The purposes of the study were to: 1) evaluate health knowledge competencies, 2) assess health skills, and 3) determine interrelationships among health knowledge, health skills, and self-reported behavioral demographic variables for Oregon entry-level college freshmen who had graduated from Oregon schools. An instrument, the “Health Education Survey,” was developed with the assistance of two Delphi panels, consisting of (1) nationally known health educators and (2) recognized Oregon health educators. The first panel contributed to the health knowledge competency part of the survey, including issues of community health, consumer health, environmental health, family life, mental and emotional health, injury prevention and safety, nutrition, personal health, prevention and control of disease, and substance use and abuse. The second panel contributed to the health skills part of the survey, including safe-living, stressor/risk-taking management, physical fitness, and nutrition, as defined by the Oregon Department of Education. Based upon health information derived from the first two parts, the third survey section considered various demographic and behavioral variables, including substance use, eating habits, and physical fitness.
The data derived from administration of the survey were evaluated by criterion-referenced and empirical (analysis of variance, t-test, chi-square) measurements at the .05 alpha level of significance. Data analysis disclosed that: 1) the subjects did not meet the 85% mastery standard for criterion-referenced measures for any of the health knowledge competencies or essential health skills; 2) there were significant differences among the subjects for the content areas of consumer health and the health skills of safe-living, physical fitness, and nutrition, as well as the behavioral areas of marijuana use, fitness level, and wearing auto seatbelts; and 3) gender differences existed for the content areas of family life and nutrition.

From analysis of the research findings, it was recommended that there is need for additional collaboration among secondary school health educators, education and health agencies, and appropriate higher education personnel to improve the health knowledge and skill needs of Oregon students. It was suggested that cooperative efforts at the secondary and university level to form coordinated, on-going evaluation and research projects would be one means to achieve this goal.
Health Knowledge Competencies and Essential Health Skills of Entry Level College Freshmen Enrolled in Oregon's Research Universities

by

Luana J. Beeson

A THESIS

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## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Purposes and Objectives of the Investigation</td>
<td>3</td>
</tr>
<tr>
<td>Research Questions and Investigative Hypotheses</td>
<td>3</td>
</tr>
<tr>
<td>Health Knowledge Competence Level Hypotheses</td>
<td>4</td>
</tr>
<tr>
<td>Health Behaviors and Knowledge Competence Level Hypotheses</td>
<td>5</td>
</tr>
<tr>
<td>Health Behaviors and Essential Health Skill Level Hypotheses</td>
<td>6</td>
</tr>
<tr>
<td>Justification of the Study</td>
<td>7</td>
</tr>
<tr>
<td>Scope and Limitations of the Study</td>
<td>8</td>
</tr>
<tr>
<td>Definition of Terms</td>
<td>8</td>
</tr>
<tr>
<td>Summary</td>
<td>10</td>
</tr>
<tr>
<td>2 REVIEW OF RELATED LITERATURE</td>
<td>12</td>
</tr>
<tr>
<td>Health Education and Comprehensive School Health Programs</td>
<td>12</td>
</tr>
<tr>
<td>Assessments of Comprehensive Health Issues</td>
<td>17</td>
</tr>
<tr>
<td>National Perspective on Comprehensive Health Issues</td>
<td>17</td>
</tr>
<tr>
<td>State Perspective on Comprehensive Health Issues</td>
<td>24</td>
</tr>
<tr>
<td>Collegiate Perspective on Comprehensive Health Issues</td>
<td>26</td>
</tr>
<tr>
<td>Present and Future Areas of Concern in Health Education</td>
<td>30</td>
</tr>
<tr>
<td>Summary</td>
<td>33</td>
</tr>
<tr>
<td>3 METHODS AND PROCEDURES</td>
<td>35</td>
</tr>
<tr>
<td>Development of the Instrument</td>
<td>35</td>
</tr>
<tr>
<td>Selection of the Sample</td>
<td>38</td>
</tr>
<tr>
<td>Treatment and Data Analysis</td>
<td>39</td>
</tr>
<tr>
<td>Summary</td>
<td>41</td>
</tr>
<tr>
<td>4 DATA ANALYSIS AND RESULTS</td>
<td>42</td>
</tr>
<tr>
<td>Demographic Characteristics</td>
<td>43</td>
</tr>
<tr>
<td>Health Knowledge Competency</td>
<td>46</td>
</tr>
<tr>
<td>Hypothesis 1</td>
<td>46</td>
</tr>
<tr>
<td>Hypothesis 2</td>
<td>47</td>
</tr>
<tr>
<td>Hypothesis 3</td>
<td>49</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS
(continued)

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Behaviors and Health Knowledge Competency</td>
<td>50</td>
</tr>
<tr>
<td>Hypothesis 4</td>
<td>51</td>
</tr>
<tr>
<td>Hypothesis 5</td>
<td>51</td>
</tr>
<tr>
<td>Hypothesis 6</td>
<td>52</td>
</tr>
<tr>
<td>Hypothesis 7</td>
<td>53</td>
</tr>
<tr>
<td>Hypothesis 8</td>
<td>54</td>
</tr>
<tr>
<td>Hypothesis 9</td>
<td>55</td>
</tr>
<tr>
<td>Essential Health Skills</td>
<td>55</td>
</tr>
<tr>
<td>Hypothesis 10</td>
<td>55</td>
</tr>
<tr>
<td>Hypothesis 11</td>
<td>56</td>
</tr>
<tr>
<td>Hypothesis 12</td>
<td>58</td>
</tr>
<tr>
<td>Health Behaviors and Essential Health Skills</td>
<td>58</td>
</tr>
<tr>
<td>Hypothesis 13</td>
<td>59</td>
</tr>
<tr>
<td>Hypothesis 14</td>
<td>60</td>
</tr>
<tr>
<td>Hypothesis 15</td>
<td>61</td>
</tr>
<tr>
<td>Hypothesis 16</td>
<td>61</td>
</tr>
<tr>
<td>Comprehensive Report of Findings</td>
<td>62</td>
</tr>
<tr>
<td>Behavioral Demographics</td>
<td>62</td>
</tr>
<tr>
<td>Summary</td>
<td>67</td>
</tr>
<tr>
<td>DISCUSSION AND RECOMMENDATIONS</td>
<td>72</td>
</tr>
<tr>
<td>Discussion</td>
<td>72</td>
</tr>
<tr>
<td>Recommendations for Further Study</td>
<td>74</td>
</tr>
<tr>
<td>Recommendations for Health Educators</td>
<td>75</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>78</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS
(continued)

Chapter | Page
--------|------
APPENDICES | 84
A: Essential Health Skills, State of Oregon | 84
B: Results of the National Adolescent Student Health Survey | 89
C: Health Education Survey | 93
D: National Delphi Panel, Survey Question Selection and Examples of Correspondence | 112
E: Second Delphi Panel, Including Examples of Correspondence | 121
F: Human Subjects Correspondence | 129
G: Administration of the Treatment | 133
H: Use of Substances Among Freshmen Students, Chi-Square Analysis | 137
### LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Most important source of health information for entry level freshmen</td>
<td>46</td>
</tr>
<tr>
<td>4.2</td>
<td>Health knowledge mean scores, by university</td>
<td>48</td>
</tr>
<tr>
<td>4.3</td>
<td>Mean scores for essential health skill strands by university and overall scores</td>
<td>57</td>
</tr>
<tr>
<td>4.4</td>
<td>Aerobic activities among Oregon State University subjects</td>
<td>69</td>
</tr>
<tr>
<td>4.5</td>
<td>Aerobic activities among University of Oregon subjects</td>
<td>70</td>
</tr>
<tr>
<td>4.6</td>
<td>Aerobic activities among Portland State University subjects</td>
<td>71</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>State-mandated subjects in school health education</td>
</tr>
<tr>
<td>2.2</td>
<td>Subtopics addressed in the SHEE analysis</td>
</tr>
<tr>
<td>3.1</td>
<td>Sample population by gender and university</td>
</tr>
<tr>
<td>3.2</td>
<td>University population factorial design</td>
</tr>
<tr>
<td>3.3</td>
<td>Gender population factorial design</td>
</tr>
<tr>
<td>4.1</td>
<td>Subject high school attendance by size, years attended, and number of completed semesters of health education, as percentages of total number of subjects</td>
</tr>
<tr>
<td>4.2</td>
<td>Subject sources of health knowledge and skills, as percentages from each university</td>
</tr>
<tr>
<td>4.3</td>
<td>Single most important source of health knowledge and skills among subjects</td>
</tr>
<tr>
<td>4.4</td>
<td>Comparison of health knowledge among research universities</td>
</tr>
<tr>
<td>4.5</td>
<td>Comparison of health knowledge by gender</td>
</tr>
<tr>
<td>4.6</td>
<td>Health knowledge mean scores for selected demographics</td>
</tr>
<tr>
<td>4.7</td>
<td>Substance use and abuse knowledge section mean scores for nonusers and users</td>
</tr>
<tr>
<td>4.8</td>
<td>Health knowledge section mean scores according to reported levels of physical fitness</td>
</tr>
<tr>
<td>4.9</td>
<td>Nutrition knowledge section mean scores according to reported breakfast habits</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4.10</td>
<td>Accident prevention knowledge section mean scores according to reported use of auto seatbelts</td>
</tr>
<tr>
<td>4.11</td>
<td>Mental/emotional health knowledge section mean scores for the relationship between food purging (bulimia) and anorexia</td>
</tr>
<tr>
<td>4.12</td>
<td>Family education knowledge section mean scores for sexually active and sexually inactive subjects</td>
</tr>
<tr>
<td>4.13</td>
<td>Comparison of essential health skills among subjects from three research universities</td>
</tr>
<tr>
<td>4.14</td>
<td>Comparison of essential health skills by gender</td>
</tr>
<tr>
<td>4.15</td>
<td>Comparison of essential health skill scores by selected demographics</td>
</tr>
<tr>
<td>4.16</td>
<td>Essential health skill safe-living mean scores for nonusers and users of substances</td>
</tr>
<tr>
<td>4.17</td>
<td>Physical fitness essential health skill mean scores according to reported levels of physical fitness</td>
</tr>
<tr>
<td>4.18</td>
<td>Nutrition essential health skill mean scores according to reported breakfast habits</td>
</tr>
<tr>
<td>4.19</td>
<td>Safe-living essential health skill mean scores according to reported sexual behaviors</td>
</tr>
<tr>
<td>4.20</td>
<td>Results of the analysis for health knowledge competencies</td>
</tr>
<tr>
<td>4.21</td>
<td>Results of the analysis for selected behaviors and health knowledge competency levels</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>4.22</td>
<td>Results of analysis for essential health skills</td>
</tr>
<tr>
<td>4.23</td>
<td>Results of analysis for selected behaviors and essential health skills</td>
</tr>
<tr>
<td>4.24</td>
<td>Use of substances among entry-level university freshmen</td>
</tr>
<tr>
<td>4.25</td>
<td>Seatbelt usage reported by subjects</td>
</tr>
<tr>
<td>4.26</td>
<td>Seatbelt usage reported by subjects</td>
</tr>
<tr>
<td>4.27</td>
<td>Reported levels of physical fitness, participation in aerobic activities,</td>
</tr>
<tr>
<td></td>
<td>and frequency of participation</td>
</tr>
</tbody>
</table>
Health Knowledge Competencies and Essential Health Skills of Entry Level College Freshmen Enrolled in Oregon’s Research Universities

CHAPTER 1

INTRODUCTION

A concerted national effort has been undertaken to achieve certain quantifiable objectives in health promotion and disease prevention. This endeavor has been guided by a number of relevant documents, including the landmark document Healthy People: The Surgeon General Report on Health Promotion and Disease Prevention (U.S. Department of Health, Education and Welfare [U.S. HEW], 1979), as well as the equally important: a) Promoting Health/Preventing Disease: Objectives for the Nation (U.S. Department of Health and Human Services, 1980) and b) Healthy People 2000: National Health Promotion and Disease Prevention (American Public Health Association, 1991).

Surgeon General Califano’s report on health promotion and disease prevention, Healthy People, was prepared in 1979, during the Democratic administration of President Jimmy Carter. This report asked for a national commitment to the improvement of the health of the American people. The mission of the report was to reduce infant mortality rates, improve the quality of life, and to promote healthier lifestyles, all to be achieved by the year 1990. An important part of the report was directed at increasing knowledge about disease prevention and health promotion through pursuit of an identifiable set of priorities and goals: “The goal of Health Education is to guarantee the individual’s freedom of choice regarding his/her own health by giving him/her the
reliable information he/she needs to make decisions about how he/she wants to live (U.S. HEW, 1979, p. 436).

Although Healthy People (U.S. HEW, 1979) addressed specific age groups, with a single exception these seminal documents failed to target specific objectives relevant to the college level, young adult (i.e., ages 18 to 23) age group. The exception was Objective No. 8.5 in Health People 2000 (American Public Health Association, 1991), which reads: “Increase to at least 50 percent the proportion of post-secondary institutions with institution-wide health promotion programs for students, faculty, and staff” (p. 254). The college level young adult group was otherwise categorized with the ages 15 to 24 group in the reports in question.

Although this broader age range shares similar health concerns in the widest sense, assembling high school students and young high school graduates who may be pursuing avenues other than college within the same age group fails to accommodate the unique health needs of each of these social categories. Young college adults are distinctive in their need for current health knowledge and skills for reason of important changes in their lifestyles, including confronting the pressures, frustration, and conflicts (i.e., stress) inherent in college life; their developing independence from family ties; their existence as new health care consumers; and their exposure to sexually transmitted diseases. Yet, none of these federal documents targeted or addressed the specific knowledge and skills indigenous to this age group. Nonetheless, throughout the country a number of colleges and universities offer and, in some cases, require health education courses. In Oregon, for example, the University of Oregon (U. of O.) has traditionally required completion of a personal health course, and Oregon State University (OSU.) currently requires a combined health and physical fitness course. In turn, Portland State University (PSU) has required attendance at an introductory course which includes discussion of health components/issues. In 1990, when the voters of Oregon passed the property tax limitation Measure 5, the College of
Health and Human Performance (U. of O.) and the School of Health (PSU) were eliminated. Thus, for the college age population, the priorities and goals as stated in the three federal documents are not at present being comprehensively pursued.

Purposes and Objectives of the Investigation

The current investigation was organized around three specific purposes: 1) assess the health knowledge of freshmen college students; 2) assess the health skills of freshmen college students; and 3) determine whether relationships exist among health knowledge, health skills, and behavioral demographic variables self-reported by freshmen college students. To achieve these purposes, objectives of the investigation were identified as follows:

1) Develop an instrument for the assessment of health knowledge;
2) Develop an instrument for the assessment of health skills;
3) Develop demographic health questions that may be used to describe the sample population;
4) Administer the instrument to a selected population; and
5) Evaluate the test results obtained from administration of the instrument, including an analysis of the results in relationship to various demographic and behavioral variables.

Research Questions and Investigative Hypotheses

For the current investigation, four principal research questions were addressed to a sample population of Oregon high school graduates currently enrolled as entry level freshman students at an Oregon research university: 1) What are the health knowledge competence levels among college freshmen; 2) what relationships exist
between selected health behaviors and health knowledge competence levels among college freshmen; 3) what are the essential health skill levels of college freshmen; and 4) what relationships exist between selected health behaviors and essential health skills levels among college freshmen? The null hypotheses in the following sections were tested by evaluation of the results obtained from administration of the survey instrument.

**Health Knowledge Competence Level Hypotheses**

For the null hypotheses concerned with the measurement of health knowledge, the following content areas, as defined by the Joint Committee on Health (1991) of the *Journal of Health Education*, were considered: personal health, mental and emotional health, prevention and control of disease, nutrition, substance use and abuse, accident prevention and safety, community health, consumer health, environmental health, and family life education.

- **Ho₁** There will be no significant differences in health knowledge scores among entry level freshmen groups at the U. of O., PSU, and OSU for 10 content areas.
- **Ho₂** There will be no significant differences in health knowledge scores between entry level freshmen male and female students for 10 content areas.
- **Ho₃** There will be no significant differences in health knowledge scores among entry level freshmen grouped according to selected demographic categories.
Health Behaviors and Knowledge Competence Level Hypotheses

For the null hypotheses addressed to health behaviors and knowledge competence levels, specific health knowledge content areas (Joint Committee on Health, 1991) were addressed as follows:

Ho4 There will be no significant differences in scores for the health knowledge section, "substance use and abuse," when the subjects are grouped according to users and nonusers of selected substances.

Ho5 There will be no significant differences in scores for the health knowledge section, "personal health," when the subjects are grouped according to reported levels of physical fitness.

Ho6 There will be no significant differences in scores for the health knowledge section, "nutrition," when the subjects are grouped according to nutrition demographics.

Ho7 There will be no significant differences in scores for the health knowledge section, "accident prevention," when the subjects are grouped according to safety demographics.

Ho8 There will be no significant differences in scores for the health knowledge section, "mental/emotional health," when the subjects are grouped according to mental/emotional health demographics.

Ho9 There will be no significant differences in scores for the health knowledge section, "family life education," when the subjects are grouped according to sexuality demographics.

Essential Health Skill Level Hypotheses

For the null hypotheses addressed to essential health skill levels, as defined in Health Education: Comprehensive Curriculum Goals (Oregon Department of Edu-
cation, 1988), the four areas of concern or "strands" included safe living, stressor/risk-taking management, physical fitness, and nutrition. These essential health skill levels are defined in Appendix A.

\[ H_{0_{10}} \] There will be no significant differences in scores for the four Oregon state strands considered to be essential health skills among entry level freshmen at the U. of O., PSU, and OSU.

\[ H_{0_{11}} \] There will be no significant differences in scores for the four Oregon state strands considered to be essential health skills between entry level freshmen male and female students.

\[ H_{0_{12}} \] There will be no significant differences in essential health skill level scores among entry level freshmen grouped according to selected demographic categories.

Health Behaviors and Essential Health Skill Level Hypotheses

The following null hypotheses were directed at specific health knowledge content areas (Joint Committee on Health, 1991) or essential health skill levels (Oregon Department of Education, 1988) in relation to selected demographic information:

\[ H_{0_{13}} \] There will be no significant differences in scores for the essential health skills section, "safe living," when the subjects are grouped according to users and nonusers of selected substances.

\[ H_{0_{14}} \] There will be no significant differences in scores for the essential health skills section, "physical fitness," when the subjects are grouped according to reported levels of physical fitness.

\[ H_{0_{15}} \] There will be no significant differences in scores for the essential health skills section, "nutrition," when the subjects are grouped according to nutrition demographics.
There will be no significant differences in scores for the essential health skills section, "safe living," when the subjects are grouped according to sexuality demographics.

Justification of the Study

Each day, being informed about health knowledge and skills becomes increasingly important to the process of making decisions with respect to an abundance of the new health information. As noted by Ornstein and Hunkins (1988): "Today, demands for educational excellence and tougher academic standards put increasing stress on higher forms of cognition (i.e., problem solving, critical thinking, intellectual discovery, and divergent thinking)" (p. 5). The rapid, accelerated growth of newly discovered health information increases the need for updated evaluations of necessary health skills, health knowledge competencies, and the applied health behaviors of American youth. It has been suggested that "our society is considerably more health conscious than at any other time in history, and we are asking more questions and looking at more ways to improve our health and create a quality lifestyle" (Schlaadt, 1988, p. 149).

The current study is significant in that its outcomes could prove to be useful in a variety of ways. Some of the potential uses of the study results are as follows:

- Establishment of a health knowledge competency baseline for Oregon research university freshmen;
- Provision of information to the Oregon Department of Education regarding the essential health skill levels of entry level freshman students at Oregon research universities possess;
- Provision of appropriate content recommendations to the staffs of Oregon research university health education departments, as well as to the staffs
of secondary education departments, that can be used to a) verify existing
health education programs, b) identify health education program needs,
and c) suggest changes in health education programs; and

- Determination of the degree to which demographic information has im-
  portant implications with respect to health knowledge and/or skills.

Scope and Limitations of the Study

The current investigation was intended to assess the basic health knowledge
competencies and the basic essential health skill levels of entry level freshman students
attending the three major Oregon research universities, including the University of
Oregon, Oregon State University, and Portland State University. These institutions
were utilized for the conduct of this research insofar as it was assumed, based upon
the size of their student populations, that they could provide a student sample that was
characteristic of the diversified student population representing a majority of Oregon
secondary school districts. Thus, the principal limitation of the scope of the current
study is that by confining the sample population to research universities, generaliza-
tions from the findings may not be equally applicable to nonresearch-based university
populations, nor to Oregon high school graduates who are not directed toward uni-
versity study.

Definition of Terms

Comprehensive school health education: As defined by the Joint Committee on
Health (1991), health knowledge in the 10 specific content areas of per-
sonal health, mental and emotional health, prevention and control of
disease, nutrition, substance use and abuse, accident prevention and
safety, community health, consumer health, environmental health, and family life education.

Comprehensive school health program:

An organized set of policies, procedures, and activities designed to protect and promote the health and well-being of students and staff which has traditionally included health services, healthful school environment, and health education. It should also include, but not be limited to, guidance and counseling, physical education, food service, social work, psychological services, and employee health promotion (Joint Committee on Health, 1991, p. 105).

Entry level college freshmen: Students who were high school seniors immediately prior to becoming college freshmen.

Essential health skills: Health education common curricular goals for Oregon prepared at the direction of the Oregon State Board of Education (Oregon Department of Education, 1988), consisting of a stated program “which assists career development and prepares individuals for movement toward a career. Each learner will acquire the planning strategies, decision-making skills and knowledge of the world of work” (p. 3).

Health Education Survey: The three-part instrument developed for the current investigation, designed to assess health knowledge competencies, essential health skills, and selected demographic variables among entry level college freshmen at Oregon research universities.

Health knowledge competencies: The ability to recognize, understand, and to be aware of the basic facts pertaining to health. For the current investigation, reference is to the specific health knowledge content areas defined under “comprehensive school health program” above.

Major research universities: The three State of Oregon research universities, including Oregon State University, the University of Oregon, and Portland State University.
Post-secondary health education program: A planned set of health education policies, procedures, activities, and services that are directed at the students, faculty, and/or staff of colleges, universities, and other institutions of higher education. These functional areas include, but are not limited to, the following: general health courses for students, employee and student health promotion activities, health services, professional preparation of health educators and other professionals, self-help groups, and student life (Joint Committee on Health, 1991).

School health education: One of the components of the comprehensive school health program, which includes the development, delivery, and evaluation of a planned instructional program and other activities for students, pre-school through grade 12, for parents, and for school staffs. The program is designed to positively influence the health knowledge, attitudes, and skills of individuals (Joint Committee on Health, 1991).

School health educator (Joint Committee on Health, 1991):

A practitioner who is professionally prepared in the field of school health education, meets state teaching requirements, and demonstrates competence in the development, delivery, and evaluation of curricula for students and adults in the school setting that enhance health knowledge, attitudes, and problem-solving skills. (p. 106)

Summary

The national endeavor to achieve a healthier American population increases the need for the innovative examination and evaluation of health knowledge and health skills. One means to work toward this goal, to the degree efforts are directed toward the enhancement of the health knowledge and health skills of future leadership in the United States, is to survey college populations. Thus, this chapter has presented an
overview of the problems, the purposes and objectives of the study, a review of the basic research questions and hypotheses, justification of the study, consideration of the scope and limitations of the study, and definitions of the terminology used in the study.
CHAPTER 2
REVIEW OF RELATED LITERATURE

The review of related literature is presented in three sections. The first section examines a variety of views of the meaning of health education and comprehensive school health education. The second section includes a survey of individual and national studies that have conducted assessments of comprehensive health issue knowledge, skills, and attitudes. The final section includes a survey of literature pertinent to present and future directions of concern in health education as applies to collegiate populations.

Health Education and Comprehensive School Health Programs

In the modern age, information about health issues is subject to constant change. Thus, health educators require a means to relay this information to students in ways that will stimulate them to put this information to practical use. Inspired and comprehensive health education programs are urgently needed at all levels of schooling, from kindergartens through higher education (Anderson, Christenson, & Stone, 1987; Jubb, 1987; Kolbe, 1985; O’Rourke, 1987). Deputat and Pavlovich (1988) stressed the need for the development of well-balanced and comprehensive health education curricula at each of these levels, pointing out that health curricula/programs need to focus not only upon immediate effects, but also upon long-term health consequences.
Consideration of health education and comprehensive school health programs, though frequently discussed by various health professionals and professional groups over the past decades, implies the need for further definition of modern programs. In this sense, the following discussion is directed at populations from the age of kindergarten through higher education, or those populations which have a direct relationship to the college age population considered for the current study. In the broadest sense, Ross and Mico (1980) defined health education as follows:

A process with intellectual, psychological, and social dimensions relating to activities that increase the abilities of people to make informed decisions affecting their personal, family, and community well-being. This process, based on scientific principles, facilitates learning and behavioral change in both health personnel and consumers, including children and youth. (p. 312)

In 1982, the National Professional School Health Education Organizations (1984) set guidelines for the definition of school health education/instruction programs as a part of comprehensive school health programs:

A. Instruction intended to motivate health maintenance and promote wellness and not merely to prevent disease or disability.
B. Activities designed to develop decision-making competencies related to health and health behavior.
C. A planned, sequential Pre-K to 12 curriculum based upon students needs and current and emerging health concepts and societal issues.
D. Opportunities for all students to develop and demonstrate health-related knowledge, attitudes, and practices.
E. Integration of the physical, mental, emotional and social dimensions of health as the basis for study of the following topic areas:
   - community health
   - consumer health
   - environmental health
   - family life
   - growth and development
   - nutritional health
   - personal health
   - prevention and control of disease and disorders
   - safety and accident prevention
   - substance use and abuse
F. Specific program goals and objectives.
G. Formative and summative evaluation procedures.
H. An effective management system.
I. Sufficient resources: budgeted instructional materials, time, management staff, and teachers. (pp. 312-314)

Similarly, comprehensive school health education was directed as follows:

Health education in a school setting that is planned and carried out with the purpose of maintaining, reinforcing or enhancing the health, health-related skills, and health attitudes and practices of children and youth that are conducive to their good health. (p. 312).

In 1984, the Association for the Advancement of Health Education issued a position paper regarding requirements for comprehensive school health education that provided a number of useful program goals:

- A program that emphasizes action in the shaping and reshaping of human lives for better health, rather than a program aimed solely at the acquisition of knowledge about health;
- A program of broad curricular scope and methodological diversity, rather than a program focused on narrow topical coverage or limited methodology;
- A program that is not static and fixed, but a program that is dynamic and evolves over the years;
- A program that moves forward and alters its structure as experiences and research point out improved ways to accomplish the ultimate goal.
  (pp. 3-4)

In 1988, the ASCD Yearbook of the Association for Supervision and Curriculum Development defined a program of comprehensive school health education from the perspective of three component sections, health services, a healthy environment, and health instruction, with emphasis placed on the instructional component. The statement indicated that this approach should be based on the following 10 topic areas: accident prevention and safety, community health, consumer health, environmental health, family life education, mental and emotional health, nutrition, personal health, disease prevention and control, and substance use and abuse (Schlaadt, 1988). According to Noak (1982) the same 10 major content areas were identified as the bases for the development of a comprehensive health curriculum for grades K through 12 in

In a report of the Joint Committee on Health Terminology, which was acknowledged and issued in 1990 by the Board of Directors of the Association for the Advancement of Health Education (Joint Committee on Health, 1991), the content list provided in the *ASCD Yearbook* was considered to be a comprehensive definition of school health instruction.

Comprehensive school health instruction refers to the development, delivery and evaluation of a planned curriculum, pre-school through 12, with goals, objectives, content sequence, and specific classroom lessons which include, but are not limited to . . . the aforementioned content areas. (p. 106)

The only differences between the two program guidelines were matters of terminology, and not of substance: the Joint Committee recommendations referred to “injury prevention and safety,” rather than “accident prevention and safety”; to “prevention and control of disease,” rather than “disease prevention and control”; and to “family life,” rather than “family life education.”

DeFriese, Crossland, Macphail-Wilcox, and Sowers (1990) recently summarized comprehensive school health programs with the following rationale:

A broad spectrum of school-related activities and services that intersect to provide students, and perhaps their families, with exposure to a range of cognitive, affective, and skill development opportunities that contribute to overall competence with respect to health. These skills and knowledge are as basic to well-rounded education as are literacy and numeracy. They encompass fundamental skills and knowledge essential to human performance and to personal growth and development throughout the life cycle. They have much to do with long-term satisfaction and personal competence. (p. 182)

Traditionally, comprehensive school health programs have included three fundamental areas: health services, healthful school environment, and health education/instruction. Each of these areas works from the premise that it is functionally complementary to the others through the involvement of community and school personnel.
Vincent (1990) and Demuth-Allenswirth (1987) were in agreement that community involvement and support is a key factor in the success of such programs. The laws in every state of the United States mandate school health services and healthful school environments, but at the same time the same states often operate under nebulous or even nonexistent guidelines when it comes to the issue of health education and instruction (Ross & Mico, 1980). In 1976, the American School Health Association (Castile & Jerrick, 1976) conducted a survey of states to determine the state requirements for school health programs. The survey results, reported in Table 2.1, indicated the subjects which were most frequently mandated by state legislation.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Number of States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of drugs, alcohol, and tobacco</td>
<td>36</td>
</tr>
<tr>
<td>Safety</td>
<td>16</td>
</tr>
<tr>
<td>Mental health</td>
<td>13</td>
</tr>
<tr>
<td>Disease and disease conditions</td>
<td>13</td>
</tr>
<tr>
<td>Nutrition</td>
<td>11</td>
</tr>
<tr>
<td>Community health</td>
<td>10</td>
</tr>
<tr>
<td>Personal health</td>
<td>10</td>
</tr>
<tr>
<td>Venereal disease</td>
<td>8</td>
</tr>
<tr>
<td>Environmental health</td>
<td>8</td>
</tr>
<tr>
<td>Consumer health education</td>
<td>8</td>
</tr>
<tr>
<td>Family life/sex</td>
<td>7</td>
</tr>
<tr>
<td>Dental health/oral hygiene</td>
<td>7</td>
</tr>
<tr>
<td>Growth and development</td>
<td>6</td>
</tr>
<tr>
<td>First aid</td>
<td>6</td>
</tr>
<tr>
<td>Anatomy and physiology</td>
<td>5</td>
</tr>
<tr>
<td>Health careers</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: Castile & Jerrick, 1976, pp. 4-5.

According to the conference edition of Healthy People 2000 (American Public Health Association, 1991), even though studies had shown that school health education was an effective means to help children and young adults improve their health knowl-
edge, thus formulating attitudes toward healthier behaviors, only 25 states mandated comprehensive school health education. In the State of Oregon, several documents have been formulated which describe comprehensive health education, including *Health Education: Comprehensive Curriculum Goals* (Oregon Department of Education, 1988) and a survey report on adolescent health programs in the schools (Oregon Department of Human Resources, 1991). However, to date, no documented means for the evaluation of the effectiveness of these curriculum goals has been devised or issued.

Assessments of Comprehensive Health Issues

This section is presented in three parts, including discussions of comprehensive health issues and education from the national, state, and collegiate perspectives.

**National Perspective on Comprehensive Health Issues**

Approximately 30 years ago (i.e., from 1961 to 1963), a national study, the “School Health Education Study,” was conducted for the purpose of evaluating health instruction practices in schools as well as determining the health behaviors of students in the sixth, ninth, and twelfth grades (U.S. Department of Health and Human Services, 1964). The study results concluded that the acquisition of health knowledge was the basis for arriving at educated decisions regarding the optimization of personal health, and further that the nation’s school systems provided the most logical means to disseminate health knowledge. It was noted in this report that implementation of its proposals would come to little effect until and unless the concerned school systems developed tools of continuous self-evaluation to determine their existing strengths and weaknesses in the development of health education curricula (Sax, 1979).
The single most extensive comprehensive national health education study conducted in the United States was the three-year “School Health Education Evaluation” (SHEE), undertaken in 1979 at the direction of Hale Champion, then Undersecretary of the Department of Health, Education, and Welfare (HEW). The U.S. Public Health Service was directed to conduct this evaluation, completing the study during the years 1982-1984 (Gunn, Iverson, & Katz, 1985). In connection with this study, an extensive review of the literature failed to produce an adequately comprehensive or psychometrically sound instrument (Olsen et al., 1985). Subsequently, Development and Evaluation Associates, in conduction with the developer and administrator, Abt Associates, Inc., developed an evaluation instrument at the direction of the Center for Health Promotion and Education, the Centers for Disease Control, and the Office of Disease Prevention and Health Promotion of the successor to HEW, the U.S. Department of Health and Human Services.

The logistics of the SHEE project required a composite of a number of facets to accomplish its assigned goals. These goals were to provide a scientific basis for school administrators and community leaders to make accredited research decisions regarding health education for their school districts, to provide a means for implementing effective health education programs nation-wide, and to contribute to the field of health education in general. The project was organized in four phases. Phase one involved an evaluation of a wide inventory of school health education programs throughout the nation to find programs that met the criteria for the evaluation. Phase two involved the actual evaluation of the programs used in the project. Phase three involved a second year of program evaluation, and phase four included the compilation of data and reporting of the results.

In phase one of the SHEE project, four health education projects were selected, based upon the inclusion of the following criteria (Owen et al., 1985):
Four health education programs met the above criteria, in addition to reflecting the
three domains of knowledge, attitude, and practice used for the SHEE project. These
were the “School Health Curriculum Project” (SHCP), the “Health Education Cur-
riculum Guide” (HECG), the “Project Prevention”, and the “3 Rs and High Blood
Pressure” (HBP) (Connell, Turner, & Mason, 1985). The SHCP was developed in
the early 1970s by the National Clearinghouse for Smoking and Health of the U.S.
Public Health Service, as a direct result of national surveys indicating that the health
behavior of the nation’s teenagers constituted a major problem. This comprehensive
health curriculum used the “teacher friendly” approach to education, providing all
teacher inservice training and teaching materials convenient to its application.

The HECG was developed in 1976 as a cooperative venture between the United
Way Health Foundation of Central Stark County, Canton, Ohio, and a local school
district. The goal of this project was centered upon the premise of individual respon-
sibility by providing students with decision-making skills. The curriculum guide pro-
duced was based upon the theory that health instruction should reflect three principal
qualities (Owen et al., 1985):

- Students must be actively, not passively, involved in the learning;
- Students must be skilled in decision making if they are to assume greater
  responsibility for the quality of their lives; and
- The three domains of knowledge, attitude, and practice must integrate
  concepts dealing with physical, mental, social, spiritual, and emotional
  well-being (p. 307).

The third curriculum project, “Project Prevention,” originated in the Che-
nowith School District of The Dalles, Oregon in 1975. Through a Title IV-C grant
provided under the Elementary and Secondary Education Act, the development com-
mittee contracted for a comprehensive curriculum project that covered the content
areas of mental health, first aid, growth and development, family relationships, social relationships, exceptional people, personal health, birth, death, and dying, health careers, health resources and services, community health, and safety. The specific program goals stated that students will (Owen et al., 1985):

- Develop a positive self-concept and openness to change;
- Know and apply basic first aid and safety skills;
- Understand human growth and development from conception through death;
- Know and apply decision-making and communication skills in everyday life as well as in stressful situations;
- Function effectively as a family member and as a member of society;
- Be made aware of career opportunities in health-related occupations;
- Know and be able to evaluate available health resources and services;
- Identify and relate more positively to exceptional people;
- Know factors and select actions that contribute to good community health; and
- Understand current local, national, and global health problems, in addition to some of the ways these problems might be solved (p. 308).

The HBP project was developed in 1972 by the Georgia Affiliate of the American Heart Association. This curriculum was designed on the premise that students who learned practical information concerning high blood pressure would in turn facilitate the health education of family, peers, and community. The philosophy of the program included four basic goals (Owen et al., 1985):

- To motivate teachers to reinforce positive health choices made by their students and to encourage teachers to serve as role models for students;
- To provide practical information about high blood pressure that is immediately applicable to the student’s life;
- To teach students how to measure blood pressure; and
- To foster the skill of communicating health information to other people, especially parents, siblings, and peers (p. 308).

Phases two and three of the SHEE project involved the program evaluation of the four project curricula, with phase three a continuation of follow-up instrumentation for the students who participated in a two-year curricular program. The inferential test instruments formulated for this evaluation addressed those learning objectives
(i.e., including the use of objective-referenced testing) deemed to be most important for children in grades 4—7. The broad objectives covered in the testing procedure were overall knowledge, attitudes, practices, and program-specific knowledge (Table 2.2).

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>Attitudes</th>
<th>Skill and Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth and development</td>
<td>Accepting personal responsibility</td>
<td>Decision-making skills</td>
</tr>
<tr>
<td>Mental health</td>
<td>Maintaining a health body</td>
<td>Personal health practices</td>
</tr>
<tr>
<td>Personal health</td>
<td>Safeguarding the environment</td>
<td>Social adaptability</td>
</tr>
<tr>
<td>Nutrition</td>
<td>Valuing rights/roles of self and others</td>
<td>Smoking incidence</td>
</tr>
<tr>
<td>Family life</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disease prevention</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Substance use/abuse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety/first aid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumer health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community health</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Connell & Turner, 1985, p. 325.

The evaluation questionnaires completed by the teachers addressed teacher preparation in health education and the teaching methods used for the dissemination of health instruction. Teachers in the project also provided information on the amount of time allowed for curricular presentations and the general factors which affected this process. Parents completed questionnaires addressing their personal participation in the projects, their ideas concerning what should be taught in health education, their views on the importance of health education, and what, if any, impact they believed the SHEE project would have upon their immediate families. This extensive project involved parents, teachers, and community members in 20 states, and approximately
30,000 students in grades 4—7 from approximately 1,000 classrooms (Connell et al., 1985).

Phase four of the SHEE project included data evaluation and consideration of the results of the investigation. As reported by Connell et al. (1985), the results indicated significant overall increases in both knowledge and program-specific knowledge for the treatment classrooms when compared to the experience of the control classrooms. Statistically significant increases, though not as substantial as reflected in the cognitive domain areas of the inquiry, were also found in the attitude and self-reporting domains. It was determined that an increase in cognitive skills did not take as much instruction time as equivalent advancements in the areas of attitude and practice outcomes; however, it was noted that a minimum of 40—50 hours of classroom instruction time was required to produce statistically significant effects for all three domains considered (Cook & Walberg, 1985).

In agreement with the results of the SHEE project, Wojtowicz (1990), Newman (1985), Parcel (1985), and Greenberg (1985) had observed that effective improvement in student health scores related to knowledge, attitudes, and practices/behaviors occurred when teachers participated in health curriculum preservice and/or inservice training and preparation. Pruitt (1985) had emphasized the effectiveness of a “common sense” approach toward health teaching, as substantiated by the SHEE data, and provided back-up data which demonstrated the value of comprehensive school health education and the assurance of professional integrity in reporting the facts.

Gilbert and Gold (1985) stated that the principal finding of the SHEE study was the acknowledgment that educational approaches exercise an influence upon knowledge, attitudes, and behaviors in the field of health education. From this base, the question was then asked, “what must be done to increase the number of elementary and secondary schools that offer adequate health information and appropriate health skills to children and adolescents (p. 349)?” Howell, Frye, and Bibeau (1985)
stated that the next step to be taken, at the national level, would be to study implementation issues, an area not included in the SHEE study, that would be useful to educators in the provision of high quality and comprehensive health instruction. Sutherland (1985) stated that

to prove the need for a comprehensive, sequential school health education program, the issues of increasing medical care costs, and risk reduction and health prevention intervention strategies must be emphasized . . . . Legislative mandates and funding for sequential school health education, appropriate instructional materials, and meaningful teacher training activities might be forthcoming. (p. 353)

The third principal national study was a survey conducted in 1987, funded by the Office of Disease Prevention and Health Promotion and the Centers of Disease Control of the U.S. Public Health Service and the National Institute on Drug Abuse. The “National Adolescent Student Health Survey” (NASHS) was administered for the purpose of determining the behaviors, knowledge, and attitudes of the nation’s teenagers as related to diverse health issues (American School Health Association, 1988). The results of this survey indicated that the basis for the formulation of correct personal health decisions was the acquisition of adequate knowledge, and the U.S. Assistant Secretary for Health, charged with the administration of the U.S. Public Health Service, in response to this study stated: “Without question, this up-to-date information should contribute to the improvement of the quality of comprehensive school health education programs” (p. 5). The principal findings of this study, which surveyed more than 11,000 8th and 10th grade adolescents throughout the nation concerning the eight health topics of AIDS (Acquired Immune Deficiency Syndrome), sexually transmitted diseases, violence, suicide, injury prevention, tobacco, drug, and alcohol use, nutrition, and consumer education, are summarized in Appendix B.

Portnoy and Christenson (1989) examined the NASHS data from the perspective of behaviors related either directly or indirectly to cancer, concluding that to the
degree the nation's youth was at risk for cancer, the adoption of positive health behaviors could serve to lessen the risk factors. It was further suggested that youth, through educational systems, could be informed on the nature of behaviors that constituted cancer risks. By using the school system to model positive health behaviors, creating smoke-free environments and cafeteria lunches that were consistent with the U.S. Dietary Guidelines, students would be exposed to the knowledge and skills necessary to make risk-free decisions. With reference to certain facts from the NASHS survey, Pigg (1989) noted that approximately eight million public school students throughout the U.S. were exposed to little, if any, health education, also observing that those students who were exposed to comprehensive health education reflected greater knowledge, better health-related attitudes, and more positive health behaviors than those who remained unexposed.

State Perspective on Comprehensive Health Issues

Separate studies conducted in individual states, including the “Georgia Health Education Study” (Pigg, 1976), the Kentucky health knowledge evaluation of high school seniors (Higgins, Price, & Dunn, 1982), and the Texas health knowledge study (Glover, 1984), arrived at conclusions and recommendations which were similar to those developed in the national studies considered in the previous section. All recommendations included provision for the need to develop high quality health education curricula as well as the need to select certified health personnel to teach the necessary courses.

The most recent, in-depth state study completed in relation to health issues was that directed by the Oregon Department of Human Resources (1991). This statewide adolescent health survey was conducted to investigate the need for support of school-based health clinics. A random sample was conducted among 9,077 Oregon students
in grades nine through twelve at high schools equipped with school-based health clinics. The results, the principal findings of which are indicated in general outline below, reflected high levels of risk-taking behaviors among the sample group:

- 18 percent of male students and 35 percent of female students felt hopeless about the future;
- 29 percent of male students and 51 percent of female students had considered hurting or killing themselves;
- 11 percent of the male students and 21 percent of the female students had tried to kill themselves;
- 14 percent of the male students and 15 percent of the female students smoked more than one cigarette per day;
- 25 percent of the male students and 20 percent of the female students reported binge drinking in the two weeks previous to the survey;
- 16 percent of both the male and female students had used drugs or alcohol at school;
- 22 percent of the male students and 21 percent of the female students reported marijuana use in the previous year;
- 10 percent of the male students and 7 percent of the female students from the 11th and 12th grades reported driving after drinking in the two weeks previous to the survey;
- 20 percent of the male students and 23 percent of the female students rode in cars in the two weeks previous to the survey when the driver had been drinking;
- 55 percent of the male students and 47 percent of the female students had had sexual relations;
- 29 percent of the male students and 27 percent of the female students had had sexual relations in the four weeks previous to the survey; and
• 66 percent of the male and female students who were sexually active always or usually used contraceptives.

When asked about participation in health education courses, the self-reported results were as follows:

• 81 percent of the male students and 88 percent of the female students had participated in drug education courses;
• 84 percent of the male students and 88 percent of the female students had participated in pregnancy education courses; and
• 78 percent of the male students and 83 percent of the female students had participated in contraceptive education courses.

The reported percentages could have read 100 percent insofar as participation in these health-related courses are statutory Oregon educational requirements. The reported percentages could indicate one or more considerations: The students waived the health courses; the health courses did not cover the issues of drug, pregnancy, or contraceptive education; or the students had not understood the question as included in the survey instrument.

Collegiate Perspective on Comprehensive Health Issues

Review of the recent literature assessing health knowledge reveals that the results of relatively few studies conducted at the collegiate level are available. Toohey (1984) administered the Student Environmental Knowledge and Opinion Inventory (SEKO) to undergraduates at Arizona State University and to high school students in Scottsdale, Arizona. The purpose of the study was to measure student knowledge and opinions of a few key issues in environmental health. From his findings, Toohey stated that
too many of this generation of young Americans are naive and uninformed about key environmental issues. Furthermore, their environmental-political opinions reflect a market thrust of pessimism and apprehension relative to their ability to shape and control the environmental present and their environmental future. (p. 168)

Sweeny (1986) executed a study on the interrelationships of nutrition knowledge, attitudes, health locus-of-control, and dietary practices among students at the University of Michigan. Findings indicated that in order to positively influence dietary modes, the health curriculum should not only focus on nutrition knowledge, but also concentrate upon the improvement of attitudes, stressing internality toward the importance of nutrition. Martin (1987) conducted a study to determine the effects of a health enhancement program for Stanford freshmen on selected measures of health and physical fitness. Findings demonstrated a significant increase in both health knowledge areas and behavioral skill levels among students participating in the health enhancement program.

At Louisiana State University and Agricultural and Mechanical College, Harris (1988) conducted a study to evaluate the health knowledge of entering college freshmen for the purpose of adapting health education at the collegiate and secondary education levels. Findings showed that students who had or who perceived themselves as having greater health knowledge were those most likely to be interested in learning more about health. Survey respondents scored the lowest on knowledge of chronic diseases and scored the highest on knowledge of personal health. The results also indicated that the students surveyed were interested in learning more about the effects of chronic diseases and mental health. In addition, the demographics of this study indicated that females were more knowledgeable than males, that older students were more knowledgeable than younger students, and that Black students were more interested than the White population in acquiring additional health knowledge. Study recommendations supported the need to develop teacher and administrator commitment to
health education, along with the need for complementary, strengthened, and meaningful secondary and collegiate level health program instruction.

At the University of Oregon, a multifaceted behavioral intervention project was conducted among students enrolled in personal health classes (Cottrell, Carey, Trickter, & Zavela, 1988). The findings from this study indicated that health behaviors can be influenced when behaviors are the focal point of the health class. An 88 percent rate of success was achieved in the modification of health-related behaviors, and the investigators provided three recommendations for the conduct of future research in this area:

1) Utilize comparable control groups that do not receive the behavioral intervention, but do receive the class; 2) Develop more stringent evaluation procedures, using baseline data for comparisons in a follow-up time series design over six months to one year, to monitor the resultant effectiveness of a one-term health behavior change project; 3) Identify and examine problem areas in which students experience lower success rates in behavior change. (p. 287)

Price, Desmond, Hallinan, and Griffin (1988), using students from three midwestern universities, conducted a study directed at student perceptions of AIDS in relation to five of the ten leading causes of death among young adults (i.e., cardiovascular disease, cancer, strokes, diabetes mellitus, and auto accidents). It was concluded that the majority of the sample of 535 college students “did not perceive themselves to be susceptible to any of the six health problems” (p. 19). In order of concern, cancer was the first and cardiovascular diseases were the second most worrisome health conditions among the sample, with the exception of Black students, among whom AIDS ranked as the second choice in order of concerns. When students were asked: “If you had to be involved in a health problem, which of the following six problems would be the worst to have?” Responses indicated that AIDS was their worst concern, whereas cancer was number two. When asked which health problem should be allocated greater funding, Black students sampled responded by indicating AIDS research,
whereas White students sampled responded by indicating cancer research. The students sampled were also asked to determine in what order they would solve the social problems of hunger in America, environmental pollution, unemployment, AIDS, crime, and drug abuse. The total group response resulted in the following ranking of social problems in America: AIDS, hunger, unemployment, environmental pollution, crime, and drug abuse.

A study conducted by Jackson, Dorman, Tennant, and Chen (1989) at Southeastern University was directed at the effects of providing instructional guidelines on alcohol consumption and alcohol knowledge and attitudes among college-aged young adults. As had been assumed prior to the conduct of this study, those students who received the guideline instruction developed by the researcher scored higher on knowledge posttests than did students in control classes who were not exposed to guideline instruction. However, there were no significant indications of changes in behavioral intentions between either group. This anomaly was explained in that the students considered in the sample may have perceived that their drinking behaviors were not a problem at the beginning of the class, the instrument may have failed to accurately reflect behavioral intent, or sufficient time was not allowed to accurately measure behavioral changes. One of the implications determined from this study was the need for the involvement of health professionals in the development of further studies to refine and test guidelines that can be used to define particular behaviors or to define drinking levels that would constitute “nonproblematic” drinking.

The final health-related study reviewed was concerned with the area of stress. Ramsey, Greenberg, and Hale (1989) based their study on the observation that while stress management classes were abundantly evident on college campuses, developed means to assess the effect of the same courses was nearly nonexistent. The study was thus designed to evaluate a stress management program by measuring changes in respondents’ knowledge, attitudes, and behaviors related to stress. The results of the
evaluation revealed that a two and one-half hour self-instructional program was effective in altering respondents' knowledge, attitudes, and behaviors for at least 30 days following completion of the stress management program. However, it was concluded that repeated exposure and reinforcement of skills would be required to provide lasting changes in knowledge, attitudes, and behaviors.

Present and Future Areas of Concern in Health Education

Review of comprehensive school health education programs at the national, state, and collegiate levels leads to the necessary conclusion that the college health curricula has the potential to supplement, broaden, and enhance student baseline health knowledge competencies, attitudes, and related behaviors. According to Gray (1988), learning specialists need to encompass flexibility in the design of health courses at this level. College faculty should thus seek for the sources of consensus required to devise a solid and attractive curriculum (Spaeth, 1988). Newman (1988) offered the idea that colleges should require prospective teachers to devote a greater proportion of their training to in-depth study in their academic area, a principle which could as well be applied to health instruction. In contrast, Cleary (1990) cautioned that health educators should be able to incorporate sophisticated behavioral strategies without fear of criticism for being manipulative.

In an atmosphere of contrasting advice, health education can take on several meanings, dependent upon from whom the information is derived. However, this diversity in focus does not gainsay the fact that researchers were in basic agreement that at the collegiate level, academic health curricula should fill in the educational areas missed in previous schooling, thus preparing college students to make decisions in all aspects of healthy lives. The following examples, derived from a variety of health ex-
perts, demonstrate the various biases indigenous to health education/comprehensive school health curriculum.

McKenzie (1987) believed in the primacy of consumer health information, or that students should know how to deal with inaccurate health information. Henningson (1987) also supported the inclusion of issues of consumer awareness in health curricula. Haggerty (1990) observed that

an important challenge for HPERD [health, physical education, recreation, and dance] educators in our information age is to ensure that students and staff have the capability to find what has been written about a topic and to be able to distinguish the good and genuine information from misinformation. (p. 51)

Educators also recommended the inclusion of ethical considerations in a health curriculum. Odom (1988) suggests that the ability to recognize and address ethical dilemmas with confidence is a necessary part of health instruction. "The profession should provide the formal instruction and training necessary to prepare its members to address the ethical issues of today as well as those just beyond the horizon" (p. 12).

For Petray and Cortese (1988), physical fitness was a primary area of concern in health curriculum. "Health educators, in conjunction with the physical educators, can provide valuable information and activities for students by addressing fitness objectives in the cognitive, affective, and psychomotor domains" (p. 6).

Still other areas that other educators find it most important to address within the structure of a comprehensive health curriculum include mental/emotional health; sensitivity to cultural, religious, and ethnic beliefs; cardiovascular emphasis; women's health; the writing process; and nutrition. Jose (1987), in a discussion of mental health, stated that wholeness and potential are dependent upon the ability of the individual to develop all of the interrelated dimensions. Galli, Greenberg, and Tobin (1987), commenting on cultural, religious, and ethnic beliefs, suggested that in the presence of all of the contradictory health beliefs of various cultures, health educators
had to be able to recognize potential conflict situations and to take appropriate measures of response.

St. Pierre and Taylor (1988), in a discussion of women's health issues, noted that with all the apparent interest in this area, professionals should explore and develop a theoretical health-oriented framework of inquiry which cuts across the traditional academic disciplines. In turn, Steinberg and Fry (1988) promoted the use of writing as a unique, exciting, and enjoyable experience for both students and educators, and advocated the inclusion of this practice in health-related curricula. In a more traditional direction, Downey et al. (1987) presented a strong argument for the in-depth study of cardiovascular diseases as the leading cause of death in the United States, whereas Stone (1991) noted the existence of well-documented literature concerned with cardiovascular disease programs and stated that it could be used to sustain effective intervention programs.

Nutrition is a topic that many health experts would like to see given greater emphasis in health education curricula (Koehler & Harris, 1988; Parcel, Simmons-Morton, O'Hara, Baranowski, & Kolbe, 1987; Schupe & Sandoval, 1987). Cook and McDermott (1991) stated their belief that since the use of nutritional supplements (i.e., vitamins) is a common health practice, health specialists need to provide education concerned with the legitimate uses as well as excessive uses and dependency upon these types of dietary supplements. Kirkley, Battagha, Earle, Gans, and Mallory (1988) strongly urged the inclusion of mental health education as well as nutritional health education that directly or indirectly affects bulimic behaviors. Mull (1991) stressed the implementation of self-esteem classes and activities as a means of promoting healthy, wholesome lifestyles, while Kingery (1990) advocated the use of task-focused self-monitoring strategies as a means to demonstrate the types of behavioral changes which should be incorporated into health courses.
In the health area of sexually transmitted diseases (STD), White and Felts (1989) expressed the conviction that increased emphasis should be directed not only at Human Immunodeficiency Virus (HIV) education, but also at other less publicized disease factors, including herpes simplex type 2, venereal warts, and chlamydial trachomatis infections. Their research results identified deficiencies in knowledge of STD among university student populations. In turn, Lammers and Ness (1990) stressed the importance of continuing assessment of alcohol and other drug knowledge, as well as the attitudes and practices necessary to the enhancement of appropriate programs beneficial to university populations. Finally, Knight (1991) recommended that a thorough needs assessments should be incorporated into health curriculum planning on a regular basis in order to assure compliance with professional standards, institutional missions, and the results of new and critical inquiries.

Summary

Following review of the different meanings attached to the concept of comprehensive school health programs, along with consideration of specific curricula and review of national, state, and collegiate level health-related studies and surveys, including an extensive analysis of the SHEE survey (Gunn et al., 1985), it was determined that health education and comprehensive school health education have been subject to considerable discussion, definition, and refinement by professional health educators. The majority of professionals are in agreement with the basic concepts that should be addressed in comprehensive school health programs.

The final section of this chapter presented a wide variety of present and future areas of concern in connection with the enhancement of collegiate level health curricula. Whereas the specific focus of concern was subject to considerable variation, dependent upon the sources of the inquiries reviewed, researchers were in basic agree-
ment that academic health curricula should fill in the gaps missed during preparatory to secondary schooling, thus expanding the knowledge base to adequately prepare college students to make healthy decisions in all aspects of their lives.
CHAPTER 3
METHODS AND PROCEDURES

This descriptive study was designed to assess the health knowledge competencies and essential health skill levels of entry level college freshmen enrolled at Oregon research universities. This chapter includes presentations on the development of the survey instrument, including consideration of the validity and reliability of the instrument; sample selection processes, including data collection; and the treatment and means of statistical tests analysis applied to consideration of the data.

Development of the Instrument

The subjects sampled for this study completed a three-part survey instrument, the Health Education Survey, relating to pertinent issues of health (Appendix C). Part I of the survey instrument includes questions directed at an assessment of health knowledge competencies, Part II includes questions directed at an assessment of essential health skills, and Part III includes questions directed at various health-related demographics and behaviors. The instrument was formulated from questions and tests examples included in the report issued by the Joint Committee on Health (1991), the Oregon Department of Education (1988) directive on common curricular goals for health education, and such previously administered test instruments as the Fast-Tyson Health Knowledge (1986) test, the Kilander-Leach Health Knowledge (1972) test, and the National Adolescent Student Health Survey (American School Health Association,
These nationally tested instruments were used to provide guidance in the developmental stage of the instrument.

The standard for construction of the instrument was based upon "criterion-referenced measurement," a type of test which purports to establish that subjects have achieved a certain level of proficiency in the content areas covered (Martuza, 1977; Thomas & Nelson, 1990). The level of proficiency was set at 85 percent and with this standard of measurement in view, the health experts who contributed to the development of the instrument were asked to select questions that all entry level college freshmen could be expected to answer correctly.

A Delphi panel was used to establish content validity for the Health Education Survey. Five nationally known professional health experts were asked by letter to participate in this research project for Part I, health knowledge, as directed under the authority of the Department of Public Health, Oregon State University. Each prospective panel member was asked to complete a consent form and to return it via an enclosed, self-addressed envelope. Panel members who accepted assignment were then provided with a wide variety of questions regarding health knowledge. Panel members were instructed to either reject, retain, or modify questions as appropriate, as well as to contribute new questions that they felt should be a part of a comprehensive health knowledge survey. Subsequent iterations of this process were used to determine the importance levels of questions retained or modified, with panel members asked to rank the top questions in each section. When the panel reached a consensus at the level of 80 percent acceptability, the Delphi panel members were sent a final letter of appreciation for their contribution to this research project. The names of the selected panel members and the record of correspondence outlined above are included as Appendix D.

The development of Part II, essential health skills, was assisted by a second Delphi panel of five experienced secondary education teachers selected at random.
from a membership list of teachers belonging to the Oregon Association for the Advancement of Health Education (OAAHE). A selection process for panel members identical to that described above for Part I of the Health Education Survey was used for this second panel, with the exception that the selected panel members were provided with a wide variety of questions pertaining to the area of comprehensive health skills, as defined by the Oregon Department of Education (1988). Panel members then applied an evaluation process to these question identical to that described for the first Delphi panel, and once an 80 percent consensus was reached, panel members were thanked for their participation. The names of the panel members and a record of correspondence with this panel is included as Appendix E.

The Delphi panel process involves the cooperation of several factions which perform tasks that culminate in the finalization of a research instrument. As described by Dodge and Clark (1977), the Delphi technique encompasses the following parameters:

In Delphi, a panel of participants is selected and polled on a problem of interest. The panelists generally remain anonymous to one another throughout the process. Their responses are collected and feedback is given in some form (e.g., the "average" response as represented by the median). Each panelist then has the opportunity to revise his or her opinion in light of the collected results, and a second round of responses is compiled and reported. After three to five rounds, opinions usually stabilize. Since responses are given anonymously, consensus is not affected by the status or persuasive powers of individual participants, and should ideally represent the most rational judgment of the group. (p. 58)

Courtney (1986) has described the utilization of the Delphi panel to establish content validity for a research instrument as follows:

The Delphi technique was developed at the Rand Corporation in the early 1950's and used to obtain opinions about urgent defense problems. The technique, which is built on the premise of informed intuitive judgments, is intended to get expert opinion without bringing the experts together in any face-to-face meeting. Contact is liaisoned with the experts by the researcher using successive questionnaires and feedback; each successive round of questions is
designed to produce a closer consensus among the experts. Some very minor modifications in the procedure make it adaptive to use for instrument validation in the social sciences. (p. 85)

Selection of the Sample

The convenience sample selected for this study \((M_1 = M_2 = M_3)\) was comprised of students enrolled in their first college introductory health course at one of three Oregon research universities, including Oregon State University, the University of Oregon, and Portland State University. Though the targeted population for this study consisted of Oregon high school graduates attending their first year of college, the introductory courses were not restricted to entry level freshmen. Thus, the sample population ranged from freshmen to seniors in class standing and from in-state to out-of-state/country high school graduates for place of origin. Data were collected from all enrolled students, but only the data from in-state entry level college freshmen students were used as the basis of analysis for this study. The college representation and gender demographics of the sample population surveyed is given in Table 3.1.

<table>
<thead>
<tr>
<th>Table 3.1 Sample population by gender and university.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Oregon graduate freshman females</td>
</tr>
<tr>
<td>Oregon graduate freshman males</td>
</tr>
<tr>
<td>Oregon graduate freshman, no gender designation</td>
</tr>
<tr>
<td>Total Oregon freshmen by gender</td>
</tr>
</tbody>
</table>

Population

| Oregon graduate freshmen, U. of O.                           | 68 |
| Oregon graduate freshmen, PSU                             | 66 |
| Oregon graduate freshmen, OSU                             | 66 |
| Total Oregon sample from research universities             | 200|
Treatment and Data Analysis

The survey instrument, the readability of which was judged to be at the 6th grade level, as determined by application of the Flesch formula, was pilot tested on a diversified group, consisting of college students and high school seniors. Each of the students participating in the pilot study score better than 92 percent on both the health knowledge and essential health skills parts of the questionnaire. Prior to administration of the final survey instrument, it was submitted to the scrutiny of the Human Subjects committees at OSU and the U. of O. for approval of the finalized Health Education Survey (Appendix F).

The treatment, as administered, was established through precontacts with instructors in the introductory health courses at the U. of O., PSU, and OSU. Each instructor contacted agreed to administer the instrument to his/her class at the beginning of the term. Administering the instrument during the first week of the term eliminated any degree of subject contamination from health instruction received at the collegiate level. Each participating instructor received a letter which provided administration instructions and a note of appreciation for participating in this project. In addition, each Health Education Survey instrument was accompanied by a cover letter, specifying the purpose and the voluntary nature of the study, a guarantee of confidentiality and anonymity, and a note of appreciation for participating in the study. A record of this correspondence is provided in Appendix G. Administration of the instrument required approximately 40 to 60 minutes. All of the instruments were collected at the end of 60 minutes for return to the investigator and for compilation.

Analysis of the data was based upon the use of several statistical tools. Descriptive statistics were used for the data analysis with the level of significance set at \( p < .05 \). The F-statistic analysis of variance (ANOVA), a parametric, inferential bivariate test statistic, was used for the comparison of variances to test for significant
differences between the means (i.e., $H_{0n} = \mu_1 = \mu_2 = \mu_3$) for each dependent variable. The F-test was used when the contrast between two or more interval scale data were not premeasured, followed by a multicomparison test (i.e., the Student-Newman-Keul procedure, or $M_1 > M_2$, $M_1 > M_3$, $M_2 > M_3$). The Chi-square nonparametric statistical instrument was used where applicable and the two-tailed t-test was used when determining significant differences between any two variables. Cronbach's Alpha was conducted on the results to determine their reliability. Part I of the Health Education Survey, health knowledge, was scored at .84, and Part II, essential health skills, was scored at .78.

The following are the factorial designs for comparison of Oregon high school graduate entry level freshmen attending the three major research universities (Table 3.2) and for the division of the Oregon high school graduate entry level freshmen by gender (Table 3.3).

<table>
<thead>
<tr>
<th>Table 3.2 University population factorial design.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
</tr>
<tr>
<td>University of Oregon</td>
</tr>
<tr>
<td>Portland State University</td>
</tr>
<tr>
<td>Oregon State University</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3.3 Gender population factorial design.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institution</td>
</tr>
<tr>
<td>University of Oregon</td>
</tr>
<tr>
<td>Portland State University</td>
</tr>
<tr>
<td>Oregon State University</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

Note: Gender was not indicated on two of the completed surveys.
Summary

This chapter has presented a description of the methods and procedures used to formulate the Health Education Survey instrument, a questionnaire which conforms to standards of comprehensive school health education as defined by the National Health Association (Joint Committee on Health, 1991) and the Oregon Department of Education (1988). In addition, the procedures for the selection of the subject sample and data collection, as well as the methods of statistical analysis of the data were presented.
CHAPTER 4
DATA ANALYSIS AND RESULTS

The present study was an investigation of differences among health knowledge competencies, essential health skills, and behavioral demographics for Oregon high school graduates attending their freshman year of college at either the University of Oregon, Portland State University, or Oregon State University. Specifically, the purpose of the study was to determine if there were significant differences among the three groups of subjects with regard to 10 comprehensive health content areas of health knowledge competencies and four subskills representing essential health skills as determined by the State of Oregon, as well as differences among demographic variables for the three subject groups. The composite freshman subject group was also classified by gender for purposes of analysis of the health knowledge content areas and the essential health skills.

The sample population for this study consisted of 200 entry level college freshmen, 22 years of age and younger, who had graduated from Oregon high schools. This population was comprised of 66 students from each the University of Oregon, Portland State University, and Oregon State University. Subject to information not included on some of the completed survey forms, the gender breakdown was 94 male subjects and 104 female subjects.

The data analysis and consideration of results included in this chapter is presented in several sections. The first section includes a demographic description of the sample population by school size, years of schooling within a single district, and sources of health knowledge and skills among the population. The second section
presents the results for the health knowledge competencies, comparing by institution and by gender to determine if there were significant differences among knowledge scores when subjects were grouped in accordance with the applicable demographics for the entire freshman sample population. A third section presents comparisons for health competencies by reported health behaviors, whereas the fourth section presents the results for the essential health skills scores, comparing by institution and by gender to determine if there were significant differences among essential health skills when subjects were grouped in accordance with the applicable demographics for the entire freshman sample population. Comprehensive findings for all hypotheses, to include the subnull hypotheses considered within each category, are included in a fifth section. The final section presents findings from the behavioral demographics, comparing subjects by institution and by gender. It should be noted that none of the mean scores considered matched the criterion-referenced standard of 85 percent mastery. This finding is discussed in Chapter 5.

Demographic Characteristics

The demographic characteristics used to describe the sample population were: a) enrollment size of the high school attended, b) the number of years the subject attended schools within the district from which he/she graduated, c) the number of semesters of health education the subject completed while attending high school, and d) sources of health knowledge among the subjects. Oregon high schools were classified as follows: A, student enrollment of 1 to 75 students; AA, student enrollment of 75 to 200 students; AAA, student enrollment of 200 to 600 students; and AAAA, student enrollment of 600 or more students. The majority of the subjects (95.5%) from the composite group had graduated from larger schools classed as either AA or AAA. Results are indicated in Table 4.1.
Results of the tabulation for the number of years the subjects had attended schools within the district from which they graduated indicate that the majority of the subjects attending OSU (59.1%) and the U. of O. (67.6%) had been enrolled within the same district for, respectively, 12 and 8 years. For the PSU subjects, 34.6 percent had six years within the district of their graduation, 27.3 percent had resided in the same district for eight years, and 24.2 percent had resided in the same district for 12 years. A majority of the subjects from all three universities (64.5%) had completed two semesters of high school health education, whereas approximately one-fourth of the subjects (24.4%) had completed only one semester.

The final part of the demographic analysis was used to demonstrate subject perceptions of perceived health authority base. Subjects responded to a question which asked them to circle the sources from which they learned about health issues. More than 85 and 80 percent, respectively, indicated their health teacher or their par-
ents as the source of health information (Table 4.2). When asked to indicate the most important source of health information from the list provided, subjects from OSU and PSU selected their health teacher, whereas the U. of O. subjects selected their parents as their most important source of health knowledge (Table 4.3 and Figure 4.1).

<table>
<thead>
<tr>
<th>Table 4.2 Subject sources of health knowledge and skills, as percentages from each university.</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. of O.</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Health teacher</td>
</tr>
<tr>
<td>Parents</td>
</tr>
<tr>
<td>Other teacher</td>
</tr>
<tr>
<td>TV/media</td>
</tr>
<tr>
<td>Reading</td>
</tr>
<tr>
<td>Friends</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 4.3 Single most important source of health knowledge and skills among subjects (as a percentage).</th>
</tr>
</thead>
<tbody>
<tr>
<td>U. of O.</td>
</tr>
<tr>
<td>---------</td>
</tr>
<tr>
<td>Health teacher</td>
</tr>
<tr>
<td>Parents</td>
</tr>
<tr>
<td>Other teacher</td>
</tr>
<tr>
<td>TV/media</td>
</tr>
<tr>
<td>Reading</td>
</tr>
<tr>
<td>Friends</td>
</tr>
<tr>
<td>Other</td>
</tr>
</tbody>
</table>
Health Knowledge Competency

In this section, the results for the following research question are considered:

“What are the health knowledge competence levels among college freshmen?”

Hypothesis 1

$H_{01}$ There will be no significant differences in health knowledge scores among entry level freshmen groups at the U. of O., PSU, and OSU for 10 content areas.

The first null hypothesis was based upon the assumption that there would be no significant differences among the three university groups for health knowledge as incorporated in the 10 comprehensive health content areas. From the results of the data analysis, hypothesis 1 was retained and 9 of the 10 subnull hypotheses were also retained. A one-way ANOVA demonstrated a significant different only for subnull hy-
hypothesis $H$, the consumer health content area. To further determine significant differences among the universities, the Newman-Keuls multiple comparison analysis procedure was used. It was thus found that there was a significant difference between subjects from the U. of O. and OSU (Table 4.4). Figure 4.2 illustrates the mean scores for the 10 content areas by university.

| Table 4.4 Comparison of health knowledge among research universities. |
|------------------------|------------|------------|------------|--------|--------|--------|
| Content area           | U./O. mean| PSU mean   | OSU mean   | Pooled SD | F-value| Probability |
| Consumer health        | 74.02     | 78.79      | 82.32      | 19.57    | 3.0415 | .0500*  |
| Environ. health        | 77.65     | 81.82      | 84.55      | 20.16    | 1.9939 | .1389   |
| Nutrition              | 69.12     | 70.30      | 72.42      | 20.20    | .4595  | .6322   |
| Personal health        | 59.87     | 65.12      | 67.10      | 19.01    | 2.6011 | .0767   |
| Mental health          | 78.24     | 71.82      | 79.09      | 20.96    | 2.3824 | .0950   |
| Disease prevention     | 72.06     | 72.51      | 74.68      | 21.33    | .2861  | .7515   |
| Substance use/abuse    | 53.99     | 56.71      | 61.04      | 21.08    | 1.9009 | .1522   |
| Community health       | 72.06     | 73.74      | 73.23      | 19.47    | .1315  | .8768   |
| Family life education  | 69.85     | 67.93      | 73.23      | 24.07    | .8214  | .413    |
| Accident prevention    | 80.39     | 81.31      | 83.84      | 21.23    | .5557  | .5746   |
| TOTAL                  | 70.07     | 81.31      | 74.60      | 13.17    | 2.0535 | .1310   |

*Significant at the .05 level for one-way ANOVA.

Hypothesis 2

$H_{02}$ There will be no significant differences in health knowledge scores between entry level freshmen male and female students for 10 content areas.

Null hypothesis 2 was retained. The t-test was used to determine if there were significant differences between males and females for the 10 content areas. In addition, 9 of the 10 subnull hypotheses were retained, and only subnull hypothesis J,
family life education, was rejected. The female mean score was significantly higher than the mean score for males (Table 4.5) The total health knowledge mean scores for males and females were, respectively, 72.06 and 72.58.

<table>
<thead>
<tr>
<th>Content area</th>
<th>Male mean</th>
<th>Female mean</th>
<th>Pooled SD</th>
<th>t-value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer health</td>
<td>79.26</td>
<td>78.37</td>
<td>19.09</td>
<td>.33</td>
<td>.743</td>
</tr>
<tr>
<td>Environ. health</td>
<td>83.98</td>
<td>80.39</td>
<td>20.10</td>
<td>.90</td>
<td>.368</td>
</tr>
<tr>
<td>Nutrition</td>
<td>72.13</td>
<td>69.81</td>
<td>19.61</td>
<td>.83</td>
<td>.405</td>
</tr>
<tr>
<td>Personal health</td>
<td>62.01</td>
<td>66.48</td>
<td>18.61</td>
<td>-1.67</td>
<td>.097</td>
</tr>
<tr>
<td>Mental health</td>
<td>76.81</td>
<td>76.35</td>
<td>20.81</td>
<td>.16</td>
<td>.875</td>
</tr>
<tr>
<td>Disease prevention</td>
<td>72.95</td>
<td>73.90</td>
<td>21.06</td>
<td>-0.32</td>
<td>.751</td>
</tr>
<tr>
<td>Substance use/abuse</td>
<td>59.73</td>
<td>55.22</td>
<td>21.11</td>
<td>1.51</td>
<td>.133</td>
</tr>
<tr>
<td>Community health</td>
<td>70.92</td>
<td>75.48</td>
<td>18.97</td>
<td>-1.70</td>
<td>.091</td>
</tr>
<tr>
<td>Family life education</td>
<td>65.96</td>
<td>74.68</td>
<td>23.73</td>
<td>-2.56</td>
<td>.011*</td>
</tr>
<tr>
<td>Accident prevention</td>
<td>84.04</td>
<td>80.29</td>
<td>19.25</td>
<td>1.37</td>
<td>.171</td>
</tr>
<tr>
<td>TOTAL</td>
<td>72.06</td>
<td>72.58</td>
<td>12.83</td>
<td>-0.29</td>
<td>.775</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for t-test.
Hypothesis 3

Ho3 There will be no significant differences in health knowledge scores among entry level freshmen grouped according to selected demographic categories.

Null hypotheses 3 was retained. A one-way ANOVA was used to determine if significant differences existed among the health knowledge scores of subjects grouped according to school size, number of years of attendance at the same school, semesters of health education taken, and source of health knowledge. The subnull hypotheses were retained for the first three categories and rejected for subnull hypothesis D, sources of health knowledge. The mean scores of subjects from schools with an enrollment less than 600 students were higher than those for subjects from schools with an enrollment greater than 600 students, but the difference was not significant at the .05 level of significance. Subjects who attended schools within the same district for less than four years scored the highest (74.18), with subjects who attended schools within the same district for 12 years scoring second highest (73.09). Subjects who had completed three or more semesters of health education scored higher than subjects with either one or two semesters of health education, but the difference was not significant at the .05 level. Based upon multicomparison analysis, the only two significant differences were between the health source mean scores of subjects who selected reading and those who selected the other category, and between the mean scores of subject who selected friends and those who selected other teacher (Table 4.6).
Table 4.6 Health knowledge mean scores for selected demographics.

<table>
<thead>
<tr>
<th>School size</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAA</td>
<td>129</td>
<td>71.62</td>
<td>14.59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AAA</td>
<td>60</td>
<td>73.42</td>
<td>9.65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA</td>
<td>8</td>
<td>73.54</td>
<td>11.56</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>76.67</td>
<td>11.56</td>
<td>.3197</td>
<td>.8112</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years in district</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>82</td>
<td>73.09</td>
<td>11.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-11</td>
<td>51</td>
<td>71.80</td>
<td>12.13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-7</td>
<td>43</td>
<td>69.15</td>
<td>16.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 or less</td>
<td>24</td>
<td>74.17</td>
<td>15.38</td>
<td>1.0693</td>
<td>.3633</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semesters health</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48</td>
<td>71.01</td>
<td>12.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>127</td>
<td>72.43</td>
<td>13.24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>77.59</td>
<td>8.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td>73.33</td>
<td>11.90</td>
<td>.7027</td>
<td>.5515</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health source</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health teacher</td>
<td>69</td>
<td>72.97</td>
<td>11.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>47</td>
<td>70.25</td>
<td>13.60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other teachers</td>
<td>12</td>
<td>77.08</td>
<td>7.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV/media</td>
<td>23</td>
<td>65.86</td>
<td>15.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>33</td>
<td>77.22</td>
<td>13.36</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>6</td>
<td>64.44</td>
<td>17.47</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>69.00</td>
<td>10.11</td>
<td>2.7474</td>
<td>.0139*</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for one-way ANOVA.

Health Behaviors and Health Knowledge Competency

In this section, the results for the following research question are considered:

“What relationships exist between selected health behaviors and health knowledge competence levels among college freshmen?”
Hypothesis 4

There will be no significant differences in scores for the health knowledge section, “substance use and abuse,” when the subjects are grouped according to users and nonusers of selected substances.

Null hypothesis 4 was retained. A t-test was used to determine if a significant difference existed between the mean scores of subjects for substance use and abuse and the mean scores of nonusers of cigarettes, smokeless tobacco, alcohol, marijuana cocaine, heroin, methadone, tranquilizers, LSD, diet pills, steroids, DMSO, and other drugs. Nine of the 10 subnull hypotheses were retained, and the only significant difference was found for subnull hypothesis D, between the users and nonusers of marijuana. Users of marijuana scored higher on the substance use and abuse knowledge section than did nonusers. Users of cigarettes, smokeless tobacco, LSD, steroids, DMSO, and other drugs also scored higher than nonusers. Though the scores were higher for those who professed to substance use or abuse than for nonusers, the difference was not considered to be statistically significant (Table 4.7).

Hypothesis 5

There will be no significant differences in scores for the health knowledge section, “personal health,” when the subjects are grouped according to reported levels of physical fitness.

Null hypothesis 5 was rejected. A one-way ANOVA was used to determine if there were significant differences in the personal health knowledge section mean scores when subjects were grouped according to reported levels of physical fitness. There was a significant difference between the scores for those subjects reporting an average level of physical fitness and those subjects reporting a below average level of physical fitness (Table 4.8).
### Table 4.7 Substance use and abuse knowledge section mean scores for nonusers and users.

<table>
<thead>
<tr>
<th>Substance</th>
<th>Nonusers mean</th>
<th>Users mean</th>
<th>Pooled SD</th>
<th>t-value</th>
<th>t-Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarettes</td>
<td>57.30</td>
<td>58.04</td>
<td>21.18</td>
<td>-0.12</td>
<td>.905</td>
</tr>
<tr>
<td>Smokeless tobacco</td>
<td>56.84</td>
<td>61.23</td>
<td>20.94</td>
<td>-0.71</td>
<td>.503</td>
</tr>
<tr>
<td>Alcohol</td>
<td>56.92</td>
<td>57.25</td>
<td>21.25</td>
<td>-0.10</td>
<td>.921</td>
</tr>
<tr>
<td>Marijuana</td>
<td>55.56</td>
<td>67.03</td>
<td>20.73</td>
<td>-3.16</td>
<td>.003*</td>
</tr>
<tr>
<td>Cocaine</td>
<td>57.63</td>
<td>54.46</td>
<td>21.30</td>
<td>-0.71</td>
<td>.488</td>
</tr>
<tr>
<td>Heroin</td>
<td>57.30</td>
<td>-</td>
<td>21.41</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Methadone</td>
<td>57.53</td>
<td>50.00</td>
<td>21.47</td>
<td>-1.03</td>
<td>.373</td>
</tr>
<tr>
<td>Tranquilizers</td>
<td>57.38</td>
<td>57.14</td>
<td>21.50</td>
<td>-0.04</td>
<td>.973</td>
</tr>
<tr>
<td>LSD</td>
<td>57.06</td>
<td>68.25</td>
<td>21.27</td>
<td>1.78</td>
<td>.114</td>
</tr>
<tr>
<td>Diet pills</td>
<td>57.92</td>
<td>51.19</td>
<td>21.36</td>
<td>-1.41</td>
<td>.168</td>
</tr>
<tr>
<td>Steroids</td>
<td>57.22</td>
<td>85.71</td>
<td>21.40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DMSO</td>
<td>56.98</td>
<td>57.14</td>
<td>21.34</td>
<td>.02</td>
<td>.988</td>
</tr>
<tr>
<td>Other drugs</td>
<td>57.81</td>
<td>63.10</td>
<td>20.45</td>
<td>1.03</td>
<td>.322</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for the t-test.

### Table 4.8 Health knowledge section mean scores according to reported levels of physical fitness.

<table>
<thead>
<tr>
<th>Level of fitness</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above average</td>
<td>70</td>
<td>69.39</td>
<td>17.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>122</td>
<td>62.18</td>
<td>18.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below average</td>
<td>5</td>
<td>54.29</td>
<td>6.39</td>
<td>4.27</td>
<td>.0153*</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for one-way ANOVA.

### Hypothesis 6

**H₀₆** There will be no significant differences in scores for the health knowledge section, "nutrition," when the subjects are grouped according to nutrition demographics.

Null hypothesis was retained. A one-way ANOVA was used to determine if there were significant differences among nutrition knowledge section means scores when the subjects were grouped according to reported breakfast habits. Subject were
asked to choose between never, occasionally, and every day, and the majority of the
subjects reported they ate breakfast occasionally (Table 4.9).

Table 4.9 Nutrition knowledge section mean scores according to reported break-
fast habits.

<table>
<thead>
<tr>
<th>Eat breakfast</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>30</td>
<td>68.00</td>
<td>21.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occasionally</td>
<td>92</td>
<td>68.91</td>
<td>20.41</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every day</td>
<td>76</td>
<td>74.21</td>
<td>17.23</td>
<td>1.7662</td>
<td>.1737</td>
</tr>
</tbody>
</table>

The F-probability was not significant at the .05 level for the one-way ANOVA.

Hypothesis 7

H₀: There will be no significant differences in scores for the health knowl-
edge section, "accident prevention," when the subjects are grouped ac-
cording to safety demographics.

Null hypothesis 7 was rejected. A one-way ANOVA was used to determine if
significant differences existed among accident prevention knowledge section mean
scores when the subjects were grouped according to reported usage of auto seatbelts
(Table 4.10). Subjects were asked to choose which of the following responses best
described their use of seatbelts: I never wear a seatbelt; I always wear a seatbelt; I
only wear a seatbelt while driving; and I only wear a seatbelt if I am a passenger. The
significant difference among the responses was for "I only wear seatbelts while driv-
ing and the remaining three responses. The subjects who responded that they never
wore seatbelts had the highest mean scores for the accident prevention knowledge sec-
tion.
Table 4.10 Accident prevention knowledge section mean scores according to reported use of auto seatbelts.

<table>
<thead>
<tr>
<th>Seatbelt usage</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>18</td>
<td>88.89</td>
<td>19.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Always</td>
<td>152</td>
<td>82.68</td>
<td>19.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only while driving</td>
<td>25</td>
<td>71.33</td>
<td>20.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only as passenger</td>
<td>5</td>
<td>83.33</td>
<td>11.79</td>
<td>3.4274</td>
<td>.0182*</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for one-way ANOVA.

Hypothesis 8

Hₜₐ₇ There will be no significant differences in scores for the health knowledge section, “mental/emotional health,” when the subjects are grouped according to mental/emotional health demographics.

Null hypothesis 8 was retained. A t-test was used to determine if significant differences existed between: a) the mental/emotional mean scores of subjects who reported food purging as a means of losing weight and those subjects who did not report the use of food purging; and b) the mental/emotional mean scores of subjects who had been diagnosed anorexic and those who had never been diagnosed anorexic (Table 4.11). The disparity in mean scores between diagnosed anorexics and those who had never been diagnosed anorexic was not statistically significant in that only two subjects indicated that they had been diagnosed anorexic.

Table 4.11 Mental/emotional health knowledge section mean scores for the relationship between food purging (bulimia) and anorexia.

<table>
<thead>
<tr>
<th></th>
<th>Yes mean</th>
<th>No mean</th>
<th>Pooled SD</th>
<th>t-value</th>
<th>t-Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used food purging</td>
<td>77.32</td>
<td>72.22</td>
<td>20.81</td>
<td>.67</td>
<td>.510</td>
</tr>
<tr>
<td>Diagnosed anorexic</td>
<td>77.04</td>
<td>60.00</td>
<td>20.64</td>
<td>.43</td>
<td>.744</td>
</tr>
</tbody>
</table>

No significant probability at the .05 level for the t-test.
Hypothesis 9

$H_{09}$  There will be no significant differences in scores for the health knowledge section, "family life education," when the subjects are grouped according to sexuality demographics.

Null hypothesis 9 was retained. A t-test was used to determine if significant differences existed between the family education knowledge section mean scores and those subjects reported to be either sexually inactive or sexually active. The sexually inactive subjects scored higher for this knowledge section than the sexually active subjects.

<table>
<thead>
<tr>
<th>Status</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexually inactive</td>
<td>66</td>
<td>73.49</td>
<td>22.83</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexually active</td>
<td>132</td>
<td>68.69</td>
<td>24.72</td>
<td>1.36</td>
<td>.177</td>
</tr>
</tbody>
</table>

There were no significant probabilities at the .05 level for the t-test.

Essential Health Skills

In this section, the results for the following research question are considered: "What are the essential health skill levels of college freshmen?"

Hypothesis 10

$H_{010}$  There will be no significant differences in scores for the four Oregon state strands considered to be essential health skills among entry level freshmen at the U. of O., PSU, and OSU.

Hypothesis 10 was based upon the assumption that there would be no significant differences among students from the three universities for essential health skills
placed in the four Oregon state strands. The null hypothesis was rejected. Use of a one-way ANOVA determined that there were significant differences among the safe-living, physical fitness, and nutrition skill strands. Stressor/risk-taking management was the only subnull hypothesis retained. In addition, the Newman-Keuls multicomparison procedure was used to determine significant relationships among the three strands with significant differences. For the safe-living skill strand, there were significant differences between subjects from the U. of O. and OSU. For the physical fitness strand, there were significant differences between subjects from OSU and PSU and between subjects from the U. of O. and PSU. For the nutrition skill strand, there were significant differences between subjects from the U. of O. and subjects from PSU and between subjects from OSU and subjects from PSU (Table 4.13). Figure 4.3 is included to illustrate differences in mean scores for the four Oregon essential health skill strands, by university and by overall score.

Table 4.13 Comparison of essential health skills among subjects from three research universities.

<table>
<thead>
<tr>
<th>Skill strands</th>
<th>U./O. mean</th>
<th>PSU mean</th>
<th>OSU mean</th>
<th>Pooled SD</th>
<th>F-value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe living</td>
<td>67.51</td>
<td>70.52</td>
<td>75.62</td>
<td>16.35</td>
<td>4.1975</td>
<td>.0164*</td>
</tr>
<tr>
<td>Stress mgmt.</td>
<td>78.68</td>
<td>73.48</td>
<td>76.52</td>
<td>22.67</td>
<td>.8885</td>
<td>.4145</td>
</tr>
<tr>
<td>Physical fitness</td>
<td>60.59</td>
<td>54.24</td>
<td>60.71</td>
<td>16.41</td>
<td>3.3688</td>
<td>.0364*</td>
</tr>
<tr>
<td>Nutrition</td>
<td>56.91</td>
<td>48.03</td>
<td>55.15</td>
<td>19.63</td>
<td>3.8185</td>
<td>.0236*</td>
</tr>
<tr>
<td>TOTAL</td>
<td>64.77</td>
<td>60.40</td>
<td>66.05</td>
<td>14.32</td>
<td>2.8297</td>
<td>.0614</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for one-way ANOVA.

Hypothesis 11

H_{01} There will be no significant differences in scores for the four Oregon state strands considered to be essential health skills between entry level freshmen male and female students.
Null hypothesis 11 was retained. A t-test was used to determine if there were significant differences between male and female subjects for the four Oregon essential health skill strands. Only the subnull hypothesis D, nutrition skill level, was rejected insofar as the mean score for female subjects was significantly higher than the mean score for male subjects (Table 4.14). The total essential skill mean scores for male and female subjects were, respectively, 61.80 and 66.02, representing a significant difference at the .05 level for the t-test.

Table 4.14 Comparison of essential health skills by gender.

<table>
<thead>
<tr>
<th>Skill strands</th>
<th>Male mean</th>
<th>Female mean</th>
<th>Pooled SD</th>
<th>t-value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe living</td>
<td>70.21</td>
<td>72.55</td>
<td>16.39</td>
<td>-1.00</td>
<td>.317</td>
</tr>
<tr>
<td>Stress mgmt.</td>
<td>74.73</td>
<td>78.49</td>
<td>22.28</td>
<td>-1.17</td>
<td>.244</td>
</tr>
<tr>
<td>Physical fitness</td>
<td>56.67</td>
<td>60.83</td>
<td>16.28</td>
<td>-1.77</td>
<td>.078</td>
</tr>
<tr>
<td>Nutrition</td>
<td>49.89</td>
<td>56.64</td>
<td>19.75</td>
<td>-2.37</td>
<td>.019*</td>
</tr>
<tr>
<td>TOTAL</td>
<td>61.80</td>
<td>66.02</td>
<td>14.13</td>
<td>-2.07</td>
<td>.040*</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for t-test.
Hypothesis 12

$H_{o12}$ There will be no significant differences in essential health skill level scores among entry level freshmen grouped according to selected demographic categories.

Null hypothesis 12 was retained. A one-way ANOVA was used to determine if significant differences existed among the essential health skill mean scores for the total sample when subjects were groups according to school size, years of attendance at the same school, semesters of health education, and sources of health knowledge. With the exception of subnull hypothesis B, number of years in the school district, all of the subnull hypotheses were retained. Subjects from AA schools scored the highest (67.32), but since this score represented only a single subject it was not regarded as significant at the .05 level. Subjects who spent four or fewer years in the district from which they graduated had the highest mean score (69.22). When compared to subjects who had spent eight years or more (62.12) or subjects who spent five years or more (57.66), there was a significant difference. Subjects who spent all 12 years in a single school district had a mean score of 66.35, which was significant when compared to the mean score of students who had spent five or more years in the district from which they graduated (Table 4.15).

Health Behaviors and Essential Health Skills

In this section, the results for the final research question are considered:

“What relationships exist between selected health behaviors and essential health skills among college freshmen?”
Table 4.15 Comparison of essential health skill scores by selected demographics.

<table>
<thead>
<tr>
<th>School size</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAAA</td>
<td>129</td>
<td>63.04</td>
<td>14.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AA</td>
<td>69</td>
<td>65.83</td>
<td>13.09</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>8</td>
<td>67.33</td>
<td>13.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>1</td>
<td>56.82</td>
<td>-</td>
<td>.7637</td>
<td>.5157</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Years in district</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>82</td>
<td>66.35</td>
<td>14.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-11</td>
<td>51</td>
<td>62.12</td>
<td>11.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-7</td>
<td>43</td>
<td>57.66</td>
<td>16.82</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 or less</td>
<td>24</td>
<td>69.22</td>
<td>12.50</td>
<td>5.0893</td>
<td>.0021*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semesters health</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>48</td>
<td>60.42</td>
<td>15.31</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>127</td>
<td>64.92</td>
<td>13.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>9</td>
<td>64.65</td>
<td>11.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>13</td>
<td>66.26</td>
<td>17.35</td>
<td>1.2898</td>
<td>.2791</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Health source</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health teacher</td>
<td>69</td>
<td>63.97</td>
<td>13.58</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parents</td>
<td>47</td>
<td>64.80</td>
<td>13.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other teachers</td>
<td>12</td>
<td>67.99</td>
<td>11.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TV/media</td>
<td>23</td>
<td>58.50</td>
<td>14.48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reading</td>
<td>33</td>
<td>67.49</td>
<td>13.57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends</td>
<td>6</td>
<td>56.82</td>
<td>15.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
<td>65.91</td>
<td>18.18</td>
<td>1.4589</td>
<td>.1945</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for one-way ANOVA.

Hypothesis 13

$H_{013}$ There will be no significant differences in scores for the essential health skills section, “safe living,” when the subjects are grouped according to users and nonusers of selected substances.

Null hypothesis 13 was retained. A t-test was used to determine if there was a significant difference between the safe-living essential health skill section and the mean scores for both users and nonusers of cigarettes, smokeless tobacco, marijuana, alcohol, cocaine, heroin, methadone, tranquilizers, LSD, diet pills, steroids, DMSO,
or other drugs. Users of cigarettes, smokeless tobacco, marijuana, alcohol, tranquilizers, LSD, steroids, and other drugs scored higher than nonusers, but the difference in mean scores was not significant at the .05 level (Table 4.16).

<table>
<thead>
<tr>
<th>Substances</th>
<th>Nonusers mean</th>
<th>Users mean</th>
<th>Pooled SD</th>
<th>t-value</th>
<th>t-Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cigarettes</td>
<td>71.39</td>
<td>71.59</td>
<td>16.40</td>
<td>-0.03</td>
<td>.973</td>
</tr>
<tr>
<td>Smokeless tobacco</td>
<td>71.07</td>
<td>71.43</td>
<td>16.40</td>
<td>-0.05</td>
<td>.963</td>
</tr>
<tr>
<td>Alcohol</td>
<td>70.63</td>
<td>71.37</td>
<td>16.67</td>
<td>-0.30</td>
<td>.762</td>
</tr>
<tr>
<td>Marijuana</td>
<td>71.24</td>
<td>72.38</td>
<td>16.55</td>
<td>-0.32</td>
<td>.751</td>
</tr>
<tr>
<td>Cocaine</td>
<td>72.16</td>
<td>68.75</td>
<td>16.02</td>
<td>-0.96</td>
<td>.347</td>
</tr>
<tr>
<td>Heroin</td>
<td>71.81</td>
<td></td>
<td>16.14</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Methadone</td>
<td>71.93</td>
<td>68.18</td>
<td>16.20</td>
<td>-0.34</td>
<td>.753</td>
</tr>
<tr>
<td>Tranquilizers</td>
<td>71.72</td>
<td>75.76</td>
<td>16.22</td>
<td>.61</td>
<td>.567</td>
</tr>
<tr>
<td>LSD</td>
<td>71.81</td>
<td>73.74</td>
<td>16.16</td>
<td>.38</td>
<td>.712</td>
</tr>
<tr>
<td>Diet pills</td>
<td>71.63</td>
<td>70.08</td>
<td>16.36</td>
<td>-0.38</td>
<td>.706</td>
</tr>
<tr>
<td>Steroids</td>
<td>71.75</td>
<td>90.91</td>
<td>16.15</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>DMSO</td>
<td>71.71</td>
<td>75.00</td>
<td>16.31</td>
<td>.56</td>
<td>.610</td>
</tr>
<tr>
<td>Other drugs</td>
<td>72.44</td>
<td>70.46</td>
<td>15.30</td>
<td>-0.57</td>
<td>.576</td>
</tr>
</tbody>
</table>

There were no significant probabilities at the .05 level for the t-test.

**Hypothesis 14**

**H_{0_{14}}** There will be no significant differences in scores for the essential health skills section, "physical fitness," when the subjects are grouped according to reported levels of physical fitness.

Null hypothesis 14 was retained. A one-way ANOVA was used to determine if there were significant differences for the physical fitness essential health skills mean scores when subjects were grouped according to reported levels of physical fitness (Table 4.17). The mean scores for subjects reporting above average physical fitness and subjects reporting below average physical fitness were approximately the same.
Table 4.17 Physical fitness essential health skill mean scores according to reported levels of physical fitness.

<table>
<thead>
<tr>
<th>Level of fitness</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-ratio</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above average</td>
<td>70</td>
<td>61.52</td>
<td>17.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>122</td>
<td>57.32</td>
<td>15.37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Below average</td>
<td>5</td>
<td>61.33</td>
<td>12.82</td>
<td>1.54</td>
<td>.2179</td>
</tr>
</tbody>
</table>

There were no significant probabilities at the .05 level for the one-way ANOVA.

Hypothesis 15

\[ H_{015} \] There will be no significant differences in scores for the essential health skills section, “nutrition,” when the subjects are grouped according to nutrition demographics.

Null hypothesis 15 was rejected. A one-way ANOVA was used to determine if there were significant differences among the essential health skill scores when subjects were grouped according to reported breakfast habits. There was a significant different between the scores of subjects who ate breakfast daily and both subjects who occasionally and who never ate breakfast (Table 4.18).

Table 4.18 Nutrition essential health skill mean scores according to reported breakfast habits.

<table>
<thead>
<tr>
<th>Eat breakfast</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>F-value</th>
<th>F-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>30</td>
<td>52.00</td>
<td>21.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occasionally</td>
<td>92</td>
<td>50.11</td>
<td>21.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every day</td>
<td>76</td>
<td>58.03</td>
<td>17.44</td>
<td>3.4412</td>
<td>.0340*</td>
</tr>
</tbody>
</table>

*Significant at the .05 level for one-way ANOVA.

Hypothesis 16

\[ H_{016} \] There will be no significant differences in scores for the essential health skills section, “safe living,” when the subjects are grouped according to sexuality demographics.
Null hypothesis 16 was retained. A t-test was used to determine if significant differences existed between the safe-living essential health skill mean scores and those for subjects reported to be sexually inactive or sexually active. In both cases, the mean scores were nearly identical (Table 4.19).

<table>
<thead>
<tr>
<th>Status</th>
<th>Number</th>
<th>Mean</th>
<th>SD</th>
<th>t-value</th>
<th>t-prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sexually inactive</td>
<td>66</td>
<td>71.21</td>
<td>16.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sexually active</td>
<td>132</td>
<td>71.01</td>
<td>16.97</td>
<td>.08</td>
<td>.933</td>
</tr>
</tbody>
</table>

There were no significant probabilities at the .05 level for the t-test.

Comprehensive Report of Findings

To further clarify the results for the 16 null hypotheses, including all subnull hypotheses considered, the following tables are provided for health knowledge competencies (Table 4.20), selected behaviors and health knowledge competencies (Table 4.21), essential health skill level (Table 4.22), and selected behaviors and essential health skill levels (Table 4.23).

Behavioral Demographics

Behavioral demographics are described by comparing the numbers of students from the three universities and comparing numbers of students by gender for the variables considered. In Table 4.24, the percentages of substance use or nonuse, or ages when first used, are indicated for all subjects. Chi-square analysis was used to determine if there were significant differences in the figures reported among the three university populations and between the two gender. Significant differences were noted.
Table 4.20 Results of the analysis for health knowledge competencies (p < .05).

<table>
<thead>
<tr>
<th>Null hypotheses</th>
<th>Retained</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho1, subnull hypotheses:</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>A. Personal health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>B. Mental/emotional health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C. Prevention/disease control</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>D. Nutrition</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>E. Substance use/abuse</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>F. Accident prevention/safety</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>G. Community health</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>H. Consumer health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>I. Environmental health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>J. Family life education</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ho2, subnull hypotheses:</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>A. Personal health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>B. Mental/emotional health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C. Prevention/disease control</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>D. Nutrition</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>E. Substance use/abuse</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>F. Accident prevention/safety</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>G. Community health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>H. Consumer health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>I. Environmental health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>J. Family life education</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ho3, subnull hypotheses:</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>A. School size</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>B. Years in school district</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C. Semesters school health</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>D. Important health source</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>
### Table 4.21 Results of the analysis for selected behaviors and health knowledge competency levels \((p < .05)\).

<table>
<thead>
<tr>
<th>Null hypotheses</th>
<th>Retained</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho4, subnull hypotheses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Cigarettes</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>B. Smokeless tobacco</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C. Alcohol</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>D. Marijuana</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>E. Cocaine</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>F. Heroin</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>G. Methadone</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>H. Tranquilizers</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>I. LSD</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>J. Diet pills</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>K. Steroids</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>L. DMSO</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>M. Other drugs</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ho5, mean, level of fitness</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ho6, mean, breakfast habits</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ho7, mean, wearing seatbelts</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ho8, mean, purging food</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ho8, mean, anorexia</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ho9, mean, sexual activity</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

### Table 4.22 Results of analysis for essential health skills \((p < .05)\).

<table>
<thead>
<tr>
<th>Null hypotheses</th>
<th>Retained</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho10, subnull hypotheses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Safe-living</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>B. Stressor/risk-taking mgmt.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>C. Physical fitness</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>D. Nutrition</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ho11, subnull hypotheses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Safe-living</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>B. Stressor/risk-taking mgmt.</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>C. Physical fitness</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>D. Nutrition</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ho12, subnull hypotheses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. School size</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>B. Years in school district</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>C. Semesters school health</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>D. Important health source</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>
Table 4.23 Results of analysis for selected behaviors and essential health skills (p < .05).

<table>
<thead>
<tr>
<th>Null hypotheses</th>
<th>Retained</th>
<th>Rejected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ho13, subnull hypotheses:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. Cigarettes</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>B. Smokeless tobacco</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>C. Alcohol</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>D. Marijuana</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>E. Cocaine</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>F. Heroin</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>G. Methadone</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>H. Tranquilizers</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>I. LSD</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>J. Diet pills</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>K. Steroids</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>L. DMSO</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ho14, mean, level of fitness</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ho15, mean, breakfast habits</td>
<td></td>
<td>X</td>
</tr>
<tr>
<td>Ho16, mean, sexual activity</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

among these populations for use of smokeless tobacco, use of alcohol, use of marijuana, and use of diet pills.

Comparison of the use of seatbelts indicates that the majority of the subjects obeyed Oregon law and always wore their seatbelts. In contrast, 97.1 percent of the U. of O. subjects reported always wearing seatbelts, whereas the comparative percentage for PSU subjects was only 56.1 percent (Table 4.25). Comparisons by gender indicate that 85.6 percent of the female subjects reported always wearing seatbelts, whereas the percentage for male subjects was only 66 percent (Table 4.26).
Table 4.24 Use of substances among entry-level university freshmen.

<table>
<thead>
<tr>
<th>Variable</th>
<th>U./O.</th>
<th>PSU</th>
<th>OSU</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoke cigarettes</td>
<td>7.7</td>
<td>11.8</td>
<td>4.5</td>
<td>1.6</td>
<td>5.8</td>
</tr>
<tr>
<td>age of first use</td>
<td>17.4</td>
<td>14.8</td>
<td>17.5</td>
<td>17.7</td>
<td>15.0</td>
</tr>
<tr>
<td>Smokeless tobacco</td>
<td>-</td>
<td>-</td>
<td>-10.9*</td>
<td>7.8*</td>
<td>-</td>
</tr>
<tr>
<td>age of first use</td>
<td>-</td>
<td>-</td>
<td>16.0</td>
<td>16.0</td>
<td>-</td>
</tr>
<tr>
<td>Drink alcohol</td>
<td>72.1*</td>
<td>47.7*</td>
<td>81.8*</td>
<td>74.2</td>
<td>61.5*</td>
</tr>
<tr>
<td>age of first use</td>
<td>15.3</td>
<td>15.8</td>
<td>15.4</td>
<td>15.2</td>
<td>15.0</td>
</tr>
<tr>
<td>Alcohol frequency:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>special occasions</td>
<td>40.4</td>
<td>51.7</td>
<td>39.6</td>
<td>35.9</td>
<td>50.0</td>
</tr>
<tr>
<td>1-3 times a week</td>
<td>17.2</td>
<td>14.9</td>
<td>9.4</td>
<td>10.9</td>
<td>15.6</td>
</tr>
<tr>
<td>1-3 drinks per day</td>
<td>3.4</td>
<td>8.5</td>
<td>1.9</td>
<td>7.8</td>
<td>1.6</td>
</tr>
<tr>
<td>weekends</td>
<td>27.6</td>
<td>36.2</td>
<td>49.1</td>
<td>45.3</td>
<td>32.8</td>
</tr>
<tr>
<td>Smoke marijuana</td>
<td>4.6*</td>
<td>16.7</td>
<td>18.2</td>
<td>20.7</td>
<td>6.8*</td>
</tr>
<tr>
<td>age of first use</td>
<td>15.1</td>
<td>15.7</td>
<td>15.9</td>
<td>15.2</td>
<td>15.0</td>
</tr>
<tr>
<td>Used cocaine</td>
<td>15.4</td>
<td>7.8</td>
<td>1.6</td>
<td>10.6</td>
<td>6.9</td>
</tr>
<tr>
<td>Used methadone</td>
<td>4.7</td>
<td>-</td>
<td>1.6</td>
<td>2.3</td>
<td>2.0</td>
</tr>
<tr>
<td>Used tranquilizers</td>
<td>1.6</td>
<td>4.8</td>
<td>3.2</td>
<td>2.3</td>
<td>4.0</td>
</tr>
<tr>
<td>Used LSD</td>
<td>6.3</td>
<td>4.8</td>
<td>3.1</td>
<td>4.5</td>
<td>5.1</td>
</tr>
<tr>
<td>Used diet pills</td>
<td>21.5*</td>
<td>7.9</td>
<td>8.1</td>
<td>3.4</td>
<td>20.6*</td>
</tr>
<tr>
<td>Used steroids</td>
<td>-</td>
<td>1.6</td>
<td>-</td>
<td>1.1</td>
<td>-</td>
</tr>
<tr>
<td>Used DMSO</td>
<td>-</td>
<td>1.6</td>
<td>4.8</td>
<td>3.5</td>
<td>1.0</td>
</tr>
<tr>
<td>Used other drugs</td>
<td>2.4</td>
<td>7.5</td>
<td>15.6</td>
<td>9.9</td>
<td>7.4</td>
</tr>
</tbody>
</table>

*Significance at .05 level for chi-square test; additional information on significance levels for the chi-square test is included in Appendix H. All figures in above table represent percentages, with the exception of rows where average age is indicated.

Table 4.25 Seatbelt usage reported by subjects (as percent of total by institution).

<table>
<thead>
<tr>
<th>Frequency</th>
<th>U. of O.</th>
<th>PSU</th>
<th>OSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>1.5</td>
<td>15.2</td>
<td>10.6</td>
</tr>
<tr>
<td>Always</td>
<td>97.1</td>
<td>56.1</td>
<td>74.2</td>
</tr>
<tr>
<td>Only as a driver</td>
<td>1.5</td>
<td>25.8</td>
<td>10.6</td>
</tr>
<tr>
<td>Only as a passenger</td>
<td>-</td>
<td>3.0</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Note: Chi-square = 33.66112; degrees of freedom = 6; significance = .0000000 at .05 for chi-square tests.
Table 4.26 Seatbelt usage reported by subjects (as percent of total population by gender).

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>11.7</td>
<td>6.7</td>
</tr>
<tr>
<td>Always</td>
<td>66.0</td>
<td>85.6</td>
</tr>
<tr>
<td>Only as a driver</td>
<td>19.1</td>
<td>5.8</td>
</tr>
<tr>
<td>Only as a passenger</td>
<td>3.2</td>
<td>1.9</td>
</tr>
</tbody>
</table>

Note: Chi-square = 11.44084; degrees of freedom = 3; significance = .0096 at .05 for chi-square tests.

Comparison of physical fitness behaviors indicates that overall the subjects felt their physical condition to be average, with a greater percentage of males (44.6%) than females (26.9%) considering themselves to be above average in physical fitness. Majorities of the OSU (78.1%) and U. of O. (76.5%) subjects participated in aerobic activities, whereas only one-half (50.8%) of the PSU subjects participated in similar activities. With respect to frequency, 65.6 percent of the female subjects reported engaging in aerobic activities three or more times each week, in contrast to 58.3 percent of the male subjects (Table 4.27). Figures 4.4 through 4.6 indicate the types of aerobic activities engaged in by male and female subjects from the Oregon university population.

Summary

Chapter 4 has presented an analysis of the results of this inquiry. Demographic data included the size of the high school attended, the number of years attended, the number of health education semesters completed, and the sources of health information for the subject population. Results of the data analysis were examined in relation to the 16 null hypotheses and corresponding subnull hypotheses. A sampling
of behavioral demographics was presented, including charts indicating the types of aerobic activities engaged in by subjects from the university population.

| Table 4.27 Reported levels of physical fitness, participation in aerobic activities, and frequency of participation (as percentages). |
|-------------------|---------|---------|---------|---------|---------|---------|---------|
| Variable          | U/O     | PSU     | OSU     | p       | Male    | Female  | p       |
|                   |         |         |         |         |         |         |         |
| Levels of fitness |         |         |         |         |         |         |         |
| Above average     | 45.6    | 18.8    | 41.5    | 44.6    | 26.9    |         |         |
| Average           | 50.0    | 79.7    | 56.9    | 54.3    | 69.2    |         |         |
| Below average     | 4.4     | 1.6     | 1.5     | 1.1     | 3.8     |         |         |
|                   |         |         |         | **.0067*** |         | **.0234*** |         |
| Participation in aerobics |         |         |         |         |         |         |         |
| Yes               | 50.8    | 76.5    | 78.1    | 69.9    | 68.0    |         |         |
| No                | 49.2    | 23.5    | 21.9    | 30.1    | 32.0    |         |         |
|                   |         |         |         | **.0008*** |         | **.8909** |         |
| Frequency of aerobic activity |         |         |         |         |         |         |         |
| Once/week         | 21.4    | 12.8    | 8.2     | 16.7    | 9.4     |         |         |
| Twice/week        | 35.7    | 25.5    | 18.4    | 25.0    | 25.0    |         |         |
| Three+ /week      | 42.9    | 61.7    | 73.5    | 58.3    | 65.6    |         |         |
|                   |         |         |         | **.1220** |         | **.4627** |         |

*Significant at p < .05 for the chi-square test.
Figure 4.4 Aerobic activities among Oregon State University subjects (males = top chart, females = bottom chart).
Figure 4.5 Aerobic activities among University of Oregon subjects (males = top chart, females = bottom chart).
Figure 4.6 Aerobic activities among Portland State University subjects (males = top chart, females = bottom chart).
CHAPTER 5
DISCUSSION AND RECOMMENDATIONS

Discussion

Based upon the assumption that entry-level freshman university students, each of whom had attended and graduated from Oregon school districts, would possess a common core of cognitive health competencies and skills, as recommended by the Oregon Department of Education (1988), the present study assessed health knowledge competencies and essential health skill variables at the three principal Oregon research universities. From the results of data analysis, the sample population did not in fact meet a criterion standard set arbitrarily at 85 percent mastery for either health knowledge or essential health skills. It should also be noted if the criterion-based standards were lowered to 75 percent mastery, the subjects of the present investigation would meet competency-based requirements in only three of 10 health knowledge content areas and meet essential health skills requirements in only two of four strands.

The three health knowledge competency areas which matched a criteria of 75 percent mastery were accident prevention, consumer health, and environmental health (in addition, subjects from OSU attained a mean score of 79.09 for the area of mental/emotional health). The two essential health skill strands which were scored above 75 percent were safe-living and stressor/risk-taking behaviors (mean scores for OSU subjects were, respectively, 75.62 and 76.52, while U. of O subjects scored 78.68 in the second area). When subjects were compared by gender, males scored higher than
females in six of the 10 health knowledge content areas, whereas female subjects scored higher than males for all four essential health skill strands.

A majority of the subjects reported the completion of either one or two high school semesters of health education. It would seem to be significant that subjects from OSU and PSU selected their health teachers as their most important source of health information, whereas subjects from the U. of O. selected parents first, followed by health teachers. At 74.60 and 71.52, respectively, scores for OSU and PSU subjects were higher than the score (70.07) for the U. of O. subjects. At the same time, the total essential health skill scores for the U. of O., PSU, and OSU subjects were, respectively, 64.77, 60.40, and 66.05. The overall low level of these scores brings into focus the issue of effective health education in Oregon public schools. Given the understanding that qualified health teachers, or at least those who are certified, are prepared to implement and to assist students to achieve health knowledge, attitudes, and skills, the question may well be asked, why are scores so low? At the least, it may be asked whether all secondary health instructors in Oregon secondary schools are qualified and certified to teach health education?

It was also of interest to note that the knowledge and skill scores of the subjects were not consistently correlated with reported behaviors. For example, subjects who reported “never” to the issue of wearing auto seatbelts scored higher (88.89) for accident prevention than did subjects who reported “always” (82.68); subjects who reported “yes” to the issue of food purging to control weight scored higher (77.32) for mental/emotional knowledge than subjects who reported “no” (72.22); and subjects who reported as having been diagnosed anorexic scored higher (77.04) for mental/emotional knowledge than subjects who had never been diagnosed anorexic (60.00). This demonstrates the need to investigate the disparity between knowledge and health behaviors. The limitations of the present study could have influenced these and other results. This study was confined to students attending public universities
and are not, therefore, generalizable to students attending private colleges or community colleges, or to students who directly entered the work force upon graduation from high school. It may be assumed that the subjects of the present investigation, students attending major universities within their home state, would represent the brightest capabilities of their generation of high school graduates. A second limitation could have been imposed by the size of the sample; that is, a larger sample size could have produced results that were significantly different from those reported.

As reported in Chapter 4, 16 null hypotheses were analyzed, as developed from the four basic research questions posed in this study. Some of the subnull hypotheses for these null hypotheses were rejected, but the majority of the research hypotheses were retained. Consideration of the results of the investigation signifies that the subject samples from the U. of O., PSU, and OSU reflect a greater degree of similarity than dissimilarity with respect to health knowledge, essential health skill, and health behaviors. Thus, the results of this study demonstrate that a homogeneous sample was selected to represent knowledge and behaviors among Oregon students from Oregon high school districts.

Recommendations for Further Study

The findings from the present study suggest the need for additional research on the adequacy of teaching methodologies used for instruction in health knowledge and essential health skills in Oregon secondary schools. Several implications from this study are relevant to the optimization of comprehensive health education. First, given the limitations of the present investigation, it has been a useful demonstration of the need for follow-up surveys for a) secondary schools upon completion of health education courses, b) in other academic settings, and c) in the work-place. Specifically, a study to examine implementation practices, including time allotted to health education
at all levels, and who is actually teaching health education in Oregon schools, needs to be conducted.

Second, from the findings from this study a need is perceived for the acquisition of qualitative and quantifiable data in support of behavioral intervention programs intended to clarify and define the underlying values, attitudes, and motivations that cause students to change personal behaviors. Third, it is suggested that experimental/control studies, encompassing both pretests and posttests, should be conducted to evaluate innovative teaching strategies and concepts applicable to the retention of health knowledge as well as the implementation of corresponding skills. Additionally, it might be wise to explore 1) the sources of health information which students utilize between their last formal secondary health course and their arrival at the university and 2) the availability of advanced health courses in the secondary school.

Finally, the need is perceived for an additional degree of collaboration among educators, government agencies, and university instructors to the end of the promotion and support of continuing health education evaluation projects, directed and coordinated through supervision exercised by departments of health and human performance at research universities. Specifically, it would presumably be of benefit to higher education and to the process of teacher preparation, as well as to Oregon students, if the Department of Education and instructional personnel from Oregon research universities jointly sponsored on-going educational research projects in the area of comprehensive health education and associated areas of concern.

Recommendations for Health Educators

To meet the nationwide goals established by "Healthy People 2000" (American Public Health Association, 1991), health educators must accept most of the responsibility for implementation of the educational process. Health educators must be com-
mitted to teaching creative decision-making skills, responsibility to self as well as to others, and optimal personal, community, and environmental health practices; health educators should serve to promote curiosity and should intellectually challenge their students. At the initiation of courses in health education, health professionals should survey student knowledge to determine baseline levels of health knowledge and skills as well as the practices of healthy behaviors. Research has indicated that the in-depth coverage of a few subjects, in contrast to a broadly-based survey approach, results in a more positive learning experience (Connell & Turner, 1985). Present as well as planned directions in health education, as well as the national and state studies directed at curriculum and program planning, were discussed in Chapter 2. It would be in the best interest of professional health educators to consider the implementation of some of the concepts presented within their curricula, where applicable. In particular, health educators should examine the effectiveness of inservice training programs for the distribution of information and the introduction of new program concepts that apply health knowledge and health skills toward the development of healthy behaviors.

In addition, health educators should more closely examine the pedagogical method of criterion-referenced measurement versus traditional norm-referenced measurement for purposes of the assessment of student knowledge and skills. Students should be able to demonstrate their health knowledge and skills through application of the techniques of contrasting, hypothesizing, and assimilating, as well as applying, learned materials. The vast quantity of beneficial health information which is currently available makes it difficult for students to usefully digest new information in practical terms. It would make sense to build gradually upon health knowledge and the student's skill based over a period of years, beginning in kindergarten and carrying through secondary school and higher education.
In conclusion, health educators must be well-informed about up-to-date research and new and innovative resources. Valuable information must be sorted and shared through newsletters, national publications, and professional meetings and conferences. As a group, health educators should maintain the highest ethical standards, and must be prepared to demand the highest in health education standards at all levels of public education, from kindergarten through the university levels.
REFERENCES


APPENDICES
Appendix A

Essential Health Skills, State of Oregon
(Oregon Department of Education, 1988)
ESSENTIAL HEALTH SKILLS *
FOUR OREGON STRANDS

I. SAFE LIVING
The concepts of safe living will assist students to acquire the knowledge and skills necessary to develop appropriate safe living behaviors.

Students will be able to design and implement a plan to create an environment for safe living.

A. Evaluate an environment for safe living (e.g., home/school/play/community)
B. Evaluate influences which affect safe living (e.g., self family, peer, media)
C. Demonstrate understanding of procedures conducive to safe living (e.g., bike, pedestrian, recreational, traffic)
D. Formulate and apply safe living procedures for situations in which established procedures do not exist
E. Analyze risks related to unsafe living and their consequences (e.g., fetal alcohol syndrome, substance use, self esteem, personal growth, achievement, consumer fraud, sexual behaviors, AIDS/HIV)
F. Evaluate consequences of risks and make a responsible decision (e.g., cancer, STDs, teen pregnancy, accidents, child abuse, drunk driving, consumer fraud, AIDS/HIV)
G. Use appropriate responses in emergency situations (e.g., CPR/Standard First Aid, handling body fluids AIDS/HIV)
H. Create implement and evaluate plans for safe living (e.g., Personal Health, AIDS/HIV non-use of tobacco, alcohol, and other drugs)
I. Assist others to develop plans for safe living
J. Examine career opportunities related to safety and personal health behaviors
K. Evaluate the relationships among safe living, nutrition behaviors, levels of fitness and stressor/risk taking management

II. Stressor/Risk-Taking Management
The concepts of stressor/risk-taking management will assist students to acquire the knowledge and skills necessary to develop appropriate stressor/risk-taking behaviors.
Students will be able to design and implement a plan to manage lifestyle stressors and risk-taking behaviors.

A. Identify and evaluate stressors and the role perception plays in determining them as good or bad (e.g., peers, family, school, competition, praise, criticism, self, food, recreational activities, pressure to use drugs, adolescent growth spurt, relationships, pressure to become sexually active)

B. Predict short- and long-term, physical and emotional effects of stressors on self and others (e.g., pride, excitement, fear, embarrassment, illness, HIV, depression, attempted suicide, substance abuse, teen pregnancy, relationships, family)

C. Develop and implement a personal plan for stressor/risk management (e.g., deep breathing, refusal, physical activities, goal and priority setting, development of personal contracts, support groups, proper nutrition, family planning)

D. Evaluate the influences of personal stressor/risk management plan on others

E. Assess and modify, if necessary, the effectiveness of personal stressor/risk management plan

F. Assist others to develop stressor/risk management skills

G. Examine career opportunities related to stressor/risk management (e.g., counselor, social worker, fitness specialist)

H. Evaluate the relationships among stressor/risk-taking management, nutrition, behaviors and safe living

III. Physical Fitness The concepts of physical fitness will assist students to acquire the knowledge and skills necessary to develop appropriate physical fitness behaviors.

Students will be able to design and implement a safe personal fitness plan adaptable to lifelong living.

A. Interprets relationship of personal target heart rate to total fitness

B. Experience and examine a variety of aerobic activities as they relate to total fitness

C. Experience of examine a variety of activities that build flexibility, muscular endurance and strength (e.g., aerobic activity)

D. Evaluate personal body composition
E. Demonstrate the skill and knowledge to assess his/her fitness tests
F. Evaluate safe practices for own fitness program (e.g., diets, steroids, self-test)
G. Adopt behaviors that promote total physical fitness (e.g., refrains from substance use/abuse, caloric intake versus calories burned, self-exams)
H. Analyze emotional benefits of total physical fitness (e.g., peer pressure, social influences)
I. Logically defend a position based upon data gathered from objective and authoritative sources
J. Justify and implement a safe personal total fitness plan
K. Evaluate commercial fitness programs for safety practices
L. Predict how one's personal fitness plan will change through the life span
M. Assist others to achieve and maintain personal physical fitness
N. Examine career opportunities related to physical fitness
O. Evaluate the relationships among levels of fitness, nutrition behaviors, safe living and risk taking management

IV. Nutrition

The concepts of nutrition will assist students to acquire the knowledge and skills necessary to develop appropriate eating behaviors.

Students will be able to design and implement a nutrition plan based upon an individual's life long dietary needs.

A. Prepare and experience a wide variety of healthful foods
B. Evaluate alternative food plans and implement a healthful one (e.g., U.S. Dietary Goals)
C. Evaluate and implement eating habits which promote physical/emotional well being (e.g., eating disorders)
D. Analyze and plan healthful programs based on nutritional needs for varying stages of growth and development (e.g., prenatal, infancy, adolescent, adult, older adult)
E. Evaluate and select methods of preparation and storage which promote the retention of nutrients
F. Analyze influences on food choices (e.g., media, family, peers, economic factors, culture)
G. Evaluate sources of nutrition information and make informed choices (e.g., dietitian vs advertisement, product labels)
H. Assist others to develop healthful eating habits (friends, parents, siblings)
I. Examine career opportunities related to nutrition
J. Evaluate the relationships among nutrition behaviors, level of fitness, safe living and stressor/risk taking management

* Essential health skills are cited from the Health Education Comprehensive Curriculum Goals (1988)
Appendix B

Results of the National Adolescent Student Health Survey
(American School Health Association, 1988)
Major Findings of the NASHS Study

AIDS

- 94% of the students know there is an increased risk of AIDS (HIV virus) from engaging with another person with AIDS.
- 91% of the students know there is an increased risk of being infected with the HIV virus by sharing drug needles.
- 82% of the students know there is an increased risk of AIDS by having more than one sex partner.
- 66% of the students know that condoms are effective way to reduce the risk of being infected with the HIV virus.
- 91% of the students agree people their age should use condoms if they have sex.
- 29% of the students know you can not get the HIV virus from blood transfusions, today.
- 53% of the students know you can not get the HIV virus by donating blood.
- 49% of the students know that washing after sex will not prevent a person from contacting the HIV virus.
- 94% of the female students and 76% of the male students believe it is acceptable to say “no” to having sex.
- 62% of the male students and 43% of the female student believe it is acceptable for people their age to engage in sex with someone they have been dating for a long time.
- 18% of the male students and 4% of the female students believe it is acceptable for people their age to have sex with several different people.

Sexually Transmitted Diseases

- 56% of the students know that a discharge of pus from a sex organ is an early sign of STD.
- 77% of the students know that a sore on the sex organs is an early sign of STD.
- 45% of the students know that taking birth control pills is ineffective in avoiding STD.
- 33% of the students know that washing after sex is ineffective in avoiding STD.
- 24% of the students know that the Public Health Department is not required to inform their parents of an STD in a child under age 18.
- 21% of the students know that parental permission is not required to treat a patient under the age of 18.
- 62% of the students know where to go for medical care.
- 49% of the students report it would be hard for them to pay for treatment.
- 44% of the students report they would be embarrassed to ask a doctor what was wrong with them.
- 41% of the students said they know an adult they could talk to if they thought they might have STD.

Violence

- 49% of the male students and 28% of the female students report having
been in a fist or weapon fight during the past year.
*34% of the students report someone threatening to hurt them.
*14% of the students report having been robbed.
*13% of the students report having been attacked while at school or
on a school bus during the past year.
*14% of the students report having been attacked while outside of
school.
*10% of the female students report that during the past year,
while outside of school, someone tried to force them to engage in
sex against their will.
*41% of male students and 24% of female students report that they could
obtain a handgun if they wanted one.
*23% of the male students reported having carried a knife to school at
least once during the past year.
*3% of the male students reported having carried a handgun to school at
least once during the last year.
*73% of the students report walking alone at night.
*43% of the students report going places they know is dangerous.
*33% of the students know that alcohol is involved in half of all
murders.
*46% of the students are aware that most murder victims know their
assailants.

SUICIDE

*42% of the female students and 25% of the male students report that
they have seriously thought about committing suicide at some time in
their lives.
*18% of the female students and 11% of the males students report having
actually tried to commit suicide.
*46% of the female students and 35% of the male students report that it
is hard for them to deal with stressful situations at home and at
school.
*13% of the female students and 15% of the male students report that
they often feel sad and hopeless.
*18% of the female students and 9% of the male students report that
they have nothing in which to look forward.
*36% of the students report that they would find it hard to tell a
school teacher or counselor about a potentially suicidal friend.
*43% of the students report that they would find it hard to tell a
member of their friend's family about a potential suicide.

INJURY PREVENTION

*46% of the students report they did not wear a seat belt the last
time they rode in a car, van, or truck.
*44% of the 10th grade students and 32% of the eighth grade students
report that during the past months they rode with a driver who had
used drugs or alcohol.
*92% of the students who reported riding a bicycle never wear a
helmet, and 72% report never using a light at night.
*42% of the students who ride motorbikes or minibikes report rarely
or never wear a helmet.
*17% of the 10th grade students report having used alcohol or drugs
while swimming or boating during the past year.
64% of the male students and 19% of the female students report having used a gun in the past year.

TOBACCO, DRUG and ALCOHOL USE

51% of the eighth grade students and 63% of the tenth grade students report having tried cigarettes.
16% of the eighth grade students and 26% of the tenth grade students report having smoked a cigarette during the last month.
12% of the male students and 1% of the female students report having chewed tobacco or used snuff during the past month.
77% of the eighth grade students and 89% of the 10th grade students report having tried an alcoholic beverage.
34% of the eighth grade students and 53% of the 10th grade students report having drank an alcoholic beverage during the past month.
26% of the eighth grade students and 38% of the 10th grade students report having had five or more drinks on one occasion during the past two weeks.
15% of the eighth grade students and 35% of the 10th grade students report having tried marijuana.
6% of the eighth grade students and 15% of the 10th grade students report having used marijuana during the past month.
5% of the eighth grade students and 9% of the 10th grade students report having tried cocaine.
21% of the students report having tried sniffing glue.

NUTRITION

61% of the female students and 28% of the male students report having used some unsafe method of dieting during the past year.
39% of the students report eating fried foods four times a week.
55% of the snacks eaten by the students are high in fat and/or sugar.
73% of the students know that eating foods high in saturated fats may be related to heart problems.
79% of the students know that eating too much salt may be related to heart problems.
16% of the students know that eating too little fiber may be related to colon cancer.
48% of the female students and 32% of the male students report having eaten breakfast on two or fewer days during the past week.

CONSUMER EDUCATION

43% of the students were able read the label on the back of a cereal box and determine which ingredient was present in the largest amount.
53% of the students were able to determine, by reading the backs of two cereal boxes, which contained the most sugar.
42% of the students know the meaning of the date stamped on dairy products.
Appendix C

Health Education Survey
HEALTH EDUCATION SURVEY

Your participation in this survey is valued as essential to the advancement of HEALTH EDUCATION. Your confidentiality is respected because no identification is necessary. Please respond, to the best of your ability, to all the questions asked. Thank you for your VERY IMPORTANT assistance.

PART I. HEALTH KNOWLEDGE

DIRECTIONS: Circle ONE number under each multiple choice question.

1. A form of advertising that uses famous people to promote a product is a/an
   1. emotional plea.
   2. fraud.
   3. testimonial.
   4. contradiction.

2. When the Consumer Product Safety Commission instructs a manufacturer to take a product considered unsafe off the shelves this process is known as
   1. recanted.
   2. receded.
   3. recalled.
   4. refuted.

3. Which federal agency ensures the safety of cosmetics?
   1. NATIONAL CONSUMERS LEAGUE
   2. BETTER BUSINESS BUREAU
   3. FEDERAL TRADE COMMISSION
   4. FOOD AND DRUG ADMINISTRATION

4. A pap smear is performed to detect
   1. cervical cancer.
   2. colorectal cancer.
   3. breast cancer.

5. To reduce prescription drug costs, one should consider purchasing
   1. brand name prescriptions.
   2. generic name prescriptions.
   3. OTC (Over the Counter) drugs.
   4. genetic code prescriptions.

6. When taking a medication, it is wise to stop consuming
   1. alcohol.
   2. tea/coffee.
   3. simple carbohydrates.
   4. soft drinks/pop.

7. The process by which the earth is gradually warmed is called:
   1. TEMPERATURE INVERSION
   2. GREENHOUSE EFFECT
   3. THERMAL CONVERSION
   4. PHOTOCHEMICAL POLLUTION
8. The atmospheric screen that protects us from the sun's harmful ultraviolet rays is called the
   1. photochemical layer.
   2. hydrocarbon screen layer.
   3. carbon monoxide layer.
   4. ozone layer.

9. The name of the poisonous gas released into the air by car exhausts is called
   1. carbon monoxide.
   2. sulfur dioxide.
   3. particulates.
   4. nitrogen dioxide.

10. The blend of smoke and fog is called
    1. smog.
    2. photochemicals.
    3. ozone.
    4. acid rain.

11. What is the branch of science that deals with the interrelationships between living organisms and their environment?
    1. biology
    2. zoology
    3. ecology
    4. plantology

12. The sugars and starches that provide the body with needed energy are
    1. fats.
    2. carbohydrates.
    3. cholesterols.
    4. B-Complex vitamins.

13. An example of a complete protein food is
    1. beans.
    2. eggs.
    3. apples.
    4. corn.

14. The nutrient that is most abundant in the human body is
    1. water.
    2. carbohydrates.
    3. protein.
    4. vitamins.

15. The estimated amount of 16 vitamins and minerals that the body needs throughout the life cycle are called:
    1. DIETARY GUIDELINES FOR AMERICANS
    2. DAILY FOOD GUIDE
    3. BASIC 4=4
    4. RECOMMENDED DIETARY ALLOWANCES
16. To control your blood cholesterol level, the most important step you can take is to control the amount of ___________ in your diet.

1. POLYUNSATURATED FAT
2. SATURATED FAT
3. MONOSATURATED FAT
4. NUTRIENTS

17. The ratio of fat to lean tissue in a person's body is called

1. conditioning.
2. adipose ratio.
3. body leanness.
4. body composition.

18. The efficiency of the body's cardiovascular endurance can be measured by it's ability to process and transport

1. water.
2. nitrogen.
3. oxygen.
4. uric acid.

19. Two common sites for determining a pulse rate are the

1. carotid and radial arteries.
2. femoral and brachial veins.
3. carotid and radial veins.
4. femoral and brachial arteries.

20. Training at a heart rate above your target heart rate will probably

1. endanger your life.
2. improve your fitness.
3. produce quick fatigue.
4. help you reach a training effect.

21. An X-ray used to detect abnormalities of the breast is called a/an

1. arthrogram.
2. allogram.
3. mammogram.
4. mastigraph.

22. Which one of the following is NOT a component of physical fitness?

1. ENDURANCE
2. FLEXIBILITY
3. STRENGTH
4. ISOMETRIC

23. Which one of the following is a possible sign of cancer?

1. SEVERE SUNBURN
2. CHEST PAINS
3. UNUSUAL BLEEDING OR DISCHARGE
4. VENEREAL WARTS
24. Early warning signs of mental health problems could include one or any combination of the following EXCEPT

1. sadness for no reason.
2. frequent physical ailments.
3. severe sleep disturbances.
4. self-actualization.

25. Parents can help children develop emotionally by

1. being very strict.
2. allowing them complete freedom.
3. providing material possessions.
4. provide warmth, safety, and acceptance.

26. Defense mechanisms

1. are not used by mentally healthy people.
2. are the only means for a healthy person to deal with reality.
3. are strategies people use in coping with stressful situations.
4. do not reduce anxiety and tension.

27. The ability to like oneself, to be able to express emotion in a healthy acceptable way, and to be able to face the stresses of every day life is

1. mental health.
2. physical health.
3. reinforcement.
4. desensitization.

28. Which of the following is NOT a symptom of Bulimia?

1. tooth decay
2. depression
3. impulsive behavior
4. acne

29. Normal body temperature is

1. 99.7 degrees F.
2. 97.3 degrees F.
3. 98.6 degrees F.
4. 99.9 degrees F.

30. The common cold is caused by

1. fungi.
2. viruses.
3. bacteria.
4. mold.

31. The leading cause of death of the American people is

1. cancer.
2. AIDS.
3. accidents.
4. cardiovascular diseases.

32. Chemical agents known to be cancer causing are called

1. malignancies.
2. viroids.
3. carcinogenic.
4. toxoids.
33. Which one of the following statements is TRUE?
1. Wearing a condom is a guarantee against contacting sexually transmitted diseases.
2. Modern drugs have greatly reduced the importance of immunization.
3. Animals do not spread serious diseases.
4. A person can infect others with a disease without showing symptoms of the particular disease.

34. A healthy teen or adult has a blood pressure in the range of
1. 110/90.
2. 118/90.
3. 120/80.
4. 90/120.

35. Transmission of the HIV virus occurs through
1. hugging someone with the HIV virus.
2. donating blood.
3. changing a diaper of a baby with the HIV virus.
4. unprotected sexual intercourse.

36. Drinking alcohol during pregnancy can lead to the development of a baby with
1. mental retardation.
2. slow body growth.
3. cleft palate.
4. all of the above.

37. When the body becomes used to the drug’s effects and requires larger doses to produce an effect, it is called
1. drug interaction.
2. synergism.
3. tolerance.
4. addiction.

38. The carbon monoxide found in tobacco smoke
1. is the cause of emphysema.
2. robs the body of oxygen.
3. stains the teeth.
4. forces the heart to pump faster.

39. Which one of the following substances has the LEAST potential for developing physical dependence?
1. Morphine
2. Marijuana
3. Cocaine
4. Alcohol

40. The use of anabolic steroids can
1. increase sperm cell production.
2. lower blood pressure.
3. cause premature death.
4. promote passiveness.
41. Diet pills are included in which type of drug group?
   1. HALLUCINOGENS
   2. BARBITUATES
   3. STIMULANTS
   4. NARCOTICS

42. Which one of the following factors causes more ill health than any other factor?
   1. SEDENTARY LIFE STYLE
   2. SMOKING
   3. OVEREATING
   4. STRESS

43. Based on scientific evidence, the water treatment program that reduces tooth decay is called
   1. screening.
   2. biomagnification.
   3. chlorination.
   4. fluoridation.

44. A service provided by the community health nurse is
   1. immunization.
   2. collection of medical bills.
   3. restaurant inspection.
   4. maintaining animal shelters.

45. The emergency phone number for the majority of the nation is
   1. 119.
   2. 0.
   3. 411.
   4. 911.

46. A specialized healthcare service that helps dying persons live out the remainder of their lives with caring, emotional, and pain relieving support is called
   1. a nursing home.
   2. a group home.
   3. hospice care.
   4. domiciliary care.

47. Which one of the following is a benefit of a recycling program?
   1. IT IS THE YUPPIE THING TO DO.
   2. THE OPTION TO USE STYROFOAM CONTAINERS AS HEAT SOURCES.
   3. IT SPEEDS UP THE USE OF NATURAL RESOURCES.
   4. IT REDUCES THE COST OF SOLID WASTE DISPOSAL.

48. The community public health department inspects all of the following EXCEPT
   1. day care centers.
   2. restaurants.
   3. recreational vehicle parks.
   4. beauty salons.
49. Approximately once a month a mature egg cell is released from the ovary, this process is called
1. menstruation.
2. oxidation.
3. ovulation.
4. corpus luteum.

50. The process where a sperm from a male and an egg from a female unite is called
1. implantation.
2. fertilization.
3. spermatogenesis.
4. ovulation.

51. A medical procedure that checks the chromosomes and the body chemistry of an unborn child is called a/an
1. blood panel.
2. sonogram.
3. amniocentesis.
4. urinalysis.

52. What has to happen in order for a woman to become pregnant?
1. THE HYMEN HAS TO BE BROKEN.
2. THE PENIS HAS TO PENETRATE THE VAGINA.
3. THE SPERM HAS TO PENETRATE THE EGG.
4. ALL OF THE ABOVE HAS TO OCCUR.

53. Concerning rape, which one of the following statements is FALSE?
1. OFTEN THE PERPETRATOR IS KNOWN BY THE PERSON BEING ATTACKED.
2. RAPE IS COMMITTED BY A PERSON WHO WANT TO SHOW HOSTILITY TOWARDS A PERSON.
3. A LOT OF WOMEN HAVE A SUBCONSCIOUS DESIRE TO BE FORCIBLY ATTACKED.
4. HETEROSEXUAL RAPE IS THE MOST COMMON.

54. The formation of a fertilized egg resulting from the fusion of ovum and sperm is called
1. pregnancy.
2. lightening.
3. conception.
4. genetic coding.

55. In America, the leading cause of death for people between the ages of 15 and 24 is
1. cancer.
2. cardiovascular disease.
3. automobile accidents.
4. tuberculosis.

56. If an individual is suffering from hypothermia, which of the following procedures should NOT be done?
1. SKIN-TO-SKIN CONTACT IN A SLEEPING BAG
2. REMOVE WET CLOTHING
3. TAKE A LUKE WARM BROTH
4. DRINK A WARM ALCOHOLIC DRINK
57. Abdominal thrusts used to relieve choking are called
   1. CPR.
   2. the Hanover maneuver.
   3. the Heimlich maneuver.
   4. abdominal propulsions.

58. Pale mottled face, cold sweats, fast breathing, and weak pulse are indications of
   1. a toothache.
   2. stroke.
   3. fever.
   4. shock.

59. If chemicals are splashed in the eyes, what treatment should be given?
   1. APPLY COLD COMPRESSES FOR 15 MINUTES
   2. FLOOD THE EYES WITH WATER FOR AT LEAST 15 MINUTES
   3. LET TEARS WASH OUT THE CHEMICALS
   4. BANDAGE THE AREA LIGHTLY AND TAKE VICTIM TO THE DOCTOR

60. Injuries and fatalities are reduced when people involved in auto accidents are
   1. yielding the right-of-way.
   2. using right foot braking.
   3. not smoking.
   4. wearing seat belts.

PART II. HEALTH SKILLS

DIRECTIONS: Circle ONE number under each multiple choice question.

61. Examples of ways to protect your environment include all of the following EXCEPT
   1. use only nonplastic materials.
   2. let the ecosystems function independently.
   3. keep noises under 135 decibels.
   4. use only aerosol sprays.

62. The best person to make a choice for you is
   1. a friend.
   2. a minister.
   3. yourself.
   4. a family member.

63. The best method for safeguarding against sexually transmitted diseases is use of
   1. birth control pills.
   2. condoms and spermicide.
   3. diaphragms.
   4. withdrawal methods and spermicide.
64. Techniques that prevent contracting diseases could include any of the following EXCEPT:
   1. avoid the use of other people's brushes and combs.
   2. avoiding walking barefoot in the locker rooms and showers.
   3. receiving periodic medical and dental checkups.
   4. receiving a tetanus shot every 15 years.

65. Which one of the following statements is FALSE?
   1. ONE CAN OF BEER HAS AN EFFECT ON A PERSON'S PERCEPTION.
   2. LIVER AILMENTS ARE COMMON AMONG HEAVY DRINKERS.
   3. MOST ABSORPTION OF ALCOHOL TAKES PLACE IN THE KIDNEYS.
   4. DRIVING WHILE INTOXICATED, IN OREGON, IS DEFINED AS REACHING THE .08% BAC LEVEL.

66. The risk of premature aging and skin cancer may be diminished by observing all of the following rules EXCEPT:
   1. Do not sunbathe between 11 AM and 2 PM.
   2. Do not sunbathe if you are taking antibiotics.
   3. Do not use suntan lotion over 15 SPF.
   4. Do not use suntanning beds.

67. The first FIVE minutes in an emergency situation calls for four important considerations. Which is not one of the four?
   1. Should you move the victim?
   2. Is the victim breathing?
   3. Is the bleeding severe?
   4. Is the victim's clothing restrictive?

68. Disease prevention includes all of the following practices EXCEPT:
   1. shaking hands instead of hugging.
   2. keeping immunization records up to date.
   3. maintaining good sanitary habits.
   4. avoiding the use of other people's towels.

69. To prevent a rape, all of the following ideas are recommended EXCEPT:
   1. do not hitchhike.
   2. learn karate.
   3. always park your car away from the crowds.
   4. look for a moment when the attacker is off guard and escape.

70. A person who responds to emergency medical dispatches in order to provide care for accident victims is a/an?
   1. cardiologist.
   2. obstetrician.
   3. anesthesiologist.
   4. emergency medical technician (EMT).
71. Good health means
1. freedom from sickness and ailments.
2. a positive mental attitude.
3. the state of total physical, mental, and social well-being.
4. the ability to run the mile in 12 minutes.

72. Whether or not stress is good or bad is determined primarily by your
1. fitness level.
2. relaxation techniques.
3. circulatory system.
4. perception of the situation.

73. People who consider suicide
1. are generally depressed.
2. have withdrawn from usual social activities.
3. have experienced some kind of loss.
4. all of the above.

74. Which of the following statements is NOT a step toward effective problem solving?
1. Identify all of your possible choices.
2. Act on 2 or 3 choices to see what happens.
3. Consider and evaluate the consequences of each choice.
4. Clearly identify the problem.

75. A plan to adopt a positive behavior could include all of the following actions EXCEPT:
1. Practice the behavior at least four times a week.
2. Write down the benefits you hope to gain.
3. Use defense mechanisms.
4. Post the plan and check it regularly.

76. An effective plan for relieving the stress of test-taking could involve all the following aids EXCEPT for
1. viewing the test as a difficult situation you can get through.
2. concentrating on the positive consequences of passing the test.
3. expect to pass the test.
4. concentrating only on the task at hand.

77. Ways to manage your time more efficiently could include all of the following EXCEPT for
1. delegating responsibility.
2. setting your priorities.
3. instead of short-term goals, only having long-term goals.
4. scheduling your work for the time of day you are most efficient.
78. A career related to helping people deal with stress or risk management would be in

1. orthopedics.
2. physical therapy.
3. psychology.
4. medical research.

79. The steps to responsible health care include all of the following EXCEPT

1. determining how much you know about your health.
2. obtaining accurate information about how to stay healthy or improve your health.
3. taking action.
4. accepting the situation as something that is meant to be.

80. The best indicator of total fitness, through heart monitoring, is by measuring the

1. resting heart rate.
2. blood pressure pulse.
3. recovery heart rate.
4. target heart rate.

81. Which of the following exercises is considered an anaerobic activity instead of an aerobic activity?

1. 1500 METER RUN
2. CROSS COUNTRY SKIING
3. 100 METER DASH
4. JOGGING

82. Which activity would be the best for enhancing flexibility, muscular endurance, and strength?

1. FLAG FOOTBALL
2. GYMNASTICS
3. GOLF
4. SWIMMING

83. The best method for determining body fat composition is the

1. muscular-pressure test.
2. hydrostatic weighing test.
3. caliper test.
4. VARIFAT test.

84. Assessing your heart and lung endurance is possible by

1. using the three-minute step test.
2. performing the long jump.
3. measuring your range of flexibility.
4. performing the bent-arm hang.

85. What is the most important safety factor in a fitness program?

1. APPROPRIATE FOOTWEAR
2. LOOSE-FITTING AND COMFORTABLE CLOTHING
3. GOALS THAT ARE PERSONALIZED TO YOUR OWN UNIQUE ABILITIES
4. COOL-DOWN EXERCISES
86. The most effective liquid replacement for your body after exercise is
   2. water.
   3. Crystal Light.
   4. milk.

87. The emotional benefits of total physical fitness may include all EXCEPT
   1. making you think more clearly.
   2. serving as an antidepressant.
   3. helping with digestion.
   4. making you feel more energetic.

88. Regular physical activity reduces the risk of all the following EXCEPT
   1. stroke.
   2. backache.
   3. obesity.
   4. low blood pressure.

89. Steps to begin a fitness program should include all the following EXCEPT
   1. being specific and realistic in your goals.
   2. associating with people who believe in and practice the same program.
   3. rewarding yourself for a job well done.
   4. making a lot of life style changes at the beginning of your program.

90. The key considerations of a safe commercial fitness program include all of the following EXCEPT:
   1. The program recommends obtaining an updated physical, if you have not had one in the past five years.
   2. The programs focus on muscular strength and endurance.
   3. The instructors are trained about cardiovascular fitness.
   4. The club is a member of the Association of Physical Fitness Centers.

91. You will have to adapt your personal fitness program during your life span, because of all the following changes that occur EXCEPT
   1. the loss of mental functioning.
   2. the respiratory tract grows stronger.
   3. the muscles in the abdomen slacken.
   4. the overall muscle flexibility diminishes.

92. To maintain a healthy body, free from testicular cancer, an adult male should perform a self-testicular exam
   1. after the age of forty.
   2. after vigorous exercise.
   3. at least once a month.
   4. once a year.
93. A person who is trained to prevent disability following disease, injury, or loss of a body part would be a/an
1 athletic trainer.
2 obstetrician.
3 physical therapist.
4 gastroenterologist.

94. A physically fit individual experiences all of the following benefits EXCEPT
1 increased basal metabolism.
2 positive outlook.
3 balanced body composition.
4 decreased lung capacity.

95. Which one of the following food groups is missing in a breakfast consisting of hot chocolate, grape juice, and oatmeal?
1 FRUITS AND VEGETABLES
2 BREAD AND CEREALS
3 MILK AND MILK PRODUCTS
4 MEAT AND MEAT PRODUCTS

96. Which one of the following food categories is NOT essential for a balanced diet?
1 CALCIUMS
2 PROTEINS
3 CALORIES
4 GRAINS

97. Which one of the following statements is FALSE?
1 A person on a diet should avoid complex carbohydrates.
2 Sugar is added to many prepared foods in the form of corn syrup.
3 Your body needs carbohydrates for energy.
4 Your eating behaviors/habits are strongly affected by your early childhood experiences.

98. Which number combination makes up the Recommended Dietary Allowances for a college student (20 years old)?
1 milk group = 3 servings daily
   meat group = 1 serving daily
   fruit and vegetable group = 3 servings daily
   grain group = 1 serving daily
2 milk group = 4 servings daily
   meat group = 2 servings daily
   fruit and vegetable group = 2 servings daily
   grain group = 2 servings daily
3 milk group = 2 servings daily
   meat group = 2 servings daily
   fruit and vegetable group = 4 servings daily
   grain group = 4 servings daily
99. You purchased a can of green beans. The can is bulging at the seams; and when you open the can there is an unpleasant odor. What type of food poisoning are you likely to get if you ingest the beans?

1 BERIBERI
2 STAPHYLOCOCCUS
3 BOTULISM
4 SALMONELLA

100. Your present eating habits were influenced by all the following EXCEPT

1 what you ate as a child.
2 what you liked to eat or did not like to eat as a child.
3 what responsibilities you had as a child.
4 what time of the day your meals were eaten as a child.

101. As a consumer, which one of the following statements is TRUE?

1 Fiber does not have any nutritional value.
2 Fiber enables our bodies to digest and absorb food.
3 One teaspoon of honey contains fewer calories than a tablespoon of sugar.
4 Mega doses of Vitamin C will prevent the common cold.

102. Which of the following practices would NOT be healthful in a diet program?

1 EXERCISING ALONG WITH THE DIET
2 DIET PROVIDING LIFELONG EATING HABITS
3 DIET CONSISTING OF 500 CALORIES DAILY
4 DIET CONSISTING OF A VARIETY OF FOODS

103. A professional who works in the field of nutrition could be a/an

1 cardiologist.
2 dietician.
3 oncologist.
4 druggist.

104. When experiencing high levels of physical or emotional stress it is wise to

1 drink a cup of hot chocolate.
2 take a high potency vitamin (C, E, B-complex).
3 eat a hearty meal.
4 eat lightly.
PART III. DEMOGRAPHIC VARIABLES

Finally, a few more questions about you. REMEMBER all responses are ANONYMOUS.

105. How many semesters of health did you complete while in high school? (Circle one number)

   1  ONE SEMESTER
   2  TWO SEMESTERS
   3  THREE SEMESTERS
   4  FOUR OR MORE SEMESTERS

106. From what sources do you think you learned about health issues? (Circle either a 1 or 2 for each)

   YES  NO
   a. Health teacher.......................... 1  2
   b. Parents.................................. 1  2
   c. Teachers other than health instructors...... 1  2
   d. Television and other media............... 1  2
   e. Reading books and/or magazines......... 1  2
   f. Friends................................ 1  2
   g. Other, SPECIFY____________________ 1  2

107. _____ Enter the letter number of the most important source from the above list.

108. Do you smoke cigarettes? (Circle one number)

   1  NO  (Skip to question 109)
   2  YES (Go on to question 108a)

   108a. At what age did you begin smoking?
          _______YEARS OF AGE

   108b. About how many cigarettes do you smoke a day?
          1  A FEW A DAY
          2  A PACK OR MORE A DAY

109. Do you use smokeless tobacco (Chew - Snuff)?

   1  NO  (Skip to question 110)
   2  YES (Go on to question 109a)

   109a. At what age did you begin using smokeless tobacco?
          _______YEARS OF AGE

   109b. Why did you begin using smokeless tobacco?
110. Do you drink alcoholic beverages? (Circle one number)
   1 NO (Skip to question 111)
   2 YES (Go on to question 110a)

   110a. About how often do you drink alcoholic beverages? (Circle one number)
   1 ONLY ON SPECIAL OCCASIONS
   2 ONE TO THREE DRINKS A WEEK
   3 ONE TO THREE DRINKS A DAY
   4 ONLY ON WEEKENDS

   110b. At what age did you begin drinking alcohol?
       __________ YEARS OF AGE

111. Do you smoke marijuana or not? (Circle one number)
   1 NO (Skip to question 112)
   2 YES (Go on to question 111a)

   111a. At what age did you begin smoking marijuana?
       __________ YEARS OF AGE

112. Which of the following best describes your usage of seatbelts? (Circle one number)
   1 I NEVER WEAR A SEATBELT
   2 I ALWAYS WEAR A SEATBELT
   3 I ONLY WEAR A SEATBELT WHILE DRIVING
   4 I ONLY WEAR A SEATBELT IF I AM THE PASSENGER

113. Have you used any of the following drugs? (Circle either the YES or NO)

   a. Cocaine............................................... YES NO
   b. Heroin............................................... 1 1
   c. Methadone......................................... 1 1
   d. Tranquilizers..................................... 1 1
   e. LSD.................................................. 1 1
   f. Diet pills......................................... 1 1
   g. Steroids........................................... 1 1
   h. DMSO................................................ 1 1
   i. Other, SPECIFY____________________________ 1 2

114. Are you sexually active? (Circle one number)
   1 NO (Skip to question 115)
   2 YES (Go to question 114a)

   114a. At what age did you become sexually active?
       __________ YOUR AGE
115. Which of the following categories would describe your level of physical fitness compared to your peers? (Circle one number)

1. ABOVE AVERAGE
2. AVERAGE
3. BELOW AVERAGE

116. Do you participate in an aerobic activity? (Circle one number)

1. NO  (Skip to question 117)
2. YES  (Go to question 116a)

116a. How often? (Circle one number)

1. ONCE A WEEK
2. TWICE A WEEK
3. THREE OR MORE TIMES A WEEK

116b. In what aerobic activity do you participate?

117. You eat breakfast how many times a week? (Circle one number)

1. NEVER
2. OCCASIONALLY
3. EVERY DAY

118. Have you ever used food purging as a means for losing weight? (Circle one number)

1. NO  (Skip to question 119)
2. YES  (Go on to question 118a)

118a. At what age did you practice this method?

__________YOUR AGE

119. Have you ever been diagnosed Anorexic? (Circle one number)

1. NO  (Skip to question 120)
2. YES  (Go to question 119a)

119a. At what age were you diagnosed Anorexic?

__________YOUR AGE

120. Are you a male or a female?  (Circle one number)

1. MALE
2. FEMALE
121. Please give the month and year you were born.

MONTH / YEAR

122. Did you graduate from an Oregon High School?
(Circle one number)

1  NO (Go to question 120a)
2  YES (Skip to question 123)

120a. From what STATE did you graduate?

123. What was the enrollment size of your High School?
(Circle one number)

1 QUAD A (AAAA) 600 and over enrollment
2 TRIPLE A (AAA) 200 - 600 enrollment
3 DOUBLE A (AA) 75 - 200 enrollment
4 SINGLE A (FORMALLY "B") 1 - 75 enrollment

124. How many years did you attend school in the district
from which you graduated?
(Circle one number)

1 TWELVE YEARS
2 EIGHT OR MORE YEARS
3 SIX OR MORE YEARS
4 LESS THAN FOUR YEARS

(THANK YOU FOR YOUR COOPERATION)

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March 23, 1991
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Appendix D

National Delphi Panel, Survey Question Selection and Examples of Correspondence
EXPERT DELPHI PANEL INFORMATION

The following delphi panel members provided content validity for part one of the questionnaire:

Joyce V. Fetro, Ph.D., CHES
Health Education Curriculum Specialist
San Francisco Unified School District
San Francisco, California
Professional experience:
13 years middle school teacher
2 years University level
3 years Research and Evaluation of Health Education programs
Background in instrument development and measurement
Served on item writing team for National Credentialing Examination (C.H.E.S.)

Susan C. Glarratana, MSPH, EdD, CHES
Professor, Health Science Dept.
California State University, Long Beach, California

Dawn Graff-Haight, Ph.D., CHES
Assistant Professor
Department of Health Studies
Portland State University
Portland, Oregon

Leslie G. McBride, Ph.D., CHES
Assistant Professor of Health Education
Portland State University
Portland, Oregon

Richard G. Schlaadt, Ed.D., CHES
Professor and Director
Substance Abuse Program
Course of Human Development and Performance
University of Oregon
Eugene, Oregon
February 27, 1992

Dr. Leslie McBride
Department of Health Studies
P.O. Box 751
Portland, OR 97207-0751

Dear Leslie:

Luana Beeson is a doctoral candidate in our department. Part of her dissertation involves developing an assessment instrument to determine knowledge competency related to **comprehensive school health education**. In order to accomplish this portion of her dissertation Luana needs an "expert panel".

Through an AAHE request your name has been submitted to Luana as a qualified potential "expert panel" member. Might you be willing to help her out? Luana is aware that everyone is busy. She is a task orientated person who will not misuse your time.

As you are aware this is a timely and needed undertaking. I would appreciate assistance you could give to Luana, her letter is attached with specifics.

Sincerely,

Margaret M. Smith, Ed.D., C.H.E.S.

MMS:emj

- enclosure
August 21, 1990

Dr. Susan Giarrataro
1250 Belflower Blvd.
Long Beach, CA 90840

Dear Dr. Giarrataro:

This letter is a request for your participation, as an expert in the field of health, on a Delphi panel. First, let me explain from where I am coming. I am a doctoral candidate in Public Health at Oregon State University. The title of my doctoral dissertation is: "Health Knowledge Competencies and Essential Health Skills of Entry level College Freshmen Enrolled in Oregon's Research Universities." In order to evaluate these freshmen students, valid instruments have to be administered pertaining to health knowledge and essential health skills. One way to provide content validity for these instruments is through use of a Delphi panel consisting of actively involved professional health educators such as yourself. Your valued input is a critical part of the process.

How does the Delphi technique work? The Delphi technique relies on the premise of informed intuitive judgment. The experts on the Delphi panel offer their opinions without meeting in a face-to-face confrontation. The information will be passed back and forth via the postal system. Your primary task as a member of this expert panel would involve appraisal of health related questions. You would be given a variety of questions to either reject, retain, or modify. Subsequent iterations will ask you to utilize the 5-point Likert scale (or facsimile) in order to determine the importance levels of the questions retained or modified. This process should only take three contacts, by mail, to reach a consensus on the information used in the instrument.

Your expert participation would be greatly appreciated in this project. Enclosed is a self-addressed envelope along with a response sheet. Please check the appropriate box and return to me as soon as conveniently possible.

Sincerely,

Luana J. Beeson
Doctoral Candidate
Department of Public Health
Oregon State University
DELPHI PANEL PARTICIPATION RESPONSE SHEET

RE: Participation as Delphi panel member: "Health Knowledge Competencies and Essential Health Skills of Entry level College Freshmen Enrolled in Oregon's Research Universities."

Please check one of the following boxes and return to me in the enclosed self-addressed envelope.

[ ] I will be able to participate as a panel member.

[ ] I will not be able to participate as a panel member.

[ ] I would like more communique regarding the role of a Delphi panel member.

SIGNATURE:

PHONE #:

Thank you,

Luana J. Beeson
Doctoral Candidate (503 265 2781)
Department of Public Health
Waldo Hall Rm 256
Oregon State University
Corvallis, Oregon 97331-6406
September 17, 1990

Dr. Susan Giarrataro
1250 Bel Flower Blvd
Long Beach, CA 90840

Dear Dr. Giarrataro:

Thank you for agreeing to participate, as a "Health Expert", on this Delphi panel. The list of questions, in the ten content areas of comprehensive health, are knowledge questions. I am asking you to first read through the questions in each area to make sure I have covered all the bases. Second, I am asking you to add any questions you feel pertain to the content area. Third, I am asking you to either retain, modify, or reject the questions. Fourth, I am asking you to rate, in your opinion, the top ten questions. Number one would be the question, you feel, all Oregon high school graduates should answer correctly. Number two would be your second choice and down the line to number ten. The fifth request is that you fill out the "Expert Panel" data sheet.

I appreciate all the assistance you can give me. Please feel free to write all over the questionnaire with suggestions and comments. A stamped addressed envelop is included for a speedy return.

Sincerely,

Luana J. Beeson
Department of Public Health
Oregon State University
Corvallis, Oregon 97331-6406
EXPERT PANELIST INFORMATION

Current and accurate information, regarding each expert panel member, is needed in order to give proper recognition for the advice and opinions rendered throughout the Delphi process. This information will be included in the appendix section of the dissertation. Please provide the following information and return it with the second round of the questionnaire.

Fill in your name, title, and any other pertinent information as you would prefer it to appear in the dissertation:

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Please return this sheet with the questionnaire in the enclosed, self addressed stamped envelope. Thank you very much.
December 8, 1990

Dr. Richard Schlaadt
Department of School & Community Health
250 Esslinger Hall
University of Oregon
Eugene, OR 97403

Dear Dr. Schlaadt:

Thank you for all the comments, corrections, and assistance you gave me on the questionnaire. I have tried my best to incorporate all the suggestions made by the "Delphi Panel". There are new questions added to each section, and some of the original questions were revised or eliminated.

I am asking you to read through the questions again and rank the top ten questions you feel high school graduates should know. If you feel I did not cover an important question, please note it. Keep in mind that there are forty-four application of knowledge questions that have already been formulated and approved by a group of Oregon High School teachers, not included in your questions.

The goal is to put together a three-part questionnaire that college freshmen will be able to complete in a class period.

   Part One = Essential learning skills from the Oregon Comprehensive Health Curriculum

   Part Two = Knowledge questions concerning the ten content areas

   Part three = Behavioral questions

I appreciate your help in this project. Please complete your rankings as soon as feasible possible and return in the stamped addressed envelop. I am hoping to administer the questionnaire Winter term at Oregon State, University of Oregon and Portland State.

Sincerely,

Luana J. Beeson
Department of Public Health
Oregon State University
Corvallis, Oregon 97331-6406
March 23, 1991

Dr. Richard Schlaadt  
Department of School & Community Health  
250 Esslinger Hall  
University of Oregon  
Eugene, OR 97403

Dear Dr. Schlaadt:

Thank you for your expert analysis and advice while serving on this Delphi panel. The questionnaire has been completed and will be administered to the university student population in the near future.

Thank you for volunteering time out of your busy professional schedule to assist in this massive project.

Sincerely,

Luana J. Beeson  
Doctoral Candidate  
Oregon State University
Appendix E

Second Delphi Panel, Including Examples of Correspondence
EXPERT DELPHI PANEL INFORMATION

The following delphi member provided content validity for part two of the questionnaire:

Christina Gerding
Health Teacher
Corvallis High School
Corvallis, Oregon

Karen Jones
Health/Science Coordinator Teacher
North Salem High School
Salem, Oregon

Charlotte Miller MS
Resource Teacher
Lincoln County School District
Newport, Oregon

Deve L. Swaim
Cohort Leader
Graduate Teacher Education Program
Portland State University
Portland, Oregon

Judy A. Yann MS
Health Teacher Molalla High School
Molalla, Oregon
February 27, 1992

Ms. Charlotte Miller
1343 Deer Drive
Toledo, OR 97391

Dear Ms. Miller:

Luana Beeson is a doctoral candidate in our department. Her dissertation centers around developing a tool to measure the Common Curriculum Goals in Health Education. In order to do this, she is in need of input from experienced health educators in public schools. Your name has been drawn from a listing of professional health educators and as a result Luana is requesting your assistance.

I believe Luana's study is critical in that it will enable her to develop a tool useful in determining whether Oregon high school graduates have acquired the Common Curriculum Goals. Summer time is for relaxation, I know. However, might you give a little time and effort to Luana's project? Your participation would be a contribution to what is now a scant body of health education evaluation literature. Also I know Luana would appreciate your assistance!

Attached you will find her letter with more specific information.

Sincerely,

Margaret M. Smith, Ed.D., C.H.E.S.

MMS:emj
July 3, 1990

Ms. Karen Jones
1010 Pastureland Lane
Salem, OR 97301

Dear Ms. Jones:

This letter is a request for your participation, as an expert in the field of health, on a Delphi panel. First, let me explain from where I am coming. I am a doctoral candidate in Public Health at Oregon State University. The title of my doctoral dissertation is: "Health Knowledge Competencies and Essential Health Skills of Entry level College Freshmen Enrolled in Oregon's Research Universities." In order to evaluate these freshmen students, valid instruments have to be administered pertaining to health knowledge and essential health skills. One way to provide content validity for these instruments is through use of a Delphi panel consisting of actively involved professional health educators such as yourself. Your valued input is a critical part of the process.

How does the Delphi technique work? The Delphi technique relies on the premise of informed intuitive judgement. The experts on the Delphi panel offer their opinions without meeting in a face-to-face confrontation. The information will be passed back and forth via the postal system. Your primary task as a member of this expert panel would involve appraisal of health related questions. You would be given a variety of questions to either reject, retain, or modify. Subsequent iterations will ask you to utilize the 5-point likert scale in order to determine the importance levels of the questions retained or modified. This process should only take three contacts, by mail, to reach a consensus on the information used in the instrument.

Your expert participation would be greatly appreciated in this project. Enclosed is a self-addressed envelope along with a response sheet. Please check the appropriate box and return to me as soon as conveniently possible.

Sincerely,

Luana J. Beeson
Doctoral Candidate
Department of Public Health
Oregon State University
July 27, 1990

Deve Swaim
1610 NO Locust
Canby, Or 97013

Dear Deve,

Thank you for consenting to partake in this project as an expert panel member.

Attached you will find a compilation of questions applicable to the "Essential Health Skills" outlined in the "Common Curriculum Goals" guide. The goals are divided into four parts as are the compilation of questions:

I. Safe Living
II. Stressor/Risk-Taking Management
III. Physical Fitness
IV. Nutrition

Under each main goal are a list of SUBHEADINGS that categorize the questions.

The intent of the following questions is to integrate the five categories of Bloom's "Cognitive Domain of the Taxonomy of Educational Objectives" (comprehension, application, analysis, synthesis, and evaluation) into a test which requires the students to use their health knowledge background in answering the questions.

The ultimate objective of the instrument is to test the health skills of Oregon High School graduates attending Oregon research Universities.

I welcome any comments, advice, revision, or suggestions you might have to assist me in developing this instrument. Please feel free to write all over the questionnaire with edition, comments, or other suggestions.

When you have completed your analysis of the questionnaire please return it to me in the enclosed, self-addressed, stamped envelop. I realize summer is a busy time, but it would be extremely appreciated if you would return the instrument within ten days.

Again, I acknowledge your time and effort on this project.
Sincerely,

Luana J. Beeson  
Oregon State University  
Waldo Hall 256  
Corvallis, Oregon 97331-6406  
Home phone (265-2781)
September 1, 1990

Charlette Miller
1342 NW Deer Dr
Toledo, OR 97391

Dear Charlette,

Thank you for your candid and helpful suggestions regarding the questionnaire. I have retained and modified questions according to your expert advise.

In this second round of questions, I am asking you to rate the questions in each section. The original questionnaire consisted of 136 questions. The objective is to have an instrument that assesses the basic essential health skills (in accordance with the Common Health Goals) of the college freshmen population sample without being too ponderous or time consuming. This is part two of a two sectioned instrument. The first section assesses health knowledge, while the second section (this section) assesses essential health skills (application of health knowledge).

Feel free to add your own questions, if you do not think I have addresses the subheading. Please return the questionnaire as soon as possible along with the Delphi Data sheet.

Thank you again,

Luana J. Beeson
March 23, 1991

Deve Smith
1610 NO Locust
Canby, OR 97013

Dear Deve:

Thank you for your expert analysis and advice while serving on this Delphi panel. The questionnaire has been completed and will be administered to the university student population in the near future.

Thank you for volunteering time out of your busy professional schedule to assist in this massive project.

Sincerely,

Luana J. Beeson
Doctoral Candidate
Oregon State University
Appendix F

Human Subjects Correspondence
MARCH 18, 1991

HUMAN SUBJECTS:

The subjects for this research project will be volunteer convenience samples taken from health classes at Oregon State, University of Oregon and Portland State.

This questionnaire/survey (used for doctoral dissertation along with providing information to Colleges and Universities, in Oregon, who prepare health educators) is designed with the purposes of assessing first year college students who graduated from Oregon High Schools. Part one of the questionnaire consists of 60 questions that provide an overview of the ten content areas in Health. A Delphi panel, made up of Health professionals at large, narrowed the items to the top ten questions every high school graduate should know. Part two of the questionnaire consists of 44 questions that address objectives of Oregon's Comprehensive School Health. A Delphi panel, made up of Health educators from Oregon High Schools, narrowed the items to one question per objective. Part three of the questionnaire addresses demographic variables to describe the sample population.

Subject anonymity will be maintained, because the volunteers will not sign their names on the questionnaires. The only identifiable record will be the number on the questionnaire that identifies the University.

The sample population will consist of college freshmen from the three largest research Universities in Oregon. The ideal number of respondents is 150, from each University, based on a percentage of the total freshmen enrollment.

Approval for administering this questionnaire is through the Human Subjects department on the respective University Campuses.
1. The significance of this project is to assess the health knowledge competencies, the essential health skills, and correlating health behaviors of college freshmen that have graduated from Oregon High Schools. The information in turn may be used as a recommendation to health education on both the University and Secondary levels:
   1. The verification of existing health education programs.
   2. Determining health education program needs.
   3. Determining health education program changes.
   4. Plus, the upgrading of health education programs.

2. The subjects will be a convenience sample of freshmen students from Health Education classes on campus. The instructors will agree to administer the instrument during a 50 minute class period.

3. There will be no risks involved for the student sample taking the test. The benefits will hopefully be the betterment of health education for the future students of health classes.

4. The sample will consist of college freshmen from the three largest research Universities in Oregon. The ideal number will be 150 students from Oregon State, 150 students from the University of Oregon, and 150 students from Portland State University. The students will be enrolled in health classes, Spring term, in their respective Universities.

5. Attached

6. Anonymity of the subjects will be maintained, because they will not sign their names to their questionnaires or testing instruments.
March 19, 1991

Kate Hibbard  
Office of Research  
University of Oregon  
Eugene, OR. 97403

Dear Kate:

This package is in response to our conversation, a week ago, regarding the use of University of Oregon freshmen, from Health classes, as subjects for this research project.

The enclosed material is the same material presented to OSU Human Subjects department. The questionnaire is in rough draft. It will be printed in a booklet format.

If you have any questions, please call me at 265-2781.

Thank you very much for you time and assistance in this project.

Luana J. Beeson  
Public Health Department  
Oregon State University
Appendix G

Administration of the Treatment
March 25, 1991

Dear Diane,

This letter is a request for your help in administering a health questionnaire to your H 170 classes the first week in April.

a. The questionnaire will take approximately 35-40 minutes.

b. The questionnaire is for Freshmen ONLY.

c. The questionnaire is for Freshmen only who have graduated from Oregon High Schools.

Providing you are willing to assist me, I need to know the number of questionnaires you will need. Please poll your students and let me know nay, or yeah and number by Thursday, March 28th.

I have a box in the main Public Health Office (Waldo - Evelyn) with my name on it (LUANA BEESON). If you have any questions concerning this project please contact me (265-2781) or Dr. Margaret Smith (737-2686).

The accompanying cover letter is what the students will receive with their questionnaire.

Thank you for your assistance.

Luana J. Beeson
Doctoral Candidate
ADMINISTRATION INSTRUCTIONS:

First of all, THANK YOU for your assistance in this research project.

The survey should take the students approximately 30 - 45 minutes to complete.

1. Please have the students indicate, on the top of page one, if they are a FRESHMEN, SOPHOMORE, JUNIOR, or SENIOR. (The classes using only freshmen need not indicate the class standing.)

2. The students should be reminded to read each question carefully, because some of the questions ask for the one negative response. For example: The following answers are all true EXCEPT ______.

3. Please thank the students, for me, (Luana Beeson), and let them know how valuable their input is towards further research.
SURVEY COVER LETTER

THE PURPOSE OF THIS SURVEY INSTRUMENT IS TO MEASURE HEALTH KNOWLEDGE, SKILLS, AND APPLICATIONS. THE COMPILED INFORMATION WILL ULTIMATELY EFFECT HEALTH KNOWLEDGE APPLICATIONS ON BOTH THE SECONDARY AND THE UNIVERSITY LEVELS.

YOUR VOLUNTARY, ANONYMOUS, AND CONFIDENTIAL PARTICIPATION IS REQUESTED AS A MEANS FOR MEASURING THE STRENGTHS AND THE WEAKNESSES IN OUR HEALTH EDUCATION PROGRAMS. THIS SURVEY DOES NOT IN ANY WAY EFFECT YOUR GRADE IN THIS CLASS. YOU HAVE THE RIGHT TO WITHDRAW YOUR PARTICIPATION IN THIS PROJECT AT ANY TIME. PLUS, YOU HAVE THE OPTION TO ANSWER OR NOT ANSWER ANY OBJECTIONABLE QUESTION. IT SHOULD TAKE ABOUT 35 TO 45 MINUTES TO COMPLETE. REMEMBER, YOUR PARTICIPATION IS ANONYMOUS. YOUR NAME IS NOT REQUESTED ON THE SURVEY.

IF YOU HAVE ANY QUESTIONS CONCERNING THIS RESEARCH PROJECT, YOU MAY CONTACT THE INVESTIGATOR.

LUANA J. BEESON
DEPARTMENT OF PUBLIC HEALTH
OREGON STATE UNIVERSITY
CORVALLIS, OR 97331-6406

PHONE: (503) 265-2781

THANK YOU FOR YOUR VALUABLE PARTICIPATION.
Appendix H

Use of Substances Among Freshmen Students,
Chi-Square Analysis
<table>
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<th>VARIABLES</th>
<th>Chi-Square</th>
<th>Degrees of Freedom</th>
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<td>Smoke cigarettes</td>
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<tr>
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<td>.3201</td>
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* The percentage was found significant at the .05 level using the chi-square test.