years. Higher percentages of the females used the SHS than did the males. The observed differences at the Sophomore year did not reach statistical significance even though a slightly higher percentage of the females than the males visited the SHS.

As may be seen in Tables 5 and 6, the females who used the SHS also tended to use it more frequently than did the males.

Based on these data, Hypothesis 1 was rejected.

Hypothesis 10 stated that there are no differences in the frequency of utilization of the Infirmary by male and female students.

TABLE 4 NUMBER AND PERCENT OF STUDENTS IN THE CLASS OF '72 WHO USED THE INFIRMARY AND THE TOTAL STUDENT HEALTH SERVICE VISITS FOR THE TIME THEY WERE ON CAMPUS.

|  |        | N    | Used<br>INF | Total<br>Used<br>SHS | Female<br>vs.<br>Male | Grads vs.<br>Non-Grads<br>Male | Grads vs.<br>Non-Grads<br>Female |
|--|--------|------|-------------|----------------------|-----------------------|--------------------------------|----------------------------------|
| Freshman                                   |        |      |             |                      |                       |                                |                                  |
| Grad:                                      | Female | 577  | 74(13%)     | 379(66%)             |                       |                                |                                  |
|  | Male   | 803  | 77(10%)     | 509(63%)             |                       |                                |                                  |
| Non-Grad:                                  | Female | 875  | 129(15%)    | 585(67%)             |                       |                                |                                  |
|  | Male   | 1027 | 103(10%)    | 572(56%)             |                       |                                |                                  |
| $X^2$ level of significance - Infirmary    |        |      |             |                      | NS                    | NS                             | NS                               |
| $X^2$ level of significance - TOTAL VISITS |        |      |             |                      | .01                   | NS                             | NS                               |
| Sophomore                                  |        |      |             |                      |                       |                                |                                  |
| Grad:                                      | Female | 577  | 77(13%)     | 404(70%)             |                       |                                |                                  |
|  | Male   | 803  | 76( 9%)     | 518(65%)             |                       |                                |                                  |
| Non-Grad:                                  | Female | 427  | 56(13%)     | 281(66%)             |                       |                                |                                  |
|  | Male   | 442  | 47(11%)     | 264(60%)             |                       |                                |                                  |
| $X^2$ level of significance - Infirmary    |        |      |             |                      | NS                    | NS                             | NS                               |
| $X^2$ level of significance - TOTAL VISITS |        |      |             |                      | NS                    | NS                             | NS                               |
| Junior                                     |        |      |             |                      |                       |                                |                                  |
| Grad:                                      | Female | 577  | 54( 9%)     | 419(73%)             |                       |                                |                                  |
|  | Male   | 803  | 66( 8%)     | 491(61%)             |                       |                                |                                  |
| Non-Grad:                                  | Female | 223  | 16( 7%)     | 154(69%)             |                       |                                |                                  |
|  | Male   | 278  | 16( 6%)     | 160(58%)             |                       |                                |                                  |
| $X^2$ level of significance - Infirmary    |        |      |             |                      | NS                    | NS                             | NS                               |
| $X^2$ level of significance - TOTAL VISITS |        |      |             |                      | .01                   | NS                             | NS                               |
| Senior                                     |        |      |             |                      |                       |                                |                                  |
| Grad:                                      | Female | 577  | 22( 4%)     | 411(71%)             |                       |                                |                                  |
|  | Male   | 803  | 37( 5%)     | 454(57%)             |                       |                                |                                  |
| Non-Grad:                                  | Female | 111  | 8( 7%)      | 82(74%)              |                       |                                |                                  |
|  | Male   | 190  | 18(10%)     | 99(52%)              |                       |                                |                                  |
| $X^2$ level of significance - Infirmary    |        |      |             |                      | NS                    | .05                            | NS                               |
| $X^2$ level of significance - TOTAL VISITS |        |      |             |                      | .01                   | NS                             | NS                               |

TABLE 4 continued

|   | N   | Used<br>INF | Total<br>Used<br>SHS | Female<br>vs.<br>Male | Grad vs.<br>Non-Grad<br>Male | Grad vs.<br>Non-Grad<br>Female |
|---|-----|-------------|----------------------|-----------------------|------------------------------|--------------------------------|
| Fifth Year                                    |     |             |                      |                       |                              |                                |
| Grad: Female                                  | 145 | 4( 3%)      | 83(57%)              |                       |                              |                                |
| Male  | 325 | 4( 1%)      | 139(43%)             |                       |                              |                                |
| Non-Grad: Female                              | 60  | 2( 3%)      | 40(66%)              |                       |                              |                                |
| Male  | 81  | 2( 2%)      | 41(52%)              |                       |                              |                                |
| $\chi^2$ level of significance - Infirmary    |     |             |                      | NS                    | NS                           | NS                             |
| $\chi^2$ level of significance - TOTAL VISITS |     |             |                      | .01                   | NS                           | NS                             |

As shown in Table 4, slightly higher proportions of the females than males used the Infirmary during four of the five years under study; however, the observed differences did not reach statistical significance. Therefore, based on these findings, Hypothesis 10 was accepted.

Hypothesis 2 stated that there are no differences in the frequency of use of the SHS by students who graduated from OSU and those who did not graduate. As shown in Table 4, although slightly higher percentages of the female non-graduates used the SHS in the Freshman, Senior and Fifth years than did the female graduates, the observed differences were not significant. For the males the data in Table 4 indicated that slightly higher percentages of the males who graduated used the SHS than did the non-graduates in the Freshman, Sophomore, Junior and Senior years. The observed differences, however, were not significant and Hypothesis 2 was accepted.

TABLE 5 MALE AND FEMALE GRADUATES TOTAL VISITS TO THE STUDENT HEALTH SERVICES AND THE NUMBER OF TIMES SERVICES WERE UTILIZED.

|            | No.<br>of<br>Users | Used<br>One<br>Time | Used<br>2-3<br>Times | Used<br>4-5<br>Times | Used<br>6+<br>Times | Mean | D   |
|------------|--------------------|---------------------|----------------------|----------------------|---------------------|------|-----|
| Freshman   |                    |                     |                      |                      |                     |      |     |
| Female     | 379                | 108(28%)            | 144(38%)             | 58(15%)              | 69(18%)             | 3.54 |     |
| Male       | 509                | 174(34%)            | 198(38%)             | 80(16%)              | 57(11%)             | 2.83 | .05 |
| Sophomore  |                    |                     |                      |                      |                     |      |     |
| Female     | 404                | 108(27%)            | 132(33%)             | 80(20%)              | 84(21%)             | 3.66 |     |
| Male       | 518                | 152(29%)            | 189(36%)             | 80(15%)              | 97(19%)             | 3.42 | NS  |
| Junior     |                    |                     |                      |                      |                     |      |     |
| Female     | 419                | 75(18%)             | 142(34%)             | 90(22%)              | 112(27%)            | 4.24 |     |
| Male       | 491                | 143(29%)            | 189(39%)             | 74(15%)              | 82(17%)             | 3.35 | .01 |
| Senior     |                    |                     |                      |                      |                     |      |     |
| Female     | 411                | 96(23%)             | 143(35%)             | 96(23%)              | 76(19%)             | 3.65 |     |
| Male       | 454                | 124(27%)            | 160(35%)             | 91(20%)              | 79(17%)             | 3.36 | NS  |
| Fifth Year |                    |                     |                      |                      |                     |      |     |
| Female     | 83                 | 34(39%)             | 36(41%)              | 5(6%)                | 8(9%)               | 2.53 |     |
| Male       | 139                | 55(40%)             | 54(39%)              | 18(13%)              | 12(9%)              | 2.55 | .01 |

TABLE 6 FRESHMEN MALE AND FEMALE NON-GRADUATES TOTAL VISITS TO THE STUDENT HEALTH SERVICES AND THE NUMBER OF TIMES SERVICES WERE UTILIZED.

|          | No.<br>of<br>Users | Used<br>One<br>Time | Used<br>2-3<br>Times | Used<br>4-5<br>Times | Used<br>6+<br>Times | Mean | D   |
|----------|--------------------|---------------------|----------------------|----------------------|---------------------|------|-----|
| Freshman |                    |                     |                      |                      |                     |      |     |
| Female   | 576                | 172(30%)            | 214(37%)             | 96(17%)              | 94(16%)             | 3.54 |     |
| Male     | 588                | 207(35%)            | 222(38%)             | 97(16%)              | 62(11%)             | 2.98 | .05 |



Hypothesis 11 stated that there are no significant differences in the use of the Infirmary by students who graduated from OSU and those who did not graduate. As shown in Table 4, the differences were significant for the male graduates versus non-graduates only at the Senior year. Differences in the use of the Infirmary by the female graduates and the female non-graduates were not significant. Consequently Hypothesis 11 was accepted.

Hypothesis 3 stated that there are no significant differences in the rate of utilization of the SHS facility by students during their Freshman, Sophomore, Junior, Senior and Fifth years. As shown in Table 7, the differences found in the use of the SHS by females during the Junior and Senior years were significantly higher. Only the Fifth year usage rate was less (but not significantly less) than the Freshman year.

As shown in Table 8, significant differences were found in the SHS usage pattern of the males during the Sophomore and Fifth years. The Sophomore year usage rate was significantly higher than the usage rate during the Freshman year and the Fifth year rate was significantly lower.

Based on the results shown in Table 7 and 8, Hypothesis 3 was rejected.

Hypothesis 12 stated that there are no significant differences in the rate of utilization of the Infirmary by students during their Freshmen year, Sophomore year, Junior year, Senior year, and Fifth year.

TABLE 7 NUMBER AND PERCENT OF FEMALE STUDENTS WHO USED THE INFIRMARY AND TOTAL STUDENT HEALTH SERVICE VISITS EACH YEAR ON CAMPUS--FRESHMAN vs. SOPHOMORE, JUNIOR, SENIOR AND FIFTH YEAR.

|            | N    | Used<br>INF | Total<br>Used<br>SHS | $\chi^2$<br>Infirmary | $\chi^2$<br>Total<br>SHS |
|------------|------|-------------|----------------------|-----------------------|--------------------------|
| Freshman   | 1452 | 203(14%)    | 964(66%)             |                       |                          |
| Sophomore  | 1004 | 133(13%)    | 685(68%)             | NS                    | NS                       |
| Junior     | 800  | 70( 9%)     | 573(72%)             | .01                   | .01                      |
| Senior     | 688  | 30( 4%)     | 493(72%)             | .01                   | .01                      |
| Fifth Year | 205  | 6( 3%)      | 123(60%)             | .01                   | NS                       |

TABLE 8 NUMBER AND PERCENT OF MALE STUDENTS WHO USED THE INFIRMARY AND TOTAL STUDENT HEALTH SERVICE VISITS EACH YEAR ON CAMPUS--FRESHMAN vs. SOPHOMORE, JUNIOR, SENIOR AND FIFTH YEAR.

|            | N    | Used<br>INF | Total<br>Used<br>SHS | $\chi^2$<br>Infirmary | $\chi^2$<br>Total<br>SHS |
|------------|------|-------------|----------------------|-----------------------|--------------------------|
| Freshman   | 1830 | 180(10%)    | 1081(59%)            |                       |                          |
| Sophomore  | 1245 | 123(10%)    | 782(63%)             | NS                    | .01                      |
| Junior     | 1081 | 82( 8%)     | 651(60%)             | NS                    | NS                       |
| Senior     | 993  | 55(6%)      | 553(56%)             | .001                  | NS                       |
| Fifth Year | 406  | 6( 2%)      | 178(44%)             | .001                  | .01                      |

As shown in Table 7, higher percentages of the females used the Infirmary during their Freshman year than during their Junior, Senior and Fifth years. Hypothesis 12 was rejected for the female students.

A similar pattern was found for the males. As shown in Table 8, higher percentages of the males used the Infirmary during their Freshman year than during their Senior and Fifth year. The observed differences were significant and the hypothesis was rejected.

Hypothesis 4 stated that there are no significant differences in the SHS utilization rates of the students who were graduated from each of the nine OSU Schools and Colleges. Table 9 shows there were no significant differences in the use of the SHS by any of the groups of females who were graduated from the nine OSU Schools and Colleges. Table 10 indicates no significant differences in the use of the SHS by any of the males who graduated from the nine OSU Schools and Colleges. Consequently, Hypothesis 4 was accepted.

Hypothesis 13 stated that there are no significant differences in the Infirmary utilization rates of the students who were graduated from each of the nine OSU Schools and Colleges. Tables 9 and 10 show there were no significant differences in the use of the Infirmary by any of the groups of males and females who were graduated from the nine Schools and Colleges. Based on these data, Hypothesis 13 was accepted.

Hypothesis 5 stated that there are no significant differences in the utilization of the SHS by the graduates who changed majors while at OSU and those who did not change majors. As shown in Table 11, the observed differences were significant and the group of female graduates who did not change majors while at OSU used the SHS more than those who did change majors. Table 12 shows there was no significant difference in the use of the SHS by the male graduates who changed majors and those who did not change

TABLE 9 NUMBER AND PERCENT OF FEMALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF HEALTH SERVICE VISITS BY SCHOOL GRADUATED

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| AG        | 7   | 1(14%)      | 6(86%)               | 3.67 | NS                    | NS                    |
| B&T       | 43  | 10(23%)     | 26(61%)              | 3.58 |                       |                       |
| EDUC      | 231 | 23(10%)     | 157(68%)             | 4.20 |                       |                       |
| ENGIN     | 2   | 0           | 1(50%)               | 3.00 |                       |                       |
| HEC       | 116 | 14(12%)     | 70(61%)              | 3.34 |                       |                       |
| PHAR      | 7   | 0           | 4(57%)               | 6.24 |                       |                       |
| SCI       | 63  | 10(16%)     | 42(67%)              | 3.88 |                       |                       |
| LA        | 107 | 14(13%)     | 75(70%)              | 3.67 |                       |                       |
| Sophomore |     |             |                      |      |                       |                       |
| AG        | 7   | 2(29%)      | 6(86%)               | 5.00 | NS                    | NS                    |
| B&T       | 43  | 5(12%)      | 32(74%)              | 3.37 |                       |                       |
| EDUC      | 231 | 28(12%)     | 169(73%)             | 3.66 |                       |                       |
| ENGIN     | 2   | 1(50%)      | 2(100%)              | 5.50 |                       |                       |
| HEC       | 116 | 15(15%)     | 77(66%)              | 3.09 |                       |                       |
| PHAR      | 7   | 1(14%)      | 6(86%)               | 3.50 |                       |                       |
| SCI       | 63  | 3( 5%)      | 42(67%)              | 3.45 |                       |                       |
| LA        | 107 | 21(20%)     | 79(74%)              | 3.91 |                       |                       |
| Junior    |     |             |                      |      |                       |                       |
| AG        | 7   | 1(14%)      | 5(71%)               | 4.00 | NS                    | NS                    |
| B&T       | 43  | 1( 2%)      | 29(67%)              | 2.97 |                       |                       |
| EDUC      | 231 | 18( 8%)     | 174(75%)             | 4.17 |                       |                       |
| ENGIN     | 2   | 0           | 2(100%)              | 4.50 |                       |                       |
| HEC       | 116 | 11(10%)     | 81(70%)              | 4.17 |                       |                       |
| PHAR      | 7   | 0           | 5(71%)               | 6.40 |                       |                       |
| SCI       | 63  | 7(11%)      | 43(68%)              | 4.65 |                       |                       |
| LA        | 107 | 15(14%)     | 81(76%)              | 4.52 |                       |                       |
| Senior    |     |             |                      |      |                       |                       |
| AG        | 7   | 0           | 4(57%)               | 3.25 | NS                    | NS                    |
| B&T       | 43  | 1( 2%)      | 32(74%)              | 3.91 |                       |                       |
| EDUC      | 231 | 7( 3%)      | 158(68%)             | 3.58 |                       |                       |
| ENGIN     | 2   | 1(50%)      | 2(100%)              | 4.50 |                       |                       |
| HEC       | 116 | 5( 4%)      | 81(70%)              | 3.48 |                       |                       |
| PHAR      | 7   | 0           | 7(100%)              | 3.29 |                       |                       |
| SCI       | 63  | 1( 2%)      | 43(68%)              | 3.35 |                       |                       |
| LA        | 107 | 7( 7%)      | 85(79%)              | 4.02 |                       |                       |

TABLE 10 NUMBER AND PERCENT OF MALE GRADUATES WHO USED THE INFIRMARY AND TOTAL HEALTH SERVICE VISITS BY SCHOOL GRADUATED.

|                  | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|------------------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| <b>Freshman</b>  |     |             |                      |      |                       |                       |
| AG               | 86  | 6( 7%)      | 54(63%)              | 2.56 |                       |                       |
| B&T              | 164 | 13( 8%)     | 103(63%)             | 2.93 |                       |                       |
| EDUC             | 57  | 7(12%)      | 38(67%)              | 3.58 |                       |                       |
| ENGIN            | 186 | 16( 9%)     | 116(62%)             | 2.59 | NS                    | NS                    |
| FOR              | 35  | 6(17%)      | 23(66%)              | 3.04 |                       |                       |
| PHAR             | 18  | 1( 6%)      | 9(50%)               | 2.67 |                       |                       |
| SCI              | 119 | 13(11%)     | 71(60%)              | 2.80 |                       |                       |
| LA               | 138 | 15(11%)     | 95(69%)              | 2.83 |                       |                       |
| <b>Sophomore</b> |     |             |                      |      |                       |                       |
| AG               | 86  | 5( 6%)      | 51(59%)              | 2.75 |                       |                       |
| B&T              | 164 | 12( 7%)     | 110(67%)             | 3.25 |                       |                       |
| EDUC             | 57  | 9(16%)      | 43(75%)              | 3.93 |                       |                       |
| ENGIN            | 186 | 14( 8%)     | 108(58%)             | 3.51 | NS                    | NS                    |
| FOR              | 35  | 1( 3%)      | 24(69%)              | 3.58 |                       |                       |
| PHAR             | 18  | 0           | 11(61%)              | 3.27 |                       |                       |
| SCI              | 119 | 13(11%)     | 75(63%)              | 3.09 |                       |                       |
| LA               | 138 | 21(15%)     | 98(71%)              | 3.84 |                       |                       |
| <b>Junior</b>    |     |             |                      |      |                       |                       |
| AG               | 86  | 10(12%)     | 49(60%)              | 3.24 |                       |                       |
| B&T              | 164 | 16(10%)     | 105(64%)             | 3.49 |                       |                       |
| EDUC             | 57  | 8(14%)      | 37(65%)              | 4.41 |                       |                       |
| ENGIN            | 186 | 8( 4%)      | 103(55%)             | 3.01 | NS                    | NS                    |
| FOR              | 35  | 2( 6%)      | 22(63%)              | 3.22 |                       |                       |
| PHAR             | 18  | 2(11%)      | 10(56%)              | 3.20 |                       |                       |
| SCI              | 119 | 11( 9%)     | 71(60%)              | 2.93 |                       |                       |
| LA               | 138 | 8( 6%)      | 95(69%)              | 3.54 |                       |                       |
| <b>Senior</b>    |     |             |                      |      |                       |                       |
| AG               | 86  | 8( 9%)      | 47(55%)              | 3.30 |                       |                       |
| B&T              | 164 | 8( 5%)      | 89(54%)              | 3.29 |                       |                       |
| EDUC             | 57  | 2( 4%)      | 34(60%)              | 3.79 |                       |                       |
| ENGIN            | 186 | 7( 4%)      | 95(51%)              | 3.65 | NS                    | NS                    |
| FOR              | 35  | 1( 3%)      | 19(54%)              | 2.58 |                       |                       |
| PHAR             | 18  | 1( 6%)      | 9(50%)               | 3.44 |                       |                       |
| SCI              | 119 | 7( 6%)      | 70(59%)              | 3.46 |                       |                       |
| LA               | 138 | 2( 1%)      | 89(64%)              | 3.16 |                       |                       |

TABLE 11 THE NUMBER AND PERCENT OF FEMALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS, BY CHANGE OF MAJOR AND NO CHANGE OF MAJOR.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| No Change | 421 | 43(10%)     | 271(64%)             | 3.48 |                       |                       |
| Change    | 271 | 31(20%)     | 113(42%)             | 3.82 | .01                   | .01                   |
| Sophomore |     |             |                      |      |                       |                       |
| No Change | 421 | 57(14%)     | 283(67%)             | 3.78 |                       |                       |
| Change    | 271 | 20(13%)     | 124(46%)             | 3.34 | NS                    | .01                   |
| Junior    |     |             |                      |      |                       |                       |
| No Change | 421 | 44(10%)     | 306(73%)             | 4.28 |                       |                       |
| Change    | 271 | 10( 6%)     | 113(42%)             | 4.01 | NS                    | .01                   |
| Senior    |     |             |                      |      |                       |                       |
| No Change | 421 | 17( 4%)     | 295(70%)             | 3.58 |                       |                       |
| Change    | 271 | 6( 4%)      | 112(41%)             | 3.82 | NS                    | .01                   |

TABLE 12 THE NUMBER AND PERCENT OF MALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY CHANGE OF MAJOR AND NO CHANGE OF MAJOR.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| No Change | 499 | 48(10%)     | 312(63%)             | 2.73 |                       |                       |
| Change    | 304 | 29(10%)     | 197(65%)             | 2.95 | NS                    | NS                    |
| Sophomore |     |             |                      |      |                       |                       |
| No Change | 499 | 43( 9%)     | 321(64%)             | 3.50 |                       |                       |
| Change    | 304 | 31(10%)     | 201(66%)             | 3.31 | NS                    | NS                    |
| Junior    |     |             |                      |      |                       |                       |
| No Change | 499 | 41( 8%)     | 298(60%)             | 3.25 |                       |                       |
| Change    | 304 | 28( 9%)     | 194(64%)             | 3.44 | NS                    | NS                    |
| Senior    |     |             |                      |      |                       |                       |
| No Change | 499 | 22( 4%)     | 283(57%)             | 3.31 |                       |                       |
| Change    | 304 | 12( 4%)     | 169(56%)             | 3.47 | NS                    | NS                    |

majors while at OSU. Based on these findings, Hypothesis 5 was accepted for the females and rejected for the males.

Hypothesis 14 stated that there are no significant differences in the utilization of the Infirmary by the graduates who changed majors while at OSU and those who did not change majors. As shown in Table 11, females who changed majors used the infirmary at a significantly higher rate than those who did not change majors. Females who did not change majors used the Infirmary proportionately more during the Sophomore and Junior years than those females who did change majors; however, the differences were not significant. As shown in Table 12, there were no differences between the males who changed majors and those who did not change majors. Thus, Hypothesis 14 was accepted.

Hypothesis 6 stated that there are no significant differences in the utilization of the SHS by graduates who have low SAT Verbal and Mathematics scores and those who have high scores. Tables 13 and 14 show there are no significant differences in the use of the SHS by female graduates who have high SAT Verbal and Math scores and those who have low scores. Tables 13 and 14 indicate there are no significant differences in the use of the SHS by male graduates with high SAT Verbal and Mathematics scores and those with low scores. Based on these findings, Hypothesis 6 was accepted.

Hypothesis 15 stated that there are no significant differences in the utilization of the Infirmary by graduates who have low SAT

TABLE 13 NUMBER AND PERCENT OF FEMALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY HIGH AND LOW SAT-VERBAL SCORES.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| High      | 131 | 20(15%)     | 84(64%)              | 4.19 | NS                    | NS                    |
| Low       | 238 | 29(12%)     | 148(62%)             | 3.51 |                       |                       |
| Sophomore |     |             |                      |      |                       |                       |
| High      | 131 | 12( 9%)     | 81(62%)              | 3.63 | NS                    | NS                    |
| Low       | 238 | 33(14%)     | 172(72%)             | 3.65 |                       |                       |
| Junior    |     |             |                      |      |                       |                       |
| High      | 131 | 13(10%)     | 102(78%)             | 4.17 | NS                    | NS                    |
| Low       | 238 | 21( 9%)     | 167(70%)             | 4.32 |                       |                       |
| Senior    |     |             |                      |      |                       |                       |
| High      | 131 | 5( 4%)      | 99(76%)              | 3.24 | NS                    | NS                    |
| Low       | 238 | 7( 3%)      | 158(66%)             | 3.83 |                       |                       |

TABLE 14 NUMBER AND PERCENT OF FEMALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY HIGH AND LOW SAT-MATHEMATICAL SCORES.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| High      | 170 | 25(15%)     | 113(66%)             | 3.97 | NS                    | NS                    |
| Low       | 206 | 26(13%)     | 140(60%)             | 3.09 |                       |                       |
| Sophomore |     |             |                      |      |                       |                       |
| High      | 170 | 22(13%)     | 119(70%)             | 3.77 | NS                    | NS                    |
| Low       | 206 | 29(14%)     | 141(68%)             | 3.53 |                       |                       |
| Junior    |     |             |                      |      |                       |                       |
| High      | 170 | 21(12%)     | 130(76%)             | 4.39 | NS                    | NS                    |
| Low       | 206 | 14( 7%)     | 145(70%)             | 4.36 |                       |                       |
| Senior    |     |             |                      |      |                       |                       |
| High      | 170 | 3( 2%)      | 130(76%)             | 3.52 | NS                    | NS                    |
| Low       | 206 | 9( 4%)      | 136(66%)             | 3.68 |                       |                       |



TABLE 15 NUMBER AND PERCENT OF MALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY HIGH AND LOW SAT-VERBAL SCORES.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| High      | 185 | 20(11%)     | 118(64%)             | 2.70 |                       |                       |
| Low       | 312 | 33(11%)     | 193(62%)             | 2.79 | NS                    | NS                    |
| Sophomore |     |             |                      |      |                       |                       |
| High      | 185 | 15( 8%)     | 129(70%)             | 3.26 |                       |                       |
| Low       | 312 | 32(10%)     | 193(62%)             | 3.43 | NS                    | NS                    |
| Junior    |     |             |                      |      |                       |                       |
| High      | 185 | 8( 4%)      | 112(61%)             | 3.25 |                       |                       |
| Low       | 312 | 28( 9%)     | 189(61%)             | 3.54 | NS                    | NS                    |
| Senior    |     |             |                      |      |                       |                       |
| High      | 185 | 9( 5%)      | 108(58%)             | 3.57 |                       |                       |
| Low       | 312 | 19( 6%)     | 182(58%)             | 3.14 | NS                    | NS                    |

TABLE 16 NUMBER AND PERCENT OF MALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY HIGH AND LOW SAT-MATHEMATICAL SCORES.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| High      | 265 | 29(11%)     | 167(63%)             | 2.80 |                       |                       |
| Low       | 103 | 11(12%)     | 71(69%)              | 2.69 | NS                    | NS                    |
| Sophomore |     |             |                      |      |                       |                       |
| High      | 265 | 28(11%)     | 165(62%)             | 3.52 |                       |                       |
| Low       | 103 | 14(14%)     | 68(66%)              | 3.32 | NS                    | NS                    |
| Junior    |     |             |                      |      |                       |                       |
| High      | 265 | 21( 8%)     | 161(61%)             | 3.60 |                       |                       |
| Low       | 103 | 11(11%)     | 64(62%)              | 3.56 | NS                    | NS                    |
| Senior    |     |             |                      |      |                       |                       |
| High      | 265 | 9( 3%)      | 148(56%)             | 3.40 |                       |                       |
| Low       | 103 | 6( 6%)      | 64(62%)              | 3.08 | NS                    | NS                    |

Verbal and Mathematics scores and those who have high scores. Tables 13 and 14 indicate no significant differences in the use of the Infirmary by female graduates with low SAT Verbal and Mathematics scores and those with high scores. Tables 15 and 16 show no significant differences in the use of the Infirmary by male graduates who have high SAT Verbal and Mathematics scores and those with low scores. Consequently, Hypothesis 15 was accepted.

Hypothesis 7 stated there are no significant differences in the SHS utilization rates of graduates grouped into estimated socio-economic categories of low, middle, and high. Table 17 shows there was no significant difference in the use of the SHS by the female graduates who were grouped into low, middle, and high socio-economic categories. Hypothesis 7 was accepted for the females.

As shown in Table 18 there was no significant difference in the use of the SHS by male graduates who were grouped into low, middle, and high socio-economic categories and Hypothesis 7 was accepted for the males.

Hypothesis 16 stated that there are no significant differences in the Infirmary utilization rates of the graduates who are grouped into estimated socio-economic categories of low, middle, and high. Tables 17 and 18 indicate there was no significant difference in the use of the Infirmary by any of the socio-economic level categories. Hypothesis 16 was accepted.

TABLE 17 NUMBER AND PERCENT OF FEMALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY HIGH, MIDDLE AND LOW SOCIO-ECONOMIC GROUPS.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| High      | 216 | 33(15%)     | 153(71%)             | 3.92 |                       |                       |
| Middle    | 206 | 22(11%)     | 130(63%)             | 3.36 | NS                    | NS                    |
| Low       | 143 | 18(10%)     | 93(65%)              | 3.13 |                       |                       |
| Sophomore |     |             |                      |      |                       |                       |
| High      | 216 | 31(14%)     | 158(73%)             | 3.64 |                       |                       |
| Middle    | 206 | 24(12%)     | 143(69%)             | 3.60 | NS                    | NS                    |
| Low       | 143 | 22(15%)     | 105(73%)             | 3.55 |                       |                       |
| Junior    |     |             |                      |      |                       |                       |
| High      | 216 | 30(14%)     | 163(76%)             | 4.00 |                       |                       |
| Middle    | 206 | 18( 9%)     | 140(68%)             | 4.11 | NS                    | NS                    |
| Low       | 143 | 15(10%)     | 111(78%)             | 4.66 |                       |                       |
| Senior    |     |             |                      |      |                       |                       |
| High      | 216 | 9( 4%)      | 158(73%)             | 3.50 |                       |                       |
| Middle    | 206 | 6( 3%)      | 145(70%)             | 3.49 | NS                    | NS                    |
| Low       | 143 | 7( 5%)      | 105(73%)             | 3.99 |                       |                       |

Hypothesis 8 stated that there are no significant differences in the utilization of the SHS by the graduates who are residents of the state of Oregon and those who are not residents. The data are included in Tables 19 and 20. Proportionately the female and male non-residents used the SHS more than residents three out of the four years; however, the observed differences did not reach statistical significance and Hypothesis 8 was accepted.

Hypothesis 17 stated there are no significant differences in the utilization of the Infirmary by the graduates who are residents of the state of Oregon and those who are not residents. Table 19

TABLE 18 NUMBER AND PERCENT OF MALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY HIGH, MIDDLE AND LOW SOCIO-ECONOMIC GROUPS.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| High      | 265 | 35(13%)     | 193(73%)             | 2.68 |                       |                       |
| Middle    | 274 | 22( 8%)     | 167(61%)             | 3.08 | NS                    | NS                    |
| Low       | 244 | 19( 8%)     | 144(59%)             | 2.62 |                       |                       |
| Sophomore |     |             |                      |      |                       |                       |
| High      | 265 | 29(11%)     | 194(73%)             | 3.45 |                       |                       |
| Middle    | 274 | 24( 9%)     | 172(63%)             | 3.48 | NS                    | NS                    |
| Low       | 244 | 16( 7%)     | 147(60%)             | 2.96 |                       |                       |
| Junior    |     |             |                      |      |                       |                       |
| High      | 265 | 22( 8%)     | 175(66%)             | 3.42 |                       |                       |
| Middle    | 274 | 18( 7%)     | 162(59%)             | 3.39 | NS                    | NS                    |
| Low       | 244 | 13( 5%)     | 145(59%)             | 2.85 |                       |                       |
| Senior    |     |             |                      |      |                       |                       |
| High      | 265 | 15( 6%)     | 164(62%)             | 3.45 |                       |                       |
| Middle    | 274 | 11( 4%)     | 150(55%)             | 3.39 | NS                    | NS                    |
| Low       | 244 | 10( 4%)     | 133(55%)             | 2.94 |                       |                       |

shows the non-resident females used the Infirmary significantly more than residents during their Freshman and Sophomore years.

Hypothesis 17 was rejected for the females.

As shown in Table 20, slightly higher percentages of the non-resident males used the Infirmary than did the males from the state of Oregon. However, these observed differences were not significant and Hypothesis 17 was accepted for the males.

Hypothesis 9 stated that there are no significant differences in the utilization of the SHS by Corvallis area residents compared to residents of other areas of Oregon. As shown in Table 21,

TABLE 19 NUMBER AND PERCENT OF FEMALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY OREGON RESIDENTS AND NON-RESIDENTS.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| Resident  | 484 | 52(11%)     | 314(65%)             | 3.33 |                       |                       |
| Non-Res   | 93  | 21(22%)     | 67(72%)              | 4.27 | .01                   | NS                    |
| Sophomore |     |             |                      |      |                       |                       |
| Resident  | 484 | 53(11%)     | 343(71%)             | 3.52 |                       |                       |
| Non-Res   | 93  | 24(26%)     | 68(73%)              | 4.07 | .01                   | NS                    |
| Junior    |     |             |                      |      |                       |                       |
| Resident  | 484 | 45( 9%)     | 351(73%)             | 4.31 |                       |                       |
| Non-Res   | 93  | 9(10%)      | 69(74%)              | 3.93 | NS                    | NS                    |
| Senior    |     |             |                      |      |                       |                       |
| Resident  | 484 | 18( 4%)     | 355(73%)             | 3.75 |                       |                       |
| Non-Res   | 93  | 4( 4%)      | 57(61%)              | 3.46 | NS                    | NS                    |

TABLE 20 NUMBER AND PERCENT OF MALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY OREGON RESIDENTS AND NON-RESIDENTS.

|           | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|-----------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| Freshman  |     |             |                      |      |                       |                       |
| Resident  | 651 | 58( 9%)     | 511(78%)             | 2.71 |                       |                       |
| Non-Res   | 152 | 21(14%)     | 100(66%)             | 3.21 | NS                    | NS                    |
| Sophomore |     |             |                      |      |                       |                       |
| Resident  | 651 | 55( 8%)     | 416(63%)             | 3.18 |                       |                       |
| Non-Res   | 152 | 22(14%)     | 106(70%)             | 4.15 | NS                    | NS                    |
| Junior    |     |             |                      |      |                       |                       |
| Resident  | 651 | 49( 8%)     | 389(59%)             | 3.45 |                       |                       |
| Non-Res   | 152 | 17(11%)     | 105(69%)             | 3.33 | NS                    | NS                    |
| Senior    |     |             |                      |      |                       |                       |
| Resident  | 651 | 28( 4%)     | 351(54%)             | 3.47 |                       |                       |
| Non-Res   | 152 | 9( 6%)      | 102(67%)             | 3.28 | NS                    | NS                    |

TABLE 21 NUMBER AND PERCENT OF FEMALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY GEOGRAPHIC AREAS IN OREGON.

|                  | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|------------------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| <b>Freshman</b>  |     |             |                      |      |                       |                       |
| Corvallis        | 63  | 5( 8%)      | 38(60%)              | 3.24 |                       |                       |
| W. Valley        | 117 | 11( 9%)     | 75(64%)              | 3.35 | NS                    | NS                    |
| Portland         | 177 | 19(11%)     | 116(65%)             | 3.43 | NS                    | NS                    |
| Other OR         | 127 | 17(13%)     | 85(66%)              | 3.29 | NS                    | NS                    |
| <b>Sophomore</b> |     |             |                      |      |                       |                       |
| Corvallis        | 63  | 5( 8%)      | 38(60%)              | 3.60 |                       |                       |
| W. Valley        | 117 | 14(12%)     | 85(72%)              | 3.53 | NS                    | .05                   |
| Portland         | 177 | 19(11%)     | 121(68%)             | 3.50 | NS                    | .05                   |
| Other OR         | 127 | 15(12%)     | 99(77%)              | 3.44 | NS                    | .001                  |
| <b>Junior</b>    |     |             |                      |      |                       |                       |
| Corvallis        | 63  | 5( 8%)      | 38(60%)              | 4.55 |                       |                       |
| W. Valley        | 117 | 9( 8%)      | 90(76%)              | 3.67 | NS                    | .001                  |
| Portland         | 177 | 17(10%)     | 130(73%)             | 4.32 | NS                    | .001                  |
| Other OR         | 127 | 14(11%)     | 93(73%)              | 4.69 | NS                    | .01                   |
| <b>Senior</b>    |     |             |                      |      |                       |                       |
| Corvallis        | 63  | 2( 3%)      | 40(64%)              | 4.30 | NS                    |                       |
| W. Valley        | 117 | 1( 1%)      | 94(80%)              | 3.54 | NS                    | .001                  |
| Portland         | 177 | 7( 4%)      | 123(69%)             | 3.83 | NS                    | NS                    |
| Other OR         | 127 | 8( 6%)      | 98(77%)              | 3.34 | NS                    | .01                   |

female graduates from other geographic areas in Oregon used the SHS significantly more than did the female graduates from Corvallis during three of the four years. Differences observed for the Freshman year did not reach significance. Table 22 indicates male graduates from other geographic areas made significantly more use of the SHS all four years than male graduates from the Corvallis area. Based on this information, Hypothesis 9 was rejected for the males and females.

TABLE 22 NUMBER AND PERCENT OF MALE GRADUATES WHO USED THE INFIRMARY AND THE TOTAL NUMBER OF STUDENT HEALTH SERVICE VISITS BY GEOGRAPHIC AREAS IN OREGON.

|                  | N   | Used<br>INF | Total<br>Used<br>SHS | X    | X <sup>2</sup><br>INF | X <sup>2</sup><br>SHS |
|------------------|-----|-------------|----------------------|------|-----------------------|-----------------------|
| <b>Freshman</b>  |     |             |                      |      |                       |                       |
| Corvallis        | 85  | 3( 4%)      | 49(58%)              | 2.43 |                       |                       |
| W. Valley        | 180 | 17( 9%)     | 117(65%)             | 2.93 | NS                    | .05                   |
| Portland         | 214 | 21(10%)     | 141(65%)             | 2.60 | NS                    | .05                   |
| Other OR         | 172 | 17(10%)     | 104(60%)             | 2.88 | NS                    | NS                    |
| <b>Sophomore</b> |     |             |                      |      |                       |                       |
| Corvallis        | 85  | 3( 4%)      | 47(55%)              | 3.06 |                       |                       |
| W. Valley        | 180 | 16( 9%)     | 118(66%)             | 3.19 | NS                    | .01                   |
| Portland         | 214 | 23(11%)     | 145(67%)             | 3.52 | NS                    | .001                  |
| Other OR         | 172 | 13( 7%)     | 106(61%)             | 2.93 | NS                    | NS                    |
| <b>Junior</b>    |     |             |                      |      |                       |                       |
| Corvallis        | 85  | 5( 6%)      | 39(46%)              | 4.20 |                       |                       |
| W. Valley        | 180 | 12( 7%)     | 111(62%)             | 3.31 | NS                    | .001                  |
| Portland         | 214 | 19( 9%)     | 135(62%)             | 3.53 | NS                    | .001                  |
| Other OR         | 172 | 13( 7%)     | 104(60%)             | 2.77 | NS                    | .001                  |
| <b>Senior</b>    |     |             |                      |      |                       |                       |
| Corvallis        | 85  | 3( 4%)      | 36(42%)              | 3.83 |                       |                       |
| W. Valley        | 180 | 4( 2%)      | 111(62%)             | 3.04 | NS                    | .001                  |
| Portland         | 214 | 15( 7%)     | 118(54%)             | 3.48 | NS                    | .001                  |
| Other OR         | 172 | 6( 3%)      | 86(49%)              | 3.53 | NS                    | NS                    |

Hypothesis 18 stated that there are no significant differences in the utilization of the Infirmary by Corvallis area residents and residents from other geographic areas in Oregon. As shown in Tables 21 and 22, there were no significant differences in the use of the Infirmary by the residents from the Corvallis area and the residents from the other geographic areas in Oregon. Thus Hypothesis 18 was accepted.

## V. DISCUSSION AND CONCLUSIONS

The major purpose of this study was to identify some of the factors associated with student usage of the Student Health Services at Oregon State University. The first nine hypotheses analyzed the relationship between selected student characteristics and student use of the SHS while the second nine hypotheses examined the relationship between selected student characteristics and student use of the Infirmary.

The population for the study was the freshman class entering Oregon State University in September, 1968. The original enrollment of this group was 3282 students--1830 males and 1452 females.

The staff members of SHS determined the number of times each student in the sample used any of the services of the SHS and the number of times each student used the Infirmary during each of the five years under study.

The Chi Square Test of Independence was used to determine the significance of the relationships between the selected student characteristics and the frequency of the SHS visits.

Of the original sample of 3282 students who entered Oregon State University in September 1968, 1380 students or approximately 42%, graduated five years later. By the end of five years, all but 123 or 9% (Appendix C) of the graduates had made at least one visit to the SHS. Of the 1902 students who matriculated but did not graduate from OSU, 530 or 28% (Appendix C) did not make use of



the SHS during the time they were on campus. This higher percentage could be expected because many of the non-graduates were enrolled for a relatively short time.

During each of the five years more than 50% of both male and female students utilized the SHS, except during the Fifth year, in which 43% of the male graduates used the services. There is a noticeable absence of change in total student usage of the SHS over the first four years as approximately 60% used the services in the Freshman and Senior years and approximately 65% used the SHS in the Sophomore and Junior years. In the Fifth year 55% of the students used the SHS.

The average number of visits per year for each male graduate (Appendix A) ranged from a low of 2.55 the Fifth year to a high of 3.42 the Sophomore year. The average number of visits per year for each female graduate (Appendix A) ranged from a low of 2.53 the Fifth year to a high of 4.24 the Junior year.

Over the five year period, 521 or 38% (Appendix D) of the graduates visited the Infirmary at least once. Of the 1902 non-graduates, 397 or 20% (Appendix D) visited the Infirmary at least once during the five years under study. The average number of male visits per year to the Infirmary (Appendix B) ranged from a low of 1.00 the Fifth year to a high of 1.21 the Sophomore year. The average number of female visits per year to the Infirmary ranged from a low of 1.00 the Fifth year to a high of 1.18 the Freshman and Sophomore years.

There did not appear to be any trend or pattern in the total SHS usage over the five year period.

### DISCUSSION

#### Sex

Statistically significant differences were found in the use of the SHS between female and male students in the Freshman, Junior, Senior and Fifth years. Higher percentages of females than males made use of the SHS. The observed differences in the Sophomore year did not reach statistical significance even though a slightly higher percentage of females than males visited the SHS. The number of visits by females increased each of the first three years.

Thus, the findings of this study on male and female use of student health services support the work of Solleder (1961), Weeks (1961), Anderson (1963), Day (1968), Piccard and Cable (1970), Andersen (1972), Anderson and Andersen (1972), Erickson (1972), Gold (1973), Burke (1974), and LeMay and Gibson (1974)--all of whom have found that females utilized student health services more than males.

These findings conflict with the findings of Comstock and Slome (1973), King (1973), Weiner (1973), and Burke (1974), who found no significant difference in the use of health services by males and females.

Slightly higher proportions of the females than males used the Infirmary during four out of the five years under study;

however the observed differences did not reach statistical significance. The total use of the Infirmary for all students showed a decline in each succeeding year. The Infirmary was used more by Freshmen and Sophomores than by upperclassmen. There appears to be a tendency for females more than males to be admitted to the Infirmary during the Freshman and Sophomore years. The percentage of male and female users becomes more similar during the Junior, Senior and Fifth years.

#### Graduate v. Non-Graduate

There were no significant differences in the use of the SHS between males who graduated and those who did not graduate. Male graduates made proportionately more visits to the SHS than male non-graduates during the first four years, but male non-graduates made more visits to the SHS during the Fifth year. These differences, however, were not statistically significant. Female non-graduates made use of the SHS more than female graduates in three out of the five years, but these differences too were non-significant. Some theories contend that there will be a higher usage of health services by students who drop out of school. It appears from the results of this study, however, that the factors which lead to dropping out of school are not related to health service usage.

These results support the findings of Weiner (1973) who found no significant differences between those who drop out and those

who continue with school. Both this study and Weiner's study also indicated that female dropouts made proportionately more student health service visits in three out of four years.

The only significant difference in the use of the Infirmary between graduates and non-graduates occurred in the Senior year when the male non-graduates used the services more than male graduates. Differences in the use of the Infirmary by the female graduates and female non-graduates were not significant. Non-graduates made proportionately more visits to the Infirmary than the graduates four out of the five years under study. It was interesting to note the exact opposite was true when the total number of SHS visits was analyzed, with the female graduates utilizing the services more than the non-graduates four out of five years.

#### College Class

The use of the SHS by females was significantly higher in the Junior and Senior years than in the other three years. The total use of the SHS by males was significantly higher in the Sophomore year while there was significantly lower use in the Fifth year. Therefore, these findings were not in agreement with other studies (Solleder, 1961; Lewis, 1966; Day, 1968; Erickson, 1972; and Storres, 1972) which have shown Freshmen and Sophomores use the student health services more than upper classmen. A study by King (1973) found no significant difference in the use of the health services by any class.

The use of the Infirmary was significantly lower for females in the Junior, Senior and Fifth years. Proportionately, the number of females who used the Infirmary declined each of the five years. The use of the Infirmary by males was significantly lower in the Senior and Fifth years. The percentage of males who visited the Infirmary during the Freshman and Sophomore years remained constant and then decreased during the next three years.

### Schools and Colleges

Analysis of the use of the SHS by enrollment in the nine OSU schools and colleges revealed no significant differences for either female or male students. Because the schools of Engineering, Agriculture, and Pharmacy had too few female students to be a reliable sample, these schools can be excluded from comparative statements concerning female use of the SHS. Thus when Engineering, Agriculture, and Pharmacy are excluded, the school of Liberal Arts had the highest percentage of female students using the SHS during the Freshman, Junior and Senior years and shared the highest rate with females in Business and Technology during the Sophomore year. Females enrolled in Liberal Arts had an increase in the use of the SHS each of the four years reported, from seventy percent during the Freshman year to seventy-nine percent during the senior year. Females in the school of Education and the school of Home Economics showed a similar increase during the first three years, although the percentage was slightly lower than that

of females in Liberal Arts. In Education the percentage of females using the health service during the Senior year dropped back to the Freshman level; in Home Economics the percentage during the Senior year equalled that of the Junior year. In the school of Science the percentage of females using the SHS remained stable with sixty-seven percent using the services in the Freshman and Sophomore years and sixty-eight percent using the services the Junior and Senior years.

Females enrolled in the nine OSU Schools and Colleges showed no significant differences in the use of the Infirmary. Females in the school of Liberal Arts had a high percentage of users in both the Infirmary and the SHS during three of the four years studied. There was a noticeable decline in the use of the Infirmary in the Senior year by females in all OSU schools and colleges.

The male use of the SHS when compared by school of enrollment showed no significant differences. Males enrolled in the schools of Liberal Arts and Education had a high utilization rate all of the four years studied. Those enrolled in the school of Business and Technology and the school of Forestry had a slightly lower utilization rate in three out of the four years. The male students enrolled in the school of Engineering had a decrease in the use of the SHS in each of the four years.

The male use of the Infirmary showed no significant differences when compared by school of enrollment. The males enrolled in the

schools of Education and Science had a high utilization rate three of the four years. Students enrolled in the school of Engineering had a decline in the use of the Infirmary three out of four years. Males enrolled in the school of Education had a high percentage of users in both the Infirmary and total SHS visits during three of the four years.

This study thus agrees with Solleder (1961), who found no significant differences in the use of the student health services when analyzed by college of enrollment. Solleder's results did indicate students enrolled in the schools of Arts and Sciences used the health services more than students enrolled in other schools but the observed differences did not reach statistical significance. Another study conducted by King (1973) found no significant differences in the utilization of the student health services among students in various fields of study.

#### Change of Major

The use of the SHS by female graduates who did not change their major while at OSU was significantly higher all four years when compared to those who did change their major. Females who did change their major had an increase in usage three out of the four years. Less than fifty percent of the females who did change their major made use of the SHS each of the four years.

Male graduates showed no significant differences in the use of the SHS between those who did change majors and those who did

not change majors while at OSU. Proportionately, the males who did change their major used the SHS more than the males who did not change during three out of the four years.

Thus, this analysis of student usage of the SHS in relation to change of major reveals opposite results for males and females. The males who changed their major used the SHS more than the males who did not change their major while the females who did not change their major used the SHS more than the females who did change. The results of this study indicate that male students who change their majors may use the health services more than those who do not change their major but this does not appear to be true for the females.

Female use of the Infirmary by Freshmen who changed majors was significantly higher than those who did not change their major. The other three years showed no significant difference in use; proportionately, females who did not change their major used the Infirmary more than those who did change during two out of the three years. There was a noticeable decline in the use of the Infirmary in the Senior year by the two groups.

Male use of the Infirmary by students who changed their major and those who did not showed no significant difference in any of the four years. Proportionately, the use of the Infirmary during the Freshman and Senior years was the same. Males who did change their major utilized the Infirmary more during the Sophomore and



Junior years than the males who did not change their major. Both groups had a noticeable decline in the use of the Infirmary in the Senior year.

### SAT Scores

Utilization of the SHS by female graduates with high SAT - verbal scores was proportionately higher than female graduates with low SAT - verbal scores in the Freshman, Junior and Senior years, although the differences were not significant. The use of the SHS by females with high scores was considerably higher the Junior and Senior years when compared to the Freshman and Sophomore years. The females with low scores used the SHS more the Sophomore and Junior years.

The female graduates with high SAT - math scores made proportionately more SHS visits all four years than did the female graduates with low SAT - math scores. However, there were no significant differences in the use of the SHS any of the four years. Females with high and low scores had an increase in usage each of the first three years.

The use of the Infirmary by female graduates with high SAT - verbal scores was proportionately higher in the Freshman, Junior and Senior years than the use by female graduates with low SAT - verbal scores. These results were exactly the same as the use of the SHS by this group. There is a noticeable

decrease in the use of the Infirmary by females with high scores and low scores during the Senior year.

Female graduates with high SAT - math scores made proportionately more visits to the Infirmary in the Freshman and Junior years while the female graduates with low SAT - math scores utilized the Infirmary more in the Sophomore and Senior years. Both groups showed a noticeable decline in the use of the Infirmary in the Senior year. The female graduates with high SAT - math scores had a decrease in utilization of the Infirmary all four years.

There were no significant differences in the use of the SHS by male graduates with high SAT - verbal scores when compared to the male graduates with low SAT - verbal scores. Males with high SAT - verbal scores made proportionately more visits in the Freshman and Sophomore years while the Junior and Senior years showed the same proportionate number using the SHS.

The male graduates use of the SHS showed no significant differences when high and low SAT - math scores were analyzed. The males with low SAT - math scores made more proportionate visits to the SHS all four years. The male graduates who received high SAT - math scores had a decrease in SHS utilization all four years. The males with low SAT - math scores had a decrease in utilization in three of the four years.

No significant differences were noted in the use of the Infirmary by the male graduates with high and low SAT - verbal scores. The males with low SAT - verbal scores made proportionately

more visits to the Infirmary in the Sophomore, Junior and Senior years. The utilization of the Infirmary by the males with low SAT - verbal scores did decrease during each of the four years.

The male graduates with high and low SAT - math scores showed no significant differences in the use of the Infirmary in any of the four years studied. Proportionately, those males with low SAT - math scores utilized the Infirmary more in all four years when compared to those with high SAT - math scores. This utilization by the males with low SAT - math scores was the same as the SHS utilization. There was a decline in the use of the Infirmary by both groups in the Senior year.

The possibility of individuals who have low test scores making more use of health services than those with high scores does not hold true for the female graduates in this study. The results of this study show female graduates with high test scores use the infirmary and health services more than females with low test scores. However, the opposite holds true for the males. The study shows that male graduates with low test scores use the infirmary and health services more than the male graduates with high test scores. With regard to male students, this result supports the work of Weiner (1973) who found, in seven of eight semesters, male students with the lowest American College Test (ACT) scores consistently appeared to have made proportionately more visits to student health facilities than the males with middle and low scores.

### Socio-economic Groups

The utilization of the SHS by female graduates who were divided into high, middle and low socio-economic groups resulted in no significant difference in SHS use by any of the groups. The high and low groups of females made proportionately more SHS visits than the middle group all four years. The high socio-economic group had an increase in usage each of the first three years as did the females in the low socio-economic group. Of the females in the high socio-economic group, more than seventy percent used the SHS in each of the four years and of the females in the low socio-economic group, more than seventy percent used the services in three out of four years.

The use of the Infirmary showed no significant differences between the female graduates grouped according to socio-economic categories. The high and low groups used the Infirmary proportionately more than the middle group. The middle socio-economic group did not show the highest proportion of visits in any of the four years. There was a noticeable decline in the use of the Infirmary by all three groups in the Senior year.

This study, therefore, contradicts the conclusions of Weiner (1973), who found there was a statistically significant relationship between the occupation of the female student's father and health service visits. His results showed female students whose fathers were in blue collar occupations made proportionately more visits than those whose fathers were in white collar occupations.

The conclusion of this study that the females in the middle socio-economic group used the health services less than the other groups is in agreement with studies conducted by Wirich and Barlow (1964) and Gold (1973), who also found that middle socio-economic groups used health services less than high and low groups. However, these results are in conflict with the work of Koos (1954), Richardson (1969), Balaria (1971), Andersen (1972), and Storrs (1972), who found that low socio-economic groups use the health services less than high and middle socio-economic groups.

The conclusions of this study that no significant differences occur in the use of health services by females from low and high income groups corresponds with studies by Kriesberg (1963) and Anderson and Andersen (1972) who have shown that the gap between the low income levels and the high income levels and the use of health services is diminishing. However, this study conflicts with the findings of Weeks (1961) and Franklin and McLemore (1968), whose studies revealed no differences between socio-economic groups and the use of health services.

The use of the SHS by male graduates divided into high, middle, and low socio-economic groups resulted in no significant differences among the groups. The males in the high group made proportionately more visits all four years than did the males from the middle and low income groups.

The use of the Infirmary by the males in the various socio-economic groups resulted in no significant differences. The high

socio-economic group made proportionately more visits all four years than did the males in the low and middle socio-economic groups. The use of the Infirmary by male graduates in the high and low socio-economic groups decreased each of the four years studied.

Male graduates' use of the health services appears to be in agreement with the results of the study by Weiner (1973), who found a statistically significant relationship between the occupation of the male student's father and health service visits. Male students whose fathers were in white collar occupations made proportionately more visits than those whose fathers were in blue collar occupations.

The results of the studies by Wirich and Barlow (1964) and Gold (1973), which showed middle income groups visit health services less frequently than higher and low income groups did not appear to be true for the male graduates from OSU. The results of this study concerning the use of the health services by male graduates also appears to conflict with other studies (Koos, 1954; Richardson, 1969; Bolaria, 1971; Andersen, 1972; Storrs, 1972) which found that low socio-economic groups use the health services less than high and middle socio-economic groups. There is also conflict with the studies conducted by Weeks (1961) and Franklin and McLemore (1968) who found there were no differences between socio-economic groups and the use of the health services.

### Residents and Non-Residents

This study revealed no significant differences in the use of the health services by females who were residents of the state of Oregon and those who were non-residents. The female non-residents made proportionately more visits to the health services than the female residents in three out of the four years. The Senior year showed the female residents using the services more than the female non-residents, so that the proportionate use is almost exactly opposite from that of the Freshman year. During the Sophomore and Junior years, female residents and non-residents used the health services at almost the same rate. The use of the health services by the residents increased each of the first three years as did the use by the non-residents. More than seventy percent of the females in both groups used the services in three of the four years.

The use of the Infirmary by female non-residents was significantly higher than the use of the Infirmary by female residents. The non-residents made proportionately more visits than the residents in the Junior year while the proportionate number of visits was the same for both groups in the Senior year. There was a noticeable decline in the use of the Infirmary by both groups in the Senior year.

The use of the SHS by the male graduates showed no significant differences between the Oregon residents and the non-residents.

The non-residents made proportionately more visits than the residents in the Sophomore, Junior and Senior years. The use of the SHS by the residents declined each of the four years. There was a noticeable decrease between the Freshman year, when seventy-eight percent of the residents used the SHS, and the Senior year, when fifty-four percent of the residents used the services.

The non-resident male students made proportionately more visits to the Infirmary than the residents all four years. There were no significant differences in the use of the Infirmary between the male residents and non-residents.

The results of the use of the SHS by resident and non-resident students concurs with the findings of a study by Gold (1973), who also found that non-residents use the services more than residents.

#### Geographic Areas in Oregon

The use of the SHS by the female graduates from the Corvallis area was significantly lower than the use of the SHS by female graduates from other areas in the Sophomore and Junior years. In the Senior year Corvallis area females used the SHS at a significantly lower rate than the females from the Willamette Valley and "Other Oregon Areas" but there were no differences between the females from the Portland area and those from the Corvallis area. The Sophomore year resulted in no significant differences in usage by any of the groups. The females from "Other Oregon Areas" used the SHS proportionately more in the Freshman and Sophomore years, while



the females from the Willamette Valley utilized the services more than the other groups in the Junior and Senior years. The percentage of females from the Corvallis area who used the services was high for all four years. Sixty percent of females from the Corvallis area used the services in the Freshman, Sophomore and Junior year, while sixty-four percent used the services in the Senior year.

There were no significant differences in the use of the Infirmary by the female graduates from the various geographic areas in Oregon. Those from the "Other Oregon Areas" made proportionately more visits to the Infirmary than did females from the Corvallis, Willamette Valley and Portland areas in the Freshman, Junior and Senior years and made the same percentage of visits as did the females from the Willamette Valley in the Sophomore year. There was a noticeable decline in the use of the Infirmary by all of the groups in the Senior year.

There was a significant difference in the use of the SHS between the male graduates from the Corvallis area and the three other areas in the Junior year. In the Freshman, Sophomore and Senior years there were significant differences between the males from the Corvallis area and the males from the Willamette Valley and the Portland area, with males from the Corvallis area using the services less than the other groups. The males from the Portland area used the SHS proportionately more than the other groups in the Sophomore and Senior years. The Freshman and Junior years showed those from the Willamette Valley and Portland area making

the same proportionate number of visits to the SHS. The number of male graduates from the Corvallis area visiting the SHS declined all four years. More than fifty percent of the males from the Corvallis area visited the SHS in the Freshman and Sophomore years.

There were no significant differences in the use of the Infirmary by the male graduates from the various geographic areas in Oregon in any of the four years studied. The males from Portland made proportionately more visits than did males in the other groups three out of the four years. In the Freshman year the males from Portland and the males from "Other Oregon Areas" made the same proportionate number of visits to the Infirmary. The Senior year was the only year in which the males from Corvallis did not make the fewest proportionate number of visits to the Infirmary. Both the males from the Willamette Valley and the "Other Oregon Areas" made proportionately fewer visits than the males from Corvallis.

The results of this study concerning the use of the SHS by females from the various geographic areas in Oregon are similar to the results of studies conducted by Solleder (1961) and Gold (1973), who found that the farther away a student lives from campus, the more likely the student will use the services. However, this hypothesis did not hold true for the males because those who lived the farthest from campus did not have the highest proportionate number of visits in any of the four years. The male students from the Willamette Valley and the Portland area had proportionately more visits to the SHS than those from "Other Oregon Areas." The

same trend did not occur in the use of the Infirmary as the males from "Other Oregon Areas" showed the highest proportion of visits in the Freshman year and showed the second highest number of visits in the Junior year.

### CONCLUSIONS

Within the limitations of the present study, the following conclusions were drawn concerning the use of the Oregon State University Student Health Services.

1. Significant differences were found between sex and use of the SHS. The females used the facilities of the SHS more than the male students.
2. No significant differences were found in the use of the health services between the students who graduated and those who matriculated but did not graduate.
3. Significant differences were found in the rate of utilization of the SHS by students during their Freshman, Sophomore, Junior, Senior and Fifth years. Females used the SHS at a significantly higher rate during the Junior and Senior years; males used the SHS at a significantly higher rate during the Sophomore year and at a significantly lower rate during the Fifth year.
4. No significant differences were found in the utilization rates of the SHS by any of the students who graduated from the nine OSU Schools and Colleges. Males enrolled in the

schools of Liberal Arts, Education, Forestry, and Business and Technology made slightly more SHS visits than the males enrolled in the other schools and colleges, but the observed differences did not reach statistical significance.

5. Significant differences were found in the utilization of the SHS between the female graduates who changed majors and those who did not change majors. The female graduates who did not change major used the facilities of the SHS more than the female graduates who did change major. No significant differences were found in the use of the SHS between the male graduates who changed majors and those who did not change majors.
6. No significant differences were found in the utilization of the SHS by the graduates who had high SAT Verbal and Mathematic scores and those graduates who had low SAT Verbal and Mathematics scores.
7. No significant differences were found in the utilization rates of the SHS by graduates when grouped into estimated socio-economic level categories of low, middle and high. Female graduates in the high and low levels and male graduates in the high level used the SHS proportionately more than the other groups; however, the observed differences did not reach statistical significance.
8. No significant differences were found in the utilization of the SHS by the graduates who were residents of the state

of Oregon and those who were not residents. The female and male non-residents used the SHS proportionately more than the residents in three out of the four years; however, the observed differences did not reach statistical significance.

9. Significant differences were found in the utilization of the SHS between the graduates from the Corvallis area and the graduates from other areas of Oregon. The graduates from the other geographic areas made significantly more use of the SHS than the graduates from the Corvallis area.

Within the limitations of the present study, the following conclusions were drawn concerning the use of the Infirmary at Oregon State University:

1. No significant differences were found in the frequency of utilization of the Infirmary between male and female students. Slightly higher proportions of the females than males used the Infirmary during four of the five years under study; however, the observed differences did not reach statistical significance.
2. No significant differences were found in the use of the Infirmary by the students who graduated from OSU and the students who matriculated but did not graduate. The differences were significant for the males in the Senior year when the non-graduates used the Infirmary more than the graduates.

3. Significant differences were found in the rate of utilization of the Infirmary by the students during their Freshman, Sophomore, Junior, Senior and Fifth years. Freshman students utilized the services more than the upperclassmen.
4. No significant differences were found in the Infirmary utilization rates of the students who were graduated from each of the nine OSU Schools and Colleges.
5. No significant differences were found in the utilization of the Infirmary by the graduates who changed majors while at OSU and those who did not change majors.
6. No significant differences were found in the utilization of the Infirmary by graduates who had low SAT Verbal and Mathematics scores and those who had high scores.
7. No significant differences were found in the Infirmary utilization rates of the graduates when grouped into estimated socio-economic level categories of low, middle and high.
8. Significant differences were found in the utilization of the Infirmary by female graduates who were residents of the state of Oregon and those who were not residents. Non-resident females used the Infirmary significantly more than resident females. No significant differences were found in the utilization of the Infirmary by male graduates who were residents of the state of Oregon and those who

were not residents. Slightly higher percentages of the non-resident males used the Infirmary than did the males from the state of Oregon. However, these observed differences were not significant.

9. No significant differences were found in the utilization of the Infirmary by graduates from the Corvallis area and graduates from other geographic areas in Oregon.

#### RECOMMENDATIONS

Based on the review of literature and the results of this study, several recommendations are suggested for consideration.

1. Research should be conducted with a cross section of the student population to determine if the findings of this longitudinal study are applicable to cross sections of the student population.
2. Investigations should be conducted in an effort to determine the psychological reasons (academic performance, disappointment with adjustment to college life, financial difficulties, personal problems) for which students seek help at the SHS. Thus, it is recommended that a more detailed analysis be conducted in order to ascertain cause and effect relationships.
3. Research should be conducted to determine the medical reasons (colds, injury, communicable disease, respiratory infection, etc.) that prompt students to seek help at the

SHS. These results could be compared to the student characteristics of this study to determine if there are patterns of relationship between various illnesses and student characteristics.

4. Studies of this type should be replicated at other institutions of higher education to determine the differences among institutions in terms of student populations and use of student health services.
5. Research is needed on students who do not use the SHS to determine why they do not use the SHS when they have a medical problem. It should also be determined where these students go to take care of their medical problems.
6. Finally, it is recommended that the collection of information on the characteristics of students who use the SHS be continued. Such information can contribute to the effective organization of the SHS and thus help the SHS staff meet the needs of the students. Monitoring of freshman classes in terms of their changing characteristics should assist the SHS staff in keeping abreast of the population it serves.



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## APPENDICES

APPENDIX A

Frequency Graduates Used SHS  
(M=803) (F=577)

| Times<br>Used | FR. |     | SO. |     | JR. |     | SR. |     | 5th Yr. |    |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|---------|----|
|               | M   | F   | M   | F   | M   | F   | M   | F   | M       | F  |
| 0             | 294 | 198 | 285 | 173 | 312 | 158 | 349 | 166 | 116     | 62 |
| 1             | 174 | 108 | 152 | 108 | 143 | 75  | 124 | 96  | 55      | 34 |
| 2             | 121 | 78  | 100 | 82  | 118 | 84  | 91  | 71  | 33      | 23 |
| 3             | 77  | 66  | 89  | 50  | 71  | 58  | 69  | 72  | 21      | 13 |
| 4             | 51  | 30  | 50  | 46  | 48  | 51  | 54  | 56  | 11      | 3  |
| 5             | 29  | 28  | 30  | 34  | 26  | 39  | 37  | 40  | 7       | 2  |
| 6             | 19  | 14  | 33  | 18  | 31  | 32  | 26  | 25  | 2       | 1  |
| 7             | 14  | 13  | 10  | 19  | 13  | 19  | 20  | 16  | 8       | 2  |
| 8             | 8   | 12  | 15  | 16  | 11  | 18  | 11  | 8   | 0       | 1  |
| 9             | 6   | 6   | 15  | 10  | 10  | 11  | 8   | 6   | 0       | 1  |
| 10            | 5   | 6   | 9   | 8   | 4   | 11  | 6   | 6   | 1       | 1  |
| 11            | 3   | 5   | 5   | 6   | 3   | 6   | 2   | 3   | 0       | 2  |
| 12            | 1   | 6   | 3   | 1   | 1   | 2   | 3   | 8   | 0       | 0  |
| 13            | 0   | 2   | 3   | 1   | 2   | 2   | 2   | 2   | 0       | 0  |
| 14            | 0   | 1   | 1   | 2   | 3   | 6   | 0   | 1   | 1       | 0  |
| 15            | 0   | 1   | 2   | 2   | 1   | 2   | 1   | 0   | 0       | 0  |
| 16            | 0   | 2   | 0   | 1   | 2   | 1   | 0   | 1   | 0       | 0  |
| 17            | 0   | 0   | 0   | 0   | 1   | 0   | 0   | 0   | 0       | 0  |
| 18            | 1   | 0   | 1   | 0   | 1   | 0   | 0   | 0   | 0       | 0  |

## APPENDIX A continued

| Times<br>Used         | FR.  |      | SO.  |      | JR.  |      | SR.  |      | 5th Yr. |      |
|-----------------------|------|------|------|------|------|------|------|------|---------|------|
|                       | M    | F    | M    | F    | M    | F    | M    | F    | M       | F    |
| 19                    | 0    | 0    | 0    | 0    | 1    | 1    | 0    | 0    | 0       | 0    |
| 20                    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0    | 0       | 0    |
| 21                    | 0    | 0    | 0    | 0    | 1    | 1    | 0    | 0    | 0       | 0    |
| 22                    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0    | 0       | 0    |
| No.<br>Used           | 509  | 379  | 518  | 404  | 491  | 419  | 454  | 411  | 139     | 83   |
| %<br>Used             | 63%  | 66%  | 65%  | 70%  | 61%  | 73%  | 57%  | 71%  | 43%     | 57%  |
| $\bar{X}$ No.<br>Vst. | 2.83 | 3.54 | 3.42 | 3.66 | 3.35 | 4.24 | 3.36 | 3.65 | 2.55    | 2.53 |
| S.D.                  | 2.24 | 3.03 | 2.79 | 2.95 | 2.86 | 3.36 | 2.52 | 2.82 | 2.05    | 2.28 |



## APPENDIX B

Frequency Graduates Used Infirmary  
(M=803) (F=577)

| Times<br>Used         | FR.  |      | SO.  |      | JR.  |      | SR.  |      | 5th Yr. |      |
|-----------------------|------|------|------|------|------|------|------|------|---------|------|
|                       | M    | F    | M    | F    | M    | F    | M    | F    | M       | F    |
| 0                     | 726  | 503  | 728  | 500  | 737  | 523  | 766  | 555  | 321     | 141  |
| 1                     | 66   | 63   | 64   | 66   | 60   | 47   | 33   | 21   | 4       | 4    |
| 2                     | 10   | 9    | 9    | 8    | 4    | 6    | 4    | 1    | 0       | 0    |
| 3                     | 1    | 2    | 0    | 3    | 1    | 1    | 0    | 0    | 0       | 0    |
| 4                     | 0    | 0    | 1    | 0    | 1    | 0    | 0    | 0    | 0       | 0    |
| 5                     | 0    | 0    | 1    | 0    | 0    | 0    | 0    | 0    | 0       | 0    |
| No.<br>Used           | 77   | 74   | 75   | 77   | 66   | 54   | 37   | 22   | 4       | 4    |
| %<br>Used             | 10%  | 13%  | 9%   | 13%  | 8%   | 9%   | 5%   | 4%   | 1%      | 3%   |
| $\bar{X}$ No.<br>Vst. | 1.16 | 1.18 | 1.21 | 1.18 | 1.14 | 1.15 | 1.11 | 1.10 | 1.00    | 1.00 |
| S.D.                  | 1.37 | 0.43 | 1.74 | 0.44 | 1.43 | 0.36 | 1.27 | 0.20 | 0.00    | 0.00 |

APPENDIX C

Percent of the Students in the Class of '72 Who used the Student Health Services at Least Once During the Time They Were on Campus.

|            | GRADUATES |        |       | NON-GRADUATES |        |       |
|------------|-----------|--------|-------|---------------|--------|-------|
|            | MALE      | FEMALE | TOTAL | MALE          | FEMALE | TOTAL |
| Number     | 803       | 577    | 1380  | 1027          | 875    | 1902  |
| % Used     |           |        |       |               |        |       |
| SHS At     | 723       | 534    | 1257  | 698           | 674    | 1372  |
| Least Once | (90%)     | (93%)  | (91%) | (68%)         | (77%)  | (72%) |

APPENDIX D

Number and Percent of the Students in the Class of '72 Who used the Infirmary at Least Once During the Time They Were on Campus.

|   | MALE         | FEMALE       | TOTAL        | MALE         | FEMALE       | TOTAL        |
|---|--------------|--------------|--------------|--------------|--------------|--------------|
| NUMBER  | 803          | 577          | 1380         | 1027         | 875          | 1902         |
| % Admitted<br>To<br>Infirmary<br>at Least<br>Once | 290<br>(36%) | 231<br>(40%) | 521<br>(38%) | 186<br>(18%) | 211<br>(24%) | 397<br>(20%) |