SALISBURY STATE COLLEGE SCHOOL OF NURSING

This is to verify that Catherine Walsh successfully defended her Master's thesis entitled

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A COMPARISON OF THE HEALTH PRACTICES OF NURSING AND LIBERAL ARTS MAJORS AT SALISBURY STATE COLLEGE

by

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ABSTRACT

The purpose of this study was to describe and compare the health practices of Nursing students and Liberal Arts students in six areas, smoking, alcohol use, exercise, weight control, seat-belt use, and hours of sleep per night. The study population consisted of a convenience sample of 82 Salisbury State students, 55 of whom were Nursing majors and 27 of whom were History, English, and Philosophy majors.

A descriptive research design was used for this investigation. Demographic data and data on health practices were collected using the Health Risk Assessment (HRA) questionnaire from the Center for Disease Control in Atlanta, Georgia. An additional page was added to the HRA questionnaire by the researcher ascertaining academic major, grade point average (GPA), year in school, and place of residence. Subjects who were not junior and senior female students, under twenty five, in any of the above majors were excluded from the study sample. Demographic analysis showed that the study samples were similar with respect to race, residence, and GPA. Chi-square analysis indicated that Nursing students in this sample abstained significantly more often from smoking (X^2= 14.44, df= 1, p= 0.0007). Although there was no statistically significant difference in alcohol use, Chi-square analysis revealed that there was a tendency toward less use of alcohol on the part of the Nursing students compared to the Liberal Arts students (X^2= 3.6638, df= 1, p= 0.0556). There were no statistically significant differences found between the two groups in exercise habits, weight control, seat-belt use, or nighttime hours of sleep.

Because the results of the study are not well-supported in the literature, further investigation is needed to ascertain health practices of college students in general and of nursing students in particular.

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CHAPTER I

INTRODUCTION

Healthy People (1979) states that "many adult health problems today...can frequently be controlled by the individual. And the measures required are often not particularly dramatic. An individual's risk of disease can be substantially reduced (or increased) by a few simple personal decisions with respect to smoking, alcohol use, diet, exercise, seat belt use, and periodic screening for major diseases such as high blood pressure and cancer." (p. 6/27). The following study was undertaken in order to ascertain student behavior relating to certain common health practices.

The past 150 years of medical and technological development have seen the drastic reduction of mortality rates from infectious diseases. Many of these diseases have historically affected children and the young. Especially during the 19th Century, advances were made against such diseases as small pox, tuberculosis, and typhus, allowing the period of youth to become relatively "safe". These advances were made by the scientific community and required little or no participation by the public because immunization, once done, required no further health behavior on the part of the patient. It was necessary only that the patient 'show up' for his appointment at the clinic office. Neither effort nor knowledge of the effects of one's actions were necessary. Nor was it necessary to understand the chain of events involved in the exposure to a microbe and the possible outcomes. The work of the scientific community had resulted in the breaking of this heretofore inevitable chain of events by vaccination, pasteurization and the administration of

antibiotics. These treatments nullified the chain of infection, and thus, dangers which the public had previously known and feared disappeared from its consciousness.

But a new scientific age is underway. The new killer-diseases, such as heart disease, cancer and stroke, arise not from accidental 'innocent' contact with a contagion, but are the partial result of neglect of good health practices over the now-lengthened life span. The new killers are chronic in nature, time-dependent and age-related. They cannot be 'cured' by a 'magic bullet', they can only be prevented or delayed. They are, as Richards calls them, "the diseases of civilization", (Richards, p. 143) the diseases of comfortable living, of three 'guaranteed' meals a day, of an oil-powered, climate-controlled society. These diseases are also intimately bound to the poorly-understood 'inner-clock' mechanisms of the body. The longer we live, the more susceptible we become. There is no one-step event to which we can resort to prevent them. In order to delay or prevent these diseases, it has become necessary for the individual actively to participate in rational strategies over the life span. Daily effort and daily choices are now required, as opposed to the old strategies of the bacteriological era, such as 'showing up' for one's innoculations.

In dollar amounts, the Wall Street Journal (1982) reported the time lost from work due to employee smoking, for example, cost U.S. industry $36 billion in 1980. Whereas the average private citizen does not believe this cost impacts upon him personally, the expense of health insurance alone reflects the high cost of chronic illness. Long-term treatment for chronic illness involves not only large dollar amounts for physicians overseeing treatment, but large sums paid to hospitals for expensive diagnostic machinery, staff, drugs and other related items as well. The ever-spiraling cost of health care that we have seen in the latter half of the twentieth century is due, in part, to the nature of the diseases we must now deal

with. Whereas influenza, pneumonia, and tuberculosis were the leading killers in 1900, today's leading causes of death are heart disease, cancer, stroke and accidents, (for people under 40).

The old adage "an ounce of prevention is worth a pound of cure" had previously been a kind of call for adherence and compliance to immunization schedules. There is now a new meaning for that adage, namely a call to prevention of a very different order. This contemporary meaning of prevention, however, comes with no "pound of cure" attached. The chronic diseases have no "cure", and no single event prevents their onset They cannot be diagrammed on paper by simple host-agent relationships seen in basic microbiology texts. Rather, prevention is now a way of living, a lifestyle in which countermeasures are taken to avoid a disease over the whole life span. Avoiding those environments, situations and conditions which put a person at risk for the eventual onset of a disease is the only 'solution'. The practice of consistent healthy behavior is one way which may prevent or delay the onset of incurable disease. Thus, the major question facing us today and for the forseeable future is, what constitutes this notion of prevention? In order to practice a preventive lifestyle, avoidance of behavior which research has shown to be conducive to cancer, heart disaease, stroke, as well as accident and injury, is necessary. Research in smoking, diet, and alcohol shows that the way we live contributes to a large degree to what illnesses we get. An excess of dietary fat, for example, has been significantly linked to coronary artery disease and to some forms of cancer, such as colon cancer and breast cancer. Obesity has been shown to be linked with some forms of diabetes. Sedentary lifestyles have been associated with heart disease, stress, overweight. The non-use of seat belts, and the over-use of alcohol have been well documented as factors in automobile fatalities and injuries. Many things we do on a day-by-day basis have been found to have catastrophic cumulative effects on our health.

The more knowledge we gain about the new chronic killers, the more it becomes evident that we ourselves have been sowing the seeds of our own destruction. In addition, we have been aware for some years that the seeds of this destruction are sown very early in the life span, perhaps as early as the first or second decades of life. Kreutler (1980) states that "fatty streaks have been observed in the walls of the aorta, or main artery, of very young children, and these fat deposits become increasingly frequent and extensive in the second and third decades of life". (p. 109). Thus, the evidence has mounted that lifestyle and living habits matter, not just in middle age, but in childhood and young adulthood as well.

Because the health behaviors during the first two decades have such impact on one's later health status, it is imperative that good health habits are acquired as early in life as possible. There are today, many programs which focus on the young adult. Young adults have been considered optimal educational targets because they are at the point in their lives where they must begin to make major choices, not only vocationally, but personally as well. What sort of daily lifestyle to adopt belongs to this area of personal choice which faces young adults. These decisions are not always consciously nor conscientiously adopted. Sometimes choices are made according to the principle of least resistance. But in any case, those between 17 and 23 are at the age where most are becoming independent for the first time, and as such, they are a most appropriate focus of health risk and lifestyle assessments. The lifestyle habits which a young adult practices will have a major effect on his health long after he has left his youth behind. In elementary and secondary students, health habits and lifestyle are primarily determined by the adults in their lives, particularly in their home life. Life style choices and changes are difficult for these students to make. This is in marked contrast to the college-age person. Assuming that the post-secondary years are years in which the

individual lives away from the home for a significant portion of the year, some independence can now be exercised.

Safety and injury factors must be examined when assessing the health practices of young people since they constitute the 'short term' risks to this group, those things for which they are now statistically at higher risk. But further, any assessment of health practices of young adults must focus not only on those things which present immediate threats to the health of those young people, but also on those health practices which could threaten health status later in life, the 'long term' risks. That is to say, these same young people must also be on guard against those practices which encourage the development of heart disease, cancer and stroke, since, as we have said, the beginnings of these diseases are laid down in the first two decades of life. Thus, the awareness of the college age person must not merely focus on health practices with which he is immediately concerned, such as safety factors, but he must also concern himself with smoking habits, diet, weight, and exercise in order to prevent future problems. "The potential exisits to promote substantial changes in the profile of disease and disability among American adults. But collective resources will have to be mobilized to assist individuals seeking to enhance their prospects for better health, as well as protect them from threats not within their control." (Healthy People p. 6/27). Because young people are the future of the nation, it is vital to understand what they are thinking about their own health status, and how they see their own self-care in relation to that health status. Inherent in the notion of personal decision for better (or worse) health practice is the assumption that certain influences on health status are within a person's control.

The purpose of this study was to assess and compare some of the health practices of two groups of college students, nursing students and liberal arts students, in order to find out what differences in health behavior there may be. Since Healthy People has stated that some of the leading causes of disease and

death could be substantially reduced by lifestyle habits well within the control of individuals, six health behaviors were examined in this study, namely, smoking, alcohol consumption, exercise patterns, weight control, sleep patterns, and seatbelt use. To be sure, lifestyle as manifested by these six behaviors is not the sole determinant of health. Heredity, age and sex, for example, which cannot be changed, constitute powerful factors which ultimately affect health status to a considerable degree. But it is an assumption of this study that good health can be maximized by good health practices within the framework of those factors that are in one's personal control.

In health education literature, while much work has been done on the effects of social support, health education classes and media campaigns on health practices, there is a surprising deficit of studies done on the effects of college major, such as nursing, on subsequent health practices. There is a paucity of studies which directly compare two groups of students, with such disparate academic backgrounds as liberal arts and nursing, with respect to their health practices.

Such studies have a fundamental importance for the nursing profession. Now more than ever, the need for nurses to be leaders and role models in their practices is clear. In all areas of nursing, not just in the community health field or in the field of education, but also in hospital nursing, nurses must show patients by what they themselves do, that lifestyle is of primary importance in preventing premature chronic illness.

When nurses live unhealthy lifestyles, they give tacit approval to those lifestyles, and thereby communicate to patients that it is acceptable to do so. This lessens the credibility of the preventive message which health professionals are spending their resources to disseminate. It would seem as unethical to set this negative example to patients, as it would be, for instance, to advocate medical cleanliness during a surgical procedure and then fail to use gloves. Patients are be

likely to become cynical about professional advice and directives when they observe profound disregard for the same by the advice givers. "Physicians, nurses, and other health professionals have a particular opportunity and obligation to provide information and services necessary to promote better health and prevent disease....These professionals need to be trained to view themselves as educators and models, as well as practitioners of a particular discipline." (p. 11/4).

A study comparing the health practices of nursing students with those of their college contemporaries will provide a baseline concerning the health practices of people with such widely differing educational experience, and will hopefully yield some data which will increase the understanding of what is involved, or not involved, in the adoption of good health practices by young adults.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

In this chapter, literature will be reviewed on the health practices of nursing students and non-nursing students, including smoking, alcohol consumption, excercise, use of seat belts, weight control, and sleep. As stated in Chapter 1, these health behaviors have been cited in many studies as of paramount importance in maintaining good health over one's lifetime, and in preventing the early onset of chronic disease. In order to make this examination reasonably orderly, studies looking at the health behaviors of nursing students and non-nursing students will be briefly outlined first. This section will be followed by a longer section examining studies which detail the health practices of smoking, drinking, weight, excercise, seat belt use, and sleep in these groups. These studies will be reviewed in greater detail.

College Students' Support Systems and Health Education

Studies which have focused on college students have dealt with a population of people, most of whom are living away from home for the first time. As such,

there is a tendency for these students to look to peers for social support (Price, 1973; Murray, 1981; Gottlieb 1986) instead of parents. There are some studies which show that college faculty can be influential (Hartweg 1986), but the greatest influence on students is peer influence.

Many students have complained that although they have an interest in health education, they cannot take such courses due to time constraints of other courses, studying, or job activities (McClaran, 1985). Some studies have shown that efficacious decision-making has been facilitated by mini-health education courses given to students in colleges (Haro, 1969; McClaran, 1985). After taking such health courses, students have commented that they contained valuable information and should be requirements for all students (McClaran, 1985). The McClaran study found that the health practices which students attempted most often to change were those related to diet and exercise. A study done by Petosa (1984) found, on the contrary, that health behavior contracts between instructor and college students had no significant impact on health behavior for students in that sample taking the course. The Petosa study also revealed a high level of stability in students' health practices over the course of the semester, that is, they did not change significantly.

Common Health-related Behaviors

Smoking

General College Population.

Four years after the first report of the Surgeon General announced cigarette smoking was associated with lung disease. Haro and Dilley (1969) conducted a base-line study of smoking behavior, attitudes and beliefs among the college

student population. Beginning in 1966 and continuing through April of 1967, recruitment for participating academic institutions took place. Seventy-two institutions were contacted before a sample of 50 institutions was achieved. An eight-page questionnaire, which the authors did not describe, was given to students in these 50 institutions. Distribution of the questionnaires and the beginning of student sampling within those 50 institutions were started in March of 1967, and the sampling phase of the project continued until November of 1967. The authors reported that a sample of 43,152 students with 22,147 males and 21,005 females was used, although they failed to report whether the sample was obtained randomly or was a sample of convenience. (The authors did mention that their sample did not reflect the male-female ratio in the college population, but rather reflected the ratio in the general population). The questionnaire divided the students into smokers, ex-smokers, and non-smokers. The data were compiled using frequencies to examine smoking behavior, academic class and sex. In the sample, male and female numbers of smokers were about the same, indicating that females were accepting the idea of smoking in ever greater numbers. The researchers stated that people in the humanities smoked the most (but failed to give percentages), followed by those in the social sciences (over 49%). About 40% of education majors smoked as well. The study also found that many people began smoking in college, and that males smoked more than females. About 50% of the females and 47% of the males were concerned about the effects of cigarette smoking on their health. The study found further that the junior and senior classes had higher proportions of smokers than the other classes.

In another study done in 1969, Peterson and Kelley studied the effects of chronic cigarette smoking on physical fitness of college students as measured by their aerobic capacity. At the University of Maryland, 60 male student volunteers were recruited. None were members of the varsity or freshman athletic teams, nor

did any of the subjects have any unusual medical histories. Smokers were defined as those who smoked a pack of cigarettes a day for at least a year. The nonsmokers either had no previous experience with cigarettes or had abstained from smoking for at least a year. All the subjects then participated in a training program in which they were initially required to run four 440-yard dashes at a pace of eighty-eight seconds three times a week, increasing to a total of seven 440-yard dashes. During the period of increase, a new dash was added every two weeks. There were intervals of two-minute rest periods between each run. Independent t-tests, analysis of variance and Tukey's Honest Significant Difference were used to analyze the difference in means between the smokers and non-smokers at two week intervals. The results indicated that the nonsmokers initially had a greater estimated aerobic capacity than the smokers. The nonsmokers mean aerobic capacity increased significantly from the second to the fourth week of training. The smokers did not show significant mean aerobic increase during that period. The nonsmokers again showed a significant increase from the fourth week to the sixth. Again, the smokers did not. Thus, the smokers were not able to record as many significant mean increases in aerobic capacity as the nonsmokers, nor could they increase their level of fitness at the same rate as nonsmokers. The authors also point out that the smokers did not record any significant changes in mean aerobic capacity for any two consecutive tests, in contrast to the nonsmokers. Thus, the authors concluded that students who were smokers generally had a decreased ability to take in and use oxygen in their body tissues, and that the nonsmokers were consistently superior in reaping the benefits of the training program.

Looking at the entering freshmen in the classes of 1977, and 1981, Gould and King (1978) did a study of Harvard and Radcliffe undergraduates which showed that fewer undergraduates had entered college as smokers than was the case for students in the classes of 1964 and 1965. Since all freshmen living in

dormitories were required to fill out rooming questionnaires, the Dean of Freshmen's Office granted permission to the researchers to collect information on the question "Do you smoke"? (Yes or no?) with respondents remaining anonymous. The ratio of men to women in the dorm was comparable to the ratio of men to women in the whole class of 1977. The students in the dormitories comprised 81% of the class. In the class of 1977, 9% reported being smokers in their Freshman year, and 91% reported not smoking. When the Class of 1977 was sampled in their senior year, 13% reported being smokers. The same procedure was used to sample the class of 1981 in its entirety. In this class, 27 men and 46 women, a total of 73 students (5%) reported smoking in their freshman year and 87% reported not smoking. Unfortunately, when the article was written, the data were not available on percentages of smokers for this class in their senior year. But it can be said that there was a downward trend in smoking for entering students. Some students still became smokers while in college, but whether the trend was downward in the percentages for smoking college seniors could not be ascertained due to the missing data. The authors stated in their discussion that the correlation between education and smoking behavior merits further study, but they found some evidence to conclude that there is an inverse relationship between smoking and education, not only in the Harvard student population, but in the general population of all college students as well.

A 1983 study by Page and Gold addressed the question of whether there are gender differences between men and women concerning their beliefs about the consequences of smoking, their evaluations of those consequences, their normative beliefs and their motivations to comply. An instrument designed to test these beliefs, motivations and evaluations was administered to all 34 health classes at Southern Illinois University resulting in more than 500 completed instruments. Of these, a convenience sample of 68 female and 53 male subjects who said that they

intended to smoke in the next 24 hours was selected. An additional 50 males and 50 females who reported that they did not intend to smoke in the next 24 hours were randomly selected from the original 500 to be part of the sample. The resulting sample consisted of 221 students, 118 females and 103 males. Gender was used as the independent variable in the study, and beliefs, evaluations, normative beliefs and motivation to comply were the dependent variables, measured by single seven-point bipolar scales. All scales were weighted from +3 (extremely good, extremely likely, etc.) to -3 (extremely bad, extremely unlikely). The zero point on the scales was interpreted as nonagreement with either alternative on the scale. MANOVA tests indicated that there were significant gender differences on beliefs, normative beliefs, and motivations to comply. There was no significant gender difference on evaluations. The results indicated that females were more likely than males to believe that cigarette smoking would leave a bad odor on clothing, that it would keep weight down, that it would give one something to do with one's hands, that it would help a person concentrate, that it would increase dependency on cigarettes and that it would be expensive. With respect to normative beliefs, females were more likely than males to believe that doctors and most nonsmokers think that they should not smoke cigarettes. With respect to motivations to comply, females were significantly more willing than males to do what their mothers and most significant others thought they should do. They were also more willing to comply with doctors' advice than were males. The authors concluded, based on the results of their study, that males and females should be studied separately on smoking behavior, and that consideration for different structuring of smoking prevention and cessation programs for males and females be given. The differences between the genders with repect to their views of cigarette smoking has interesting implications, particularly regarding health education. It would, on the basis of the findings in this article, seem profitable to study males

and females separately, since the etiology of their smoking behavior is based on different thinking. For example, in this study, the females had the idea that cigarettes "leave a bad odor on clothing". (p. 535) Thus "females", reason Page and Gould, "appear to be more sensitive to the odor of cigarette smoke than do males". (p.535) Females are also, according to the authors, more likely than males to believe that cigarette smoking will help keep weight down. Thus, any effective anti-smoking campaign will have to take these kinds of factors into account, and may have more fruitful results if it focuses on these points. Since gender motivations and beliefs seem to differ, different health education strategies would seem to be necessary.

In a study by Gottlieb and Baker (1986), smoking behavior was examined among three groups at the University of Texas at Austin: adults from the community in a fitness class, a conditioning class and an academic class, both of the latter composed of university students. Among men, there were more current smokers in the adult program (8.5%) than in the college conditioning program and the college academic group (6% each). But among the women, the opposite was true. The college academic class women had the highest proportion of current smokers (11%), followed by those in the conditioning classes (5.5%), and the adult health program (3%). Smoking by male and female friends was related to the subjects smoking behavior, with gender congruence being important to smoking behavior. In the college academic classes, women were more likely to smoke than either the men or the older women in the adult fitness classes. This, the authors venture, supports the findings in the literature that teenage and college age smoking is on the rise among women.

Nursing Students and other Health Professionals.

Price and Collins (1973) found that entering nursing students smoked less than upper-level nursing students. This could have been due to the effect of the public campaign against smoking on people emerging from adolescence, or perhaps due to the lower level of stress encountered by nursing students at the entry level of nursing school. This study was done by giving a questionnaire to University of Wyoming nursing students in all four classes, the results of which were analyzed by Chi-Square and stepwise multiple prediction, (this latter used to predict quitting behaviors). One hundred and eighty one nursing students (96% of the enrolled nursing students), filled out a one-page questionnaire. Information about smoking history, amount of smoking, age, sex, class, smoking by family and friends, and knowledge of the physiological consequences of smoking on lungs, heart, etc. was obtained. The questions used were revisions of questions from an older study by Levitt and Edwards done in 1970. Results indicated that of the 181 students, 55 (30%) reported never having smoked. Sixty two (34%) had smoked at one time, but had stopped, and 56 (31%) reported being current smokers. The findings indicated that "the incidence (sic) of smoking is higher among nurses, but so is the tendency to stop smoking". (p.348) In the relationship between class and smoking, freshmen showed the highest percent of persons who had never smoked (45%). Sophomores, juniors and seniors had between 20% and 30% non-smokers. The authors explained this rise in the smokers category between the freshmen year and subsequent years saying that either 20-30% of the students took up smoking after starting the nursing program, or that a higher proportion of freshmen had decided not to smoke. In this cross-sectional study, there were no available answers. A longitudinal study of the

freshmen class would have been necessary to determine such answers. Price and Collins found that the highest prevalence of smokers were sophomores (41%) and the highest prevalence of quitters were juniors (49%). The senior class reported 40% smokers and only 31% who had quit. The data from this study showed that "nearly everyone realized the harmful effects of smoking on heart and lungs". (p.348) Although there was no statistically significant correlation between student smokers and smokers in the family, there was a tendency for current and past smokers to come from families with a smoker. This tendency was even more pronounced for students whose best friends smoked. Thus peers, followed by parents, were found to be the most important factors influencing smoking of these Nursing students. Best-friends coupled with most-friends smoking patterns was the best pair of predictors of the nursing students' smoking habits. The number of cigarettes smoked per day was found to be the best single factor influencing quitting. That is to say, the more cigarettes that were smoked, the less likely a person was to quit.

Smoking, as a health behavior, is discussed in the Morbidity and Mortality Weekly Report (MMWR) (1977) as it occurred in a study of the behavior of practicing physicians and nurses, dentists and pharmacists. Although this study is a relatively old study, and deals with practitioners rather than students, it is of interest because it provides us with an idea of the behaviors and attitudes of health practitioners themselves that were prevalent at that time, more than 10 years after the Surgeon General's Report on smoking issued in 1964. The MMWR report found that smoking, as a behavior, had decreased markedly by 1975 among physicians, dentists, and pharmacists. However, among nurses, it was found to be on the same approximate level as it was in 1969.

A study by Murray, et. al. (1981) of incoming nursing students to the Nightingale School of Nursing in London, England looked at patterns of smoking

behavior among nursing students. The study recognized that nurses smoke more than other health professionals, and was seeking to answer the question as to why this was so, "despite their knowledge and experience of the health hazards involved..." (p. 255). The results indicated that the students who smoked were those with smoking friends, or were from smoking families. Smokers were generally older than 19, those under 19 constituting only 15% of the smokers. Thirteen percent of those with a university degree were smokers, compared with 43% of those with no university degree. The authors also found that those students with previous experience in nursing were about three times as likely to smoke as those without experience. When asked why they thought nurses smoked, the view of the non-smoking nurses was that the stresses of the job caused some nurses to take up smoking. Nurses who were smokers, on the other hand, expressed the view that people in nursing began smoking for the same reasons that people in other professions began smoking, (e.g., enjoyment, social pressures, etc.). Murray and his colleagues found that a smaller than expected proportion of nursing students at that school were smokers. They speculated that this might be due to the fact that many of the students come from middle-class backgrounds.

A study done by Coe, et. al. in 1982 looked at the habits of medical students compared to law students. The study also compared student smoking behavior with that of the practioners in both fields. The data were collected by means of self-administered questionnaires to first year law and medical students at a private midwestern university during the first week of classes. In the area of smoking, 81% of the new medical students reported never having smoked compared with 66% of the law students. Twelve percent of the medical students classed themselves as former smokers compared with 15% of the law students. Seven percent of the medical students reported being current smokers, and 19% of the law students classed themselves as such. Although the law students smoked

three times more than the medical students, the study was careful to point out that the rate for law students was less than half that of the general population in this age group. The study also showed that medical students expressed more belief in self-responsibility for personal health than law students, as measured by two items on the questionnaire. The first item asked if adults were "reponsible for [themselves] to avoid getting sick". (p.726) Seventy four percent of the medical students agreed compared with 69% of law students. The other item stated that scientists will have cures for today's diseases "by the time I get old". (p.726) Forty seven percent of the medical students disagreed compared to 30% of the law students. In the practitioner group, the prevalence of cigarette smoking among physicians was 14% and among lawyers it was 20%. In the discussion, this study asks two questions: (1) Why do medical and law students tend to mirror the health practices of their practicing elders? and (2) Why do these students show more health behavior than the general population? The authors give four possible reasons: (1) <u>self-selection</u> of this professional population, that is, students who are drawn to medicine and law because they are interested in a career in which personal responsibility for behavior is important: (2) <u>socialization</u> due to pre-law or pre-med experiences and conformity to the "image" of their chosen professions: (3) <u>cohort effect</u> due to the fact that young people these days are more conscious of their responsibility for their own health than were previous generations: (4) <u>socio-economic background,</u> because the student populations are drawn from the upper classes for these professions, and upper class background rather than membership in the professions disposes one to good health practices.

Wagner (1985) corroborated the 1977 MMWR study a decade later. He took a 5% sample of the registered nurses in western New York state, a seven-county area. The sample was mailed an unnamed questionnaire composed of 48 items. Four hundred and ninety five people completed the questionnaire and

returned it, and another 9 questionnaires of 18 items were completed by telephone, yeilding a response rate of 62%. Ninety- eight percent of the 504 respondents were female. Forty-five percent of the sample had never smoked. Twenty-seven percent were former smokers. Those who reported being current smokers comprised 28% of the sample. The author found that a significant number of those who had never smoked (39%) were younger, that is from 21-30 years old. Of those nurses who were current smokers, 24% were in this age group. Wagner found, further, that a "specific smoking pattern showed regarding smoking behavior and generic nursing education. The percentage of those with a history of smoking fell as education level increased, from 60% at the diploma level to 53% at the AAS to 47% at the BSN level. The reverse pattern is evident for the percentages of Never Smokers for the three different levels of entry." (p. 58). Those with a history of smoking were asked to identify factors which influenced them to start smoking. Peer influence (71%), followed by the feeling of relaxation (36%), followed by the feeling that one was an adult (27%), accounted for reasons for smoking. Of the 279 repondents who smoked, 43% began smoking while in nursing school. But the study also found that smoking nurses smoked fewer cigarettes than smoking physicians, dentists, and pharmacists. In all these groups, smoking occured at a lesser rate than was to be found in the general population at that time. But the difference between nurses and the general female population was not as great as the difference between the other male-dominated professions and the general male population. In any case, the people in the four professions generally had come to believe that cigarette smoking was the cause of much lung disease. They also saw it as their role to set a good example for laymen. Health professionals were optimistic at that time that they could affect changes in their patients' cigarette smoking behavior.

Sobal (1986) found that first year medical students were twice as likely to be non-smokers than the general population. His study was done at the University of Maryland on 91% of new medical students in a required course. They answered a questionnaire including an open-ended question about their opinion as to which were the three most important health-protective behaviors which they practiced. In the first semester, 89% of the sample in this study reported themselves as regular non-smokers. In the second semester, the number increased to 90%. The results of the open-ended question was that substance avoidance, including tobacco, increased from 16% to 21% between the first and second semesters as one of their choices. Moreover, a greater percentage of people (12%) ranked the importance of tobacco avoidance as #1 in the second semester than they had in the first semester (8%). The medical students' health orientation and positive health practices are interesting for their possible implications. Personal involvement in good health practices may demonstrate commitment to the present-day preventive focus in the health fields. Personal involvement in health protection may also promote the same behaviors in patients. But while health-protective behavior such as abstinence from tobacco was found to be positive in these students, the author points out that other health practices may become problem areas due to the stress of medical school. Such stress may exacerbate unhealthy practices over the total course of their medical education. In any case, it must be noted that a two-semester study of beginning medical students may not be generalizable to medical students as a whole. Future studies would add to the understanding of the dynamics of adopting good health practices if they would follow a prospective design. Entering medical students need to be followed through medical school and into practice to see what happens to their own health behaviors, and what influence those practices have on the health practices of their patients. Sobal points out that "student culture in medical schools does not currently encourage health protective behaviors, nor do the immediate role

models of medical students in clinical rotations or medical residents provide reference groups practicing especially healthy lifestyles. Little social support for health activities exists in medical school. Anticipatory guidance by faculty and practicing physicians could assist medical stduents in developing and maintaining personal health behaviors throughout their professional lifecycles". (p.597)

In a study by Rausch, et. al., (1987), senior nursing students in the whole state of Alabama were given an 87-item questionnaire, administered in the classroom by the investigators. The study sought to show that 1) the educational level of the student nurse is associated with different smoking behavior patterns, 2) that previous exposure to a medical setting would be associated with higher prevalence of smoking, 3) that males will smoke more than females, 4) that older nurses will smoke more than younger nurses, 5) that breakfast frequency is a predictor for smoking behavior, 6) that excercise routines are predictors of smoking behavior, and 7) that caffeine consumption will be higher among smokers. The study found no significant difference in smoking prevalence between levels of nursing education at the .05 level of significance, but smoking prevalence showed a tendency to decrease as the amount of nursing education increased from diploma level through the B.S. level. This finding is similar to Wagner's 1985 study reviewed above. Smoking prevalence for the entire sample was 26.2%. The BS nursing students had a 24.23% smoking prevalence, the AD students had 26.1%, and the diploma had 30.0% prevalence of smokers. Male nursing students, who comprised 8.2% of the sample, smoked significantly more than females, 45% compared to 25%. Smokers in the sample also drank more coffee and ate breakfast less often. Only 18% of the smokers ate breakfast from 5 to 7 times a week compared to 34% of non-smokers. Excercise did not correlate with smoking in this study, while coffee drinking was highly correlated with smoking. The students in all the nursing schools of Alabama were used in the sample, including those at

Baptist University. In this institution, there was a strong expectation that people would behave according to the tennets of Southern Baptism, and that was reflected, in the author's opinion, by the extremely low smoking prevalences for both nursing programs in this school, (AD and BS). Smoking prevalences for AD students, in fact, rose from 26% to 30% when the conservative school was excluded from the sample. Out of 71 students in this school, six were smokers (8.5%). No correlation in this study was found between previous exposure to medical settings and smoking when age was controlled for. Those in the sample who were both older and previously exposed to medical settings were more likely to smoke. The author thinks that age may account for the relationship between previous exposure to medical settings and smoking, because older people are more likely to be smokers, having begun their smoking before the reports on the dangers of smoking became common. In this study, the authors assumed, based on other studies, that approximately one-third of nurses and student nurses used cigarettes. Further, they found that within the predominantly female professions of elementary education and nursing, while about 30% of the nurses smoked, the rate for elementary school teachers was 17%.

Summary of Smoking Studies

In studies of college student populations and their health practices, there are some trends which are evident. In the late sixties, for instance, there was evidence that college females had begun to smoke in increasing numbers (Haro & Dilley 1969). Also, throughout the period of time, from the publication of the first report of the Surgeon General in 1964 until the mid-eighties, college males have been found to evidence a greater frequency than females of high risk behaviors such as smoking and drinking (Haro & Dilley 1969, Rausch et. al.,1987).

More recently, the general trend has been away from cigarette smoking as a behavior, and its frequency today is far less than what was observed 25 years ago. Gould and King (1978) for instance, reported that fewer undergraduates were entering college as smokers than in previous years. This is also true in medical and law schools (Coe, et al, 1982; Sobal, 1986). Coe (1982) found that only 7% of the medical students smoked compared with 15% of the law students. In both cases, however, smoking was below the level of the general population (28%).

The literature on smoking shows an inverse relation between smoking and education (Gould and King, 1978, Murray, Swan, Mattar, 1981, Rausch 1987). Rausch, et. al., (1987) found smoking prevalence showed a tendency to decrease as the amount of nursing education increased from diploma level through the baccalaureate level. Wagner (1985) found the same tendency.

Smoking was begun by many university students while they were in college (Haro & Dilley, 1969, Gould and King, 1978) due in part to the pressures of student life, or because of peer and/or parent influence. The literature on student smoking also showed that in former years, students in the humanities smoked more than other groups of students, followed by students in the social sciences and education (Haro & Dilley, 1969). There is no recent literature which examines current smoking patterns in and among academic areas. Page & Gold (1983) report that they found significant gender differences in beliefs and attitudes toward cigarette smoking. Females were more likely than males to believe that cigarette smoking would cause odors on clothing, and help keep weight down, among other things. Rausch (1987) found that smokers in his study sample drank more coffee and ate breakfast less often.

Entering nursing students smoked less than upper-level students, (Price & Collins 1973) and female nursing students smoked less than male nursing students (Haro & Dilley, 1969, Rausch, et. al., 1987). Haro & Dilley (1969) also report

student concern about smoking as a health hazard. Nursing students have been shown to smoke more when they come from smoking families or have smoking friends. (Murray, et. al. 1981) These same authors also found that in the view of non-smokers, some nurses smoked because of the stresses of nursing. Nursing students smoke the least, according to the findings of Rausch, et. al. (1987), when they belonged to conservative religious groups.

The number of cigarettes which nursing students smoked per day, was found to be a factor influencing quitting (Price & Collins 1973). Several studies also found that those students who were older were more likely to smoke (Murray, et. al. 1981; Rausch, et. al. 1987). Rausch's study (1987) also found that students who had previously been exposed to medical settings were more likely to be smokeers.

The literature on the smoking behavior of students had several shortcomings. Firstly, it was excessively vague on both the quantitative aspects of smoking (number of cigarettes smoked per day) as well as the qualitative aspects (subjects' reasons for smoking). Quantitatively, although any smoking is unhealthy, one cigarette per day is not as detrimental to health as 20 cigarettes per day. The studies generally did not address this point when looking at student behavior. Qualitatively, there was much confusion and imprecision on the questions concerning the qualitative aspects of smoking, such as the psychological or sociological motives for smoking. The motives for smoking or not smoking were not well operationalized, and there were many confounding variables which were not addressed.

Secondly, a decided weakness in most of the studies was the question of self-report which the authors failed to address. The use of self-reporting questionnnaires was unavoidable in many studies, for reasons of time and money. But this type of study design made the study results inherently weaker, and this

was never made explicit. Reliance upon self-report for study data brought the validity of the data, and therefore the study results into question.

Lastly, in most of the studies, it could only be weakly argued that the results were generalizable to comparable age and gender groups, or to the population in general. This was due in part to the use self-report mentioned above. It was, however, also due to the fact that most studies used convenience samples of college students. A sample of convenience has no randomness in it, and thus can be thought neither to be representative of college students in particular, nor of young adults in general. Thus, statements made about young people on the basis of such results were not supportable.

Alcohol Use

Engs (1977) studied drinking patterns and problems of college students. The findings of studies done in the previous 25 years indicated an increasing prevalence of drinking among women and a slight increase among men. One purpose of her study was to assess the frequency and quantity of student drinking and resultant behavior problems. Another purpose was to compare her findings with the trends of past findings, although with the caveat that past studies used different sampling techniques. A third purpose was to analyze drinking behavior according to selected demographic variables. Thirteen schools agreed to participate in the study. In each school, a person from student personnel, health service, or the department of health education was asked to select a sample of 100 undergraduates, preferably a random sample, to which he could administer the Student Alcohol Questionnaire of 70 questions. The author states that the study had several built-in biases including the fact that most student participants were not randomly selected, nor were the participating institutions. In fact, the institutions

selected were part of an on-going project to stimulate alcohol awareness. Thus the drinking patterns at these institutions may not have been typical for colleges in general. The Student Alcohol Questionnaire consisted of 23 questions on drinking behavior, 36 questions on knowledge of alcohol and its effects, and 11 questions on demographic variables. The data were analyzed by means of Crosstabs and Chi-square tests. The study had a final sample of 1128 students, 48.1% of whom were men, 51.9% of whom were women. The sample was 79.3% White, 17.2% Black, and 3.7% "other". Thirty four percent were freshmen, 22% were sophmores, 21% were juniors, and 18% were seniors. The largest percentage (28.6%) came from communities between 500 and 50,000 people, while 21.9% came from communities under 5000. Seventy-one percent reported that their parents belonged to religious organizations which permitted drinking, while 14.4% were from Protestant backgrounds which did not allow drinking. The study results indicated that most (79%) students drank at least once a year, and about half (57%) drank at least once a month or more. About 30% of the students were abstainers or infrequent drinkers (drinking at least once a year, but less than once a month). Heavy drinking [defined as "drinking 5 or more drinks more than once a week" (p. 2148)] was reported by 12% of the total sample. Beer appeared to be the most popular beverage. The study found that "the percentage of students in this sample who are drinking- 79% -is about the same as that in samples studied in the past". (p. 2149) The percentage of heavy drinkers was slightly lower than in the past. "On the whole", Engs states, "it does not appear that problems resulting from drinking have increased appreciably in the past 15 years". (p. 2151) Further, the study found that the number of men who drank was slightly higher than it had been, but that there had been a steady increase in the number of women who drank. The number of men who reported heavy drinking (20%) was about 5 times greater than women who drank heavily (4%). The percentage of heavy drinking among

women had actually decreased from 10% in a 1953 study. The author speculates that there may now be "less pressure on women to drink heavily to prove that drinking by women is 'all right'". (p. 2152) The difference between college classes in drinking behavior was not found to be significant, but between the races, more Whites (84%) than Blacks (60%) drank, and about three times as many Whites as Blacks appeared to be heavy drinkers. Finally, GPA was correlated negatively with drinking, that is, the higher the GPA, the less students tended to drink.

Wechsler and McFadden (1979) collected data by means of a survey in which an unnamed 15-page questionnaire was mailed to students at 34 colleges and universities in 5 New England states. All were 4-year institutions whose programs of study led to the bachelor's degree. A random sample of 10,500 students (5000 men and 5500 women) was selected to receive the questionnaire. The subjects were assured of anonymity and confidentiality, and all participation was voluntary. Questionnaires were returned by 7170 students in the initial and follow-up mailing. Chi-square tests were used to determine the relationships between the demographic variables of the study, drinking behavior, and the consequences of alcohol use. The results indicated that "college drinking is nearly universal among New England college students". (p. 992) Fewer than 5% of the more than 7000 students reported themselves as abstaining from alcohol. Sixty-nine percent of the men and 50% of the women drank weekly, and the study showed a tendency for men and women to drink more often as they progressed through college. The study showed, further, that men drank more than women, both in terms of quantity and frequency. This was especially true of beer. More than twice as many men as women reported drinking beer on a weekly basis, usually drinking four or more beers on a given occasion. About 30% of the men compared with 10% of the women were classified as heavy drinkers. Thirty percent of white men were frequent-heavy drinkers compared with 16% of Blacks. Black women (12%) abstained

proportionately more than White women (3%), and fewer Black women (4%) were classed as heavy drinkers compared with their white counterparts (11%). The highest proportion of frequent-heavy drinkers, both male and female, was found among Catholics. Those students who regularly attended religious services had the greatest proportion of both abstainers and infrequent-light drinkers. The proportion of frequent-heavy drinkers was the lowest in this group. Parental drinking was found to be "an important determinant of whether and how much their children will drink". (p. 994) Proportionately more students in the heavy drinking category "described their fathers as heavy or problem drinkers; a similar relationship was not found with their mothers drinking patterns". (p. 994) A strong correlate of students' current drinking patterns was their reported frequency of drinking in high school, "indicating that, for the most part, the students had established their pattern of drinking before they entered college. Few students who abstained from alcohol in high school became heavy drinkers in college, while significant proportions (sic) of those who drank weekly in high school continued to do so in college". (p. 994) Wechsler and McFadden found that GPA and alcohol use were inversely related, higher GPAs being correlated with less alcohol use. The use of cigarettes and illicit drugs was more common among heavy drinkers, "and the extent of use of these substances paralleled the extent of use of alcohol". (p. 994) Consequences of drinking, e.g., physical fights, accidents, and trouble with the authorities were more common with the frequent-heavy drinkers, but women were significantly less likely to have experienced these consequences than men, especially in the categories of accident (37.4% men- 7.2% women), fighting (37.4% men- 7.2% women), and trouble with the authorities (44.3% men- 19.9% women). Since Engs' (1977) finding of less alcohol use than 5 and 25 years ago was at variance with the findings of these researchers, they attempted to explain the discrepancy as due to regional differences and differences in sampling methods within participating

institutions. In all but one institution, Engs used samples of convenience, whereas Weschler and McFadden had random samples. Also particularly difficult is meaningful comparison of these studies due to the different typology of drinkers. While both sets of categories use frequency over time, quantity/ session, and type of alcohol consumed to classify drinkers, the broadness of the category and therefore the "boundaries" of each category are different for these studies .

Coe, et. al. (1982) examined the drinking behavior of medical students as compared with law students. They found no statistically significant differences between these two groups with respect to their drinking behavior. The frequency of drinking was decribed as "moderate". Female students in both categories drank less than male students, but only for law students was the difference significant (p. < .05). Beer was the most frequently consumed beverage.

A study by Haack and Harford (1984) examined the use of alcohol among student nurses in a senior class in a school of nursing, and compared that pattern with studies of other collegiate samples, namely the studies cited above by Engs (1977) and Wechsler and McFadden (1979). A sample of 103 nursing students participated in the Haack study. They were given a questionnaire, as well as the Jones Staff Burnout Scale for Health Professionals. Twenty items from this scale measured burnout, and 10 items formed a lie scale. About 5% of the sample had positive lie scores, suggesting that there was some attempted dishonesty in reporting. One item from the Burnout scale correlated positively and significantly ($p < .01$) with each of the drinking items presented on the questionnaire, namely, "After work I often feel like relaxing with a drink of alcohol". While the proportion of nursing students who abstained was similar to that of other college women, the sample of other collegians had a higher proportion of <u>less</u>-than-weekly drinkers (33% for senior nursing students, 47% for other seniors). The student nurse sample also had a higher proportion of students who had drunk 4 or more days in

that past week (26%) than did the other college seniors (22%). Slightly higher proportions of the student nurse sample were defined as heavier drinkers than other senior women. Also slightly higher proportions of the student nurses were defined as moderate-heavy drinkers. When asked if their drinking habits interfered with their school work or their jobs, 10% reported that alcohol interfered with their school work and 4% reported that it interfered with their jobs. One student reported having problems with both. The combined percentage of students with either or both problems was 13%. The researchers found difficulties in attempting to compare the Engs (1977) and Weschler (1979) studies to their own because in these studies of college seniors, the questionnaires had slightly different definitions of "heavy", making inter-study comparisons rather difficult and only approximate at best. However, Haack, et. al. (1984) felt there was enough data to assert that, by and large, the student nurses in their sample had a comparable pattern of alcohol consumption to that of other female collegians.

Sobal, (1986) cited above dealing with the protective health behaviors practiced by first year medical students, reported that the avoidance of alcohol actually increased from 16% to 21% from the first to the second semester of medical school. The number of students who ranked this health practice as first also increased from 8% to 12% between the first and second semesters.

Gottlieb and Baker (1986) studied alcohol use among the three groups at the University of Texas at Austin: adults in a fitness class, and students in a conditioning class and an academic class. Both college classes of men and women consumed more alcohol per month than the men and women in the adult fitness program group. Men (84%) and women (36.1%) in the college academic class drank more than men (52%) and women (27%) in the college conditioning classes. College women in both groups drank more beer than the older women, while the adult men and women drank more wine. Female students in the academic classes

drank more hard liquor than the female students in the conditioning class, who consumed an amount similar to the adult program women. In the study, drinking by both mother and father was associated with the drinking of women, (as opposed to the drinking by the mother, which was predictive of drinking among men). Income was positively related to alcohol use among both genders. Drinking by male and female friends was directly associated with alcohol consumption for both men and women, with congruent gender relationships showing the strongest association. This study also found the belief that reducing alcohol intake would result in a lowered health risk was inversely related to alcohol consumption for both men and women. Among the health beliefs of parental influence, peer influence, income and program participation, it was peer influence that was found to be the most strongly related to drinking behavior of both men and women.

Summary of Alcohol Studies

Beer has been reported as the favorite alcoholic drink of the male college student (Gottlieb 1986). Hard liquor was reported by Gottlieb (1986) to be used by more of the female students in an academic class than other non-academic female students. Parental patterns of drinking were found to be positively correlated with the drinking patterns of the women students, whereas drinking by their mothers was predictive of drinking by male students (Gottlieb 1986). Income was positively correlated with drinking of both genders (Gottlieb 1986). Peer influence was found to be the strongest factor related to drinking behavior of both men and women (Gottlieb 1986). Drinking of male and female friends was directly associated with alcohol consumption for both male and female students, with congruent gender relationships showing the strongest correlation (Gottlieb 1986). The belief that lowering alcoholic intake would result in a lowered health risk was inversely related to alcohol consumption for both male and female students

(Gottlieb 1986). Haack and Harford (1984) report that among senior nursing students, the item on a questionnaire which was correlated positively with drinking was the need to relax by having an alcoholic drink. Abstaining behavior was similar to that of other college women. Slightly higher proportions of the student nurse sample were defined as 'heavy' and 'moderate-heavy' drinkers than the other college women. About 13% of the student nurses in this sample reported themselves as problem drinkers.

Studies on alcohol use were made excessively difficult to compare due to the lack of uniformity in the measurement tools used in these investigations. For example, in describing 'heavy drinking', one researcher defined it as "five or more drinks per occasion more than once a week", and another "six cans of beer, five glasses of wine or five drinks containing distilled spirits per occasion". Other stduies used terms such as "heavy" and "moderate" without operationalizing them. A third group of studies ignored the continuum of alcohol consumption entirely and reduced alcohol behaviors to a discussion of "alcohol avoidance" or "alcohol consumption". This lack of agreement on a standardized definitions and terminology for alcohol consumption regarding amounts and frequencies has complicated the research picture, virtually isolating every study from every other study, and making the replication of studies extremely difficult.

As was the case with the studies on smoking, the use of self-reporting instruments to gather data on alcohol consumption made those study results less reliable. The researchers did not address this problem explicitly, nor did they address the resulting non-generalizability of their results.

Weight

There are, in the literature, no articles which treat the subject of weight among student nurses. Edwards, in a 1982 dissertation, reported that some small changes in weight behaviors took place after a health course. He looked at two experimental groups of students, one (n=24) receiving 45 hours of personal health instruction revolving around reeducative change strategies, group discussion, and self-awareness exercises, and the other group (n= 22) receiving computerized analyses of their life styles identifying risk behaviors and no formal health instruction. Although there were no statistically significant differences (at .01 level of significance) in the composite health risk scores for the treatment group, there were notable trends in specific health behavior categories, including weight reduction. This was also true of smoking and exercise.

Hicks and Gaus (1983) wrote a short 1-page report of a study they did on the correlation of self-reported body weight and self-reported sleep time. They studied this question because the literature had reported that short sleepers, those sleeping less than 6 hours, evidenced a higher energy level and higher drive, as well as Type A behavior. This suggested to the authors that this group might have a different metabolic level and/or caloric intake than long sleepers, those sleeping more than 8 hours. Their research, to their surprise, found that short sleepers are more likely to be overweight than long sleepers. They had anticipated that because short sleepers expend more energy, the reverse would be true. They offered no explanation, but urged that their stduy be replicated to establish the reliability of the relationship.

Blackman, Singer and Mertz (1983) found that females who were overweight purchased more food in a university cafeteria at lunchtime which was higher in calories, than their normal counterparts. Two male and two female

observers viewed the students walking with their food trays, and rated their weights on a 1-5 scale: underweight, slightly underweight, normal, slightly overweight, or overweight. The interclass correlation of the weight categories judgements for the raters was r= .90. All food items for each subject were recorded, and an analysis of the actual calories for the food items was done. The results of the study indicated that the behavior of the females was different from the behavior of the males in the sample. The males all tended to purchase the same number of calories, regardless of their weight. They also bought food with more calories than all the females in the sample. Addressing these findings, the authors make some interesting remarks. "The social standards of normal weight might be quite different for males and females"....(p. 120). There is, they say, "strong pressure for females to be quite slim to be attractive..."(p. 120) making the socially acceptable weight range quite narrow. "The females in the socially preceived normal to slightly underweight category might actually be classified as slightly underweight to underweight were one to utilize standard physical scale (height to weight) criteria such as those published by insurance companies". Furthermore, the authors assert, "on the average, the overweight females puchased only about 100 calories more than the normal weight females. This tendency may not be social setting 'overeating' on the part of overweight females but may, in fact reflect very restricted caloric intake for normal weight females." (p. 120)

Page and Gold in a 1983 study on gender differences in smoking patterns reported that "females in college are more likely to believe that smoking cigarettes will results 'in keeping weight down' than males" (p. 535), whereas "males were significantly more likely than females to believe that cigarette smoking would not 'keep weight down'". (p. 533).

Dorociak and Vincent (1985) investigated knowledge and use of diet pills among female college students. The authors constructed a questionnaire,

submitting it first to their colleagues for review, and then piloting it on a small sample of college women. The final version consisted of four sections, a demographic section, a section of questions about subjects' dietary habits, a section to determine past and present use of diet pills, and a section to assess subjects' knowledge of diet pills. The questionnaire was administered during a required student government meeting at the college. A cover letter explained the purpose of the study, gave directions for completing the survey, and guaranteed subject anonymity. The response rate to the questionnaire was 90%, and the final sample was composed of 470 college females. The results of the study indicated that 53% did not eat all three meals provided each day by the college meal plan. Eighty-four percent of the sample reported eating snacks between meals. Sixty-nine percent reported "sometimes" going on a diet, and 35% reported that they went on a diet "often". Fifty-six percent of the sample reported that they considered themselves overweight, whereas 5% considered themselves underweight. Finally, 40% of the respondents reported that they had at some time taken diet pills for the purpose of weight control, but only 8% indicated the present use of diet pills. In general, the authors state, "the majority of respondents seem to have only a minimal understanding of how diet pills work (or don't work)". (p. 15).

Sobal (1986) mentions weight in his study of first-year medical students. In this study, he reports that "watching one's weight" was the third most frequently used health-protective behavior. In the first semester, 52% chose it as the thing they did most frequently, and in the second semester, 48% chose it. Women reported this behavior 21% more than the males in the sample.

Summary of Weight Studies

Hicks and Gaus (1983) reported that although the literature reported short sleepers (<6 hours) as having higher energy levels and higher drive, their research showed that short sleepers are more likely to be overweight than long sleepers.

Many students report dieting "sometimes" or "often" (Dorociak 1985). Blackman, Singer, and Mertz (1983) have found that females eating in a university cafeteria at lunchtime, who were overweight, purchased more food which was higher in calories, than their normal-weight counterparts in the cafeteria. This was different from the behavior of the males in the sample. The males tended to purchase the same number of calories, regardless of their weight. They also bought food with more calories than all the females in the sample. Fifty six percent of the female students in Dorociak's study (1985) thought themselves to be overweight and 40% said they had taken diet pills for the purpose of weight control or reduction at some time, although only 8% were taking them at the time of the study. Smoking has been reported by females as a method of controling their weight. (Page & Gold (1983) Medical students have been reported by Sobal (1986) as believing that weight control was one of the most important health-protective behaviors.

The clearest weakness in the majority of the studies on weight control was again, the self-report methods of data collection. In the weight-conscious social environment in which these studies were undertaken, the factual veracity of the data could justifiably be called into question. Thus, the study results or their generalizability might have been dubious. The researchers do not address this problem, nor do they address the problems generated by the fact that all the samples used in these studies were samples of convenience, further reducing their generalizability.

Curiously, the only study in which subject were actually weighed on a scale was a dissertation done by Edwards (1982). Blackman, et. al., (1983) discuss at length the weights of female subjects in relation to the caloric content of their luncheon choices, and yet these weights were derived by estimation of observers.

Exercise

No studies have been found to date related to exercise patterns of nursing students as a health practice. There are, however, some studies which briefly look at medical students' and exercise patterns. Coe, et. al. in their 1982 study comparing the health practices of beginning medical students and beginning law students, report that almost all students in both groups engaged in some kind of physical exercise each week. Jogging was the preferred activity in both groups, although more medical students jogged than law students. Sobal (1986) reported that exercise was "a close second" to diet in the three most frequent things that medical students did to protect their health. In the first semester, exercise was the second choice of 68% of the respondents. In the second semester, it was the second choice of 71%. It was mentioned as first choice of 31% of first semester medical students, but it showed a first choice decline to 20% by the second semester. In discussing this decline, Coe suggests that "time consuming health behaviors have an opportunity cost which may lead to their abandonment as coping mechanism when time pressures increase..."(p. 597)

The study done by Gottlieb and Baker (1986) looked at excercise in general university students. Their results showed that exercise by male friends was positively associated with activity level for both males and females. Exercise by female friends, however, was positively associated with activity levels for women only. In terms of socialization, fathers' exercise patterns were associated with the exercise levels of both men and women. Women's motivations for exercising were

different from men's. Women gave as their reasons for exercising, the improvement of their mental health and the opportunities for meeting people afforded by this activity. Men were motivated by the desire to reduce cardiovascular risk. The researchers have asserted that "this is consistent with the hypothesis that women in our culture are less likely to excercise as an end in itself" (p. 924).

Summary of Exercise Studies

Because they are a young population, students are naturally more likely to engage in physical activity than the adult population at large. Studies have shown that medical students, for instance, engaged in exercise activity as a health-protectant behavior (Sobal 1986) more frequently than the general population. Jogging was their preferred activity according to Coe (1982). Gottlieb (1986) has found that among students, friendships were highly correlated with exercise patterns. Exercise by male friends, for example, was associated positively with activity level of both male and female friends. Exercise by female friends, on the other hand, was associated with activity levels of women only. Male students were motivated to exercise in order to reduce cardiovascular risk. Females were motivated to exercise in order to improve mental health and to meet people.

There were large gaps in the literature on exercise, the most glaring of which was the complete lack of any studies on the exercise patterns of nursing students. This lack of studies precluded the existence of any studies comparing nursing students either to other college students or to other health care students, such as medical students. Additionally, exercise was never well-defined in these studies to indicate either frequency, duration, or type of exercise undertaken by students.

Seat Belt Use

Studies related to college students' use of seat belts were generally lacking, and there was no available research on this particular practice within the college population considered as such. Rather, like the studies on hours of sleep, college students' seat-belt use was studied in connection with their other health practices. There were no studies of the habits of nursing students in particular, with respect to seat-belt use.

Coe, et. al., (1982) reported that 49% of entering medical students used seat belts as compared with 33% of the law students. This is consonant with his finding that medical students expressed a stonger view for self-responsibility than did law students (Coe 1982). Vogt (1983), in her doctoral dissertation, used a pretest-posttest design to evaluate the effect of treatments on the health behaviors of college students. The treatments were combinations of self-scoring health hazard appraisals, a computerized health hazard appraisal, and a community resource guide used in conjunction with five university personal health courses. The results of the study indicated modest but positive changes in the use of seatbelts, among other things. The other behaviors showing positive changes were eating breakfast and the performance of breast self-exam among women. Sobal (1986) found that medical students were more likely to be seat belt wearers (51%) than not. As far as this health practice was concerned, there was no statistically significant difference between behavior in the first and second semesters, nor between the males and females in his sample.

Applying a Poisson statistical model and a Least Squares regression model to pre- and post-law seat belt usage in New York State, Lattimer and Lave (1987) examined the effect on fatalities and injuries of the mandatory seat belt law passed in that state on January 1, 1985. The Poisson model estimated that the first six month's application of the law averted 220 fatal, 1,500 severe, 4,600 moderate,

and 2,600 light injuries statewide, whereas the Least Squares method showed that there were 48 fewer fatalities in the first six months of 1985 compared with the corresponding period in 1984. The Poisson model, according to the study, showed that the benefits of seat belt use have been understated by the use of the Least Squares regression model, which merely makes simple comparisons between fatalities of one year with another. The Poisson model showed that "as seat belt usage goes up, increasingly unsafe drivers begin to buckle up. Thus more and more injuries are averted for each 10 per cent increase in usage". (p. 185)

Since the mandatory seat belt law was passed in the State of Maryland on July 1, 1986, an attempt was made to ascertain the trends in mortality due to motor vehicle accidents for two years before and after that time. No state-wide figures were available from the Maryland State Police. The following figures were from a report (1988) compiled by I.J. Williams, of the yearly highway accident fatalities in Baltimore County. In 1984, 1985, 1986 and 1987, the number of fatalities were 650, 740, 790, and 830 respectively. In 1987, the figures for fatalities in all categories (viz., location, time, person killed, and causes) were at, or near, all-time high levels for both Baltimore City and Baltimore County. There was no indication in the report, whether the victims were wearing seat belts, nor were there any figures available on the number of survivors who were wearing seat belts.

Sleep

There is a surprising paucity of literature on the subject of the number of hours of sleep per night which is considered necessary to maintain good health. The data on this subject can be found in studies which investigate health habits as a whole, rather than from studies in which sleep has been investigated for its own sake.

Belloc and Breslow (1972) studied the relationship between physical health status and common health practices including hours of sleep, in adults over age 20, (or those over age 16 if they had ever been married). Their study sought to validate the idea that "common habits such as hours of sleep, ...physical exercise, cigarette smoking, and alcohol consumption...promote or detract from optimum physical health...[an idea that] is generally accepted, but with little evidence". (p. 410) The data was gathered from questionnaires which had been completed in 1965 by a random sample of residents of Alameda County, California. The study showed that getting 7 or 8 hours of sleep each night had a higher than average correlation with good physical health status. Further, "the group with 6 or less was the least healthy. Results were similar for men and women". (p. 410)

McAfee (1978), in his study of the eating habits of college students, found that less breakfast is eaten among late sleepers. Cafferata, Lach and Reifler (1980) found that 5.3% of students buy over-the-counter drugs to relieve insomnia. Other remedies reported to the university health center staff for insomnia included alcoholic beverages, aspirin, illegal drugs, cigarettes, "calming agents,...and a heating pad with a topical skin ointment". (p. 64) Wilson and Elinson (1981) studied the health practices including hours of sleep in adults aged 20-64. The study data was collected by telephone interview by a random dialing method all over the contiguous 48 states. A survey requiring self-reported answers was used to obtain the sample of 3025 interviews. Sleeping 7-8 hours a night was found to be correlated positively with health status in this study.

Hicks and Gaus (1983) reported that the expected lower caloric intake-short sleep association did not hold up in their sample of college students. An association was found, rather, between long-sleep and lower caloric intake. The 1986 study by Sobal on the health behaviors of first year medical students found that sleep had become more important to these students between the first and second semesters.

The percentage of students mentioning it as their most often practiced health behavior went from 12% in the first semster to 15% in the second semester. Those mentioning it at all went from 47% in the first semester to 53% in the second.

Summary

The literature shows that college students in general, and nursing students in particular can be vulnerable to deficits of health practice. This is a time of their lives when they are no longer under the direct supervision of parents and teachers. The majority of them may well be away from home for the first time, and must now regulate their own lives and adopt independent lifestyles.

The literature shows, as well, that health practices have a tendency to be more health positive as the amount of education increases. The downward trend in the numbers of those who smoke, for instance, can be seen since the reported numbers of the 1960's, when the dangers of smoking first became widely publicized. Since that time, fewer incoming college students have been smokers, and fewer students have begun to smoke while in college. Among younger nursing students, smoking has begun to show some declines, although, until very recently, by the time she graduated from college, nursing students smoked in proportion to the females in the general population. This has not been the case with medical students, who have shown dramatic declines in smoking behaviors since the mid 70's. The question of smoking seems to be associated with age, with most of the literature showing that older nurses smoke because they began to smoke before the mid-sixties when the dangers of smoking became commonly known.

The changes in other health practices are also slow in coming. There has been no discernable drop in alcohol consumption among college students or nursing

students. Nor has there been a real change in dietary habits so as to promote an improved height to weight ratio. Some of the perceived overweight in females may be due to cultural bias, accordong to the literature, because there seems to be evidence that the standard of female overweight is more stringent than the male standard. Exercise patterns may have become more healthful, generally speaking, in the last years, with the advent of jogging and running hobbies. Many students engage in aerobic exercise now, recognizing its cardiovascular benefits. But female students have been shown to have fewer normative pressures on them to exercise than males. The literature shows that for females, exercise is not an end in itself, but rather, is a means to some other goal, often a social one. Furthermore, whether women students will exercise is often determined by whether their significant others exercise. Male parents and friends are the determinants of female exercise patterns, although there is gender congruence for females as well.

Seat belts are worn by medical students more often than the general population, according to studies cited above. Use of seat belts in either the general college population or among nursing students is not well documented in the literature, but it does seem to be a behavior that can be changed by health education.

Sleep patterns among undergraduates are probably more irregular than the general public, although there are no studies to document that. The patterns of medical and nursing students are probably more irregular than the general college student, due to the clinical demands attached to these disciplines, but again, there is no literature to document that intuition.

CHAPTER III

METHODOLOGY

Introduction

This chapter will discuss the theoretical basis of the study, the conceptual framework, the study design, study variables, instrumentation and the study hypotheses. Literature will be cited to justify the choice of variables for the study hypotheses. Accounts of the data collection will be given, as well as a short summary of the statistical procedures that were used. The assumptions and the limitations of the study will also be discussed.

Theoretical Basis of the Study

The theoretical base upon which this study is grounded is the theory of Cognitive Dissonance first delineated by Festinger in 1957. Briefly stated, the theory is the belief that "dissonance is a negative drive state which occurs whenever an individual simultaneously holds two cognitions (ideas, beliefs, opinions) which are psychologically inconsistent.....Since the occurrence of dissonance is presumed to be unpleasant, individuals strive to reduce it by adding 'consonant' cognitions or by changing one or both cognitions to make them 'fit together' better- i.e., so that they become more consonant with each other". (Aronson, E., 1968, p. 5-6). Aronson presents Festinger's own example of dissonance. "If a person believes that cigarette smoking causes cancer and simultaneously knows that he himself smokes cigarettes, he experiences dissonance. Assuming that a person would

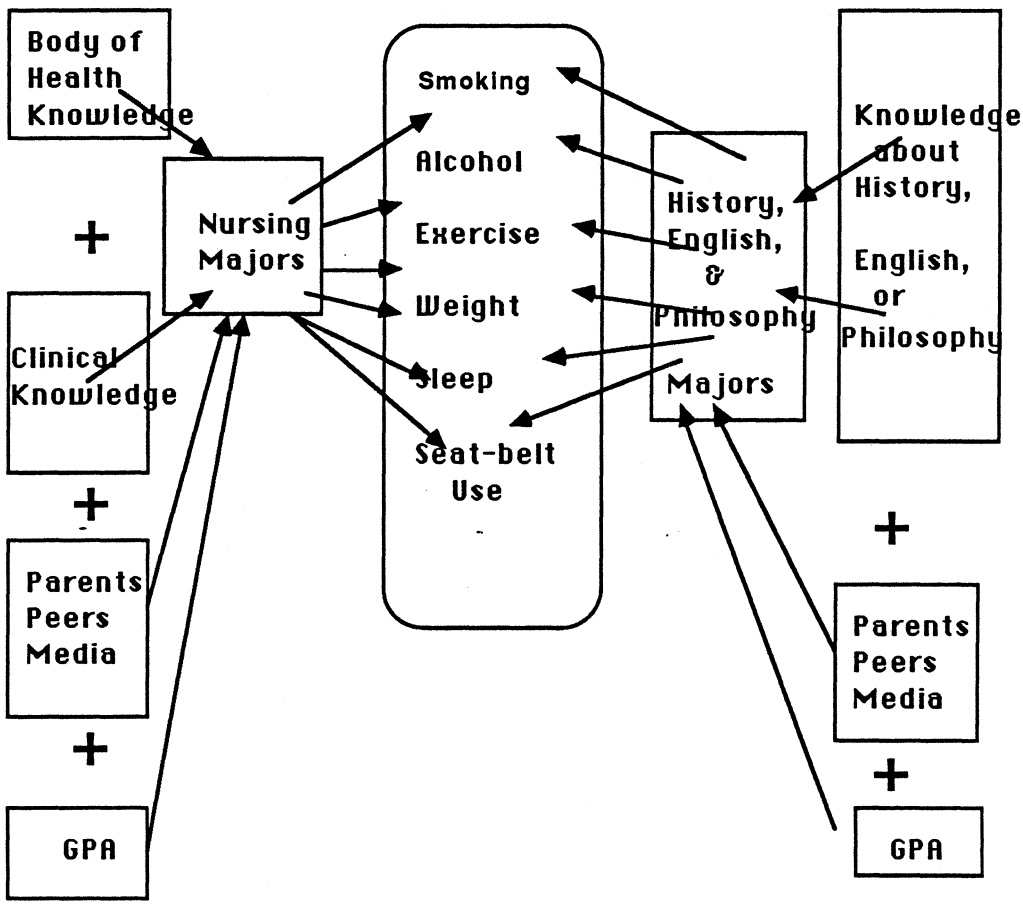
rather not have cancer, his cognition 'I smoke cigarettes' is psychologically inconsistent with his cognition 'cigarette smoking produces cancer'. Perhaps the most efficient way to reduce dissonance in such a situation is to stop smoking. But, as many of us have discovered, this is by no means easy. Thus, a person will usually work on the other cognition." (p. 6)

Because this study deals with health practices in six areas, (smoking, alcohol, exercise, weight control, hours of sleep, and auto seat-belt use), and because the literature is replete with cases of people who "know" that abuse in these areas is not conducive to good health, Cognitive Dissonance provides a strong theoretical account of the coexistence in an individual of psychologically inconsistent tenets. As Aronson says, the theory does not rest upon the assumption "that man is a *rational* animal; rather, it suggests that man is a rational*izing* animal-that he attempts to appear rational, both to others and to himself." (p. 6)

Conceptual Model

A model was developed for the study which contained elements which acted as factors influencing the practice of six health habits (Smoking, Alcohol, Exercise, Weight, Sleep, and Seat-belt Use) of English, History and Philosophy Majors as well as of Nursing Majors. In the cases of both the Nursing and the Liberal Arts students, Parents, Peers, and Media were thought to be elements because of their influence upon the students. Similarly, a student's GPA was also thought to be an element which served as a predictor of student behavior, because a higher GPA indicates a higher percentage of empirical information retained from courses and other sources of knowledge, (viz., parents, peers, and the media). The Nursing Majors and Liberal Arts Majors have different bodies of knoweldge due to their differing educations. Nursing Majors are influenced by the Body of Health

Knowledge and Clinical Knowledge, whereas the Liberal Arts Majors are influenced by Knowledge about History, English, or Philosophy. The impact of that crucial educational difference should be seen in the health behaviors of these two groups of students.



CONCEPTUAL MODEL

Problem Statement

The purpose of this study was to ascertain what differences existed between the health practices of nursing students and liberal arts students. The study describes and compares the health-practice patterns between these two groups of students in the following six areas: smoking, alcohol consumption, weight control, exercise, safety-belt use and sleep.

Study Design

The study used a cross-sectional descriptive design. It was cross-sectional because the sample was surveyed at one point in time: descriptive because the goal of the study was to obtain information about the study variables in each sample.

Research Hypotheses

1. There is no significant difference in the smoking practices reported by junior and senior liberal arts students and junior and senior nursing students.
2. There is no significant difference in the alcohol consumption patterns reported by junior and senior liberal arts students and junior and senior nursing students.
3. There is no significant difference in the weight-to-height ratios based on weights and heights reported by junior and senior liberal arts students and junior and senior nursing students.
4. There is no significant difference in the exercise patterns reported by junior and senior liberal arts students and junior and senior nursing students.
5. There is no significant difference in reported seat-belt use patterns of junior and senior liberal arts students and junior and senior nursing students.

6. There is no significant difference in reported hours-per-night of sleep patterns of junior and senior liberal arts students and junior and senior nursing students.

Literature Supporting the Choice of Six Health Practices in the Study Hypotheses

Smoking

In Healthy People (1979, p. 1/7), cigarettes are cited as "the single most preventable cause of death. It is clear that cigarette smoking causes most cases of lung cancer--and that fact is underscored by a consistent decline in death rates from lung cancer for former male cigarette smokers who have abstained 10 years or more."

Alcohol

Citing from this same publication, "misuse of alcohol...exacts a substantial toll of premature death, illness, and disability. Alcohol is a fact in more than 10 percent of all deaths in the United States....Of particular concern is the growth in the use of...alcohol...among the Nation's youth. Problems resulting from these trends are substantial--but preventable." (p. 2/7).

Weight

Referring to what it terms "the Obesity Problem", Healthy People states that "obesity is clearly related to diabetes, gallbladder disease, and high blood pressure. In association with other risk factors, it can contribute significantly to heart disease. In addition to the physiological problems, obesity may have serious social

consequences for the young eprson growing up in a society which prizes slimness and athletic ability....Permanent weight loss has been found somewhat easier to achieve by people who inventory their food intake, avoid situations that would entice them to overeat, and gradually change their eating and exercise habits." (p. 10/18)

Exercise

Healthy People states that "sustained exercise improves the efficiency of the heart and increases the amount of oxygen the body can process in a given period of time. Compared to non-exercisers, people who engage in regular physical activity have a one and a half to two times lower risk of developing cardiovascular disease, and an even lower risk of sudden death."....An average of 15 minutes or more of aerobic exercise is thought to produce beneficial effects which are further increased when exercise is done vigorously. A reasonable goal for any individual ought to be 15 to 30 minutes of exercise at least three times a week." (p. 10/25)

Seat-belt Use

Healthy People states that "combined lap and shoulder belts can almost halve the likelihood of serious injury or death..." (p. 9/19) "Automobile accidents are the leading cause of death among young people. A substantial number of injuries and deaths could be avioded through careful, defensive driving habits. Especially important...[is]...the use of seat belts..." (p. AI/5)

Hours of Sleep per Night

Belloc and Breslow (1972) reported that data gathered from a 1965 study done in Alemeda County, California, showed that people who reported getting 7 or 8 hours of sleep each night had a higher than average correlation with good physical

health status. The group with less than six hours of sleep was the least healthy. Wilson and Elinson (1981) reported similarly that sleeping 7-8 hours a night was positively correlated with good health.

Assumptions of the Study

There were several assumptions of this study.

1. Good health is a desirable end.

2. Upper level students have a fundamental body of knowledge in their fields.

3. Because Nursing students not only learn about health and illness in the classroom, but see it in the clinical areas as well, it was assumed that their clinical observation of the consequences of poor health practices would serve as a reinforcement of their classroom learning.

4. People will report honestly about themselves when answering the Health Risk Assessment (HRA) questionnaire.

Study Population

The study population was comprised of the undergraduate students at Salisbury State College, a four year liberal arts institution in Salisbury, Maryland. At this institution, there are five schools among which are the School of Liberal Arts and the School of Nursing and Health Sciences.

Study Sample

The sample was a convenience sample of students who were currently attending classes at the college. The criteria for inclusion in the sample were that the student be female, under 25 years of age, a college junior or senior, and an undergraduate with a major in either English, History, Philosophy or Nursing. Only females were used because nearly all Nursing students were female. Only students under 25 were used in order to eliminate possible developmental differences between different age groups. The sample of liberal arts students was taken from a pool of students in upper level English, History, and Philosophy courses. The sample of Nursing students was taken from the pool of students in upper level nursing courses. The students were approached in their classes where a questionnaire was administered at the beginning of each of the targeted classes to all the members taking the class. The administration of the questionnaire took about 15 minutes, including time to read a disclosure form. Two hundred and eighty questionnaires were given out and returned by the students from which the final sample of 27 students from the Liberal Arts and 55 students from Nursing meeting the study criteria was obtained.

Study Variables

The variables essential to this study are defined as follows:

1. Undergraduate student: any student who had not yet received a baccalaureate degree in the field in which he or she was currently studying.

2. Upper level student: any student under twenty five years of age, who is considered a junior or a senior according to his/her own report.

3. Junior: any student who reported himself/herself a member of the junior class on the health risk assessment.

4. Senior: any student who reported him/herself a member of the senior class on the health risk assessment.

5. Liberal arts major: any student who reported herself as an English, History or Philosophy as a major.

6. Nursing major: any student who reported herself as a Nursing major.

7. Smoking: the use of tobacco in cigarettes, pipes and/or cigars as reported by the student on the health risk assessment.

8. Alcohol consumption: the amount of wine, beer and/or liquor consumed each week as reported by the student on the health risk assessment.

9. Weight: the number of pounds a person weighs as reported by the student on the health risk assessment.

10. Quetelet Index (QI): an index of obesity which is obtained by dividing a person's weight by his/her height squared and multiplying by 100.

11. Exercise: physical activity including work and leisure activities that require sustained physical exertion such as walking briskly, running, lifting and carrying as reported by the student on the health risk assessment.

12. Regular exercise: exercise which is regularly carried out at least three times per week.

13. Seat-belt use: the use of the restraining straps in a moving automobile as reported by the student on the health risk assessment.

14. Hours of Sleep/Night: the number of hours each night that a person regularly sleeps as reported by the student on the health risk assessment.

15. Behavior: the observable actions of an individual.

16. Health behavior/practices: the observable or self-reported behavior of smoking, alcohol consumption, amount of exercise, weight, seat-belt use and hours of sleep each night.

17. Knowledge: that body of facts and relations of facts accumulated by an individual, which can be demonstrated by oral, verbal and written report.

Instrumentation

The instrument that was used was the Health Risk Appraisal (HRA) (Appendix 2), which has been used for 14 years by the Center for Disease Control in Atlanta, Georgia. It consisted of thirty-seven questions, including demographic questions, questions about disease history, and questions about health practices. This instrument has been well documented for reliability and validity. Another 5 questions on a separate sheet (Appendix 3) was attached to the HRA. These questions asked about major, course, class, GPA, and residential environment. Both Appendix 2 and 3 were accompanied by a Disclosure Form (Appendix 1). Computer software developed for the HRA (Appendix 4) was used to print a health risk assessment for each volunteer. This print-out gave to each participant, the chances of contracting certain diseases in the next 10 years. It also recommended to the subjects ways of improving the risks to their health in each risk area. An accompanying sheet of instructions for interpreting the print-out (Appendix 5) was also made available.

Validity and Reliability of Health Risk Assessment

Many studies have been done on the reliability and validity of HRAs in general and the CDC/HRA in particular. The studies mentioned herein constitute only a partial list.

Cioffi, (1979) using the HRA with a sample of 59, found the test-retest reliability in the .80's and the internal consistency reliabilities using a sample of 70 in the .80's, according to Doerr.

In test-retest situations, inconsistencies have been reported. Wagner, et. al. (1982) stated that "although the projections appear reasonably accurate....recent studies have indicated that clients can give very different answers to the same HHA/HRA questions when administered as little as three or four weeks apart, even for items which could not change". (p. 349)

Doerr (1984) cites several studies of HRA reliability. "Sachs, et al (1980), point out some potential problems with reliability. They analyzed 207 subjects who underwent HRA. Only 15% had no logical inconsistencies in their reported data. The most frequent change with repeated measures over 85 days was in miles per year driven with 60% changing the variable by an absolute value of 4,700 miles a year.....This data is (sic) not reported in terms of a reliability coefficient or standard error of measurement which makes it difficult to evaluate or compare to other data."

Alexy (1984) conducted reliability studies in which twenty five males were administered a HRA, which was readministered three to five days later. There was no treatment or intervention done in the interval between the tests. Pearson product moment correlations were calculated on all quantifiable data from the print out. Those variables with a .50 correlation or less were Systolic BP (.239), Risk for heart disease (.095), and Risk if BP less than 110 Systolic (- .571). Two variables had correlations of .653, two were in the .700's and the rest of the

correlations were above .800. In the case of the low systolic BP, some individuals responded with two different readings based on several BP readings taken over three months time, others had a computer-assumed value on the first test, and gave an actual value on the second test. "Whatever the reason for the inconsistency", the author notes, "...systolic blood pressure levels are likely to play a major role in the risk computation algorithm, thus influencing other variables, such as risk for heart disease and estimated life expectancy."

Foxman and Edington, (1987) found that the CDC/HRA actually improved upon age-sex-race predicted risks of mortality when compared to the observed proportion dying over 10 years. "We have tested the accuracy of the HRA model in predicting mortality against truth; what was actually observed in a population rather than just against another model. The CDC/HRA performed quite well. Although the CDC/HRA predictions are only for a 10-year period, they predicted remarkably well over 20 years, a more demanding validation of the method."

Smith, et. al. (1987) studied the validity of HRAs for assessing the risk of coronary heart disease. They reported that "the magnitudes of the validity coefficients are closely related to the estimation procedure employed by an instrument and the manner in which risk is defined. HRAs predicting mortality or morbidity risk had the highest correlations with the criterion model estimates". (p. 421) The mean correlation for HRAs defined as "Type 1 HRAs", (those providing estimates/100,000 persons for a 10-year period), were reported between .786 and .648, and .718 and .585 when correlated for women in the Framingham study. The correlations for men were even higher. (p. 421)

Summarizing the studies on reliability, the HRA has problems in measuring what it purports to measure. Some of these problems are due to the dependency of the HRA on client self-report (Wagner 1982). Other problems are due to the lack of good data collection methods. Both Doerr (1984) and Best and Milsum (1977),

for instance, found that results were reported in ways which made evaluation difficult. In these cases, data were not reported in terms of standard error of measurement or other measurements which facilitated comparison. It was, therefore, difficult for these researchers to know whether changes in HRA reponses were a reflection of actual changes or reflections of unreliabilty. But other researchers (Cioffi, 1979; Alexy 1984) found that correlational coefficients were high, indicating good reliability. Alexy (1984), however, had problems with important components of the HRA, to wit, systolic blood pressure measurements. Unreliability of blood pressure measurements would have a serious impact on the assessment of health risk for any individual because these measurements are crucial to any basic calculation of long-term wellness.

Summarizing the validity studies of the HRA, indications are that it predicted mortality rates reasonably accurately. Smith, et. al. found that "the more closely an instrument's risk measure approximated a 10-year mortality probability, the greater the validity coefficient for that instrument". (p. 423) In some cases, researchers found that the HRA predicted a higher mortality rate than had actually occurred (Smith, et. al, 1987; Foxman & Edington, 1987). This phenomenon was accounted for by Foxman and Edington by the fact that the mortality tables that were used were for 1960, and the mortality rates had dropped since the 1960s and 1970s.

Data Collection

Data were collected over a period of three weeks in upper level History, English, Philosophy and Nursing courses in the respective majors at Salisbury State College. A total of twelve classes were used for data collection purposes, four nursing classes, three History classes, four English classes and one

Philosophy class. In each of the classes, the students were briefly informed that a study was being done on the health practices of junior and senior undergraduates. A disclosure statement was given out to each volunteer and was read to the participants. The questionnaires were passed out and the students were asked to put the first six digits of their social security number in the upper right-hand corner participant-number slot in order that they could later recognize their own computer-generated health risk assessments. They were then given time to answer the questions on the instrument. The researcher waited until everyone had finished the questionnaires and collected them. After a month of processing time, computer results based on their answers to the Health Risk Assessment questionnaire were given to the participating students, as well as instructions for interpreting those results.

Data Analysis

A data file containing the encoded information obtained from the HRA questionnaires was created. Frequency distributions were done and graphically shown in the form of histograms. Measures of central tendency were determined as well as the range and the standard deviation within each group, in order to show the difference between the highest and lowest scores, and how much these scores deviated from the mean. A Pearson's Correlation was done to determine if the Quetelet Index was highly correlated with weight. The hypotheses were tested using either Crosstabs Chi-Square on categorical data, or t-test for independent means on continuous data, in order to examine the differences between the two groups of students for each of the six health practices. Crosstabs Chi-square was also used to determine whether there were individuals who had multiple health practices, and to which group these individuals belonged.

Limitations of the Study

There were several limitations inherent in the design of this study.

The samples in this study were samples of convenience, not randomly selected. All participants in this study were voluntary, thus causing the sample to be biased.

There was a problem of bias due to the fact that the questionnaire asked for self-reported answers. The honesty of the respondents' answers had therefore to be assumed.

There was the possibility of recall bias, that is to say, the answers given might have been erroneous due to faulty recall on the subjects' part.

The demographic characteristics of the sample were not representative of the population in general with repect to age, sex, race, socioeconomic status, or other demographic variables. Nor was the sample representative of the college population in particular, because there were no older students, no graduate students, and no males. Furthermore, there were very few students who were not white.

Since the study was a cross-sectional study, there was no opprtunity to observe any changes in health practices over time in a given individual.

The HRA risk appraisal had no questions in it which measured knowledge of the participant about health-related matters.

Summary

Chapter three presented the methodology of this study. The theoretical and conceptual framework as well as the instrument were discussed, and the study

design, samples, study variables, and study hypotheses were presented. The assumptions and limitations of the study were briefly delineated, and data collection methods and data analysis were outlined.

CHAPTER IV

DATA ANALYSIS

Introduction

In this chapter, the demographic characteristics of the study sample will be described and the data which were collected concerning student health practices will be analyzed. The sample will be treated in two ways. First, it will be considered as a whole, and then it will be divided into the two academic areas of Nursing and Liberal Arts. The data collected for each of the six health practices will be reviewed and a test of hypothesis will be made comparing the sample of Nursing majors to the sample of Liberal Arts majors.

The Statistical Package for Social Sciences (SPSS-X) has been used to analyze the results of the data collection. This package is available on the VAX 11/8300 computer at Salisbury State College, Salisbury, Maryland.

Demographic Description of the Study Sample

Inclusion in the study sample was limited to females under twenty five who were junior and senior Nursing, History, English or Philosophy majors. Males, students over twenty five, and students in other majors were eliminated from the sample. A summary of the demographic characteristics of the total sample of 82 is given in Table 1.

Table 1

Demographic Characteristics of Sample Subjects

Characteristics	Total Sample n = 82	%	Liberal Arts n= 27	%	Nursing n= 55	%
Race						
White	74	90.2	27	100	47	85.5
Black	7	8.5	0	0	7	12.7
Oriental	1	1.2	0	0	1	1.8
X^2= 4.35184 df= 2 p= 0.1135						
Place of Residence						
City	15	18.3	3	11.1	12	21.8
Suburbs	41	50.0	16	59.3	25	45.5
Country	25	30.5	8	29.6	17	30.9
Missing	1	1.2	0	0.0	1	1.8
X^2= 1.81756 df= 2 p= 0.4030						
Marital Status						
Single	73	89.0	24	88.9	49	89.1
Married	8	9.8	2	7.4	6	10.9
Divorced	1	1.2	1	3.7	0	0.0
X^2= 2.26473 df= 2 p= 0.3223						

Table 1, continued

Demographic Characteristics of Sample Subjects

Characteristics	Total Sample	%	Liberal Arts	%	Nursing	%
Age						
19	5	6.1	2	7.4	3	5.5
20	18	22.0	5	18.5	13	23.6
21	26	31.7	11	40.7	15	27.3
22	22	26.8	5	18.5	17	30.9
23	9	11.0	3	11.1	6	10.9
24	2	2.4	1	3.7	1	1.8
Mean Age	21.220		21.185		21.236	
t= -0.19 df= 80 p= 0.853						
GPA						
2.0-2.5	14	17.1	4	14.8	10	18.2
2.6-3.0	41	50.0	12	44.4	29	52.7
3.1-3.5	17	20.7	5	18.5	12	21.8
greater than 3.5	8	9.8	6	22.2	2	3.6
Missing	2	2.4	0	0.0	2	3.6
$X^2 = 6.767$ df=3 p.= 0.0797						

Almost all the subjects were white, with only eight subjects belonging to other races. No statistically significant difference was found between the racial distributions of Liberal Arts students and the Nursing students (X^2= 4.35184, df= 2, p= 0.1135). About one half of the sample reported living in the suburbs, while 30% reported that they lived in "the country". There was no statistically significant difference in place of residence between the Liberal Arts students and the Nursing students (X^2= 1.81756, df= 2, p= 0.4030). Almost 90% reported their marital status as single. There was no statistically significant difference between the samples (X^2= 2.26473, df= 2, p= 0.3223). The sample subjects ranged in age from 19 to 24. The mean age for the total sample was 21.220, for the Liberal Arts sample was 21.185, and for the Nursing sample was 21.236. There was no significant difference between the samples (t= 0.19, df= 80, p= 0.853). Nobody in the sample reported a GPA of less than 2.0. Forty-five to fifty percent reported their GPAs between 2.6 and 3.0. The Liberal Arts and Nursing samples were found to have no significant differences in their GPAs (X^2 = 6.767, df= 3, p= 0.0797).

There was some evidence of a trend toward higher GPAs among the Liberal Arts students. A lower percentage of Liberal Arts (59.2%) students reported that their GPAs were below 3.0 than did Nursing students (70.9%), and there was a greater percentage of Liberal Arts students (22.2%) who reported their GPAs were greater than 3.5 than did Nursing students (3.6%). This may be partially explained by the fact that all the upper-level core Nursing courses are 10-credit, integrated courses, which have many "hidden" hours of work, both in the classroom and in the clinical setting. Because of the workload, it is very difficult to achieve a Dean's List grade in these courses. Furthermore, students earning given grades, have no opportunity to offset lower grades with a higher grades in other courses. Other

courses taken simultaneously will inevitably be 3-credit courses, which will not help very much to elevate students' GPAs.

Summarizing the results of the examination done on the demographic variables, there were no statistically significant differences between the Liberal Arts and Nursing samples, with respect to race, place of residence, marital status, age, or GPA, although there were some tendencies for Liberal Arts students to have fewer GPAs below 3.0, and more GPAs in the greater-than-3.5 category.

Comparisons of Six Health Behaviors between Liberal Arts and Nursing Samples

Smoking

The students were asked to report on the HRA whether or not they were smokers, and if they were smokers, how many cigarettes per day they smoked. The hypothesis to be tested was whether there were any differences between the Liberal Arts students and the Nursing students in their smoking habits. Table 2 and Figure 1 show the smoking behavior of the total sample and the two sub-samples of Liberal Arts and Nursing. It can be seen that in both groups, the numbers of non-smokers were considerably larger than either smokers or ex-smokers. Within the Nursing students, the number of non-smokers was proportionately larger (78.2%) than the number of non-smokers in the Liberal Arts students (53.8%). There was also a slightly higher proportion of ex-smokers among the Nursing students.

The categories of non-smoker and ex-smoker were collapsed for a Chi-square analysis. Although this approach may have resulted in an inflated Chi-square test statistic due to the small numbers in some of the cells, the collapsing of the categories was thought to be justified because the pathological effects of cigarette smoking are known to be reversible (DHEW [HSM] 72-7511, July 1972, p. 17-18; DHEW [HSM] 73-8704, Jan. 1973, p. 71) and therefore, from a health

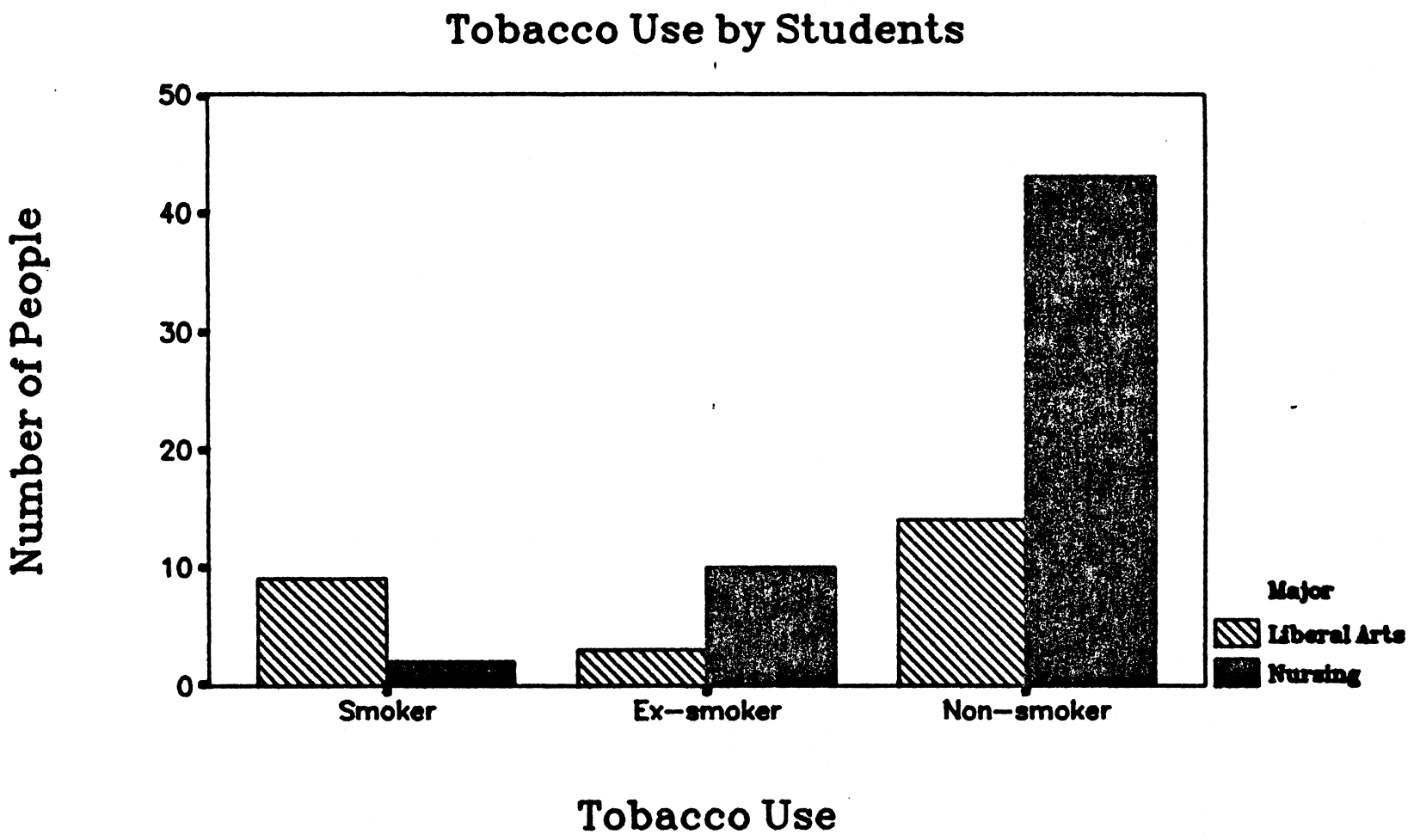
Table 2

Comparison of Tobacco Use Behavior Between Liberal Arts Students and Nursing Students

	Total		Liberal Arts		Nursing	
	No.	%	No.	%	No.	%
Smoker	11	13.6	9	34.6	2	3.6
Ex-Smoker	13	16.0	3	11.5	10	18.2
Non-Smoker	57	70.4	14	53.8	43	78.2
Missing	1		1		0	

$X^2 = 14.44$ df= 1 p.= 0.0007

Figure 1


Tobacco Use by Students
Number of People
50
40
30
20
10
0
Smoker
Ex-smoker
Non-smoker
Tobacco Use
Major
Liberal Arts
Nursing

standpoint, ex-smokers were considered to have the same risk factor as non-smokers. Chi-square analysis showed that smoking frequency in the two samples of students was significantly different, with Liberal Arts students reporting higher percentages of smokers and lower persentages of non-smokers than Nursing Students (X^2= 14.44, df= 1, p= 0.0007).

Further examination of the data revealed that not only was there a difference between the two groups as to whether they reported themselves as smokers, but there was a difference in the number of cigarettes per day that they smoked. Table 3 and Figure 2 show that the mean number of cigarettes per day for the Liberal Arts sample was 9.296, whereas it was 1.636 for the Nursing sample. A t test for independent means shows that this mean difference, while not statistically significant at the 5% level, was noteworthy and may indicate a trend with respect to the number of cigarettes per day that the two groups smoked (t= 1.98, df= 27.02, p= 0.058). The large discrepancy between the Standard Deviations of the Liberal Arts students (19.872) and the Nursing students (3.964) indicates that although the means were dissimilar, the data were not clustered around the means.

Alcohol

The HRA questionnaire asked people to report whether they were drinkers, ex-drinkers, or non-drinkers. The categories of ex-drinker and non-drinker were collapsed for analysis purposes as there was only one person in the entire sample who reported herself as an ex-drinker. While the difference between the drinkers and non-drinkers is not so readily apparent as it was for smoking (Table 4 and Figure 3), the majority (79%) of non-drinkers belonged to the sample of Nursing students. While there was no significant difference between the samples, a Chi-square test indicated a trend toward a difference in alcohol use between the samples of Liberal Arts and Nursing students (X^2 = 3.6638, df= 1, p= 0.0556).

Table 3

Comparison of Smoking Rates Between Liberal Arts Students and Nursing Students

	Total n= 82	Liberal Arts n= 27	Nursing n=55
Mean Number of Cigarettes Smoked per Day	4.159	9.296	1.636
Range	0-25	0-25	0-20
Standard Deviation	12.262	19.872	3.964
Missing	1	1	0

t= 1.98 df= 27.02 p= 0.058

Figure 2

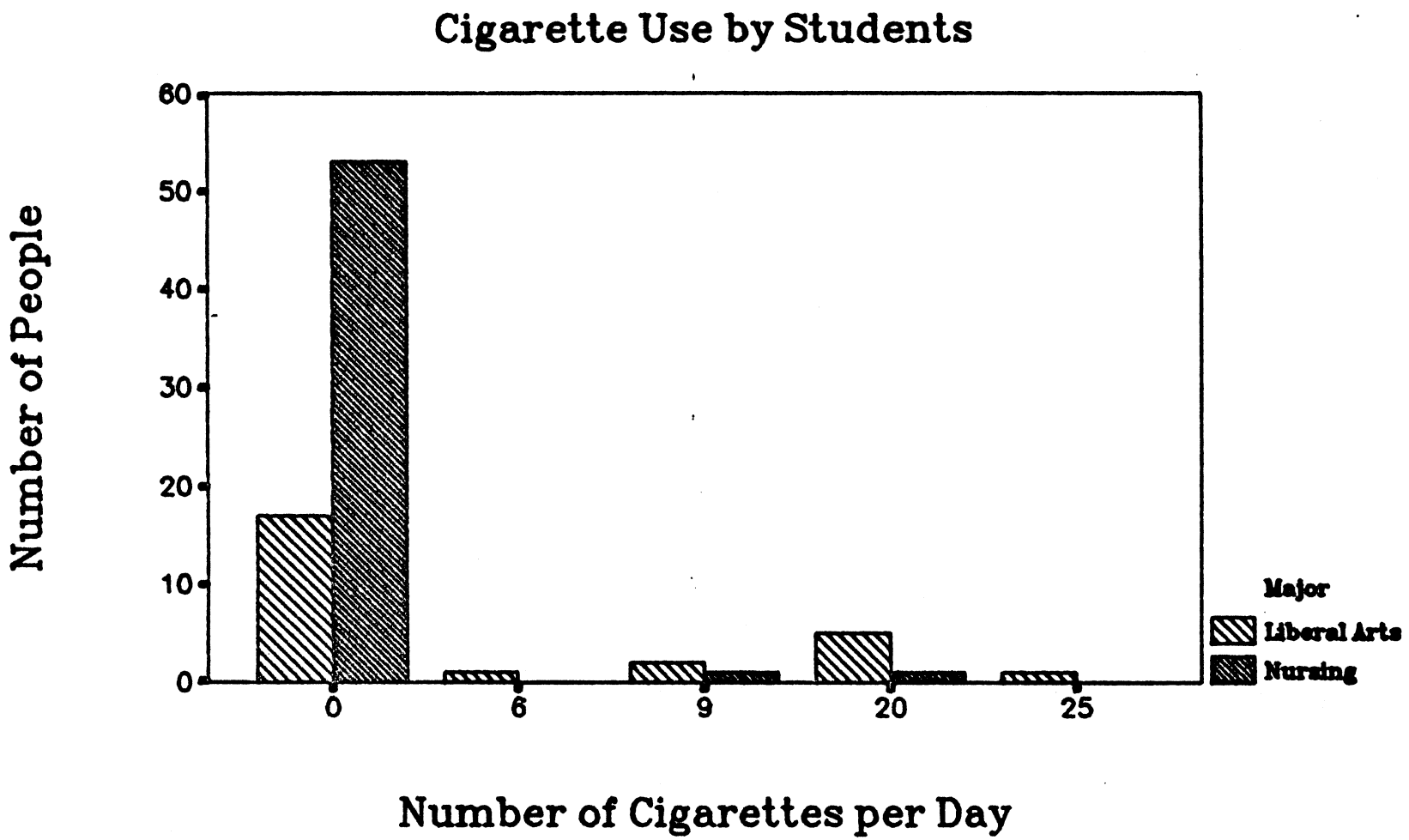

Cigarette Use by Students
Number of People
60
50
40
30
20
10
0
0
6
9
20
25
Number of Cigarettes per Day
Major
Liberal Arts
Nursing

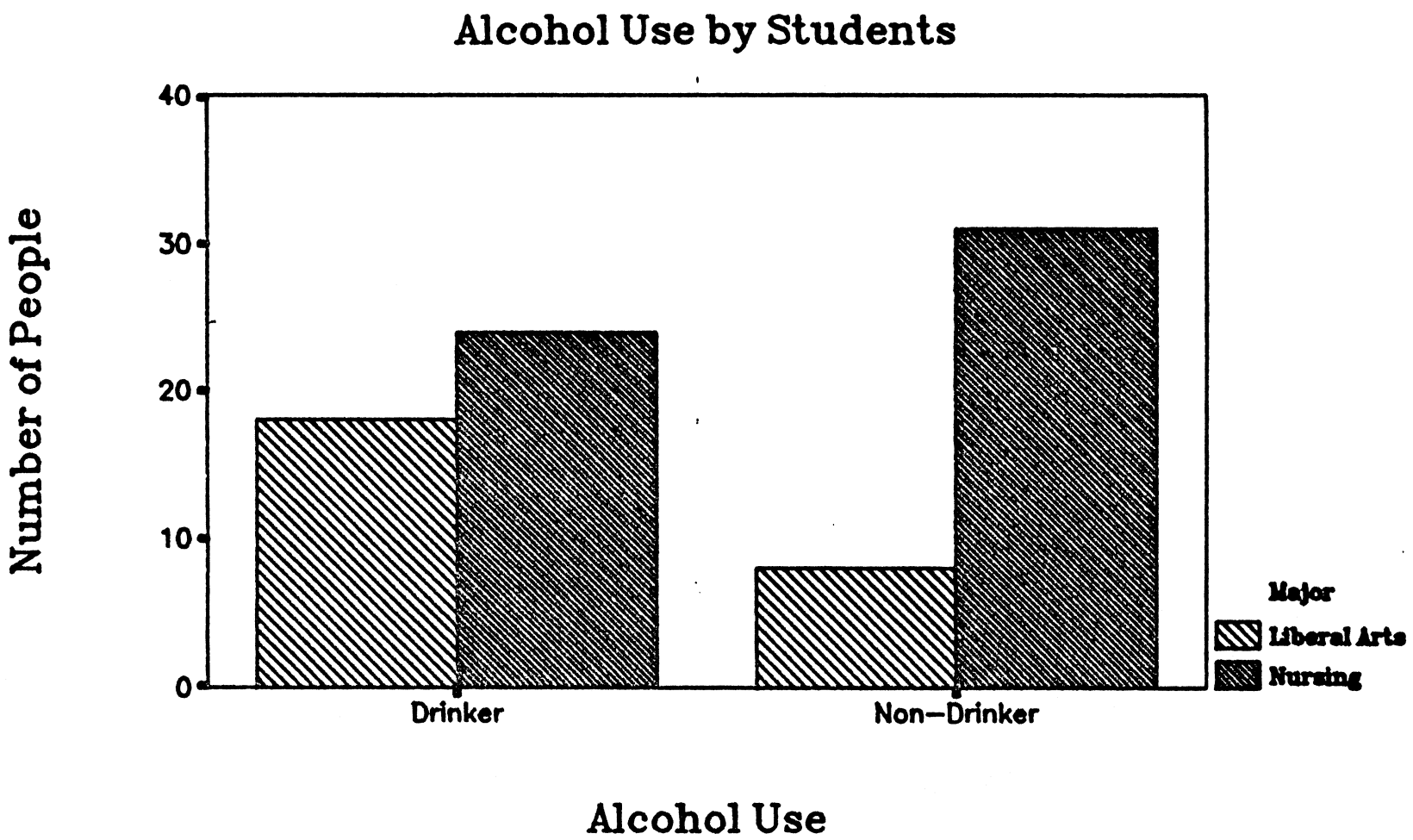
Table 4

Comparison of Alcohol Use Between Liberal Arts Students and Nursing Students

	Total		Liberal Arts		Nursing	
	No.	%	No.	%	No.	%
Drinker	42	51.9	18	69.2	24	43.6
Non-Drinker	39	48.1	8	30.8	31	56.3
Missing	1		1		0	

X^2= 3.6638 df= 1 p.= 0.0556

Figure 3


Alcohol Use by Students
Number of People
40
30
20
10
0
Drinker
Non-Drinker
Alcohol Use
Major
Liberal Arts
Nursing

When comparing the amounts of beer, wine, and liquor consumed by Liberal Arts and Nursing students (Table 5 and Figures 4, 5, and 6), beer was shown to be the preferred beverage in the sample as a whole, as well as in the two sub-samples. In some previous studies, this preference for beer has been shown to typify drinking patterns of male but not female college students. T tests for independent means showed that average beer consumption reported by Liberal Arts students was significantly greater than that reported by the Nursing students ($t= 2.55$, $df= 29$, $p= 0.016$). There were no significant differences in the wine and liquor consumption rates between the two groups.

Weight-to-Height Ratio

Measures of obesity can be obtained in various ways. In a 1981 article by Lee, et. al., the authors state that obesity should "ideally be assessed by direct measures of the degree of fatness, such as skinfold thickness or other more elaborate laboratory methods..." (p. 2521), but such determinations are generally impractical to collect. Determinations of weight can be easily made by weighing an individual on a scale, but the determination an individual's appropriate weight cannot be done independently of his height. The weight of any person is a relative measure when one is assessing whether that weight falls within 'normal' or 'healthy' parameters. The words "normal" and "healthy" are used to express a relationship between weight and height which has been statistically established by insurance companies and others with an interest in such parameters. Richardson (1980) states that "weight at any given age without reference to the height attained may lead to false assessments of the nutritional status of groups". (p. 84)

Table 5

Comparison of Beer, Wine, and Liquor per Week Consumption Rates Between Liberal Arts Students and Nursing Students

	Total n= 82	Liberal Arts n= 27	Nursing n= 55
Mean Number of Beers	2.11	4.077	1.182
Range	0-25	0-25	0-10
Standard Deviation	3.889	5.571	2.302
t= 2.55 df= 29.11 p= 0.016			
Mean Number of Wines	.370	.462	.327
Range	0-3	0-3	0-3
Standard Deviation	.843	1.029	.747
t= 0.60 df= 37.91 p= 0.555			
Mean Number of Liquors	.654	1.192	.400
Range	0-10	0-10	0-5
Standard Deviation	1.652	2.466	1.011
t= 1.58 df= 29.05 p= 0.126			

Figure 4

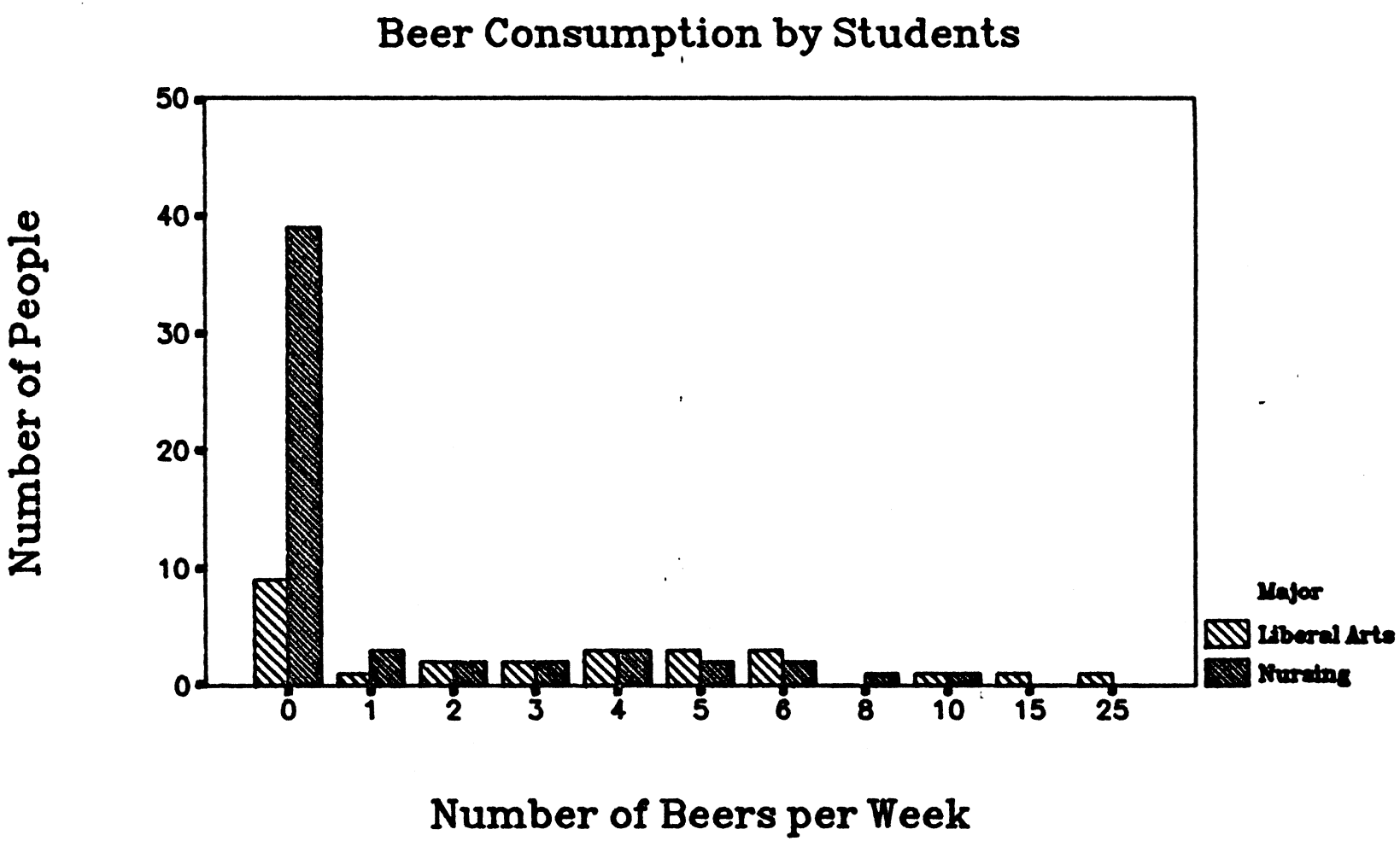

Beer Consumption by Students
Number of People
50
40
30
20
10
0
0
1
2
3
4
5
6
8
10
15
25
Number of Beers per Week
Major
Liberal Arts
Nursing

Figure 5

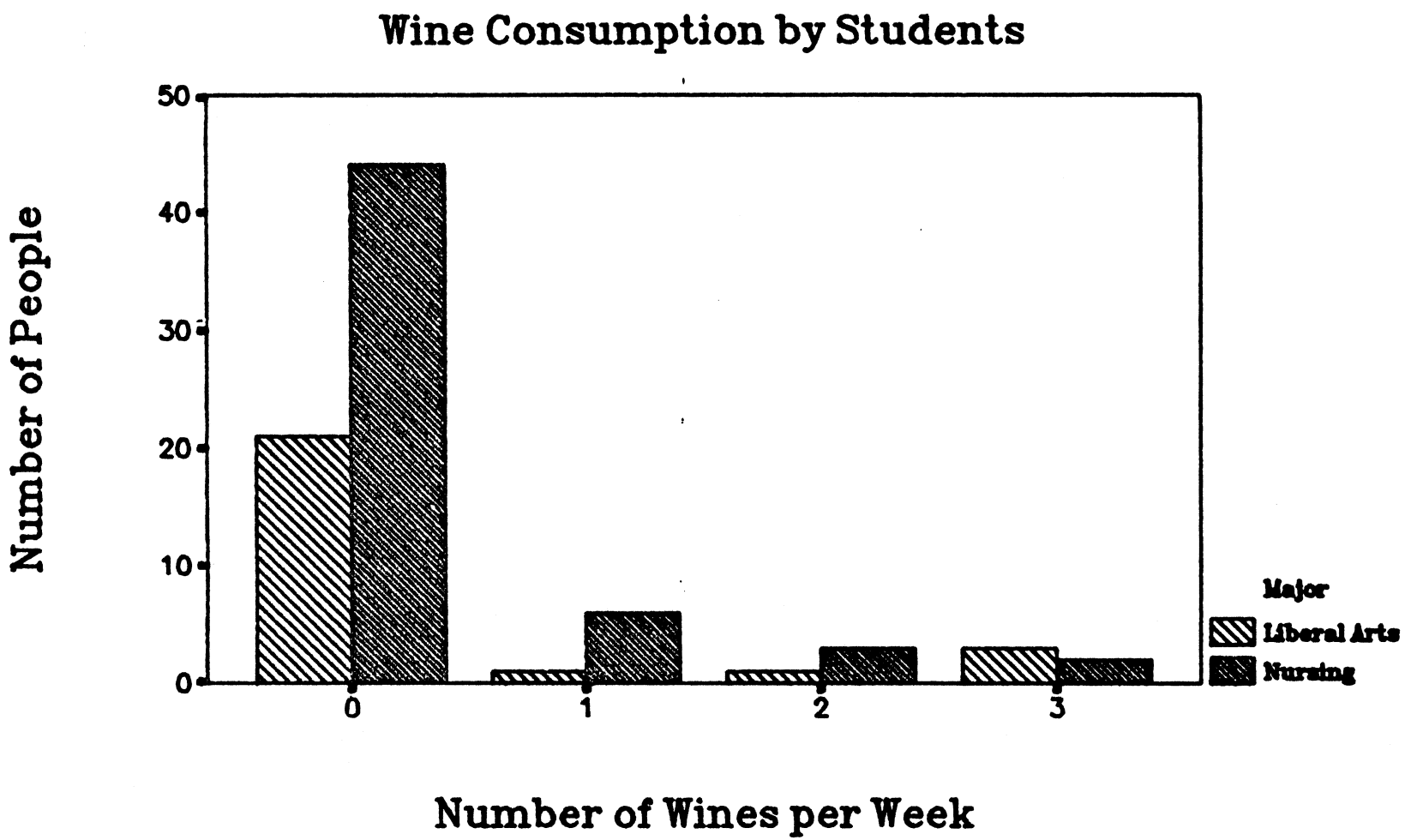
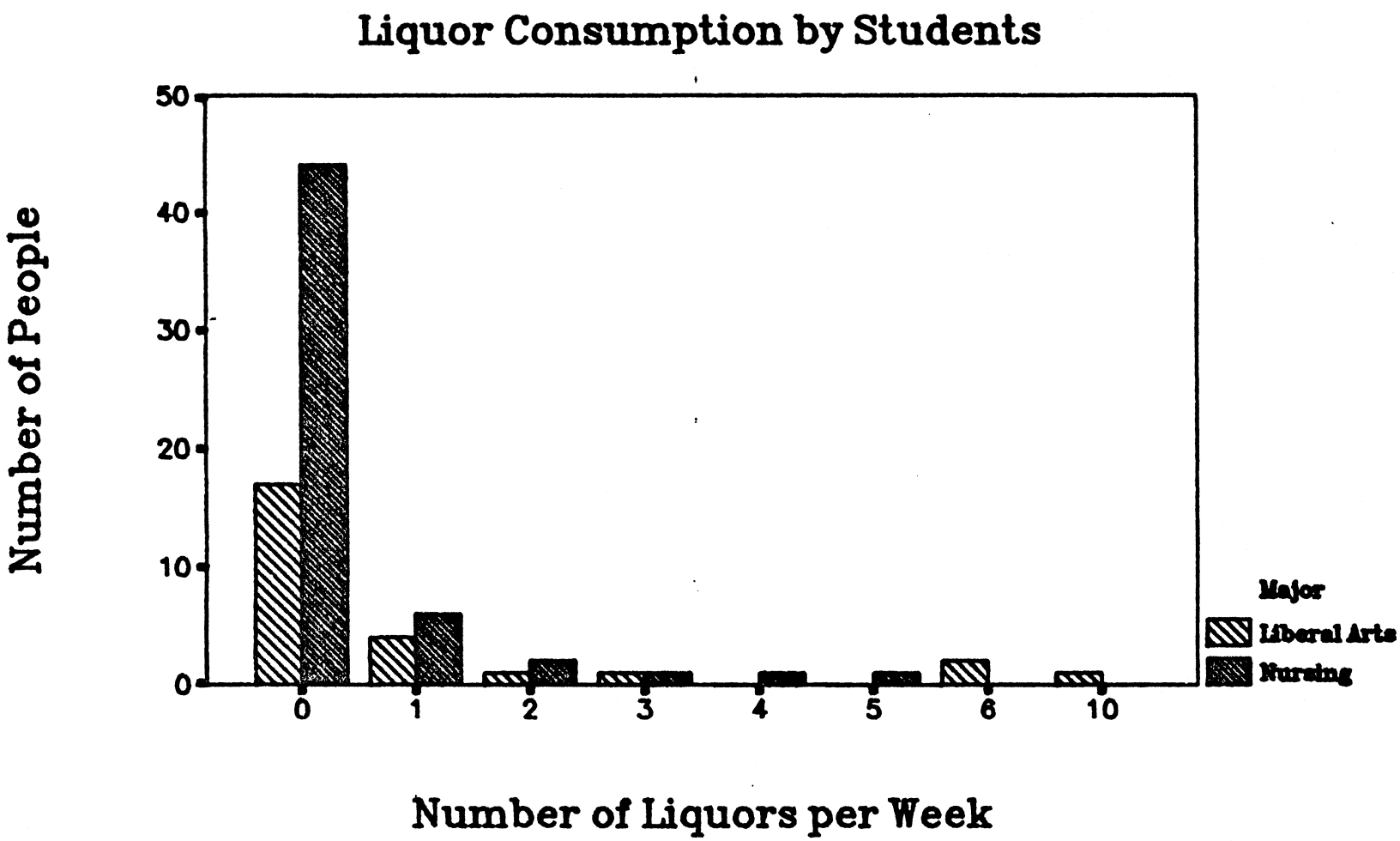

Wine Consumption by Students
Number of People
50
40
30
20
10
0
0
1
2
3
Number of Wines per Week
Major
Liberal Arts
Nursing

Figure 6


Liquor Consumption by Students
Number of People
50
40
30
20
10
0
0
1
2
3
4
5
6
10
Number of Liquors per Week
Major
Liberal Arts
Nursing

Thus, according to Lee, "a weight-corrected-for-height index derived from body weight (W) and height (H) data is used for measuring, although indirectly, obesity among study subjects". (p. 2521)

It was decided to use some standard ratio of weight-to-height for this study. The type of index that was selected is what these authors refer to as a "power-type index". The index, in this case, expresses weight relative to some power function of height. Lee, et. al. state that "in the adult populations, W/H and W/H^2 are consistently highly correlated with weight..." (p. 2522), all correlations being above 0.90. The calculation of weight divided by height squared times 100 [$W/H^2(100)$] known as the Quetelet Index (QI) was chosen to measure the obesity of subjects in this study. According to Khosla and Lowe (1967) and Florey (1970), two criteria have to be satisfied when using a weight for height index , namely, the index must be independent of height and must be highly correlated with weight.

Pearsons Correlation Coefficients were examined for weight and for height relative to the QI. In the sample as a whole as well as for the sub-samples, there was a high positive correlation of greater than .8000 between QI and weight, but a low correlation between QI and height (Table 6). This satisfied the criteria stated above. Table 7 shows the mean weight and height and the QI for the sample as a whole, as well as for the samples of Liberal Arts and Nursing students. The table reveals close similarities between the two groups, both in terms of the mean weights and heights, and the ranges. A t test for independent means was done to ascertain if there was a statistically significant difference in the Quetelet Index between the Liberal Arts sample and the Nursing sample. The results indicated there was no difference between these groups ($t= 0.87$, $df= 77$, $p= 0.386$).

Table 6

Correlation of Weight and Height, with Quetelet's Index Between Liberal Arts Students and Nursing Students

	Total n= 82	Liberal Arts n= 27	Nursing n= 55
Correlation of Weight with Quetelet Index	.8699	.8126	.9009
	(p= .000)	(p= .000)	(p= .000)
Correlation of Height with Quetelet Index	-.0851	-.2221	.0160
	(p= .228)	(p= .143)	(p= .454)
Missing	3	2	1

Table 7

Comparison of Weight, Height, and Quetelet's Index Between

Liberal Arts Students and Nursing Students

	Total n= 82	Liberal Arts n= 27	Nursing n= 55
Mean Weight (lbs)	135.228	135.880	134.926
Range	100-230	100-200	102-230
Standard Deviation	24.930	23.532	25.760
Missing	3	2	1
t= 0.16 df= 77 p= 0.875			
Mean Height (inches)	64.793	64.259	65.055
Range	59-71	59-71	60-70
Standard Deviation	2.779	3.133	2.578
t= -1.22 df= 80 p= 0.225			
Mean Quetelet Index	3.212	3.288	3.177
Range	2.42-4.97	2.69-4.59	2.42-4.97
Standard Deviation	.526	.544	.519
t= 0.87 df= 77 p= 0.386			

Physical Activity

The question on physical activity in the HRA sought information on the frequency and regularity of the subject's exercise patterns. In Table 8, the patterns of physical activity are shown for the sample as a whole as well as for the sub-samples. The categories of 'Little or None' and 'Occasional' were collapsed in order to reduce, as much as possible, the cells with small numbers. This collapsing was considered justified from a health standpoint as well, since the recommended amount of exercise in Healthy People (1979) is 15-30 minutes, three times per week (p. 10/25). Analysis indicated there was no significant difference between the physical activity levels of the Liberal Arts and Nursing students (X^2 = 0.217, df= 1, p= 0.6413).

Seat-Belt Use

Students were asked in the HRA to report the percentage of time that they used seat belts. Table 9 shows the mean percentage of use of seat belts for the sample as a whole as well as for the sub-samples. A t test of independent means indicated no significant differences between the Liberal Arts sample and the Nursing sample in the use of seat belts (t= 1.01, df= 79, p= 0.314).

Sleep

An examination of the number of hours of sleep reported by students shows that the largest group of students in the Liberal Arts, Nursing, as well as the total sample reported getting seven hours of sleep per night (Table 10). A larger number of nursing students than Liberal Arts students reported sleeping six hours per night or less. Chi-square analysis showed no difference in hours of sleep per night between the Liberal Arts and the Nursing samples (X^2= 4.6628, df= 3, p= 0.1982).

Table 8

Comparison of Physical Activity Between Liberal Arts Students and Nursing Students

	Total		Liberal Arts		Nursing	
	No.	%	No.	%	No.	%
Little or None Occasional	58	71.6	20	76	38	69.1
Regular	23	28.4	6	23.1	17	30.9
Missing	1		1		0	

X^2= 0.217, df= 1, p.= 0.6413

Table 9

Comparison of Seat Belt Use Between Liberal Arts Students and Nursing Students

	Total n= 82	Liberal Arts n= 27	Nursing n=55
Mean Use (percent)	82.06	86.577	79.964
Range	0-100	10-100	0-100
Standard Deviation	27.455	22.313	29.515
Missing	1	1	0

t= 1.01 df= 79 p= 0.314

Table 10

Comparison of Hours of Sleep Between Liberal Arts Students and Nursing Students

	Total		Liberal Arts		Nursing	
	No.	%	No.	%	No.	%
Six or Less	15	18.3	2	7.4	13	23.6
Seven	43	52.4	14	51.9	29	52.7
Eight	21	25.6	10	37.0	11	3.6
Nine or More	3	3.7	1	3.7	2	3.6

$X^2 = 4.66288$ df= 3 p= 0.1982

Other Findings

Cumulative Health Practices

In order to determine if there were students in either group who were using multiple good health practices, definitions of "positive" had to be stipulated with respect to each of the six health practices. "Healthy" seat belt use was defined at two different levels. The definitions of all "healthy" health practices were consistent with the categories found on the HRA.

The following definitions were chosen:

Smoking: no smoking.

Alcohol: no alcohol.

Weight-to-height: One standard deviation below and above the mean Quetelet Index.

Exercise: regular exercise, three times per week.

Seat-Belt Use: 1). 80-100% use; 2). 95-100% use.

Sleep: Seven or eight hours per night.

A comparison of the Liberal Arts students and the Nursing students was made with respect to the cumulative positive health practices of subjects in each group with 'healthy' use of seat belts defined as "80% of the time or more" (Table 11). There were no students in the study who reported using all six positive health practices. There were a total of 37 Nursing students (67.2%) in the sample who reported engaging in 4 or more positive health behaviors, as contrasted with 10 of the Liberal Arts students (37.0%). A Chi-square analysis showed that there was a statistically significant difference between the Liberal Arts students and the Nursing students with respect to their cumulative health- practice totals (X^2= 10.20951 , df= 4 , p= 0.0370).

Table 11

Comparison of Total Numbers of Health Practices Between Liberal Arts Students and Nursing Students (Seat Belt Use of 80-100%)

Number of Health Practices	Total n= 82	Liberal Arts n= 27	Nursing n= 55
0	0	0	0
1	3	2	1
2	11	3	8
3	21	12	9
4	25	5	20
5	22	5	17
6	0	0	0

X^2= 10.20951, df= 4, p= 0.0370

An identical comparison of the Liberal Arts students and the Nursing students was made except that 'healthy' use of seat belts was defined as "95% of the time or more" (Table 12). Again, there were no students in the study who reported using all six positive health practices. The number of Nursing students in the sample who reported using 4 or more positive health behaviors at this higher level of seat belt use was 35 (63.6%), as contrasted with 10 of the Liberal Arts students (37.0%). A Chi-square analysis showed that there was no statistically significant difference between the Liberal Arts students and the Nursing students with respect to their cumulative health- practice totals when healthy seat belt use is defined as 95% use or greater (X^2= 7.18623 , df= 4 , p= 0.1264).

Summary

In this chapter, the population has been described demographically and similarities and differences between the samples of Liberal Arts students and Nursing students have been highlighted. Statistical analyses of the study hypotheses comparing each of the six health practices of the Liberal Arts students to the comparable practices of the Nursing students was done. Lastly, a comparison of the Liberal Arts students and Nursing students with respect to the aggregate number of these health practices was made.

Table 12

Comparison of Total Numbers of Health Practices Between Liberal Arts Students and Nursing Students (Seat Belt Use of 95-100%)

Number of Health Practices	Total n= 82	Liberal Arts n= 27	Nursing n= 55
0	0	0	0
1	5	3	2
2	10	3	7
3	22	11	11
4	24	5	21
5	19	5	14
6	0	0	0

X^2= 7.18623, df= 4, p= 0.1264

CHAPTER V

SUMMARY

Introduction

The purpose of this study has been to ascertain what differences existed between the health practices of Nursing students and Liberal Arts students. The study has described and compared the health-practices of those two groups of students in the six areas of smoking, alcohol consumption, weight control, exercise, safety-belt use and sleep. In this chapter, the results and the implications of the study hypotheses relating to these six health practices will be discussed. The several limitations of this study will also be addressed. Implications of these findings for nursing will be discussed, and suggestions for further study will be made.

Discussion of the Study Findings

Smoking

A comparison of Liberal Arts Students and Nursing students showed significant differences in their smoking behavior. Whereas previous research indicated that nurses and nursing students smoked more than the general female population (Price & Collins, 1973), more than the general female student population (Gould & King, 1978; Price & Collins, 1973), and more than the population of medical students and physicians (Murray, 1985; Coe, et. al., 1982;

Sobal, 1986; Wagner, 1985), the sample Nursing students at Salisbury State College had a lower prevalence of reported smoking than the sample of Liberal Arts students. In the sample of Nursing students, there were only 3.6% who reported smoking at the present time, compared with 34.6% in the Liberal Arts student sample. Even if ex-Smokers are grouped with Smokers because past smoking has been shown to be a risk factor for developing certain chronic diseases, the Nursing sample reported a smoking rate of 21.8% compared with 46.1% of the Liberal Arts sample. Further, in terms of the rate of smoking, that is to say, the number of cigarettes smoked, the sample of Nursing students reported using tobacco at a lesser rate (mean= 1.636) than the sample of Liberal Arts students (mean= 9.296).

Two pertinent questions may be asked at this point. The first question concerns itself with why the smoking behavior of the present sample of Nursing students shows such significant improvement when compared with the literature reports of the smoking behavior of previous groups of Nursing students. The second question concerns itself with why the smoking behavior of the sample of Nursing students is so significantly different from the smoking behavior of the Liberal Arts sample. With respect to the first question, it is possible that the changed climate of public opinion of smoking may have had impact on the students in the sample. For instance, this new generation has grown up with a virtual absence of the pro-smoking attitudes which had been reflected in the broadcast media before the government ban on cigarette advertising in 1970. Previous generations had been subject to advertising campaigns on radio and television prior to this time. Furthermore, greater publicity has been given to the hazards and consequences of smoking due to the increased health reporting and information programs in the media. But such phenomena should have had similar impact not only on Nursing students, but on all cohort groups at the same institution with

comparable socio-economic backgrounds, similar age, sex, race, and GPA profiles. Nursing students, however, have significantly better smoking health habits.

The second question as to why the smoking behavior of the sample of Nursing students is so significantly different from the smoking behavior of the Liberal Arts sample must be asked at this time. There was no measure of subjects' rationale for their behavior, so the reasons put forth are purely speculative. In the conceptual framework discussed in Chapter III, the elements impacting on Nursing students and Liberal Arts students were the same with the exception of the element called "Clinical Knowledge", present only for Nursing majors. There were no comparable groups of students among the Liberal Arts majors who have such intimate exposure to health problems of the general population. Indeed, Nursing students may be the only group at Salisbury State College who are in constant contact with people at every stage of the health-illness spectrum. They have been the direct observers of the results of poor health practices. Perhaps, because of their clinical experience combined with what they have learned in the classroom from a theoretical standpoint, has caused them to experience greater cognitive dissonance than their Liberal Arts colleagues. Feelings of dissonance might have also been responsible not only for the greater percentage of people who never smoked, but also for the somewhat larger percentage of ex-smokers found among the Nursing students (18.2%) as compared to Liberal Arts students (11.5%). Perhaps those clinical experiences can be said to have set Nursing students apart from other students in matters of health, resulting in the more nearly unanimous rejection of smoking as an unacceptably risky behavior.

Alcohol

Although there were no statistically significant differences in the drinking patterns of the sample of Nursing students and the sample of Liberal Arts students,

the results indicated a trend toward greater abstinence on the part of the Nursing students in the sample than the Liberal Arts students in the sample, and a lower rate of alcoholic consumption among those Nursing students in the sample who drank, when compared to their Liberal Arts counterparts. The literature indicated, on the other hand, that although there was no significant difference in the abstinence patterns of Nursing students and other collegians, there was a tendency to drink more frequently (Haack & Harford, 1984). Again, as in smoking health practices, the findings related to alcohol consumption did not confirm patterns reported in the past. Rather, the Nursing students seemed to indulge in fewer risk behaviors at a lower rate. Why this should be the case is again purely speculative, as the study did not ascertain the rationale for subjects' actions. Clinical observation of the cumulative effects of alcohol are a common experience of the Nursing student, whether in the hospital, in chronic care facilities or in the community. The place of clinical experience as the unique element in the Nursing student's environment may serve to trigger a strong feeling of cognitive dissonance reinforcing the notion that drinking can have chronically irreversible consequences.

The results of the comparison of Nursing students and Liberal Arts students with respect to alcohol use were difficult to use for comparison with the alcohol studies reviewed in Chapter II because of the multiplicity of scales measuring alcohol consumption. The HRA asked for a report of the numbers of beer, wine, and liquor that were drunk each week. Unlike the other scales, there was no attempt to label these reports as 'heavy', 'medium-heavy', 'medium', etc. Meaningful comparisons with other studies would have required obtaining original reports from which the journal articles were generated, and transforming all the scales of measurement into HRA-type scales. This would have been a very valuable task, but one which was beyond the scope of this thesis.

Weight-to-Height Ratio

There was notable similarity in both the heights and weights of the two sample groups, as well as their Quetelet Indices. An 'ideal' Quetelet Index for a medium frame person is about 2.93, based on calculations of ideal weight-to-heights for females found on the Table of Ideal Weights and Range (Insel & Roth, 1988, p. 286). The mean QIs for both the Liberal Arts students (3.288) and the Nursing students (3.177) were above that value, indicating that both groups were slightly overweight on the average. This is consistent with the trend reflected in the recent upward revision of the Metropolitan Life Charts, which indicate that the mean weights forAmerican adults have increased.

Because the HRA asked no questions about the nutritional patterns of subjects, no data was collected to measure the daily intakes of fats, proteins, and carbohydrates. Such measurements might have had some bearing on the tendency for the sample toward greater-than-ideal weights.

Physical Activity

Although statistically significant differences between Liberal Arts and Nursing were not found, at the 5% level of significance, there was a difference between the groups at the 6.4% level. It was surprising that 30.9% of the Nursing students reported exercising regularly, because such exercise (stipulated as occurring three times per week) is time-consuming. The Nursing major is itself a very time-consuming pursuit, and logic would dictate that there would be little time left for regular physical activity. Coe. et al (July, 1982) reported that health-promoting behavior, such as jogging, tended to lessen as medical students fulfilled the demands of their education. Since this study was done cross-sectionally, there was no opportunity to 'follow' students in either Liberal Arts or Nursing to see how exercise patterns would be affected.

Seat-Belt Use

The data collected showed that both the majority of the Liberal Arts sample (23) and the majority of the Nursing sample (42) reported using seat belts at least 75% of the time. The high percentage of use by a large percent of the sample may indicate that the heavy public-service advertising campaigns coupled with the passage of mandatory seat-belt laws in 1986 have changed the behavior of these automobile users. In 1979, prior to any mandatory seat belt laws in the United States, the National Highway Traffic Safety Administration (December 1980, p. 14) reported the driver use of seat belts at 11 percent, (down from 13% in 1978), and adult passenger use at 7 percent. In the previously cited accident fatalities report (Williams, March 1988) from Baltimore County, the percent of current use of seat belts in Baltimore County since the passage of the Maryland mandatory seat belt laws is as yet unavailable.

Sleep

The sleep patterns of both groups of students indicated nothing noteworthy. It may be worth commenting on the fact that more Nursing students got six hours or less per night, and conversely, fewer Nursing students got eight hours of sleep per night. This is consistent with the demands of the Nursing major, which often requires of its students, both written, well-thought out, and sometimes lengthy plans for the care of their patients done during the evening, as well as early rising to be at the clinical site the next morning. The rigors of scientific study combined with actual application on patients may serve to lessen somewhat the opportunity to sleep.

Other Findings

Cumulative Health Practices

On the assumption that the utilization of several positive health practices would be "healthier" for a given individual than single utilization, comparisons of Liberal Arts students and Nursing were made with resepct to their use of multiple health practices, although this was not a stated purpose of this study. The problem that was encountered in attempting to make such a comparison was the problem of determining where the 'positivity' of the six health practices stopped and 'negativity' began. In some of the health practices, the boundaries were clearer than others. In smoking, for instance, it seemed clear that "no smoking" was the only healthy definition. Definitions that were ultimately chosen could themselves be debated, as different researchers apply different criteria in arriving at standards of "healthiness".

The fact that the Nursing students had better cumulative health practices than the Liberal Arts students at the 80-100% level of seat-belt use but not at the 95-100% level, may be explained by the fact that proportionately more Liberal Arts students were clustered around the 100% level than were Nursing students. Therefore, as the higher level of seat-belt use was calculated, proportionately greater numbers of Liberal Arts students were included in the numbers of those having "good" seat belt use, thus reducing the differences between this group and the Nursing students with respect to their cumulative health practices.

General Comments on Positive Health Practices of Nursing Students

Some speculative comments are offered to provide possible explainations for some of the differences between Liberal Arts students and Nursing students with respect to the health practices examined in this study.

Cognitive Dissonance: It could be argued, as it has been above, that the students' experiences in the clinical areas may serve to create more cognitive dissonance, not only for health practices, taken individually, but in these areas of health practice taken together. It is also possible that there may be a 'snowball' effect with respect to health practices, namely, once the individual adopts one or two positive health practices, she may feel an even stronger sense of cognitive dissonance that she still has other negative health practices. It may seem to a Nursing student that the fact that she neither smokes, nor drinks, and maintains her ideal weight, makes the absence of good exercise patterns, and seat-belt use, and good sleep habits all the more irrational. This feeling of dissonance may exert more inner pressure on her to change those health habits as a whole.

Socialization: It is possible that socialization as a health professional may prompt Nursing students to be more conscious of their health behavior in general, and to feel discomfort or guilt at using 'unhealthy' behavior. There may also be a greater tendency for nursing students to respond in 'socially desirable' ways, conforming to publics' expectations of nurses as women 'beyond reproach'.

Selection bias: It is possible that Nursing as a major field may have a built-in selection biases. Nursing students may, for instance, already be health-conscious before they enter the major, and as such, practitioners of good health habits. It is also possible that "the healthy worker" effect (i.e., the very fact of being a Nursing major presupposes a certain level of health), may have also biased the Nursing sample.

Values Teaching in the Nursing Major: The nursing faculty may, by word or deed, indicate that they think students ought to follow certain health practices, whereas health-related matters are not normally discussed by Liberal Arts faculties in those majors. The Nursing faculty may also reflect to students that they, as competent health professionals, should function as role models for their patients. There is probably no similar health-practice philosophy which Liberal Arts professors urge their students to adopt in order to function as good professional historians, English teachers, or philosophers.

Limitations of the Study

Sample Size

Difficulty was encountered in recruiting Liberal Arts majors who met the study criteria. They were a more diffuse and diverse population due, on the one hand, to the less structured nature of the History, English, and Philosophy majors (there were many non- History, English, Philosophy majors in upper-level Liberal Arts courses), and due, on the other hand, to the fact that about 50% of the people in the courses were male. Thus, although many people volunteered to complete the HRA questionnaire, there were few people in any given Liberal Arts class who ended up in the sample. It is therefore possible that because of the comparatively small number of Liberal Arts majors in the sample, the results of the study do not accurately reflect health practices of the Liberal Arts student. Therefore the generalizability of the results should be viewed with caution.

Nursing majors, on the other hand, were relatively easy to recruit as they progressed in class groups through the 'core' Nursing curriculum. This is because there were no non-Nursing majors in a Nursing courses, as that is ruled out by the

nature of the Nursing curriculum. Further simplifying the Nursing-sample recruitment task was the fact that about 99% of Nursing majors were female, so comparatively few of the students had to be eliminated from the sample on the basis of sex.

Sample of Convenience

Another limitation of the study was the fact that all subjects were non-randomly recruited, that is to say, they were a sample of convenience. This may have resulted in sample bias due to the self-selection of the volunteer participants. Thus the sample obtained for the study may neither have been representative of the student population of this college, nor of college students in general with respect to their health practices.

Self-Report

Still another problem with any study using a self-administered questionnaire to gather data is the problem of self-report. The validity and accuracy of any study using the self-reported testimony of subjects can always be questioned. The reponses gathered by this method can always be questionned from the standpoint of their honesty. Simply put, we have no way of knowing whether the answers given to the survey questions are true. Questions, for instance, about weight or alcohol consumption could have elicited less than veridical answers if respondents were ashamed to record their actual data, even anonymously. In order to provide the best climate for honest self-report, every effort was made to protect subjects' confidentiality, to maintain subjects' anonymity, and to make study subjects aware of these efforts.

Recall Bias

A further complication of using the self-reported questionnaire is recall bias. Thus, even though the subject wished to report accurately about himself, that information may not reflect the true state of affairs. Respondents with poor memories, self-image problems, or personal problems might remember past events in a less acurate way.

Cross-Sectional Design

Another limitation stems from the fact that this was a cross-sectional study. In the interests of practicality, this was a deliberate part of the design. Thus, although it is easy to manage in terms of financial and time constraints, the data gathered is information about one point in time. Although this point-in-time approach may have yielded information that is interesting, *prima facie,* it does not tell us anything about the on-going trends and changes in the health practices of the contemporary student population.

Implications for Nursing

The direct result of the good health practices of nursing students is a more healthy population of nurses as the students take their places in professional roles. This means that there will be less work time lost from the early appearance of chronic diseases which result from poor health practices.

Since nursing is a service profession, those who are served, namely clients, will also benefit. Clients are in need, not only of accurate health information, but

also of role models. Nurses in small rural communities who have known poor health practices, have little leverage to influence the behavior of others and to bring about change in their clients. Indeed, they may breed a certain client cynicism, and a perception on the part of clients that the choice of health behaviors is not a serious matter. Nurses cannot expect to have credibility with clients if they themselves are unwilling to promote the concept of wellness by their own actions.

Often, in rural communities, the professional nurse is the client's only opportunity for reliable health information, and his only routine contact with the health care system. As such, the role modeling aspect of nursing is vital, not only to professional credibility, but to professional integrity as well. The contemporary nursing student's health practices, as described in this study, show every indication of vindicating this public trust.

Suggestions for Further Study

The findings of this study make clear the following recommendations for further study:

The study could be replicated with larger random samples from Liberal Arts and Nursing to increase generalizability.

A prospective study design could be employed in order to measure changes and trends in health practices among both groups of students, or among Nursing students alone.

A modified version of the HRA might be developed for a study replication incorporating several changes. Questions about safety of sexual practices, use of illicit drugs, nutritional patterns, and safe driving habits might be added. Questions about rectal examinations, hysterectomy, parental heart attack, and emphysema

might be eliminated if the questionnaire was used to ascertain health habits in the age group of 19-24 years.

Summary

In this chapter, the findings relating to the study hypotheses on smoking, alcohol, weight control, physical activity, seat-belt use, and hours of sleep per night were discussed, and possible explanations for these findings were put forward. The limitations of this study, namely the small sample size, the convenience sample, the self-report format of the questionnaire including the possibility of recall bias, and the cross-sectional design, were also discussed. Implications for nursing were addressed and suggestions for further study were made.

Appendix 1

SALISBURY STATE COLLEGE

Committee on Human Volunteers

DISCLOSURE FORM

I am currently conducting a study on a comparison of the health practices of junior and senior-level nursing students and junior and senior-level history, english and philosophy majors. The purpose of this research is to see what differences there may be between these two groups. I am seeking the assisitance of junior and senior-level nursing students and junior and senior-level history, english and philosophy students in completing a questionnaire concerned with health risk appraisal.

The questionnaire is brief and should take about 10 or 15 minutes of your time to complete. Every effort will be made to keep the information provided confidential. Your name does not appear on the questionnaire.

Your cooperation and participation are stictly voluntary and your choice to participate or not to participate will in no way affect your grade. You may leave any particular questions unanswered or may choose not to complete the questionnaire. Your participation is very valuable and will help me find out what differences exist in the health practices of these two groups.

If you have any questions about this study or would be interested in the results, please contact Catherine M. Walsh, Master's Degree Candidate, Graduate Program, SSC School of Nursing, 543-6420. Thank you for your cooperation.

Appendix 2

HEALTH RISK APPRAISAL

DELAWARE DIVISION OF PUBLIC HEALTH

104

99-1446

Health Risk Appraisal is a promising health education tool that is still in the early stages of development. It is designed to show how your individual lifestyle affects your chances of avoiding the most common causes of death for a person of your age, race and sex. It also shows how much you can improve your chances by changing your harmful habits. (This particular version is not very useful for persons under 25 or over 60 years old and for persons who have had a heart attack or other serious medical problem.)

IMPORTANT: To assure protection of your privacy, do NOT put your name on this form. Make sure that you put your Health Risk Appraisal "claim check" in your wallet or other safe place and insure that the number matches the number on this form. You must present your claim check to get your computer results.

PARTICIPANT NUMBER _____ 1-6

PLEASE ENTER YOUR ANSWERS IN THE EMPTY BOXES (use numbers only)

1. SEX [1] Male [2] Female — 7

2. RACE/ ORIGIN [1] White (non-Hispanic origin) [2] Black (non-Hispanic origin) [3] Hispanic [4] Asian or Pacific Islander [5] American Indian or Alaskan Native [6] Not sure — 8

3. AGE (At Last Birthday) Years Old — 9-10

4. HEIGHT (Without Shoes) Example: 5 foot, 7½ inches = [5]' [0 8]" (No Fractions) — ' " 11-13

5. WEIGHT (Without Shoes) Pounds — 14-16

6. TOBACCO [1] Smoker [2] Ex-Smoker [3] Never Smoked — 17

(Smokers and Ex-smokers) Enter average number smoked per day in the last five years (ex-smokers should use the last five years before quitting.)

- Cigarettes Per Day — 18-19
- Pipes/Cigars Per Day (Smoke Inhaled) — 20-21
- Pipes/Cigars Per Day (Smoke Not Inhaled) — 22-23

(Ex-smokers only) Enter Number of Years Stopped Smoking (Note: Enter 1 for less than one year) — 24-25

7. ALCOHOL [1] Drinker [2] Ex-Drinker (Stopped) [3] Non-Drinker (or drinks less than one drink per week) — 26

If you drink alcohol, enter the average number of drinks per week:

- Bottles of beer per week — 27-28
- Glasses of wine per week — 29-30
- Mixed drinks or shots of liquor per week — 31-32

8. DRUGS/MEDICATION How often do you use drugs or medication which affect your mood or help you to relax? [1] Almost every day [2] Sometimes [3] Rarely or Never — 33

9. MILES Per Year as a driver of a motor vehicle and/or passenger of an automobile (10,000 = average) Thousands of miles — 0 0 0 34-38

10. SEAT BELT USE (percent of time used) Example: about half the time = [5 0] — % 39-41

11. PHYSICAL ACTIVITY LEVEL
- [1] Level 1 - little or no physical activity
- [2] Level 2 - occasional physical activity
- [3] Level 3 - regular physical activity at least 3 times per week

— 42

NOTE: Physical activity includes work and leisure activities that require sustained physical exertion such as walking briskly, running, lifting and carrying.

12. Did either of your parents die of a heart attack before age 60? [1] Yes, One of them [2] Yes, Both of them [3] No [4] Not sure — 43

13. Did your mother, father, sister or brother have diabetes? [1] Yes [2] No [3] Not sure — 44

14. Do YOU have diabetes? [1] Yes, not controlled [2] Yes, controlled [3] No [4] Not sure — 45

15. Rectal problems (other than piles or hemorrhoids). Have you had:
- Rectal Growth? [1] Yes [2] No [3] Not sure — 46
- Rectal Bleeding? [1] Yes [2] No [3] Not sure — 47
- Annual Rectal Exam? [1] Yes [2] No [3] Not sure — 48

(Continued on Other Side)

16. Has your physician ever said you have Chronic Bronchitis or Emphysema? [1] Yes [2] No [3] Not sure [ ] 49

17. Blood Pressure (If known – otherwise leave blank)
Systolic (High Number) [ ][ ][ ] 50-52
Diastolic (Low Number) [ ][ ][ ] 53-55

18. Fasting Cholesterol Level (If known – otherwise leave blank) MG/DL [ ][ ][ ] 56-58

19. Considering your age, how would you describe your overall physical health?
[1] Excellent [2] Good [3] Fair [4] Poor [ ] 59

20. In general how satisfied are you with your life?
[1] Mostly Satisfied [2] Partly Satisfied [3] Mostly Disappointed [4] Not Sure [ ] 60

21. In general how strong are your social ties with your family and friends?
[1] Very strong [2] About Average [3] Weaker than average [4] Not sure [ ] 61

22. How many hours of sleep do you usually get at night?
[1] 6 hours or less [2] 7 hours [3] 8 hours [4] 9 hours or more [ ] 62

23. Have you suffered a serious personal loss or misfortune in the Past Year? (For example, a job loss, disability, divorce, separation, jail term, or the death of a close person)
[1] Yes, one serious loss [2] Yes, Two or More serious losses [3] No [ ] 63

24. How often in the Past Year did you witness or become involved in a violent or potentially violent argument?
[1] 4 or more times [2] 2 or 3 times [3] Once or never [4] Not sure [ ] 64

25. How many of the following things do you usually do?
- Hitch-hike or pick up hitch-hikers
- Carry a gun or knife for protection
- Keep a gun at home for protection
- Criticize or argue with strangers
- Live or work at night in a high-crime area
- Seek entertainment at night in high-crime areas or bars

[1] 3 or more [2] 1 or 2 [3] None [4] Not sure [ ] 65

26. Have you had a hysterectomy? (Women only) [1] Yes [2] No [3] Not sure [ ] 66

27. How often do you have Pap Smear? (Women only)
[1] At least once per year [2] At least once every 3 years [3] More than 3 years apart
[4] Have never had one [5] Not sure [6] Not applicable [ ] 67

28. Was your last Pap Smear Normal? (Women only) [1] Yes [2] No [3] Not sure [4] Not applicable [ ] 68

29. Did your mother, sister or daughter have breast cancer? (Women only) [1] Yes [2] No [3] Not sure [ ] 69

30. How often do you examine your breasts for lumps? (Women only)
[1] Monthly [2] Once every few months [3] Rarely or never [ ] 70

31. Have you ever completed a computerized Health Risk Appraisal Questionnaire like this one?
[1] Yes [2] No [3] Not sure [ ] 71

32. Current Marital Status
[1] Single (Never married) [2] Married [3] Separated
[4] Widowed [5] Divorced [6] Other [ ] 72

33. Schooling completed (One choice only)
[1] Did **Not** graduate from high school [2] High School
[3] Some College [4] College or Professional Degree [ ] 73

34. Employment Status
[1] Employed [2] Unemployed
[3] Homemaker, Volunteer, or Student [4] Retired, Other [ ] 74

35. Type of occupation (SKIP IF NOT APPLICABLE)
[1] Professional, Technical, Manager, Official or Proprietor [2] Clerical or Sales
[3] Craftsman, Foreman or Operative [4] Service or Laborer [ ] 75

36. County of Current Residence (SKIP IF NOT KNOWN)
[0][0][3] New Castle
[0][0][1] Kent
[0][0][5] Sussex
[9][9][9] Other [ ][ ][ ] 76-78

37. State of Current Residence [1][0] Delaware [9][9] Other [ ][ ] 79-80

Appendix 3

Major: _____Nursing _____History
_____English _____Philosophy
_____Other

This Course (and number): _____Nursing ___ History
_____English ___ Philosophy

Class: _____Junior _____Senior
_____Other

GPA (Cumulative): _____ < 2.0 _____ 2.0-2.5
_____ 2.6-3.0 _____ 3.1-3.5
_____ >3.5

Permanent Residence: _____City _____Suburb
_____Country

Appendix 4

RANK	CAUSE OF DEATH		CHANCES OF DYING PER 100,000 WITHIN THE NEXT 10 YEARS			
			COL.1 AVERAGE	COL.2 APPRAISAL	COL.3 ACHIEVABLE	COL.2-COL.3 DIFFERENCES
1	HEART ATTACK		862	114	87	27
2	BREAST CANCER		599	299	299	0
3	LUNG CANCER		356	213	213	0
4	STROKE		302	38	38	0
5	CIRRHOSIS OF THE LIVER		231	23	23	0
6	INTESTINAL CANCER		208	50	50	0
7	CANCER OF THE OVARY		188	188	188	0
8	SUICIDE		135	33	33	0
9	BRONCHITIS AND EMPHYSEMA		104	72	72	0
10	DIABETES		95	56	51	5
11	MOTOR VEHICLE ACCIDENTS		91	0	0	0
12	CANCER OF THE CERVIX		83	33	33	0
	ALL OTHER CAUSES	*	1829	1829	1829	0
	ALL CAUSES OF DEATH	*	5083	2948	2916	32

* = MISSING DATA FOR COMPLETE EVALUATION

	ACTUAL	APPRAISED	ACHIEVABLE	DIFFERENCE
AGE:	48	40.9	40.8	0.1

FOR WEIGHT 68 INCHES AND MEDIUM FRAME, 150 LBS. IS APPROXIMATELY 4% OVERWEIGHT - - - DESIRABLE WEIGHT IS 143 LBS.

* AVERAGE CHANCES OF DYING ARE BASED ON 1975-1977 U. S. MORTALITY DATA. (CDC VERSION 2.1)
* APPRAISED AGE (OR 'HEALTH AGE') IS AN ESTIMATE OF HOW HEALTHY YOU ARE COMPARED TO OTHERS OF YOUR RACE AND SEX.
* ACHIEVABLE AGE IS AN ESTIMATE OF HOW HEALTHY YOU COULD BE BY MAKING THE CHANGES RECOMMENDED BELOW:

POSITIVE AREAS OF YOUR LIFESTYLE	RECOMMENDED LIFESTYLE CHANGES
NON-SMOKER	PLAN A WAY TO GET MORE REGULAR EXERCISE THAT YOU ENJOY DOING
NEAR RECOMMENDED WEIGHT	
HEALTHY BLOOD PRESSURE	
GOOD STRESS CONTROL	
LITTLE OR NO ALCOHOL	
LITTLE OR NO DRUG USE	
SEATBELT USED ALMOST ALWAYS	
ANNUAL RECTAL EXAM	
REGULAR PAP TEST	
MONTHLY BREAST SELF-EXAM	

NOTE -- SUICIDE RISK IS PARTLY BASED ON ANSWERS TO QUESTIONS ABOUT PHYSICAL HEALTH, LIFE SATISFACTION SOCIAL TIES, HOURS OF SLEEP, RECENT LOSS OR MISFORTUNE AND MARITAL STATUS.

0 * * * DETAIL * * * DATE: 06-23-1987

CAUSE OF DEATH	CONDITION	APPRAISAL AS APPRAISED	APPRAISAL PARTIAL RISK	APPRAISAL TOTAL RISK	ACHIEVABLE ACHIEVED	ACHIEVABLE PARTIAL RISK	ACHIEVABLE TOTAL RISK
HEART ATTACK	BLOOD PRESSURE	120/80	0.4/0.4		120/80	0.4/0.4	
	CHOLESTEROL	BELOW 220 MG/DL	0.5		BELOW 220 MG/DL	0.5	
	DIABETES	NOT DIABETIC	0.9		NOT DIABETIC	0.9	
	WEIGHT	150	0.9		143	0.9	
	ACTIVITY LEVEL	MINIMUM	1.0		EXERCISE PROGRAM	0.8	
	SMOKING	NON-SMOKER	0.8		NON-SMOKER	0.8	
	FAMILY HISTORY	NO	1.0	0.13	NO	1.0	0.10
BREAST CANCER	F/H BREAST CAN	NONE + SELF-EXAM	0.5	0.50	NONE + SELF-EXAM	0.5	0.50
LUNG CANCER	SMOKING	NON-SMOKER	0.6	0.60	NON-SMOKER	0.6	0.60
STROKE	BLOOD PRESSURE	120/80	0.4/0.4		120/80	0.4/0.4	
	CHOLESTEROL	BELOW 220 MG/DL	0.5		BELOW 220 MG/DL	0.5	
	DIABETES	NOT DIABETIC	0.9		NOT DIABETIC	0.9	
	SMOKING	NON-SMOKER	0.7	0.13	NON-SMOKER	0.7	0.13
CIRRHOSIS OF THE LIVER	ALCOHOL	NON-DRINKER	0.1	0.10	NON-DRINKER	0.1	0.10
INTESTINAL CANCER	RECTAL GROWTH	HAS NOT HAD	0.9		HAS NOT HAD	0.9	
	RECTAL EXAM	ANNUAL EXAM	0.3		ANNUAL EXAM	0.3	
	RECTAL BLOOD	NO BLOOD IN STOOL	0.9	0.24	NO BLOOD IN STOOL	0.9	0.24
SUICIDE	DISTRESS	BELOW AVERAGE RISK	0.5		BELOW AVERAGE RISK	0.5	
	ALCOHOL	NON-DRINKER	0.5	0.25	NON-DRINKER	0.5	0.25
BRONCHITIS AND EMPHYSEMA	SMOKING	NON-SMOKER	0.7	0.70	NON-SMOKER	0.7	0.70
DIABETES	WEIGHT	150	0.7		143	0.6	
	FAMILY HISTORY	NO	0.9	0.60	NO	0.9	0.54
MOTOR VEHICLE ACCIDENTS	ALCOHOL	NON-DRINKER	0.5		NON-DRINKER	0.5	
	MILES PER YEAR	15	0.0		15	0.0	
	SEATBELT	75-100%	0.8		75-100%	0.8	
	DRUG USE	RARELY OR NEVER	0.9	0.00	RARELY OR NEVER	0.9	0.00
CANCER OF THE CERVIX	PAP SMEAR	ANNUAL EXAM	0.4	0.40	ANNUAL EXAM	0.4	0.40

* RISK FACTORS ADAPTED FROM 'HOW TO PRACTICE PROSPECTIVE MEDICINE' DRS. ROBBINS AND HALL, METHODIST HOSPITAL OF INDIANA, 1970.
* COMPUTER PROGRAM DEVELOPED BY THE CENTERS FOR DISEASE CONTROL (CDC), DHHS, ATLANTA GEORGIA. THE PROGRAM WAS ADAPTED TO RUN ON A MICROCOMPUTER by CDC and PLANETREE MEDICAL SYSTEMS, INC., SALT LAKE CITY, UTAH (CDC Version 2.1)

NOTE: HEALTH RISK APPRAISAL IS STILL IN ITS EARLY STAGES OF DEVELOPMENT. ITS MAIN VALUE IS ITS POTENTIAL FOR SHOWING THE HEALTH AND SAFETY RISKS ASSOCIATED WITH COMMON LIFESTYLE FACTORS. HOWEVER, IT DOES NOT INCLUDE ALL PERSONAL RISKS AND PROTECTIVE FACTORS, AND - IN PARTICULAR - DOES NOT INCLUDE MOST OCCUPATIONAL RISKS AND ENVIRONMENTAL FACTORS. SINCE IT IS A DEVELOPMENTAL PROGRAM, IT SHOULD BE INTERPRETED BY A QUALIFIED HEALTH PROFESSIONAL.

Appendix 5

Instructions for Computer Print-Out Interpretation

First Box. In the first box, the twelve most common causes of death in the order of their frequency are listed. Column 1 lists how many people **per 100,000** will die in the next 10 years from these diseases. Column 2 shows your chances if you continue your present health habits. This is based on the actual information which you have given. Column 3 shows what you are capable of achieving if you change certain health practices, viz., the ones recommended in the "Recommended Lifestyle Changes" box. Column 2 - Column 3 therefore represents the additional risk due to lifestyle factors.

Between First and Second Boxes. Under the first box is your actual age, appraised age (your "health" age based on actual information given by you in answering the questions). Your achievable age follows, i.e., what you can achieve if you follow the "Recommended Lifestyle Changes." There may be comments about your height-to-weight ratio under the comments about age.

Second Row of Boxes. Lifestyle strengths are listed in the left-hand box entitled "Positive Areas of your Lifestyle". "Recommended Lifestyle Changes" are listed in the right-hand box.

Third Box: Causes of Death: Appraisal/Achievable. The rows of the last large box at the end of the print-out organize the data you gave according to the leading causes of death. The partial risk factors under each cause are totaled, and you can compare your appraised risk (actual risk) with your achievable risk (what you could achieve) in each section. The box is divided into three columns: "Causes of Death", "Appraisal", and "Achievable". In the section under "Appraisal" are the actual data which you put on the questionnaire, as well as the calculations of the partial risk for each item. In the "Achievable" column, you can see what you could achieve by modifying your lifestyle according to the recommendations.

Please keep in mind that the computations done for this print out are based on actuarial tables for all adults (age 25 to age 60). These tables are not specific for younger age groups, i.e. ages 18-25.

If you should have any questions about your print-out, please contact me, Catherine M. Walsh, Graduate Program, SSC School of Nursing, 543-6420.

Appendix 6

Statement of Approval

Committee on Human Volunteers

Salisbury State College

Date October 19, 1987

MEMORANDUM TO: Catherine Walsh

FROM : Chairman, Committee on Human Volunteers

SUBJECT :

A Comparison of the Health Habits of Nursing and Non-nursing Majors at Salisbury State College
Title of Study

Grant Application No. Sponsoring Agency

Karin Johnson
Principal Investigator or Program Director

The Committee on Human Volunteers has considered the above application and, on the basis of available evidence, records its opinion as follows:

(1) The rights and welfare of individual volunteers are adequately protected.

(2) The methods to secure informed consent are fully appropriate and adequately safeguard the rights of the subjects (in the case of minors, consent is obtained from parents or guardians).

(3) The investigators are responsible individuals, competent to handle any risks which may be involved, and the potential medical benefits of the investigation fully justify these studies.

(4) The investigators assume the responsibility of notifying the Committee on Human Volunteers if any changes should develop in the methodology or the protocol of the research project involving a risk to the individual volunteers.

Chairman

8/86

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1952-1956 Marymount High School, New York, N.Y.
Honors in History and Art
High Scool Diploma

1956-1960 Hobart and William Smith Colleges, Geneva, N.Y.
Major: Philosophy
Sutherland Prize in Philosophy, 1960.
Honors Thesis: Freud and Cassirer: the Concept of Man.
Bachelor of Arts with High Honors in Philosophy, 1960.

1981-1984 Salisbury State College, Salisbury, Md.
Major: Nursing
President, Student Nurses Association, 1983-84.
Nursing Honor Society, 1984.
Campus Life Award, 1984.
Who's Who among Students in American Universities and Colleges, 1984-85.
Bachelor of Science in Nursing Cum Laude, 1984.

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1985-88 Salisbury State College, Salisbury, Md.
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Professional Organizations

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Maryland Ornithological Society
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Employment

September1985- May 1986: Liason and Manager of the PGH-SSC cooperative program for Occupational Health Screening for Nursing 300.

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