

HEALTH PROMOTION IN THE YOUNG ADULT:
INSTRUMENT DEVELOPMENT

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DEDICATION

I want to dedicate this masterpiece to my parents
. . . the ones who have always believed in me and always
been there for me.

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I wish to express my deepest appreciation to Dr. Rose Nieswiadomy, my chairperson, for her relentless and undying support and spirit of enthusiasm throughout this stage of my graduate education. I would also like to express my gratitude to my committee members: Dr. Glen Jennings, for planting and nurturing instrument development during statistical classes; Dr. Linda Harrington, for eagerly "taking over" when another member "moved on"; Dr. Helen Bush, for providing the positive support; and Dr. Peggy Drapo, for providing the enthusiasm necessary to finish.

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ABSTRACT

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The purpose of the study was to develop a reliable and valid instrument to measure health promotion in young adults. Data were collected through a 44 statement questionnaire and six demographic data items. Data were analyzed through four series of reliability and validity analyses, including internal consistency measures, item analysis, and factor analysis.

The sample of convenience consisted of 458 young adults (ages 18 to 35 years) from four agencies in two south-central cities. Subjects were predominantly female, white, reported having yearly family incomes of either less than \$15,000 or between \$25,001 and \$40,000, and reported their highest level of education as "some college." The sample was almost equally represented by married and single subjects.

The 44 items on the YAHPI was developed by the researcher prior to this study following concept

development, instrumentation, content validation by 10 experts, and two pilot studies. Ten factors or attributes which comprised the conceptual framework for the study were: interaction, self-awareness, energetic, self-care, integration, centering, individuation, self-discipline, coping efficacy, and nurturance. The total scale alpha was .9060 and factor alphas ranged from .6480 to .7819.

Ten factors, accounting for 56.7% of the variance, were initially extracted. Findings from the first analysis tended to indicate that although the instrument possessed sufficient reliability in its present form, validity was lacking. Following three additional reliability and validity analyses, the final 24-item YAHPI, with a total scale alpha of .9073, was developed. Four factors, which explain 53.2% of the variance, were extracted. Factors, or attributes, and their alpha coefficients were: integration, .8611; self-care, .7868; social interaction, .7761; and individuated health behaviors, .7889.

Additional reliability and validity studies need to be conducted in heterogeneous samples. The sample characteristics of age, race, and education were skewed, which may have influenced study results. Individuated health behaviors (nutrition, exercise, and stress

management), social interaction, integration, and self-care have been identified as attributes of health promotion, thus providing additional support for the health promotion literature. Findings tended to indicate that the psychosocial attributes are relatively more important to health promotion in young adults than is true of the general adult population.

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CHAPTER I

INTRODUCTION

Health promotion, according to Johnson and Parsons (1984), has always been of interest to the nursing profession. However, in this country, the emphasis on the illness component of health care has diverted nursing's attention from this focus. Today, because of the national trend to adopt health promotion as a cost containment strategy, nursing is increasing the emphasis on health promotion.

Health care costs have been increasing at an annual rate of 13% during the past 20 years ("Beyond Benefits," 1986), thus consuming 11.1% of the gross national product in 1987 (American Hospital Association [AHA], 1990). Van Laan and Huston (1986) claimed that "sixty percent of mortality in the 10 leading causes of death is the result of unhealthy lifestyles" (p. 272). Unhealthy lifestyles are costly as they lead to chronic illness and premature death (United States Department of Health, Education, & Welfare [US DHEW], 1979). Andreoli and Guillory (1983) reported that the largest percentage of chronic disease is related to lifestyle behaviors of diet, exercise, and

smoking. These habits account for the four leading causes of health problems: hypertension, stroke, cancer, and heart disease (Phillips, 1988).

Johnson-Saylor (1980) contended that lifestyle behavior patterns developed early in adulthood can enhance health and prevent or delay the development of chronic diseases. Havighurst (1974) further acknowledged that the young adult stage is one of the best stages for teaching; yet efforts to teach this groups are deficient. Bruhn and Cordova (1978) stated that, for the most part, young adults are healthy and have limited exposure to health professionals because this is a period of time prior to the onset of most chronic diseases. This time, they continued, is crucial. Establishment of negative lifestyle behaviors during this period will be difficult, if not impossible, to alter later in life.

Nursing has a professional and ethical responsibility to respond to the promotion of healthy lifestyles. As Donaldson and Crowley (1978) pointed out, health promotion has traditionally been a basic function of nursing, and the study of health-promoting behavior is appropriate for the development of nursing science.

Health promotion has been studied from a variety of perspectives. Brubaker (1983) analyzed the concept, and

noted that health promotion is often inadequately defined in the literature, leaving the reader open to misinterpretation of these definitions. Additionally, the concept has been used interchangeably with other similar concepts such as disease prevention, health protection, and health maintenance.

Starck (1988) contended that in the health care literature, young adults are a neglected developmental group. Other developmental populations, including the fetus, newborn, infant, toddler, and geriatric populations, have been identified and studied. She further wrote that no identifying stage for adults and no categories of adults are discussed in the literature. A literature search by the researcher produced no instrument for measuring health promotion specifically in the young adult. Walker, Sechrist, and Pender (1987) have produced a valid and reliable instrument, the Health-Promoting Lifestyle Profile (HPLP), which measures health promotion in the general adult population; however, the instrument does not take into account the specific developmental tasks or health-related risk factors faced by each developmental population. Therefore, the present study focused on development of a reliable and valid instrument to measure health promotion in the young adult population.

Purpose of Study

The purpose of this study was to develop a reliable and valid instrument to measure the concept of health promotion in the young adult population.

Rationale for the Study

The emphasis on health promotion as a strategy for meeting society's humanitarian and economic values (Schlenger, 1976) has permeated all social strata levels, from the individual to the national level. Nursing, accordingly, has responded to this need by incorporating health promotion principles into its body of knowledge.

The significance of the study to the science of nursing was founded on three premises. First, the researcher believed that development of the instrument might help differentiate the concept of health promotion from other similar concepts, such as health maintenance, health protection, and disease prevention, through identification of specific defining attributes of the concept. As Chinn and Jacobs (1987) have pointed out, the study of the concept of interest, the basic building block, is essential to "make it possible to identify the full range of empirical indicators of a concept" (p. 99). Walker et al. (1987) developed their health promotion instrument through a deductive approach. Using an existing

instrument of personal health habits, including health protection and disease prevention behaviors, these researchers developed The Health Promoting Lifestyle Profile. An inductive approach, which was the approach utilized in the present study, was believed to be more scientifically-based and thorough.

Second, the researcher believed the study might contribute to a beginning framework for testing nursing theory for health promotion. Fawcett (1978) contended that as nursing science develops, the need for theory develops. Nursing theories, useful in describing, explaining, and predicting phenomena, are necessary in nursing clinical practice, education, and research (Fawcett, 1978). Although Pender (1987) has studied health promotion extensively and Walker et al. (1987) have developed an instrument to measure health promotion in the general adult population, to date, no theory has evolved from these works. Rew, Stuppy, and Becker (1983) asserted that "the measurement of constructs via instruments provides an essential method for developing and testing theoretical constructs and hypothetical relationships between them to establish theory" (p. 20). Dickoff and James (1968) asserted that factor-isolating theory, also known as descriptive theory, is the first level of theory

development. At this level, concepts are identified and defined by their elements, events, or characteristics, which was one of the purposes of the present study.

Third, existing instruments to measure health promotion in specific developmental populations do not exist. Instead, only a general adult instrument, The Health Promoting Lifestyle Profile, developed by Walker et al. (1987), exists for use by health care providers. Therefore, the purpose of the present study was to develop a reliable and valid instrument to measure health promotion in a neglected population: the young adult.

Conceptual Framework

The conceptual framework used for the present study was based on the 10 provisional attributes of health promotion in the young adult population identified by the researcher following six instrumentation processes. The six processes included: (a) concept development of health promotion, (b) health promotion instrumentation for the general adult population, (c) pilot I of the instrument on the general adult population, (d) revision of the instrument to measure health promotion in the young adult population, (e) content validation of the instrument by experts in health promotion, and (f) pilot II of the instrument on the young adult population. Concept

development of health promotion will be discussed in Chapter II. The remaining five processes will be discussed in Chapter III.

Following the six instrumentation processes, 10 provisional attributes evolved which were believed to measure the concept of health promotion in young adults. Stutte (1988b) labeled and defined the attributes and identified empirical referents which measure each attribute. The Young Adult Health Promotion Inventory (YAHPI) (Appendix A) is a 44-item instrument which measures the 10 attributes of health promotion in the young adult (Appendix B). The attributes, definitions, empirical referents, and item statements used as the conceptual framework to measure health promotion in the young adult population follow.

Interaction

Interaction, an attribute of health promotion in young adults, is defined as "a process of perception and communication between person and environment and/or person and person, represented by verbal and non-verbal behaviors that are goal-directed" (King, 1981, p. 145). Empirical referents to measure this attribute are: reciprocal involvement, commitment, development of socialization skills, growth, social support, and development of

relationships. The following statements on the YAHPI measure the attribute of interaction:

1. I participate in leisure-time activities.
2. I like to visit with my friends.
3. I like to spend time with other individuals.
4. I like to participate in group activities.
5. I can depend on my family and/or friends for support (Stutte, 1988b).

Self-Awareness

Self-awareness, another attribute of health promotion in young adults, is defined as "recognition of what one is experiencing and how one is reacting" (Janosik & Davies, 1986, p. 745). The empirical referents to measure self-awareness are: conscious knowledge, objectivity, perceptiveness, sensitivity, and confidence. The five items on the YAHPI which measure self-awareness are:

1. I know that I make the right decisions about my health care.
2. I know what signs and symptoms to report to my health care provider.
3. I am aware of my abilities.
4. I know what is normal for my body.
5. I am aware of my feelings (Stutte, 1988b).

Energic

Energic, another attribute of health promotion in young adults, is defined as "having or exhibiting energy" (McKechnie, 1979, p. 601). Empirical referents to measure the attribute are: action, activity, strength, endurance, dynamic nature, and physical fitness. The following four items on the YAHPI measure this attribute:

1. I participate in a group sport at least twice a week.
2. I have a lot of energy.
3. I participate in a minimum of 20 minutes of exercise at least 3 times a week.
4. I participate in some form of aerobic exercise (Stutte, 1988b).

Self-Care

Self-care was also identified as an attribute of health promotion in young adults. It is defined as the practice of activities that an individual personally initiates and performs for self, to maintain or promote maximum life, health, and well-being (Orem, 1985; Steiger & Lipson, 1985). Empirical referents to measure self-care are: self-monitoring, knowledge about self, competency in skills, and performance of skills. The four items on the YAHPI which measure self-care in the young adult follow:

1. I know when to check my blood pressure, pulse, and temperature.
 2. I have my blood pressure checked.
 3. I check my pulse while exercising.
 4. I know what my blood pressure and pulse are
- (Stutte, 1988b).

Integration

Another identified attribute of health promotion in the young adult is integration. Integration is defined as the ability of an individual to organize himself/herself into a harmonious whole (Beck, Rawlins, & Williams, 1984; McKechnie, 1979). Empirical referents to measure integration are: harmony and balance, feelings of contentment, wholeness, priority-setting, and general life satisfaction. The five items on the YAHPI which measure integration are:

1. I am not happy with my life.
2. I like my body.
3. I feel I can adjust to changes in my life.
4. I am very satisfied with my life.
5. I am aware of my priorities in life (Stutte, 1988b).

Centering

Centering, another identified attribute of health promotion in young adults, is defined as "the state achieved when one moves within oneself to an inner reference of stability" (Dossey, Keegan, Guzzetta, & Kolkmeier, 1988, p. 44). Empirical referents used to measure centering are: constructive or adaptive versus destructive or maladaptive behaviors, inner peace and harmony, and enhanced sensitivity. Four items which measure centering on the YAHPI follow:

1. If I feel myself becoming tense, I know how to relieve it.
2. I concentrate on pleasant thoughts several times a day.
3. I practice some form of relaxation technique or method.
4. I consciously relax my muscles at least twice a day (Stutte, 1988b).

Individuation

Individuation, another attribute of health promotion in young adults, is defined as the ability of an individual to psychologically separate himself/herself from others (Bowen, 1978; Janosik & Davies, 1986). Empirical referents which measure individuation on the YAHPI are: autonomy,

self-identity, goal-directedness, openness to experiences, and purpose in life. Five items on the YAHPI which measure individuation are:

1. I like trying new ideas and experiences.
2. I am aware of my purpose in life.
3. I have made long-term goals to work toward.
4. I feel I can do anything or accomplish anything I want to.
5. I feel I am making or have made the correct occupational choice (Stutte, 1988b).

Self-Discipline

Self-discipline was identified as an attribute of health promotion in the young adult. It is defined as the control and training of oneself for the purpose of development (Morris, 1981). Empirical referents which measure the attribute are: continuity, skill development, and knowledge-seeking. The following items on the YAHPI measure self-discipline:

1. I eat a minimal amount of saturated fats in my diet.
2. I read product labels for preservative and sodium content before buying.
3. I attend educational programs on health.

4. I read articles and books about nutrition, exercise, and stress management (Stutte, 1988b).

Coping Efficacy

Coping efficacy, an identified attribute of health promotion in young adults, is defined as the ability to adjust successfully to a challenge or change (Janosik & Davies, 1986). Empirical referents which measure the attribute are: resilience, growth, adaptive versus maladaptive behaviors, and inner peace. The five items on the YAHPI which measure coping efficacy follow:

1. I have difficulty handling my feelings in a constructive manner.
2. I have difficulty telling my health care provider what concerns me about my health.
3. I feel like a failure if my day does not go as I planned it.
4. I have difficulty verbalizing my health needs and desires.
5. I have difficulty when my daily routines are changed or altered (Stutte, 1988b).

Nurturance

The last identified attribute of health promotion in young adults is nurturance. It is defined as those

activities which nourish and sustain an individual (Morris, 1981). Empirical referents which measure the attribute are: proper nutritional habits, growth, and maximal functioning ability. The three items on the YAHPI which measure nurturance include:

1. I eat at least two servings of whole grain foods daily.
2. I eat three well balanced meals a day.
3. I eat at least four servings of fruits and vegetables daily (Stutte, 1988b).

Assumptions

For purposes of this study, the following assumptions were made:

1. Health promotion can be measured quantitatively.
2. Health promotion is a dual-component concept (health and promotion). Health is subjective, relative, value-laden, and culturally and socially defined; therefore, health promotion possesses these characteristics.
3. All individuals engage in behaviors to promote health, whether or not these behaviors are scientifically-based and effective (Christiansen, 1981/1983).
4. Health promotion is necessary for all population groups (Taylor, Denham, & Ureda, 1982).

Research Questions

The following research questions were investigated:

1. Is The Young Adult Health Promotion Inventory a reliable and valid instrument to measure health promotion in the young adult?
2. Are the provisional attributes of health promotion in a young adult population, administered The Young Adult Health Promotion Inventory, the following: interaction, self-awareness, energetic, self-care, integration, centering, individuation, self-discipline, coping efficacy, and nurturance?

Definition of Terms

The following terms were defined for the study:

1. Young adult--any individual, male or female, between and including the ages of 18 and 35.
2. Health promotion--"the attainment of a higher level of holistic well-being acquired through self-perceived lifestyle changes" (Stutte, 1988b, p. 10). In this study, health promotion was measured by The Young Adult Health Promotion Inventory (Appendix A).
3. Provisional attributes--characteristics of the concept of health promotion as identified by Stutte (1988b):

(a) Interaction--"A process of perception and communication between person and environment and/or person and person, represented by verbal and non-verbal behaviors that are goal-directed" (King, 1981, p. 145).

(b) Self-awareness--"Recognition of what one is experiencing and how one is reacting" (Janosik & Davies, 1986, p. 745).

(c) Energic--"Having or exhibiting energy" (McKechnie, 1979, p. 601).

(d) Self-care--the practice of activities that an individual personally initiates and performs for self, to maintain or promote maximum life, health, and well-being (Orem, 1985; Steiger & Lipson, 1985).

(e) Integration--the ability of an individual to organize himself/herself into a harmonious whole (Beck et al., 1984; McKechnie, 1979).

(f) Centering--"the state achieved when one moves within oneself to an inner reference of stability" (Dossey et al., 1988, p. 44).

(g) Individuation--the ability of an individual to psychologically separate himself/herself from others (Bowen, 1978; Janosik & Davies, 1986).

(h) Self-discipline--the control and training of oneself for the purpose of development (Morris, 1981).

(i) Coping efficacy--the ability to adjust successfully to a challenge or change (Janosik & Davies, 1986).

(j) Nurturance--those activities which nourish and sustain an individual (Morris, 1981).

Limitations

The following were limitations of the study:

1. Subjects may have responded to the instrument in what they felt was a socially acceptable manner instead of indicating their true behaviors or perceptions.

2. Generalizability of the study was limited by the following characteristics of the study: (a) the sample was limited to subjects from two cities in the south-central United States, rather than a large geographical region of the country; and (b) this was a nonprobability sample.

Summary

Unhealthy lifestyles have been identified as a major reason for escalating health care costs. Health promotion has been targeted as a measure to reduce these costs and nursing has responded to this need by incorporating health

promotion into its body of knowledge. The concept of health promotion has been studied from a variety of perspectives, but the concept continues to be used interchangeably with other similar health care concepts. This lack of conceptual clarity has prevented theory development in health promotion and, to date, only one instrument has been developed to measure health promotion. The Health Promoting Lifestyle Profile, developed by Walker et al. (1987), measures health promotion in the general adult population. Instruments to measure health promotion in specific developmental groups, which incorporates developmental tasks and health risk factors specific to the developmental level, have not been developed.

The purpose of the study was to develop a reliable and valid instrument to measure health promotion in the young adult. The researcher believed that identification of attributes of health promotion through an inductive approach, as was used in this study, might identify attributes previously undiscovered by Walker et al. (1987) during instrumentation. The researcher, through six instrumentation processes, identified 10 attributes of health promotion in the young adult. It was decided that these attributes would be verified and/or altered based on the results of validity and reliability measures.

CHAPTER II

REVIEW OF LITERATURE

A literature search by the researcher produced no instrument to measure health promotion in the young adult. For the purposes of the present study, the literature review will focus on three areas: (a) health promotion, (b) young adulthood, and (c) health promotion instruments.

Health Promotion

Health promotion will be discussed as (a) historical development of health promotion, (b) concept development of health promotion, and (c) research studies on health promotion.

Historical Development of Health Promotion

History tends to indicate that health promotion, in theory and practice, has been in existence since the Ancient Period. For purposes of the study, health promotion will be discussed as an evolutionary process, beginning with the Ancient Period and ending with the focus of present-day health promotion activities.

Ancient Period

Advancements in health promotion flourished during the Ancient Period. Although community or public health was the primary focus of health activities in most cultures, some cultures stimulated interest in personal health and lifestyle as a means of promoting health.

The Egyptians and Hebrews were the first individuals known to institute health promotion practices. The first written records of community or public health planning was of Egyptian origin. These records included descriptions of the development of irrigation canals and granaries for proper food storage (Gallagher & Kreidler, 1987). The Hebrews practiced individual, family, and community hygienic measures under the Mosaic Health Code, as did the Arabics under the Code of Hammarabi in 2000 B.C. (Benson & McDevitt, 1980; Gallagher & Kreidler, 1987; Moore & Williamson, 1984). As Gallagher and Kreidler (1987) wrote, "the Ten Commandments given by God to Moses also embody a significant set of rules for ethical relationships which can be recognized as wellness components" (p. 46).

The Chinese, according to Gallagher and Kreidler (1987), have also been credited with health promotion activities during this period. They believed that health was present when the normal flow of energy from two

opposing forces, the Yin (negative) and Yang (positive), is in equilibrium. Disequilibrium, and thus illness, occurred when the flow between these two forces became blocked. The Chinese used, and continue to use, the practice of acupuncture. Acupuncture is used to stimulate energy balance and, thus, restore health. Blattner (1981) wrote that the split brain phenomenon (right and left hemisphere) is very similar to the Chinese's conceptualization of health. He contended that the left hemisphere is what the Chinese would call the Yang, while the right hemisphere, that mode responsible for visualization and dreaming, would be called the Yin.

Stress management techniques and concepts originated during the Ancient Period. Gallagher and Kreidler (1987) wrote that the Hindu viewed the body and mind as inseparable and used techniques of meditation and relaxation to promote health. The Eastern Yogis, they contended, are credited with the practice of biofeedback.

The Greeks have been credited for placing a high emphasis on personal health and responsibility. Physical fitness was highly rewarded and the social culture was centered around physical competence (Gallagher & Kreidler, 1987). In 460 B.C., Hippocrates contributed significantly to the health promotion movement. Lifestyle, environment,

and nutrition, he contended, were three major sources of disease; changes in these factors could promote, rather than compromise, one's health. He was also the originator of the concept of holistic health, as it is defined today (Ellis & Hartley, 1984; Gallagher & Kreidler, 1987).

The Romans, according to Moore and Williamson (1984), concentrated on public health environmental factors during this period of time. They were responsible for the development of waste disposal systems, indoor plumbing, and a clear water supply.

Christian Period--Middle Ages

During the Christian era and Middle Ages, no real advancement in health promotion was made. Because illness and poverty were rampant, tertiary care was the primary thrust of health care during this time period (Gallagher & Kreidler, 1987).

Eighteenth Century

In the 18th century the focus was placed on disease prevention. Communicable diseases were prevalent during this time, and most of the attention was directed at eradicating diseases (Moore & Williamson, 1984). Social consciousness emerged during the Industrial Revolution, and greater emphasis was placed on the social aspects of

health. Health care for the sick and poor in the community and prison systems was an area of concern at this time (Gallagher & Kreidler, 1985). Graser and Goggin-Craft (1984) pointed out that health promotion suffered because individuals were conceptualized as units or parts, rather than as a whole.

Nineteenth Century

During the 19th century, nursing took a big step toward advocating health promotion. Florence Nightingale is credited with focusing on several areas of health promotion: holistic care, the superiority of preventive care over curative care, health teaching, social concerns of preventable diseases, environmental factors in disease, the economic factors associated with tertiary health care versus health promotion, infant and child health maintenance, and life expectancy as the measure or outcome of health (DeYoung, 1985; Gallagher & Kreidler, 1987).

Benson and McDevitt (1980) wrote that community or public health was extensively expanded during this era. Development of state and local health boards, sanitation inspection, school health programs, vital statistics collection, and programs for tuberculosis, alcoholism, and mental health were initiated during this time.

Twentieth Century

Although Florence Nightingale had established the beginning framework for health promotion during the 1800s, it was not until the 1900s that health promotion became a social and economic focus in the United States (Moore & Williamson, 1984). Legislation enactment which provided laws and monies for health promotion activities began in the early 1900s. By 1920, all states had established health departments and provided funding for various programs. Services established were prenatal and postpartum care, community education, home care, immunization programs, and venereal disease programs. Federal laws providing consumer protection, such as development of the Food and Drug Administration and the Federal Food, Drug, and Cosmetic Act, were enacted in the 1930s (Gallagher & Kreidler, 1987).

The years between 1920 and 1960 have been considered the health promotion era in the United States (Anderson, Morton, & Green, 1978). The federal government actively participated in the development of programs to promote health, particularly in areas of mental health, child welfare, and dental health. Emphasis was also placed on physical health problems associated with cardiac, allergic,

infectious, and neurological diseases and blindness (Gallagher & Kreidler, 1987).

According to Moore and Williamson (1984), the health care focus today is associated with the increased life expectancy resulting from the health promotion phase. Communicable diseases have been virtually eradicated, and the increase in medical knowledge and technology have resulted in increased longevity. The federal government has begun focusing health promotion activities on the aging population and the problems associated with morbidity and mortality, such as alcoholism, mental health, safety, cardiovascular, and respiratory problems (Gallagher & Kreidler, 1987). Financial support for research and the emphasis placed on client-centered research, rather than other areas of health care, have provided greater incentives for health promotion activities today.

To summarize, health promotion activities have been recorded since the Ancient Period. Many skills and techniques currently associated with health promotion originated hundreds of years ago. Although history tends to indicate that disease prevention was the primary focus of health care until the 20th century, there are many characteristics of health promotion noted throughout history.

Concept Development of Health promotion

The literature review by Stutte (1987a) tended to indicate discrepancies in definitions, characteristics, and applications of the concept of health promotion. These problems, therefore, have restricted research in the area of health promotion, and, thus, no theory of health promotion exists in the literature today.

Concepts are the building blocks of theory development (Walker & Avant, 1983). Therefore, one must understand the concept of health promotion before a theory of health promotion can be developed. To assist in the understanding of the concept, Stutte (1987a) chose to develop the concept of health promotion through an approach devised by Walker and Avant (1983). This approach includes three processes: concept synthesis, concept analysis, and concept derivation. For purposes of the study, the three processes will be discussed.

Concept Synthesis

Concept synthesis, useful in generating new ideas, is particularly useful in areas where concept development is present, but has had no real impact on theory (Walker & Avant, 1983). This is true of health promotion. Synthesis uses data generated from qualitative, quantitative, or literary sources and clusters similar data. Related

clusters or attributes are then combined and new attribute labels are identified (Walker & Avant, 1983).

Following a literature search and field observations of health promotion, Stutte (1987a) identified 10 clusters which characterize the concept of health promotion. These clusters and the corresponding terms found in the literature were:

Cluster 1

self-integration
integrate
integration of the human field
integrate into existing lifestyle
balance

Cluster 2

lifestyle
life cycle
life habits
daily living
dynamic, cyclic process
continual activities
commitment

Cluster 3

self-empowerment
self-sustaining
self-care resources
self-care
self-help
self-treatment
expand their capabilities
increased knowledge
ability to. . . .
enabling people. . . .
life skills
lifelong learning

Cluster 4

individually-determined
individually-identified

identified by the individual
voluntary control

Cluster 5

self-initiated
personally-initiated
individually-initiated
individually-motivated
active bringing about
approach behavior
states of positive tension

Cluster 6

individual
individually-oriented
"things I can do for myself"
individualized regimens
subjective and unique

Cluster 7

health behaviors
health-related behaviors
health-oriented activities
functional health patterns
health practices
behaviors/actions/activities/efforts
stress management/stress/stress control/coping/coping
strategies
nutrition/nutritional awareness/diet
physical fitness/exercise

Cluster 8

holistic
holistic health
physical, mental, social, and spiritual aspects
wholeness
"whole" person
multidimensional

Cluster 9

enhance the state of well-being
ideal state of health
maximum well-being
optimum life functioning
wellness to high-level wellness
enhanced/augmented quality of life
enhanced general health
improved well-being

higher level of health
 improved health
 increased life expectancy
 decreased chronic illnesses
 energy

Cluster 10

self-realization
~~an expression of the self-actualizing tendency~~
 leads individuals to realize their highest potential
 expression of the human potential
 unattained health
 development of what a person can become
 self-fulfillment
 full development of individual potential
 directed toward increasing personal fulfillment
 fulfillment of the individual
 live a more fuller and satisfying life
 enlightened self-interests
 desire for growth and enhanced quality of life
 self-awareness
 increased/fostered awareness
 expands individual consciousness
 growth, change, and maturation
 improvement

(Stutte, 1987a, pp. 14-16)

Related clusters are then combined and provisional attributes of a concept are identified (Walker & Avant, 1983). The synthesis process produced six provisional attributes of health promotion. The attribute of "integration" resulted from combining Clusters 1 and 2; "self-determined" from combining Clusters 3 and 4; "initiative" from Cluster 5; "individuated health behaviors" from combining Clusters 6 and 7; "holistic" was not considered a separate cluster, but used in characterizing Clusters 9 and 10: "enhanced holistic well-

being" and "enhanced holistic self-realization" (Stutte, 1987a, p. 17).

Concept Analysis

According to Walker and Avant (1983) concept analysis is used to distinguish between relevant and irrelevant attributes of a concept, thus assisting one in defining ambiguous or vague concepts. Since health promotion has been used interchangeably in the literature with other health care concepts, such as disease prevention, health maintenance, health protection, and health restoration, this strategy proved useful in distinguishing specific attributes of the concept. The steps used in the analysis included: (a) identifying uses of the concept; (b) determining defining provisional attributes; (c) constructing a model case; (d) constructing borderline, invented, contrary, related, and illegitimate cases; and (e) identifying provisional attributes, definitions, and empirical referents (Walker & Avant, 1983).

Uses of the concept. From literary sources, this researcher identified eight uses of the concept of health promotion including: (a) behaviors or lifestyles that promote health; (b) a measurement--goals, results, or characteristics--an individual should obtain through

specific behaviors; (c) a process; (d) a specific area of health within the health care system; (e) a health state on a continuum; (f) creation of an interest in health; (g) possessing an advancing power to heal or restore; and (h) to advertise, encourage, publicize, or advocate health (Stutte, 1987a).

Attributes of the concept. The six provisional attributes were identified through concept synthesis. The six attributes included: integration, self-determined, initiative, individuated health behaviors, enhanced holistic well-being, and enhanced holistic self-realization (Stutte, 1987a).

Model case. The researcher then used the labels for clusters developed during concept synthesis and constructed a model case with the six defining attributes or characteristics previously mentioned. The constructed model case was as follows:

Jan, 18 years old, is to begin college in a couple of weeks. She has become interested in health through a variety of sources and decides to establish health goals for herself. She plans to organize these behaviors on a weekly basis, including aspects of nutrition/fluids; rest/sleep; individual and group exercise; social role opportunities; close peer and adult friendships; active participation in church activities; attendance at a stress reduction program; attendance at college to obtain her degree in computer programming; reading and remaining current on health-promoting behaviors, including social and political

changes effecting health promotion (for example, reading sodium content on labels); and providing a "quiet time" to be able to engage in activities she enjoys most. After using this strategy for 4 months, Jan made a few minor adjustments in her life. Jan states that she feels really good, has more energy than previously, has experienced a "cold" only once and it lasted only a few days, and realizes her potential. She plans to continue with this type of lifestyle and will encourage others to do the same. (Stutte, 1987a, p. 18)

All six provisional attributes are present. She was the individual responsible for initiating and determining the health behavior changes. Jan has integrated these behaviors into her lifestyle which has resulted in enhanced well-being and self-realization. (Stutte, 1987a, p. 18)

Borderline case. The researcher then constructed additional cases for purposes of further understanding the concept of health promotion. The following is an example of a borderline case, one which contains some of the provisional attributes, but not all of them (Walker & Avant, 1983):

Don, 45 years of age, consulted a physician after experiencing chest pain. A stress test indicated that he had some ischemic changes after prolonged exercise. His physician advised the following: exercise by walking 3 miles per day, sleep 7-8 hours each night, decrease his sodium intake to two grams per day, limit his beef intake to three times weekly and maintain an 1800 calorie intake to reduce his weight by 25 pounds. Don states he feels better physically and has more energy, but fails to see his "potential." (Stutte, 1987a, p. 19)

Don is engaging in health promoting behaviors in that he has integrated health behaviors into his lifestyle and an increased amount of energy has

resulted from the change. However, he did not self-initiate nor self-determine these behaviors. He has not experienced self-realization, although he is experiencing well-being. This is an example of avoidance behavior, behavior undertaken to prevent negative consequences, and represents preventive behavior, aimed specifically for individuals "at-risk" for a health problem(s). (Stutte, 1987a, p. 19)

Invented case. An invented case is one in which the concept is taken out of its ordinary context and placed in one outside one's own experience, usually science fiction (Walker & Avant, 1983). The following is an example of an invented case of health promotion constructed by Stutte (1987a):

People from Mars normally live 200 years on that planet. Martians who come to earth live exactly 25 years after arrival due to continuous physiological processes which cause pathological changes in the cells' DNA structure. The last year of the Martian's life here is very painful as organ systems are failing. Marcy, after living on earth for 24 years, decided to return to Mars so he would not experience the pain associated with the changes. (Stutte, 1987a, p. 20)

To be able to engage in health-promoting behaviors, the individual must have knowledge of health. Marcy does not understand that his cells and organ systems have already deteriorated and that this activity, which he believes to be health-promoting, will not result in holistic well-being, particularly in the areas of quality and quantity of life. (Stutte, 1987a, p. 21)

Contrary case. A contrary case is one which does not contain the attributes of the concept (Walker & Avant,

1983). The following is an example of a contrary case developed by Stutte (1987a):

Betty, 21 years of age, is a college student. She snorts cocaine, drinks 1-2 six packs of beer, and smokes "pot" at least 3-4 times a week. She rarely attends her classes and her family has severed contact with her. She eats high-caloric, high fat, and simple sugar food products, and rarely exercises. She has never been consistently involved in health promotion activities. (Stutte, 1987a, p. 22)

This case possesses no attributes of health promotion. The activities are socially-oriented rather than self-individuated health behaviors. Her lifestyle will result in a decrease in well-being. Most of these behaviors have probably occurred incidentally, rather than through self-initiation or determination. She will not experience self-realization nor integration. This may indicate a socio-cultural phenomenon--individuals unaware of other lifestyles may not participate because it is not a norm in their culture. (Stutte, 1987a, p. 22)

Related case. A related case is one in which concepts are related to the concept under study, but do not possess the provisional attributes (Walker & Avant, 1983). The following case was constructed:

Kevin, 15 months old, is taken to his pediatrician by his father. He is to receive a check-up and his routine vaccinations. This behavior is strictly preventive, as it is not self-initiated, self-determined, or result in self-enhanced well-being or self-realization. Instead, a state of status quo exists. This is an example of health protection, a concept similar to, but different from, health promotion. (Stutte, 1987a, p. 23)

Illegitimate case. An illegitimate case is one in which the concept is used improperly (Walker & Avant, 1983). The example used by Stutte (1987a) was as follows:

Kent, a 30 year old business executive announces that he received a salary raise today and a "healthy promotion." This is an example of an advancement in rank and/or responsibility, as "healthy" is being used to denote a quantity that is not related to health. (Stutte, 1987a, p. 24)

Concept analysis reiterated the six provisional attributes of health promotion previously identified. This process further delineated other vague and similar concepts used interchangeably with health promotion, particularly disease prevention and health protection. The focus of health promotion being a positive approach, rather than the negative approach that is inherent in preventive and protection behaviors, is more clearly exemplified by this process. Although no new attribute was identified through concept analysis, the attribute of "energy" appeared to be more pronounced than was conceptualized through concept synthesis (Stutte, 1987a).

Concept Derivation

Concept derivation is a strategy, according to Walker and Avant (1983), used to generate new methods of analyzing a phenomenon. This is accomplished by using an analogous or metaphorical relationship between a well-defined and

ill-defined concept. This process is particularly valuable in an area where a concept is available but has contributed little to practical or theoretical growth in the field (Walker & Avant, 1983), a phenomenon which has occurred in the area of health promotion in nursing. Stutte (1987a) used the concept of "cardiovascular" as the parent, or known, field to gain a better understanding of the unknown field of health promotion. New concepts or new orientations may be gained through this process of concept development (Walker & Avant, 1983).

Stutte (1987a) transposed the functions of the cardiovascular system to health promotion based on the cardiovascular system components. The cardiovascular system, she surmised, is composed of three interdependent parts: heart, blood vessels, and blood. Its function is to deliver oxygen and nutrients to organ system cells (Billings & Stokes, 1987). The six parent concepts and derived concepts for health promotion included:

<u>Parent Field and Defining Attributes</u>	<u>Derived Concepts</u>
(1) Heart: a pump that circulates the blood; the major component of the system; structural defects result in altered functioning	(1) The individual
(2) Veins, Capillary Beds, Arteries, Valves, Chambers: flow-regulating mechanisms that possess the ability to self-	(2) Self-regulating

<u>Parent Field and Defining Attributes</u>	<u>Derived Concepts</u>
regulate to meet specific individual requirements	
(3) Blood: a delivery mechanism; transport medium for oxygen and nutrients	(3) Health behavior
(4) Conduction System: contains the cardiac pacemaker	(4) Self-initiator
(5) Nutrients and Oxygen: fuel for the pump/cells	(5) a. Energy b. Nurturance
(6) The interaction of the heart, blood vessels, and blood maintains the dynamic state of optimum oxygen and nutrient delivery to the cells (Billings & Stokes, 1987)	(6) a. Integration b. Well-being (Stutte, 1987a, p. 26)

Following concept derivation, the concept of "self-development" was changed to "self-regulation" because the new concept label implies not only development, but also direction and control (Stutte, 1987a). Once again, "energy" became a potential attribute; however, Stutte also identified "nurturance" as the possible attribute label. Stutte (1987a) chose to retain the original attribute labels and monitor attribute labels carefully after data were gained from quantitative research.

The six provisional attributes, definitions, and empirical referents, based on concept development of health promotion became:

<u>Provisional Attribute</u>	<u>Definition</u>	<u>Empirical Referents</u>
Integration	The ability to organize self into a harmonious whole (Beck et al., 1984; McKechnie, 1979).	Harmony and balance; feelings of contentment; adaptability and flexibility; a wholeness; a general life satisfaction.
Regulation	The ability to control, direct, or adjust as necessary to meet goals and/or needs (McKechnie, 1979).	Autonomy; change; ability to make decisions; goal directedness; knowledge; awareness.
Initiative	The ability to begin a process; to act or think without being urged (McKechnie, 1979).	Spontaneity; active role, self-motivation; expressiveness; responsiveness; knowledge-seeking.
Individuated health behaviors	Those behaviors or actions which can be accomplished by oneself.	Dietary habits; exercise and physical fitness; sleep and rest; stress management.
Enhanced holistic well-being	An improvement or increase in one's health in all areas or spheres.	Increased quality of life; ability to recuperate quickly from stressors in life; uses crises for growth; openness to experiences; increased power, strength, capacity; seeks and maintains relationships; intimacy; social support; increased energy.

<u>Provisional Attribute</u>	<u>Definition</u>	<u>Empirical Referents</u>
Enhanced holistic self- realization	The ability to recognize and fulfill one's own develop- mental potential.	Conscious awareness; perceptiveness; objectivity; seeks potential in life; increased sensitivity; maintains responsibility for own development; purpose in life; priorities in life. (Stutte, 1987a, p. 30)

In summary, Stutte (1987a) was able to identify and define six provisional attributes of the concept of health promotion by using Walker and Avant's (1983) method of concept development. Using the attributes and their definitions, she was further able to identify empirical referents for each of the provisional attributes which enabled her to develop the original health promotion instrument, The Adult Health Promotion Inventory, as illustrated in Appendix C.

Research Studies on Health Promotion

Research in health promotion is relatively new. Most studies have continued to focus on the general adult populations, with some movement into age-specific populations. There is a paucity of health promotion

research specific to the young adult population.

Therefore, the majority of the research studies will focus on the general adult population.

Laffrey and Isenberg (1983) studied the relationship between internal locus of control, the value placed on health, perceived importance of exercise, and participation in physical activity during leisure. Using 70 female subjects, ages 24-65, they did not find a significant relationship between the amount of physical activity during leisure and (a) internal health locus of control and (b) health value. There was, however, a significant relationship between the amount of physical activity during leisure and the perceived importance of physical activity. They also found that age was negatively correlated with (a) physical activity during leisure and (b) perceived importance of exercise, but was not correlated with health value or internal health locus of control.

Pender and Pender (1986) studied 377 subjects' (ages 19-66) health behaviors of exercise, weight control, and stress management. The researchers found that subjects' intentions to control their weight through diet and to avoid highly stressful situations were positively associated with the health behaviors. Adults with normal weight and good or excellent perceived health status were

more likely to control their weight than were adults who were overweight, underweight, or in perceived poor health. Adults planning to exercise had a more positive attitude toward the activity. They also possessed strong expectations that others expected them to engage in exercise and coping strategies. The relationship between age and health behaviors was not reported.

Laffrey (1986) studied the perceived weight and health behavior characteristics of 33 normal weight and 26 overweight adults (ages 19-66). She found that 92% of the overweight and 36% of the normal weight subjects perceived themselves to be overweight. The two groups showed no significant difference on perceived health status, health conception, or health behavior choice. In the normal weight group, a significantly positive relationship was found between perceived health status and health conception. There was a significant relationship between health conception and health behavior choice in both groups. This study tended to indicate that health behavior choice was more predictive of health conception than of perceived health status or actual or perceived weight. No association between age and health behavior was reported.

Laffrey (1985) also studied 95 adults (ages 18-69) and their health behavior choice as related to

self-actualization and health conception. She found no significant association between self-actualization and the subjects' health conception and behavior choices. She did find, however, that health conception was positively associated with health behavior choice. This study showed no correlation between age and health conception or self-actualization. There was a significant negative correlation between age and health behaviors. This study tended to indicate that younger adults are more health-promoting than older adults.

Brown, Muhlenkamp, Fox, and Osborn (1983) studied 63 adults (ages 18-90) to determine the relationship between health locus of control, health values, and health promotion activities. They found no significant relationship between age and multidimensional health locus of control or health value. Health value was not related to any other variable. The researchers found that chance health locus of control, negatively correlated with health promotion, accounted for most of the variance in health-promoting activities. No relationship was noted between health information seeking behaviors and level of internality. The married subjects were found to engage in significantly more health-promoting activities than all other subjects.

Muhlenkamp and Sayles (1986) utilized 98 adults (ages 18-67) to study the relationship between perceived social support, self-esteem, and positive health practices. A positive association among the variables was found. To understand the relationships, a causal model was developed. Twenty-eight percent of the variance was accounted for by these variables, a statistically significant finding. Self-esteem and social support were found to be positive indicators of lifestyle, with social support indirectly influencing lifestyle through the direct effect on self-esteem. The variables having the greatest influence on lifestyles were sex, self-esteem, education, and age, respectively. Women were found to have a higher lifestyle score than men, education was found to be positively associated with lifestyle, and age was negatively associated with lifestyle.

Muhlenkamp, Brown, and Sands (1985) studied 175 clinic clients' health beliefs, values, and demographic characteristics and their impact on health promotion activities. They found that (a) health value was not related to self-reported health promotion activities or to the type of clinic visits; (b) a strong belief in chance was negatively associated with engaging in health promotion activities; (c) a strong belief in powerful others was

negatively associated with a high percentage of restorative visits; (d) the combined factors of beliefs, values, and demographic characteristics accounted for 16% of the variance in health promotion activities; and (e) those combined factors accounted for 18% of the variance in the type of health care visits. The researchers noted that the lack of convergence between lifestyle and the type of care sought at the clinic may be based on the fact that many health promotion activities do not involve the use of the health care system. Lifestyle was found to be significantly and positively associated with education and general health, but not with age.

Walker, Volkman, Sechrist, and Pender (1988) studied 452 adults to compare health-promoting behaviors of older adults with those of young and middle-aged adults and to identify the relationship between certain demographic variables, such as age and lifestyles throughout adulthood. One hundred and sixty-seven young adults (18 to 34 years), 188 middle-aged adults (35 to 54 years), and 97 older adults (55 to 88 years) participated in the study using The Health Promoting Lifestyle Profile (1987) and demographic data on age, education, gender, and income.

A statistically significant difference in health-promoting behaviors was found in the three groups. Older

adults were found to have higher mean scores on the total scale in three of the subscales (dimensions): health responsibility, nutrition, and stress management. Significant age group differences were not found in the remaining three dimensions: self-actualization, exercise, and interpersonal support. Mean scores for all three groups tended to be highest on the self-actualization and interpersonal support dimensions and lowest on the exercise dimension.

Sociodemographic variables were found to account for only 13.4% of the variance in health-promoting lifestyle. Only 5.2% to 18.6% of the variance was accounted for in the six subscales of the instrument. Age contributed significantly to the explanation of variance in total health-promoting lifestyles and in the dimensions of self-actualization, health responsibility, nutrition, and stress management. Gender contributed significantly to the explanation of variance in total health-promoting lifestyles and in dimensions of health responsibility, exercise, nutrition, and interpersonal support. Overall, women were found to have higher scores than men. Education and income were found to contribute to the explanation of variance overall and in the dimension of self-actualization. Higher income was found to be associated

with health responsibility and exercise. A positive correlation between education and the dimensions of nutrition, interpersonal support, and stress management was also found. Subjects that were married and unemployed (homemakers and retirees) were found to have a higher frequency of health-promoting nutrition behaviors.

Weitzel (1989), using 179 blue collar workers (ages 20-60), examined the relationship between four psychological variables (health status, self-efficacy, perceived locus of control, and importance of health), demographic variables, and health-promoting behaviors. From 9% to 18% of the variance for the health-promoting lifestyle was explained by the psychological and demographic variables. Together health status and self-efficacy explained 19% and 15% of the variance (respectively) for the self-actualization dimension and total health-promoting lifestyle scale. Health status explained 10% of the variance for exercise, while self-efficacy explained 10% of the variance for interpersonal support. Age, the greatest demographic predictor, accounted for 10% of the variance for nutrition and 6% of the variance for exercise.

Weitzel and Waller (1990) further studied predictors of health-promoting behaviors in white, Hispanic, and black

blue-collar workers. Using Pender's health promotion model as the framework for the study, the predictors of importance of health (value survey), perceived health locus of control (multi-dimensional health locus of control) perceived health status (health scale), and perceived self-efficacy (general self-efficacy subscale) were measured against the outcomes variable of health promotion (the Health-Promoting Lifestyle Profile).

Ninety whites, 48 Hispanics, and 35 blacks participated in the study. Results indicated that whites scored significantly higher than blacks on the internal health locus of control subscale while blacks scored significantly higher on the chance health locus of control subscale. The only significant differences in health promotion behaviors among the three ethnic groups were found on the self-actualization and nutrition subscales. In both cases, whites reported the highest frequency of performance of the behaviors.

For each of the groups, cognitive-perceptual variables were found to be better predictors of health promotion behaviors than were demographic variables. Self-efficacy was found to be an important predictor in all three groups. The value of health was an important predictor for both white and Hispanic subjects, but not for black subjects.

Of the three groups, income was found to be a significant predictor of health promotion behaviors in the Hispanics. Age was a significant predictor in both blacks and whites. Self-efficacy accounted for 10-17% of the variance in the Hispanics' health-promoting behaviors. Perceived health status accounted for 13-16% of the variance in whites' health-promoting behaviors. The researchers concluded that the model tended to predict behaviors better for whites and Hispanics than for blacks, indicating the model may be inadequate to describe behaviors in some minority groups.

Boyle (1989) explored health-promoting beliefs and practices of 53 Salvadoran refugees (ages 17 to 53). Data were collected through ethnographic techniques of focused and open-ended interviews and participant observation. Utilizing the health promotion literature, four major constructs--nutrition and weight control, exercise and physical fitness, stress management, and social support and help--were identified and used to operationalize health promotion. These constructs served as the basis for the interview questions.

Data were examined and two major theoretical constructs of health promotion were inductively developed: environmental contexts and personal health-promoting practices. The components of environmental contexts

included family, friends and networks of support, religion, and work opportunities. The components of personal health-promoting practices included nutritional practices, fresh air, and regular sleep patterns.

Kerr and Ritchey (1990) studied health-promoting behaviors in 62 Mexican-American migrant farm workers (ages 18 to 61) at four settings in Illinois. Utilizing a bilingual graduate nursing student and a Mexican-American translator consultant, the HPLP was first translated into Spanish and back-translated into English to ensure accuracy of item statements. Demographic data and either the English or Spanish version of the HPLP were administered to the subjects. The Spanish version was completed by 36 subjects; the English version was completed by 26 subjects.

Results indicated that English-speaking migrant workers scored significantly lower than Spanish-speaking workers on the factors of self-actualization, exercise, and stress management. Scores among both groups were highest in the self-actualization and interpersonal support dimensions. Researchers indicated that subjects were able to respond to the HPLP with only a few exceptions. Items including "like myself" and "touch and am touched by people I care about" often required clarification to be answered. Words and phrases that were problems included "artificial

ingredients," "interpersonal relationships," "stretching exercises," "cholesterol level," and "environment." The entire scale alpha coefficient for the English version was .957; the Spanish version had an alpha of .904. The subscale or factor alphas on the English version ranged from .558 to .931; the alphas on the Spanish version ranged from .530 to .841.

Only two studies in the literature focused specifically on health behaviors of the young adult. Petosa (1984) studied the relationship between self-actualization and health-related practices in 421 college students between the ages of 17 and 29. He found that individuals with self-actualizing tendencies tended to engage in healthier lifestyle practices, when compared to less actualizing individuals.

Allan (1987) studied 100 randomly selected young adults who visited a primary care facility over a 5-year period. She found the major risk factors of this group were: lack of regular exercise (53%), lack of regular health screening (51%), smoking (40%), relationship (35%), job stress (31%), and inadequate or overnutrition (26%). She also found that 67% of the group were at-risk related to their lifestyles, while only 9% were at-risk related to family histories. She found that few major diseases were

inherent in this population. She concluded that the focus of health care in this population should be "assessment of lifestyle and personal habits, not extensive biomedical screening, and on health promotion through health education and lifestyle modification" (Allan, 1987, p. 223).

In summary, the literature review tended to indicate three major points. First, there is a lack of health promotion research specific to the young adult population. Second, health promotion research in the general adult population, though present, has tended to indicate that findings are frequently contradictory, depending on the population being studied. Third, research specifically aimed at health promotion is relatively new.

Young Adulthood

For purposes of the study, the following discussion on young adulthood will encompass two aspects: (a) developmental tasks, and (b) lifestyle risk factors affecting health promotion.

Developmental Tasks

Young adulthood has been viewed as "a period of maturational completion as well as a period of active struggling toward maturity" (Gallagher & Kreidler, 1987, p. 329). The authors further contended that this

developmental group faces increased responsibilities in the psychological, sociocultural, and spiritual dimensions of his or her chosen lifestyle. Values, attitudes, and beliefs must be reconciled in a society experiencing rapid technological changes which influence health. Authors (Gallagher & Kreidler, 1987; Rogers, 1988) have asserted, however, that the young adult of today has an abundance of opportunities, privileges, choices, characteristics, and potentialities which enable him or her to respond to these demands.

Several theorists (for example, Havighurst, Erikson, Levinson, Sheehy, and Gould), have identified developmental tasks of the young adult (ages 18 to 35). Levinson, Gould, and Sheehy are among theorists who have further subdivided this stage into time frame intervals and have delineated psychosocial values, beliefs, and feelings experienced during these intervals (Gallagher & Kreidler, 1987).

Havighurst (1974) identified general developmental tasks for the young adult. Tasks to be achieved during this age span include: selection of a social group, assumption of civic responsibility, mate selection, learning to live in a marriage, beginning an occupation and a family, raising children, and managing a home.

Erikson (1968) asserted that successful mastery of the psychosocial tasks are necessary for health. He contended that failure to achieve intimacy during the young adulthood stage results in isolation. Commitments in relationships, as surmised by Beck et al. (1988), require the young adult to achieve the ethical strength necessary to make sacrifices and formulate compromises with another.

Levinson (1979) has identified three distinct stages during transition from adolescence to adulthood for men. He wrote that during the first period, Early Adult Transition from ages 17 to 22 years, the young adult must separate from the individual's family-of-origin and establish goals. This period, however, results in a sense of loss and grief since adolescence is left and the individual must move into a stressful new world: the future. Personal and professional skills must be refined during this period.

The Adult World Period (ages 22-28), he continued, requires the young adult to explore the adult world, make choices, search for alternatives, and progress to an enhanced personal and professional commitment. Marriage and career can present stressful contradictions but mastery, Levinson (1979) contended, is central to adult identity and self-worth.

Levinson (1979) named the third state the Transition and Settling Down Period (29-35 years). Opportunity to create a more satisfactory life is present during these years. Occupational fulfillment is possible and one begins re-evaluating and altering commitments. Deeper and more life-sustaining commitments are ultimately developed.

Both Gould (1972) and Sheehy (1974) have identified differences in psychosocial development of the young adult occurring at approximately the same ages. From ages 18 to 22 years, both theorists identified two tasks: leaving home and making the transition of social support from family to peers. Gould (1972) wrote that the individual is receptive to new ideas, while Sheehy (1974) wrote that emotional distancing and de-idealizing of parents are tasks for achievement. Sheehy (1974) continued by writing that an individual in this stage must now begin developing his or her own world view and select an occupation. Expanding one's horizons, autonomy, and interpersonal relationships is the focus of tasks necessary for the 22-28 year old young adult to achieve. They both wrote that the 29-35 year old young adult experiences continual change and re-evaluation, as observed through increased restlessness and introspection, re-awakening of strivings, search for identity, and relationship commitments.

In summary, the period of young adulthood is very complex. This time span, though very rewarding, is very demanding in the physical, psychosocial, and spiritual dimensions of the young adult's life. Successful completion of the young adult's developmental tasks requires gaining independence from one's own family of origin, developing a capacity for intimacy, developing a value system, and making lifestyle decisions.

Lifestyle Risk Factors Affecting Health Promotion

Through a literature review, the researcher has identified four major lifestyle risk factors in young adults that can be altered through health promotion activities. These four factors are: (a) stress, (b) malnutrition or overnutrition, (c) inadequate exercise, and (d) inadequate health screening.

Stress

Stress tends to be a primary risk factor in the young adult population. Johnson-Saylor (1980) indicated that stress occurs in all spheres of the young adult's life and can be seen in many forms and through various sources: dietary habits, exercise and rest patterns, substance use and abuse, interpersonal relationships, and sexual habits. Seventy-five percent of all deaths in this age group are

from suicide and homicide, and these, for the most part, are stress-related (Johnson-Saylor, 1980; U.S. Department of Health and Human Services, 1986).

A major source of stress in the young adult is found in interpersonal relationships (Gallagher & Kreidler, 1987). Dion (1984) has written that over 21 million young adults live in non-family households (alone or with a non-relative). Change within the young adult's life has forced him or her to redefine his or her response pattern because emotional needs, once met by family and peers, must now be met by a variety of relationships including marriage, parenting, community and civic, and occupation (Rogers, 1988). Erikson (1968) identified intimacy as a task which the young adult must master. He described intimacy as a deep and true psychosocial relationship with another that is achieved through commitment, sacrifice, compromise, work productivity, and satisfactory sexual relationships. If this task is not accomplished, self-absorption and isolation will occur and problems in interpersonal relationships will result.

Rogers (1988) further wrote that interpersonal relationships with significant others, though necessary for social support, are also potential sources of stress for this developmental group. Major changes in the young

adult's life, in the areas of education, career, family, and parenthood, force a realignment of priorities.

Blank (1982) contended that family relationships are sometimes imperfect, but he contended that avoiding them is even more devastating. He further acclaimed that breaking away from the family of origin creates changes in the relationships. New relationships, based on mutual respect, can be developed and become satisfactory for all parties involved. He asserted that the young adult should avoid loss of the family relationship(s), if at all possible. Rogers (1988) supported this assertion. She stated that the family of origin must continue to support the maturation of the young adult. When education is prolonged for several years, the young adult's initial "break" from the family is not always complete and may extend into later young or middle-aged adulthood. She contended that the response by the family differs and may provide the young adult with either a source of comfort, strength, and stability or a source of aggravation, despair, and instability (Rogers, 1988).

Marriage, mate selection, and/or sexuality have been identified as sources of stress for the young adult (Gallagher & Kreidler, 1987; Johnson-Saylor, 1980; Rogers, 1988). The U.S. Census Bureau (1986) published the marital

status of young adults in 1986. They indicated that in the 20-24 year old male population, there are 74.8% single males. This percentage decreases to 37.8% in the 25-29 year old group, and to 20.9% in the 30-34 year old age group. In comparison, there are 56.9% single females in the 20-24 year old group, decreasing to 25.9% in the 25-29 year old group, and to 13.3% in the 30-34 year old age group. Thus, there is, too, a greater percentage (12%) of single males than females between the ages of 25-29. This percentage difference drops, however, to 7.5% between the ages of 30-34. The Census Bureau (1986) also reported that the median age for men for first marriages was 24.1 years; for women, the median age is 22.3 years.

Society has recognized the changing views toward marriage. Rogers (1988) asserted that marriage has become recognized as a partnership between two people, as opposed to the view of marriage as a social institution where the male is the head-of-the-household and the female is the child-bearer. Willi (1982) contended that marriage is not a state, but a process that demands courage for growth, and changes may place one's freedom at-risk. Rogers (1988) identified six areas of concern which may be sources of stress for the young adult: management of resources,

division of labor, family planning, communication, goals and priorities, and support.

The addition of children to the family unit also provides a source of stress for the young adult, as changes in relationships occur within the basic family unit (Rogers, 1988). The stress of child care frequently occurs, because 49% of mothers of preschoolers worked in 1982 (FYI/Reports, 1984).

Sexuality and sexual behavior provide potential sources of stress for the young adult. Sexuality, as defined by Urdung (1983), encompasses a deep, permeating aspect of the total individual, the sum total of one's feelings and behaviors as a male or female. He asserted that sexuality must include gender identity and gender role. Calhoun and Acocella (1978) identified this time as a period of maximum sexual self-consciousness. Woods (1984) wrote that sexual intercourse, though not the only component of sexuality, is very prevalent during this time and asserted that responsibility for sexual activities must be comprehended by the young adult. Rogers (1988) identified pregnancy, venereal diseases, and changes in relationships as possible consequences of sexual behavior.

Divorces and remarriages are two potential stressors for the young adult (Gallagher & Kreidler, 1987; Rogers,

1988). The divorce rate is approximately 5% per 1,000 people, with the median age for divorce falling within the young adult's age group: 31 for females and 33-34 for males (U.S. Census Bureau, 1986). Sixty to seventy percent of younger divorced women remarry within 5 years, and divorce rates after the second marriage are higher than after first marriages (FYI/Reports, 1984). Adaptation to second families and the "blending" of families frequently presents added stressors for the young adult (Rogers, 1988).

Support systems change continually throughout the young adult's years. The extended family and support systems, though very important to the young adult, are also a source of stress (Rogers, 1988). Upon marriage, one becomes a member of an extended family. Relationships with in-laws and other members of the spouse's family may prove very stressful. Allan (1987) found that of the 100 randomly selected young adults she studied in a primary care clinic, over a 6-year period, 35% experienced relationship stress.

Malnutrition or Overnutrition

Malnutrition or overnutrition has been identified as a risk factor in the young adult. Young adulthood has been noted as the time when the individual begins to establish

adult eating habits (Diekelman, 1977). Inadequate nutrition is frequently related to busy lifestyles, availability of fast foods, and the consumption of "junk" foods or "empty-calorie" foods (Johnson-Saylor, 1980).

Obesity, according to Feldman (1983), is the most common nutritional problem in the United States; it has long-standing effects on health and longevity. Rozin (1984) wrote that nutrition is often determined by the availability of certain foods. The commercialism of food items has increased the availability of high-calorie and high sodium convenience foods (Simons-Morton, O'Hara, & Simons-Morton, 1986). Gallagher and Kreidler (1987) indicated that men gain extra weight between the ages of 20 and 30, while women continue to gain into their 50s. Simons-Morton et al. (1986) noted that based on United States dietary goals, the current consumption of fat calories is 40% too high, saturated fats is 60% too high, and complex carbohydrates is 50% too low. Allan (1987) found that 26% of the young adults she studied suffered from inadequate or overnutrition. Rogers (1988) noted that the young adult's poor nutritional habits place him or her at-risk for not only weight gain but also a decreased energy level.

Sorensen and Luckman (1986) have identified the nutritional caloric needs for a young adult: (a) 30% fat (polyunsaturated), (b) 55% carbohydrates (complex versus simple sugars), (c) 15% protein, and (d) high fiber. Diekelman (1977) noted that both male and female young adults need less calcium and protein, but more vitamin C, than they did as adolescents. Males also need more vitamins E and B than previously. Because anemia is a frequent problem in women during this time, the young female adult should consume foods high in iron. Pregnancy, a life event which frequently occurs during this developmental age, places a greater demand on the female's body. Greater attention must be focused on meeting the nutritional needs during young adulthood (Diekelman, 1976).

Inadequate Exercise

A lack of regular exercise has been identified as a risk factor in the young adult population. Pender (1987) asserted that "modern life style fosters unfitness" (p. 285). Allan (1987) found that 53% of the young adults she studied experienced a lack of regular exercise. Diekelman (1977) noted that the need for exercise and activity is the same for the young adult as it is for the adolescent, but developmental lifestyle changes often decrease

opportunities for exercise. Cooper (1982) found that the most common activities in this developmental group are walking, jogging, and aerobic dancing.

Gallagher and Kreidler (1987) asserted that "active exercise is an important life habit" (p. 334). The beneficial effects on the cardiovascular and respiratory systems have been documented (Rogers, 1988). Exercise, in conjunction with calorie restriction, has been found to reduce undesirable lipoprotein levels, lower resting heart rate, and decrease blood pressure (Heath & Broadhurst, 1984). Pender (1987) wrote that "years of inactivity are a major causative or contributing factor to degenerative changes that occur with aging or chronic illness" (p. 285). In addition, exercise has been found to decrease appetite, burn calories, increase basal metabolic rate, control fat accumulation, improve muscle tone, increase tolerance to stress, relieve tension, aid sleep, improve self-esteem and body image, and, in general, improve mental health (Gallagher & Kreidler, 1987; Pender, 1987; Rogers, 1988).

The American College of Sports Medicine (1978) presented recommendations for a beneficial exercise program. They recommend: (a) exercising 3-5 times weekly, (b) sustaining 60-90% of one's maximum heart rate 15-60 minutes, and (c) engaging in rhythmic activity that uses

large muscle groups and can be maintained continuously. In addition, Cantu (1980) asserted that a good exercise program should be: (a) enjoyable, (b) vigorous enough to burn at least 400 calories, and (c) integrated into the individual's lifestyle.

Inadequate Health Screening

A lack of adequate health screening has been documented as a risk factor for the young adult. Allan (1987) found that a lack of regular health screening was prevalent in 51% of the population she studied.

Rogers (1988) pointed out that, for the most part, young adults are usually at their peak in physical ability. Therefore, routine physical exams are frequently overlooked by this developmental age group. The body, being able to rapidly restore itself during this time, frequently does not experience the persistent problems that might be experienced in older adult years. Diekelman (1977) wrote that young adults feel "too healthy" or think they cannot afford routine physical examinations.

In summary, the young adult is at-risk in four areas that can be altered through health promotion: stress, malnutrition or overnutrition, inadequate exercise, and inadequate health screening. Stress is prominent because of the significant life changes which occur during this

development stage: establishment of a separate home, career, marriage, and civic and community responsibilities. Thus, interpersonal and relationship stress is a common finding of this group. The literature further indicated that nutritional problems, including obesity, are the result of the young adult's busy lifestyle and the easy availability of high caloric, high sodium, and saturated fat "fast" foods. The literature also tended to indicate that the young adult's busy lifestyle and lack of energy were reasons for the lack of exercise occurring in this group. A deficiency in health screening in this age group, based on the literature, is related to the young adult's belief that he or she is relatively healthy at this point in time and have no need for health screening.

Health Promotion Instruments

The researcher could find no instrument to measure health promotion in the young adult. The lack of conceptual clarity and theory development of the concept has probably contributed to this sparsity. As can be seen by the earlier discussion, young adults face many developmental tasks which may present obstacles to health promotion and place the individual at-risk for early morbidity and mortality. Developmental tasks must be

successfully incorporated into their lifestyles if health promotion is to be attained.

Several instruments which measured concepts similar to and including health promotion were found in the literature (Brown et al., 1983; Pender, 1987). For example, measurement of health protection and disease prevention concepts were found in several instruments. Examples of these include The Wellness Index (1977), The Lifestyle Assessment Questionnaire (1980), The Lifestyle and Health-Habits Assessment (1982), and The Personal Lifestyle Questionnaire (1983).

The Wellness Index (1977), developed by Travis (cited in Pender, 1987) encompasses disease prevention items. Two examples of these items include: (a) "I am free from physical symptoms," and (b) "I avoid overeating and abusing alcohol, caffeine, nicotine, and other drugs" (Pender, 1987, p. 145). The Lifestyle Assessment Questionnaire (cited in Pender, 1987) measures components of an individual's lifestyle related to vehicle safety, drug abuse, and the environment, all of which are "health-protecting" and "disease preventing" behaviors. The Lifestyle and Health-Habits Assessment (1982) also incorporates "health-protecting" and "disease prevention" behaviors. Three examples of this type of behavior

include: (a) "Do not permit smoking in my home or car," (b) "Maintain safe living area free from fire or accident hazards," and (c) "Seldom listen to loud rock music" (cited in Pender, 1987, p. 142). The Personal Lifestyle Questionnaire, developed by Muhlenkamp and Brown, incorporates "health-protecting" and "disease prevention" behaviors. Two examples of items on the questionnaire include: (a) "Wear seat belts while riding in an automobile," and (b) "Smoke more than one pack of cigarettes daily" (Brown et al., 1983, p. 159).

To date, Walker et al. (1987) have developed the only sufficiently reliable and valid instrument to measure the concept of health promotion in the general adult population (ages 18-88). For purposes of this study, an extensive description of the reliability and validity measures used to develop The Health Promoting Lifestyle Profile (HPLP) (1987) will be discussed.

The instrument was originally derived from The Lifestyle and Health-Habits Assessment (LHHA) (1982), an instrument initially developed by Pender (Walker et al., 1987). The LHHA is a 100-item instrument which encompasses 10 factors or attributes: general health practices, nutrition, physical/recreational activity, sleep, stress management, self-actualization, sense of purpose,

relationship with others, environmental control, and use of the health care system. The response format of yes/no was replaced by a 4-point ordinal measure of frequency: never, sometimes, often, and routinely. It was pilot tested on 173 undergraduate and graduate nursing students, a sample of convenience, to estimate reliability and validity and to determine item clarity and response variance.

Cronbach's alpha was .919, indicating high internal consistency. Frequency distributions indicated a full range of responses for most items, and there was a lack of clarity in only a few items. The test-retest Pearson r on 92 subjects was .854, which indicated stability. Content validity was then assessed by four faculty members familiar with the health promotion literature; items related to prevention, protection, and detection were deleted. Items were added, per validators' suggestions, to enhance content validity. Items were worded both positively (81 items) and negatively (26 items) to reduce a response set.

The 107-item instrument was administered to a sample of convenience of 1,107 adults from corporate and adult worksites, colleges, and social and recreational organizations. Demographic characteristics of subjects included the following: (a) age range from 18-88 years (mean = 39.2), (b) educational level from eighth grade to

professional degrees (median = "some college"), (c) family income from under \$5,000 to over \$50,000 (median = \$25,000 to \$50,000), and (d) the majority was middle class.

An item analysis was performed on the 107-item instrument. Corrected item-total correlations were calculated for both the total scale and each of the 10 factors or attributes. Items which depressed the reliability of the total or subscale were deleted; 65 of the 70 remaining items had item-total correlations $> .25$ and 5 had correlations between .20 and .24. Using an inter-item correlation matrix, two sets of correlations were found to correlate above the .70 level. Otherwise, correlations ranged from .098 to .651.

The 70 items were subjected to factor analysis using a stepwise solution employing the principal axis factoring (PAF) extraction method, followed by oblique rotation. Using all unrotated factors that had eigenvalues ≥ 1.00 for subsequent rotation, 16 factors were extracted and rotated which explained 56.6% of the variance. Since some of the factors contained only a few items and lacked sufficient reliability to be used as subscales, the 16 factors were combined into six subscales which explained 38.9% of the variance. To reduce ambiguity in the factoring structure, 22 items that did not have high loading were deleted and

the remaining 48 items were again subjected to PAF analysis with six factors extracted and obliquely rotated. All items then loaded on the expected factors at a .35 level or higher and explained 47.1% of the variance.

The new 48-item instrument, The Health Promoting Lifestyle Profile (HPLP) (1987), possessed six factors. Factor 1 became Self-Actualization and incorporated items from both the Self-Actualization and Sense of Purpose categories, explaining 23.4% of the variance. Factor 2, Health Responsibility, incorporated General Health Practices and Use of the Health Care System and explained 8% of the variance. Factor 3, Exercise, was derived from the previous factor or category of Physical/Recreational Activity and explained 4.6% of the variance. The Nutrition category, Factor 4, remained the same and explained 4.2% of the variance. Factor 5, Interpersonal Support, was derived from the category designated as Relationships with Others and accounted for 3.8% of the variance. Factor 6 combined the factors of Sleep and Stress Management to become Stress Management and accounted for 3.2% of the variance.

The reliability of the 48-item instrument was ascertained. The total instrument was found to possess a high internal consistency with an alpha coefficient of .922. The subscales had alpha coefficients ranging from

.702 to .904. For test-retest reliability, the instrument was administered twice to 63 adults with a 2-week interval between the two testing periods. The Pearson r for the reliability test was .926, with .808 to .905 for the subscales.

The researchers (Walker et al., 1987) believed the instrument possessed sufficient reliability and validity to measure health promotion in the general adult population. They also contended that since Self-Actualization was the first extracted and strongest factor (accounting for 23.4% of the variance), support for the conceptualization of health promotion as an expression of the actualizing tendency was found in quantitative data. They further asserted that items related to disease prevention and health protection were deleted, because these items were concerned with the avoidance of undesirable health practices and/or negative behaviors, rather than with health promotion.

In summary, one instrument, the HPLP developed by Walker et al. (1987), has been developed to measure health promotion in the general adult population. The researchers employed statistical measures which tend to indicate the instrument possesses sufficient reliability and validity to measure the concept of health promotion in the general

adult population. The six factors or attributes of health promotion delineated by these researchers were: self-actualization, health responsibility, exercise, nutrition, interpersonal support, and stress management. To date, no instrument has been published which measures health promotion specifically in the young adult population.

Summary

Health promotion has been in existence since the Ancient Period. However, discrepancies in definitions, characteristics, and applications of the concept have restricted research and theory development in health promotion. To date, Walker et al. (1987) have developed the only instrument to measure health promotion, and it is intended for the entire adult population, from ages 18 to 88. No instrument to measure health promotion in specific developmental groups has been published.

The literature also tended to indicate that health promotion is frequently lacking in the young adult. The heavy physical, psychosocial, and spiritual demands placed on this developmental group may place the young adult's health in jeopardy. Because the young adult's body is typically healthy, from a physical viewpoint, and can restore itself fairly rapidly, the young adult may neglect himself or herself until chronic problems begin to surface.

At this point, however, the individual cannot "replace" the malfunctioning parts and must face the progressive problems of chronic disease. The need for instruments to measure health promotion in this age group is paramount, if health care providers are to intervene and assist the young adult in enhancement of his or her quality of life.

CHAPTER III

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

The purpose of this study was to develop a reliable and valid instrument to measure health promotion in the young adult population. Therefore, a methodological research design was used for the study. Burns and Grove (1987) stated that a methodological design plans for development and evaluation of instruments used in research.

The methodology used in this study will be discussed in the following areas: (a) setting, (b) population and sample, (c) protection of human subjects, (d) instrument, (e) data collection, and (f) treatment of data.

Setting

The YAHPI, containing 44 lifestyle statements and 6 demographic items (Appendix A), was administered to 458 young adult subjects. Research data gained from subjects' responses to the item statements measuring the 10 provisional attributes of health promotion were employed to ascertain reliability and validity estimates on the instrument.

The study was conducted in two cities in the south-central United States. The population of one city is approximately 93,000 and the other nearby city has an approximate population of 6,000.

Four agencies were utilized for the study: a fitness center, a state university, the city-county health department, and a manufacturing plant. The selected agencies provided large numbers of young adults. The fitness center, which provides various group fitness classes that attract this age group, had a potential of 100 subjects per 6 weeks. The state university, which provides group class sessions, had a potential for approximately 1,100 subjects during the summer sessions. The city-county health department, which has specified clinic times for child health and immunizations, had the potential for approximately 50 young adult parents per week. The manufacturing plant provided a potential subject number of 325.

Population and Sample

The target population in the study was young adults between the ages of 18 and 35 years, inclusive. The study utilized a sample of convenience, which is a nonprobability sampling technique. Wilson (1985) emphasized that nonprobability sampling is commonly used in

nursing, as it is less expensive and time-consuming. Because a large sample is necessary for new instrument development, this technique appeared more appropriate. The sample size of 458 subjects was more than 10 times the number of items on the instrument, a necessary criterion for new instruments, according to Nunnally (1978).

Protection of Human Subjects

This study was classified as Category I research (Appendix D). Permission to conduct the study was obtained from the Texas Woman's University Graduate School (Appendix E) and participating agencies (Appendix F). After obtaining permission through Texas Woman's University, permission was obtained from each agency. To obtain permission for data collection in the agencies, the business managers for the city-county health department and fitness center, the personnel manager for the manufacturing plant, and the Vice-President for Academic Affairs at the university were initially contacted by mail.

A letter introducing the researcher and purpose of the study, general information about the data collection procedure, and the method for maintaining anonymity was sent to each contact person (Appendix G). Also a copy of the cover letter (Appendix H) and instrument, an agency permission form, and a stamped, pre-addressed envelope were

sent. Three to 4 days after sending the letter, the researcher followed up the letter by telephone. At this time, questions by the contact person were answered and names of leaders in these young adult groups were obtained. After obtaining agency permission, the researcher contacted each group leader and obtained dates for administration of the instrument.

The cover letter, given to all potential participants and agency contact persons, addresses subjects' rights. No names or codes were contained on the instrument. Therefore, subjects' anonymity was maintained. The instrument states at the beginning of the first page that COMPLETION AND RETURN OF THIS INSTRUMENT WILL BE CONSTRUED AS YOUR INFORMED CONSENT TO ACT AS A SUBJECT IN THIS STUDY.

Instrument

The YAHPI is a 44-item instrument to measure health promotion in the young adult. The instrument also contains six demographic items (Appendix A). The 44 items measure the 10 factors or provisional attributes of health promotion (Appendix B) identified by Stutte (1988b) following concept development, instrument development, content validation by experts in health promotion, and quantitative research data analysis of two pilot studies.

The demographic data were elicited from the subjects to gain a general description of the population.

The instrument has been tested for reliability and validity in the young adult population. Ten nurse researchers, knowledgeable in health promotion, validated the instrument prior to administration to 282 young adults (Stutte, 1988a). Six items did not meet the criterion (see p. 93) for maintenance of an item and these items were deleted (Appendix I). Stutte (1988b) also used the data from the 282 young adults to determine statistical reliability and validity estimates of the newly developed instrument (see Pilot Studies, Pilot II). The entire scale alpha coefficient was .9070. The 10 factors or attributes and their alpha coefficients are:

1. Interaction: .7596.
2. Self-Awareness: .7441.
3. Energetic: .7819.
4. Self-Care: .7370.
5. Integration: .6786.
6. Centering: .7107.
7. Individuation: .7103.
8. Self-Discipline: .6934.
9. Coping Efficacy: .6480.
10. Nurturance: .6815 (Stutte, 1988b).

The 10 factors, or provisional attributes, were believed to measure the concept of health promotion in the young adult. The factors (attributes) and their corresponding item numbers (Appendix B) are:

<u>Provisional Attribute</u>	<u>Item Numbers</u>
1. Interaction	13, 22, 25, 29, 33
2. Self-Awareness	2, 18, 19, 32, 35
3. Energetic	1, 24, 31, 36
4. Self-Care	9, 21, 26, 34
5. Integration	6, 15, 20, 27, 37
6. Centering	8, 16, 28, 42
7. Individuation	10, 11, 40, 41, 43
8. Self-Discipline	5, 12, 23, 38
9. Coping Efficacy	3, 4, 7, 30, 44
10. Nurturance	14, 17, 39

The responses consist of a 4-point format of frequency: (1) routinely or regularly, (2) often, (3) sometimes, (4) hardly ever or never. This is a format similar to the one used by Walker et al. (1987) in The Health Promoting Lifestyle Profile (HPLP). Modifications from their response set of routinely, often, sometimes, and never were made after the first pilot study because subjects had difficulty understanding the response category

of routinely and in discriminating between sometimes and never.

Items are phrased both positively and negatively to prevent a response set. Thirty-eight items (86%) are positively-worded. A response of routinely or regularly indicates a health-promoting lifestyle. Six items (14%) are phrased negatively; therefore, a response of hardly ever or never indicates a health-promoting lifestyle.

Responses to the lifestyle items are ranked on a scale ranging from 1 to 4. For the 38 items that are phrased positively, the higher the frequency of the behavior, the higher the score obtained (for example, regularly or routinely = 4, often = 3, sometimes = 2, and hardly ever or never = 1). For the six items that are phrased negatively, the lower the frequency of the behavior, the higher will be the score obtained (for example, hardly ever or never = 4, and regularly or routinely = 1).

Six items at the end of the instrument were to elicit demographic data. The subject was asked to write his or her numerical age, then place a checkmark beside the appropriate response for gender, race, family income, educational level, and marital status.

The purpose of the present study was to subject the YAHPI to further reliability and validity studies. Waltz,

Strickland, and Lenz (1984) asserted that once an instrument has been constructed, it is necessary to subject it to reliability and validity testing. The instrument is then revised based on data received from testing, thus making instrument development a cyclical process that encompasses testing, revision, and retesting until one determines there is sufficient evidence that the instrument is valid and reliable.

Pilot Studies

The YAHPI evolved after two pilot studies. The instrument used in the first pilot was developed and administered to a general adult population. The instrument used in the second pilot was based on the results of the first pilot and input from 10 expert validators.

Pilot I

Instrument

The Adult Health Promotion Inventory (AHPI) (Appendix C) is a 67-item instrument designed to measure health promotion in a general adult population. The instrument was developed by Stutte (1987b) following concept development of health promotion as discussed in Chapter II. The purpose of the pilot was to evaluate item clarity and obtain initial reliability and validity from quantitative

research data. The items developed from the six provisional attributes of health promotion (Appendix J) were as follows:

<u>Provisional Attribute</u>	<u>Item Numbers</u>
1. Integration	5, 16, 26, 35, 45, 48, 57, 58
2. Regulation	4, 14, 15, 44, 51, 52, 59, 60, 63, 64, 66
3. Initiative	3, 12, 13, 23, 29, 32, 36, 41, 47, 61, 62
4. Individuated Health Behaviors	1, 2, 10, 11, 21, 22, 27, 31, 33, 38, 39, 46, 49, 50, 56
5. Enhanced Holistic Well-Being	6, 7, 8, 17, 18, 19, 25, 28, 40, 42, 43, 53, 54, 55, 65, 67
6. Enhanced Holistic Self-Realization	9, 20, 24, 30, 34, 37

(Stutte, 1987b).

The 67 items used to measure the 6 provisional attributes of health promotion are randomly dispersed throughout the instrument. The responses are presented in a 4-point format: routinely, often, sometimes, and never. This response format is a replication of the format Walker et al. (1987) used to develop their instrument, the HPLP. Items are phrased both positively and negatively to avoid a response set. The majority of the items (44 or 66%) are phrased positively and subjects reporting the most positive

response of routinely on the items receive a higher score than those reporting the least positive response of never. High scores on the positively-phrased items indicate a more positive health-promoting lifestyle. Twenty-three items (34%) are phrased negatively. The least positive response of never, therefore, indicates a more positive health-promoting lifestyle. Negatively-phrased item statements include items 3, 6, 8, 9, 13, 16, 18, 20, 24, 25, 31, 33, 35, 40, 42, 44, 45, 50, 54, 57, 58, 59, and 60. The remainder of the items are positively-phrased items.

Data Collection and Treatment

The instrument was administered by the researcher to 305 undergraduate volunteer subjects after obtaining permission to study the population from the Vice-President for Academic Affairs and individual faculty members. The subjects consisted of general education students in economics and political science classes and majors in the accounting and nursing departments of a university in the south-central United States.

Data were analyzed via hand calculation for frequency of subjects' comments; also the SPSSX statistical package was used. Frequencies and measures of variability and central tendencies were used to analyze demographic data. The researcher summarized comments about item and

instrument clarity. A Cronbach's alpha coefficient on the total scale and each subscale was obtained for internal consistency reliability. Item analysis, using the t-test to determine the significance between subjects' scores in the upper and lower quartile, was performed to ascertain discriminating items. Factor analysis using the principal components analysis and oblique rotation was used to determine factor loadings, clusters of items (factors or attributes), and variance explained by the instrument. The oblique factor rotation was chosen because the researcher chose to retain as many of the original variables (items) as possible for further study (Hair, Anderson, & Tatham, 1987).

Results

The results of Pilot I will be discussed in the following five areas: (a) subject description, (b) clarity of instrument, (c) item analysis, (d) factor analysis, and (e) changes in instrument based on Pilot I.

Subject description. Subjects ranged in age from 18 to 58 years ($\bar{X} = 26.82$, mode = 19). Most of the subjects (60.3%) were female and single (47.2%) (Stutte, 1988a).

Clarity of instrument. A total of 55 subjects made responses about instrument and item clarity. Subjects

listed 15 vague, ambiguous, or unclear items. The items and the number of subject(s) indicting the item to be a problem included:

<u>Item</u>	<u>Subjects</u>	<u>Item</u>	<u>Subject</u>
3	8	38	1
4	3	45	1
8	1	46	1
11	1	51	1
20	3	53	5
28	2	63	2
35	1	66	1
36	2		

Subjects indicated 45 times that responses or answers were not always appropriate for the item. The item and the number of subject(s) indicating the item to be a problem included:

<u>Item</u>	<u>Subjects</u>	<u>Item</u>	<u>Subjects</u>
4	1	37	4
5	2	38	1
9	1	40	1
14	2	41	1
15	2	45	1
16	1	47	2
19	2	48	2
20	1	51	3
24	1	52	2
25	2	53	1
28	3	54	1
30	1	57	2
32	1	62	2
34	2		

A few subjects made comments about the response categories and some subjects presented examples they

believed might improve the response categories. One subject stated that routinely and often are similar. One subject suggested using always instead of routinely. One subject suggested adding an always response category. Another suggested using a Likert-type scale (1-4) with 1 being best and 4 being worst. Two subjects suggested using response categories of true and false while 11 subjects felt the items should have yes or no responses (Stutte, 1988a).

Item analysis. Seven items were deleted following item analysis. The seven items lost due to non-significance using the .05 level (two-tailed test) and their significance levels (p) were:

<u>Item</u>	<u>p</u>
6	.132
9	.051
20	.089
21	.786
22	.072
24	.399
25	.090

No item was deleted due to a low corrected correlation of $< .200$. The inter-item correlations ranged from $-.1161$ to $.6199$, the mean being $.1795$ (Stutte, 1988a).

Factor analysis. All but one of the original factors were found to possess fairly high reliability coefficients.

The following is a list of the factors or provisional attributes, the item numbers, and their alpha coefficients:

<u>Factor or Provisional Attribute</u>	<u>Item Number</u>	<u>Alpha</u>
(1) Integration	5, 16, 26, 35 45, 48, 57, 58	.7324
(2) Regulation	4, 14, 15, 44, 51, 52, 59, 60, 63, 64, 66	.7570
(3) Initiative	3, 12, 13, 23, 29, 32, 36, 41, 47, 61, 62	.7980
(4) Individuated health behaviors	1, 2, 10, 11, 21, 22, 27, 31, 33, 38, 39, 46, 49, 50, 56	.6249
(5) Enhanced holistic well-being	6, 7, 8, 17, 18, 19, 25, 28, 40, 42, 43, 53, 54, 55, 65, 67	.7415
(6) Enhanced holistic self-realization	9, 20, 24, 30, 34, 37	.3939

(Stutte, 1988a)

Although only one factor (number 6) possessed a low alpha coefficient, most of the items did not load at an acceptable level ($\geq .30$) on the six factors originally identified. The factor loading, combined with the low alpha obtained on one factor, led the researcher to believe that the factors or provisional attributes of health promotion were different than originally conceptualized through concept development.

Using the oblique rotation factor matrix, Stutte (1988a) labeled the nine attributes or factors with similar characteristics that clustered together (Appendix K). These nine factors or provisional attributes accounted for 53.4% of the variance. The nine factors, their new labels, item numbers, and factors loadings were:

Factor 1: Integration

<u>Item</u>	<u>Factor Loading</u>
5	.3309
28	.7457
47	.4216
48	.4975
52	.3812
64	.4074
66	.6103

Factor 2: Self-Care

<u>Item</u>	<u>Factor Loading</u>
4	.6431
12	.4355
23	.3597
29	.6738
32	.6782
36	.3816
51	.5034
61	.5657
62	.7196

Factor 3: Interaction

<u>Item</u>	<u>Factor Loading</u>
19	.3723
43	.8454
55	.5996
63	.3423

65	.8341
67	.3021

Factor 4: Energic

<u>Item</u>	<u>Factor Loading</u>
1	.3730
2	.8646
7	.3266
17	.3305
49	.8501

Factor 5: Coping Efficacy

<u>Item</u>	<u>Factor Loading</u>
3	.4686
13	.6255
16	.6308
26	.3702
35	.6029

Factor 6: Centering

<u>Item</u>	<u>Factor Loading</u>
11	.6347
14	.6722
38	.4757

Factor 7: Nurturance

<u>Item</u>	<u>Factor Loading</u>
10	.5519
33	.4083
41	.4259
46	.3651
50	.7598
56	.4181

Factor 8: Self-Efficacy

<u>Item</u>	<u>Factor Loading</u>
40	.5944
44	.7693
45	.4680
57	.5486
58	.4621
59	.6256

Factor 9: Self Awareness

<u>Item</u>	<u>Factor Loading</u>
8	.5448
15	.5859
30	.6809
34	.3409
37	.5190 (Stutte, 1988a)

The remaining eight items (18, 27, 31, 39, 42, 53, 54, and 60) loaded on factors not retained. No remaining items had item-to-total correlations on the total scale or subscales of $< .20$.

The internal consistency for the entire scale and subscales was within acceptable limits. The total scale alpha coefficient for the AHPI was .9147. The nine factor or provisional attribute alpha coefficients were as follows:

1. Integration: .7332.
2. Self-Care: .8421.
3. Interaction: .6993.
4. Energetic: .6669.

5. Self-discipline: .6465.
6. Centering: .5238.
7. Nurturance: .6647.
8. Self-Efficacy: .7539.
9. Self-Awareness: .7300 (Stutte, 1988a).

Changes in instrument based on results of pilot I.

Subjects' responses to item and instrument clarity resulted in changes in the response categories of the instrument. Because the response category of routinely was confusing to some subjects, the category was changed to regularly or routinely. The researcher believed, as did Walker et al. (1987), that the category of always, that was suggested by some subjects, was too extreme to elicit a response variance. The category of routinely, whereas, indicated a "lifestyle" and should be maintained to elicit a greater response variance. The response category of never was changed to include hardly ever or never to assist the subjects in discriminating between the categories of sometimes and never. Stutte (1988a) also believed that never was too extreme and would elicit less of a response variance than hardly ever or never.

Item statements were altered based on subjects' comments about clarity. Item 3 was shortened from, "I have difficulty verbalizing my health needs and health desires,"

to "I have difficulty verbalizing my health needs and desires." Item 12 was changed from, "I have yearly health exams," to "I have health exams," because some examinations are needed more frequently, for example, dental exams. Item 32, "I have my blood pressure checked at least yearly," was changed to, "I have my blood pressure checked," as some individuals require more frequent blood pressure monitoring. Item 36, "I check my body at least monthly for abnormal changes," was changed to, "I check my body for abnormal changes" because more frequent monitoring may be necessary. The researcher believed that eliminating the time intervals would reduce the confusion of the item statements with the response set. Items 13 and 51: "I have difficulty telling my doctor what concerns me about my health," and "I know what signs and symptoms to report to my doctor," was changed to "I have difficulty telling my health care provider what concerns me about my health," and "I know what signs and symptoms to report to my health care provider" because the initial entry into the health system might be a nurse, nurse practitioner, or other health care provider (Stutte, 1988a).

Fifty-two items were retained after reliability and validity tests were completed from Pilot I. Following a literature review on health promotion, Stutte (1988b) chose

to study health promotion in a neglected population: the young adult. Thirteen new items believed to be health-related risk factors and developmental tasks of the young adult were added (Appendix L). The new item numbers included items 5, 10, 11, 15, 21, 23, 27, 41, 48, 49, 55, 57, and 64 (Appendix M).

Expert Validators

Ten researchers, identified in the literature as knowledgeable in health promotion, validated the new 65-item instrument, the YAHPI (Appendix M). Validators were asked to rate on a scale of 1 to 5, with 1 being disagree and 5 being agree, their belief that the item measured the concept of health promotion in the young adult (Appendix N).

Six items were eliminated from the instrument based on the expert validators' ratings. Jennings (1988) contended that 75% agreement among validators is acceptable for retainment of an item during instrument development. Items were summed and averaged. Those with averages of > 3.75 (75%) were retained. The six items deleted ($< 75\%$ average) based on expert validators' ratings were:

<u>Item No.</u>	<u>Item Statement</u>	<u>Rating Averages</u>
2	"I like where I live."	3.7
26	"There are so many things I want to do in life, but feel that I can't."	3.6
42	"I want to change so many things in my life."	3.5
46	"I feel as if my life is crumbling around me."	3.6
52	"I feel there is a reason or purpose for everything that happens to me."	3.0
53	"I find my environment to be very unpleasant."	3.3

(Stutte, 1988b)

Fifty-nine items to measure health promotion in young adults were retained for the second pilot study. These items were re-numbered and alterations for clarity purposes were incorporated into the new instrument, the YAPHI.

Pilot II

The YAPHI is a 59-item instrument to measure health promotion in the young adult (Appendix O). The purpose of the second pilot study was to establish validity and reliability estimates of the instrument in the young adult population and to ascertain the feasibility of settings proposed for the dissertation study.

Instrument

The YAHPI is a 59-item instrument with a 4-point response format (routinely or regularly, often, sometimes, hardly ever or never) on reported behaviors. Most items (50 or 85%) are phrased positively so that a more frequent response, such as routinely or regularly, indicates a more health-promoting lifestyle. Nine items (15%) are phrased negatively. A more frequent response of routinely or regularly would indicate a less health-promoting lifestyle.

Data Collection and Treatment

The subjects, a convenience sample of 282 young adults, were volunteers between the ages of 18 and 35. The sample was taken from three agencies in a city of 93,000 in the south-central United States: the state university, the city-county health department, and a fitness center. Forty-nine percent of the sample were university undergraduate students in general history science, business, and nursing classes; 22% were parents attending child health and immunization clinics at the health department; and 29% were young adults attending fitness classes.

After obtaining permission to conduct the study from each agency, the researcher administered the instrument to the volunteer subjects. Data were collected in university

classrooms, clinic waiting areas, and fitness classes. Subjects completed the instrument in 10 to 20 minutes. No one particular problem was consistently found during administration of the instrument.

Data collected from the 282 young adult volunteers were analyzed by the SPSSX statistical package. Frequencies and measures of variability and central tendency were used to analyze demographic characteristics. A Cronbach's alpha coefficient on the total scale and each subscale was obtained for internal consistency reliability. Item analysis using a t-test to determine the significance between subjects' scores in the upper and lower quartiles was performed. Factor analysis using principal components analysis and varimax rotation were employed to determine factor loadings, clusters (factors or attributes), and variance explained by the instrument. The varimax was chosen as the desired factor rotation for analysis because the researcher chose to reduce the number of original variables (items) for the dissertation study (Hair et al., 1987).

Results

The results of Pilot II will be discussed in the following three areas: (a) subject description, (b) item analysis, and (c) factor analysis.

Subject description. Subjects ranged in age from 18 to 35 years ($X = 24.85$, mode = 20). Most (77.6%) of the subjects were female and white (84.1%). There were blacks (6.4%) Hispanics (4.3%), American Indians (0.4%), and Asians (3.9%) represented in the study. Subjects indicated the following family incomes: (a) less than \$15,000 per year: 25.5%; (b) between \$15,001 and \$25,000 per year: 24.8%; and (c) between \$25,001 and \$40,000 per year: 25.2%. Almost 11% had family incomes between \$40,001 and \$55,000, while slightly greater than 10% had family incomes greater than \$55,001 per year. Most subjects (69.2%) had some college while 17.2% had completed high school. No subjects had less than an eighth grade education, while 5 subjects (1.8%) had completed the eighth grade. Twenty-five subjects (9%) had bachelor's degrees, 2.5% (7) had master's degrees, and 1 subject (0.4%) had a doctoral degree (Stutte, 1988b).

Item analysis. No item was deleted following item analysis. All items were found to be significant at the .05 level (two-tailed test). One item, number 5, was deleted due to a low corrected item-total correlation of .1875. Otherwise, corrected item-to-total correlations ranged from .2390 to .5622. Inter-item correlations ranged from -.0563 to .6998 ($X = .1922$) (Stutte, 1988b).

Factor analysis. Using principal components analysis, 12 factors loaded with an eigenvalue of > 1.00 which accounted for 63.1% of the variance. Using the varimax rotation factor matrix, Stutte (1988b) noted that factors were slightly different from those found in the general adult population (Appendix P). The factor or attribute of "self-efficacy" was not found. This is probably related to the large number of items eliminated through content validation. Two other factors emerged and were labeled by Stutte (1988b): "self-discipline" and "individuation." The 10 factors accounting for 58.3% of the variance, found to best measure the concept of health promotion, their labels, and their factor loadings were:

Factor 1: Interaction

Item	Factor Loading
22	.45260
31	.82544
36	.73131
40	.73105
44	.43520

Factor 2: Self-Awareness

Item	Factor Loading
2	.5189
27	.5127
28	.6720
43	.6442
48	.6612

Factor 3: Energetic

<u>Item</u>	<u>Factor Loading</u>
1	.7756
35	.4079
42	.8076
49	.8224

Factor 4: Self-Care

<u>Item</u>	<u>Factor Loading</u>
17	.7168
30	.6897
37	.4919
47	.8108

Factor 5: Integration

<u>Item</u>	<u>Factor Loading</u>
11	.7016
24	.3206
29	.5783
38	.6448
52	.5684

Factor 6: Centering

<u>Item</u>	<u>Factor Loading</u>
15	.5230
25	.4169
39	.7378
57	.7929

Factor 7: Individuation

<u>Item</u>	<u>Factor Loading</u>
18	.4448
19	.4738
55	.4675

56	.7646
58	.5546

Factor 8: Self-Discipline

<u>Item</u>	<u>Factor Loading</u>
9	.6185
21	.7161
33	.4008
53	.6578

Factor 9: Coping Efficacy

<u>Item</u>	<u>Factor Loading</u>
3	.6386
7	.6841
13	.4858
41	.8244
59	.4961

Factor 10: Nurturance

<u>Item</u>	<u>Factor Loading</u>
23	.7384
26	.7633
54	.5583 (Stutte, 1988b).

The internal consistency for the entire scale and factors was within acceptable limits for reliability of an instrument. The total scale alpha coefficient was .9060.

The 10 factor alpha coefficients were as follows:

1. Interaction: .7596.
2. Self-Awareness: .7441.
3. Energetic: .7819.

4. Self-Care: .7370.
5. Integration: .6786.
6. Centering: .7107.
7. Individuation: .7103.
8. Self-Discipline: .6934.
9. Coping Efficacy: .6480.
10. Nurturance: .6815 (Stutte, 1988b)

Fourteen items were deleted following validation through factoring. Eleven items (4, 6, 8, 10, 12, 20, 32, 34, 46, 50, and 51) did not load on any factor at the .30 level. Three items (14, 16, and 45) loaded on non-retained factors. Following reliability and validity analyses from the second pilot study, 44 items were retained for the dissertation study (Stutte, 1988b).

Data Collection

After permission was obtained from the Texas Woman's University Graduate School and the participating agencies, the instrument was administered by the researcher to volunteer young adult subjects in four agencies: a fitness center, a state university, the city-county health department, and a manufacturing plant. Data were collected by the researcher in university classrooms, clinic waiting rooms, fitness classrooms, and employee lounges. These settings, except for employee lounges in the manufacturing

plants, were utilized in a pilot study by the researcher and found feasible for data collection (Stutte, 1988b). Potential subjects were asked not to participate in the study if they had participated in previous pilot studies of the instrument.

A cover letter addressing subjects' rights accompanied the instrument. Anonymity was maintained for all participants. No names or code numbers were used, and the subject was asked not to identify himself or herself on the instrument.

The proposed number of completed instruments needed for the study was 440; however, a total of 458 were collected. Although it would have been desirable to obtain an equal number from each data source, the researcher found the health department and fitness center to have fewer subjects due to the nature of the setting. Therefore, the following numbers and percentages of subjects were obtained from each agency: (a) fitness center, 86 (18.8%); (b) city-county health department, 93 (20.3%); (c) state university, 156 (34%); and manufacturing plant, 123 (26.9%).

Treatment of Data

The data from the methodological study were analyzed by the SPSSX statistical package reliability and

validity measures. Descriptive statistical methods were used to analyze the subjects' demographic characteristics.

Reliability and validity are essential elements of instrument development necessary to produce logical and powerful data from which one can draw defensible conclusions. They are measures of degrees rather than all or none characteristics (Waltz et al., 1984).

Internal consistency reliability measures were employed in the study. This method is most frequently employed when the researcher is concerned with performance of a group of individuals across the items on a single measure (Waltz et al., 1984). Reliability alpha coefficients on total scales should be $\geq .70$, although coefficients between .80 and .95 are more desirable (Burns & Grove, 1987; Nunnally, 1978). A coefficient value of 1.00 indicates that each item on the instrument is measuring the same thing. A lower coefficient in the .80 and .90 range indicates discrimination of levels of the concept (Burns & Grove, 1987). Alpha coefficients on the final factors (attributes) were $> .70$, which indicates sufficient reliability, according to Nunnally (1978). Items with item-to-total score correlations of $< .20$ were deleted during the final analysis because items should correlate well with the total score for the instrument;

otherwise, reliability (internal consistency) would have been compromised (Burns & Grove, 1987; Shelley, 1984).

Validity, which is more difficult to obtain than reliability, refers to the degree to which an instrument measures what it purports to be measuring (Waltz et al., 1984). Reliability, though necessary, is not a sufficient condition for validity (Nunnally, 1967). Two types of validity appropriate for instrument development include: (a) content validity and (b) construct validity.

Waltz et al. (1984) asserted that content validity should be considered at the item and test levels. At the item level, content validity is the extent to which an item is a measure of the characteristic or concept. Test content validity refers to the extent that all items in a test adequately cover the content of the characteristic or concept (Waltz et al., 1984; Wilson, 1985). Content validity was established for the YAHPI by a panel of 10 experts during the pilot phase (see Pilot Studies).

Construct validity, considered by Burns and Grove (1987) to be the most important type of validity, is the degree to which an instrument measures the characteristic or construct it is designed to measure. Methods appropriate for determining construct validity in instrument development factor analysis include: (a) item

analysis, (b) factorial validity, and (c) concept analysis (Burns & Grove, 1987; Jennings, 1988; Wilson, 1985). Item analysis and factor analysis were employed during the present study. Concept analysis was performed prior to instrument development.

Item analysis was employed in the study to enhance validity. The measure increases validity by evaluating each item separately to determine if the item discriminates in the same manner the entire measure (instrument) discriminates (Isaac & Michaels, 1975). Computer determination of subjects' scores on each item and the upper and lower quartile scores was calculated. A t-test comparing the means on the upper and lower quartile scores was then obtained to determine if the item discriminated the characteristic of health promotion in the young adult subjects. Items with significant levels (p) of .05 (using the two-tailed test) are commonly considered discriminating (Jennings, 1988) and were retained. It was decided that items with probability levels $> .05$ would be eliminated from the instrument.

Factor analysis, a vital component of instrument development, is useful in testing the validity of ideas about item types to determine which items should be included (Dixon, 1986; Nunnally, 1978). Hair et al. (1987)

assert that factor analysis is an objective method of obtaining validity. The results, however, must be interpreted with theoretical guidance to avoid misleading conclusions about the validity of measurements (Carmines & Zeller, 1979). Factor analysis is a statistical technique that was employed in the study to examine interrelationships among variables in a single set and organize those interrelationships into factors (Dixon, 1986; Hair et al., 1987; Tabachnick & Fidell, 1983). Exploratory factor analysis, according to Tabachnick and Fidell (1983), is employed to summarize data by grouping together items that are intercorrelated, a useful technique in the early stage of research when consolidating items or variables is necessary. Three items per factor are necessary to ensure factor validity (Jennings, 1988).

Computer analysis of the subjects' responses to the items identified factors with underlying relationships. To accomplish factor analysis, a correlation matrix, a table displaying the intercorrelations among all the variables, was produced by the computer. The correlation matrix was then analyzed through an R factor analysis, the most common form of analysis used to summarize characteristics and underlying relationships of the variable (Hair et al., 1987). The general factor model used to obtain factor

solutions in the study was principal components analysis. In this model, the factors are based on the total variance (shared or common variance) and the minimum number of factors that will obtain the greatest amount of shared variance are extracted (Hair et al., 1987).

Based on the correlation matrix, an unrotated factor matrix was derived. The major purpose for this matrix was to determine the maximum amount of variance accounted for by the least number of variables (Munro, Visintainer, & Page, 1986). The communality is the amount of variance an original item shares with other items in the instrument (Hair et al., 1987). The eigenvalue represents the amount of variance accounted for by a factor, or total amount of variance explained by a factor (Hair et al., 1987; Munro et al., 1986). The total factor variance is calculated by dividing the eigenvalue of a factor by the number of items in the factor (Munro et al., 1986). Adding the percent of variance of each factor gives cumulative percentage of variance explained by the factors. However, only those factors accounting for at least 5% of the variance (eigenvalues ≥ 1.00) were retained, as suggested by most statisticians (Munro et al., 1986).

The rotated factor matrix was interpreted using the varimax rotation solution. Nunnally (1978) contends that

factors are assumed to be non-correlated because they should measure different characteristics of a concept. Therefore, the varimax rotation is the preferred choice for data analysis. Hair et al. (1987) contended that when the goal of instrumentation is to reduce the number of original variables (items), as was the goal of this study, then the varimax rotation analysis should be used.

Identification of which items go with which factors was accomplished through factor loading, the correlation between the original items and the factors (Hair et al., 1987). The size of the loading reflects the amount of variance the item contributes to the factor. Items with factor loadings of $\geq .40$ were retained. Researchers (Burns & Grove, 1987; Nunnally, 1978) assert that the .40 level indicates item significance. Since some items did load on more than one factor, the final interpretation was dependent upon the researcher's assessment of scientific usefulness and logic (Tabachnick & Fidell, 1983).

Construct validity via concept analysis was accomplished during concept development of health promotion. This process was described in Chapter II.

Demographic characteristics were analyzed through frequencies and measures of variability and central tendency. These data were used to describe the sample.

CHAPTER IV

ANALYSIS OF DATA

A methodological study was conducted to determine reliability and validity of an instrument to measure health promotion in the young adult population. The sample is described relative to demographic characteristics and data collection settings. Data obtained from the sample were subjected to four separate series of reliability and validity analyses which included internal consistency measures, item analysis, and factor analysis.

Description of the Sample

The target population was drawn from two cities in the south-central United States with populations of approximately 93,000 and 6,000. Four hundred and fifty-eight young adults between the ages of 18 and 35, inclusive, participated in the study. Demographic data on age, gender, race, family income, educational level, and marital status were obtained from the Young Adult Health Promotion Inventory (YAHPI). Frequencies relative to data collection settings were maintained by the researcher.

Each subject was asked to complete the questionnaire which consisted of 44 statements measuring health

promotion in young adults and 6 demographic items. Tables 1 through 6 summarize the demographic data. Each table presents the absolute frequency, percentage, and cumulative percentages relative to the demographic data being presented.

Table 1 represents the age distribution of the 458 subjects. The frequency distribution of age indicates that 59.6% of the sample was between 18 and 25 years of age, with 32.8% being 18 to 20 years. Approximately 40% of the sample indicated they were between the ages of 26 and 35, with almost equal distribution (20%) being from the 26 to 30 and 31 to 35 year-old age groups. The mean age of the sample was 24.9 years.

Table 1

Age Distribution of Sample

Age	Absolute frequency	Percentage	Cumulative percentage
18	45	9.8	9.8
19	54	11.8	21.6
20	51	11.1	32.8
21	32	7.0	39.7
22	30	6.6	46.3
23	23	5.0	51.3
24	18	3.9	55.2
25	20	4.4	59.6
26	14	3.1	62.7
27	25	5.5	68.1
28	19	4.1	72.3

(table continues)

Age	Absolute frequency	Percentage	Cumulative percentage
29	13	2.8	75.1
30	20	4.4	79.5
31	23	5.0	84.5
32	15	3.3	87.8
33	13	2.8	90.6
34	21	4.6	95.2
35	20	4.4	99.6
No response	2	.4	100.0

Table 2 represents the gender distribution of the sample. Females made up 59% of the participants, while males constituted 41% of the sample.

Table 2

Gender Distribution of Sample

Gender	Absolute frequency	Percentage	Cumulative percentage
Female	270	59.0	59.0
Male	186	40.6	99.6
No response	2	.4	100.0

Table 3 depicts the distribution of the sample based on race. All races were represented although the majority (78.2%) were white. Almost 8% were Hispanic, 4.6% were Asian, 4.4% were black, and 1.7% were American Indian.

Although one subject indicated his race as "other," he did not specify the race, as was requested on the questionnaire.

Table 3

Race Distribution of Sample

Race	Absolute frequency	Percentage	Cumulative percentage
White	358	78.2	78.2
Black	20	4.4	82.5
Hispanic	36	7.9	90.4
American Indian	8	1.7	92.1
Asian	21	4.6	96.7
Other	1	.2	96.9
No response	14	3.1	100.0

Table 4 presents yearly family income of the subjects. The largest percentage (24.2%) reported incomes less than \$15,000 or between \$25,001 and \$40,000 (23.6%). An income between \$15,001 and \$25,000 was reported by 16.4% of the sample, while 16.2% reported an income between \$40,001 and \$55,000. An income greater than \$55,001 was reported by 13.3% of the subjects.

Table 4

Family Income Distribution of Sample

Income (per year)	Absolute frequency	Percentage	Cumulative percentage
< \$15,000	111	24.2	24.2
\$15,001-\$25,000	75	16.4	40.6
\$25,001-\$40,000	108	23.6	64.2
\$40,001-\$55,000	74	16.2	80.3
\$55,001-\$75,000	39	8.5	88.9
> \$75,000	22	4.8	93.7
No response	29	6.3	100.0

The largest percentage of subjects (56.3%) reported their highest level of education as "some college." Nearly 20% reported their highest level of education as "completed high school." Almost 12% of the sample reported their highest level as "Bachelor's degree." Two percent reported having a graduate degree, while 6.3% reported their highest level as less than a high school degree. Table 5 summarizes the educational level of the sample.

Table 5

Educational Level Distribution of Sample

Educational (highest level)	Absolute frequency	Percentage	Cumulative percentage
< 8th grade	5	1.1	1.1
Completed 8th grade	24	5.2	6.3
Completed high school	91	19.9	26.2
Some college	258	56.3	82.5
Bachelor's degree	54	11.8	94.3
Master's degree	8	1.7	96.1
Doctoral degree	2	.4	96.5
No response	16	3.5	100.0

Table 6 depicts the marital status of the subjects. The sample was almost equally represented by married (45.6%) and single (42.8%) subjects. Only 8% reported being divorced or separated.

The distribution of the sample relative to the data collection setting is depicted in Table 7. More than one-third (34%) of the sample were students attending university classes. Manufacturing workers comprised 26.9% of the sample. More than 20% of the sample was young adults attending clinics at the city-county health

Table 6

Marital Status Distribution of Sample

Marital status	Absolute frequency	Percentage	Cumulative percentage
Married	209	45.6	45.6
Single	196	42.8	88.4
Divorced	29	6.3	94.8
Separated	8	1.7	96.5
Widow(er)	1	.2	96.7
No response	15	3.3	100.0

department. Finally, nearly 19% of the subjects were fitness center attendants.

Table 7

Data Collection Setting Distribution of Sample

Setting	Absolute frequency	Percentage	Cumulative percentage
University	156	34.0	34.0
Manufacturing plant	123	26.9	60.9

(table continues)

Setting	Absolute frequency	Percentage	Cumulative percentage
City-County health department	93	20.3	81.2
Fitness center	86	18.8	100.0

Reliability and Validity Analyses of the Instrument

To determine reliability and validity of the YAHPI, four series of reliability and validity analyses were conducted. The analyses included internal consistency measures, factor analysis, and item analysis.

Reliability and Validity Analysis of the 44-Item YAHPI Based on Conceptual Framework Attributes

To measure the extent to which the 44-item statements of the YAHPI were internally consistent, Cronbach's coefficient alpha was used. The coefficient alpha for the entire scale was .9190. Table 8 presents the reliability determinations with the item-total correlation and the alpha coefficient if the item would have been deleted. As indicated in the table, two items (1 and 3) had correlations under .20. However, deletion of either of the items only reduced the total alpha coefficient, rather than increased it; therefore, both items were retained until the

final phase. At that time, another item-total statistical determination was performed and low item-total correlations were deleted at that time.

Table 8

Item-Total Correlation Summary on 44-Item YAHPI

Item	Item-total correlation	Alpha if item deleted
1	.1951	.9188
2	.3917	.9164
3	.1942	.9180
4	.2354	.9178
5	.3129	.9173
6	.2485	.9175
7	.2246	.9177
8	.3963	.9164
9	.4081	.9166
10	.3831	.9165
11	.3848	.9165
12	.3574	.9169
13	.3576	.9168
14	.3382	.9170
15	.2362	.9188
16	.4062	.9163
17	.2945	.9174
18	.4692	.9156
19	.4614	.9158
20	.4647	.9158
21	.5234	.9149
22	.4627	.9157
23	.4642	.9156
24	.5784	.9146
25	.4766	.9156
26	.5539	.9146
27	.6475	.9139
28	.5220	.9150
29	.4755	.9155

(table continues)

Item	Item-total correlation	Alpha if item deleted
30	.4322	.9160
31	.5373	.9148
32	.6397	.9142
33	.5266	.9152
34	.5199	.9150
35	.6308	.9143
36	.5118	.9151
37	.5224	.9154
38	.5771	.9143
39	.5039	.9152
40	.4960	.9154
41	.4576	.9158
42	.5314	.9149
43	.4778	.9155
44	.2474	.9177

Table 9 represents the findings of the reliability analysis of the correlation of the item to the 10 factors or attributes identified in the conceptual framework of the study.

Validity was assessed through item analysis and factor analysis. Item analysis was performed by using a t-test to compare the upper and lower quartile scores. All items, except item 44, were found to be significant at the .001 level of confidence. Item 44 was significant at the .01 level. Therefore, all items were retained following item analysis, as the test results tended to indicate that each item discriminated the characteristic of health promotion

in the study sample at greater than the designated .05 level of significance.

Table 9

Reliability Analysis Results Based on 10 Factors
(Attributes) Identified in Conceptual Framework
of the Study

Item number	Item-total correlation	Alpha if item deleted
Factor--Interaction (alpha = .7422)		
13	.3305	.7594
22	.5777	.6659
25	.6577	.6364
29	.5665	.6681
33	.4090	.7262

Factor--Self-Awareness (alpha = .7374)		
2	.3803	.7266
18	.4858	.7001
19	.4864	.6909
32	.6231	.6391
35	.5273	.6758

Factor--Energetic (alpha = .7185)		
1	.3991	.7190
24	.4437	.6971
31	.6733	.5465
36	.5459	.6366

Factor--Self-Care (alpha = .7890)		
9	.5118	.7793
21	.6402	.7108
26	.5703	.7443
34	.6624	.6961

(table continues)

Item	Item-total correlation	Alpha if item deleted
Factor--Integration (alpha = .6193)		
6	.2935	.5649
15	.2361	.6433
20	.3610	.5317
27	.5727	.4028
37	.3741	.5277

Factor--Centering (alpha = .6543)		
8	.3653	.6348
16	.3312	.6598
28	.5277	.5209
42	.5421	.5143

Factor--Individuation (alpha = .6966)		
10	.3889	.6681
11	.4399	.4478
40	.4900	.6257
41	.5066	.6207
42	.4322	.6553

Factor--Self-Discipline (alpha = .6511)		
5	.2655	.6916
12	.4950	.5448
23	.4657	.5654
38	.5245	.5213

Factor--Coping Efficacy (alpha = .5508)		
3	.2938	.5048
4	.3254	.4862
7	.2832	.5124
30	.3497	.4705
44	.3145	.4934

(table continues)

Item	Item-total correlation	Alpha if item deleted
Factor--Nurturance (alpha = .5944)		
14	.4326	.4506
17	.3615	.5525
39	.4153	.4744

Factor analysis using principal components with the varimax rotation was performed. The varimax was chosen as the desired factor rotation for analysis because the researcher chose to reduce the number of original variables (items) for the dissertation study (Hair et al., 1987). The analysis extracted 10 factors with eigenvalues ≥ 1.00 from the 44-item instrument. The 10 extracted factors, with factor loadings of $\geq .40$, explained 56.7% of the variance. Table 10 summarizes the factor extraction.

A summary of the factor extraction and factor loading from the study sample is shown in Table 11. Eight items (7, 12, 18, 26, 28, 31, 42, and 43) loaded on more than one factor at the .40 level while four items (2, 6, 24, and 33) did not load on any of the extracted factors at the .40 level.

Table 10

Factor Extraction Summary of 10 Factors on44-Item YAHPI

Factor	Eigenvalue	Factor extraction of variance explained	Cumulative % of variance explained
1	10.4719	23.8	23.8
2	2.8081	6.4	30.2
3	2.1398	4.9	35.0
4	1.801	4.1	39.1
5	1.6695	3.8	42.9
6	1.3489	3.1	46.0
7	1.2801	2.9	48.9
8	1.2480	2.8	51.7
9	1.1421	2.6	54.3
10	1.0348	2.4	56.7

Table 11

Factor Extraction and Loading Summary of
10 Factors on 44-Item YAHPI Based
on Present Study Sample

<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>	<u>Factor 4</u>
11 = .5578	12 = .4854*	9 = .6863	10 = .4385
18 = .4675*	23 = .5621	18 = .4633*	22 = .7426
19 = .6149	26 = .5398*	21 = .6761	25 = .7652
20 = .4785	28 = .5166*	26 = .4659*	29 = .6421
27 = .5374	31 = .5227*	34 = .6855	
32 = .5799	36 = .6937		
35 = .5886	38 = .6740		
37 = .7427	39 = .5338		
40 = .6153	42 = .4487*		
41 = .6639			
43 = .4549*			

<u>Factor 5</u>	<u>Factor 6</u>	<u>Factor 7</u>	<u>Factor 8</u>
7 = .4131*	8 = .5260	1 = .7468	5 = .6935
30 = .4982	16 = .4911	7 = .4198*	12 = .4119*
43 = .4262*	28 = .5780*	13 = .6190	14 = .5839
44 = .4982	42 = .5950*	31 = .5171*	

<u>Factor 9</u>	<u>Factor 10</u>
3 = .7039	15 = .6701
4 = .6832	17 = .7074

* Indicates item loaded on more than one factor.

Table 12 compares factors and factor loadings of items used for the framework to factors and factor loadings of items found in the present study sample on the 44-item YAHPI. Some factors, initially identified in the framework, began combining during factor analysis of data in the present study. For example, items measuring Framework Factors 2, 5, and 7 began combining to produce Factor 1, and items from Framework Factors 3, 6, and 8 began combining to produce Factor 2.

Items as shown in Table 12, did not always load together on the original factor identified in the conceptual framework for the study. Some of the items loaded on two factors and some items did not load on any factors. The total instrument alpha coefficient (.9190) and alpha coefficients for the original 10 factors were fair (.5508) to good (.7890), thus making the instrument sufficiently reliable. However, because items did not load on factors identified in the conceptual framework, it lacked validity in its present form.

Table 12

Comparison of Factors and Loadings (Items) Identified in
Conceptual Framework to Factors and Loadings (Items)
Identified in the Study Sample

Framework factor	Study factor	Item number	Item statement
1	2	13	I participate in leisure-time activities.
1	4	22	I like to visit with my friends.
1	4	25	I like to spend time with other individuals.
1	4	29	I like to participate in group activities.
1	DNL	33	I can depend on my family and/or friends for support.

2	DNL	2	I know that I make the right decisions about my health care.
2	1, 3	18	I know what signs and symptoms to report to my health care provider.
2	1	19	I am aware of my abilities.
2	1	32	I know what's normal for my body.
2	1	35	I am aware of my feelings.

(table continues)

Framework factor	Study factor	Item number	Item statement
3	7	1	I participate in a group sport at least twice a week.
3	DNL	24	I have a lot of energy.
3	2, 7	31	I participate in a minimum of 20 minutes of exercise at least 3 times a week.
3	2	36	I participate in some form of aerobic exercise.
<hr/>			
4	3	9	I know when to check my blood pressure, pulse, and temperature.
4	3	21	I have my blood pressure checked.
4	2, 3	26	I check my pulse while exercising.
4	3	34	I know what my blood pressure and pulse are.
<hr/>			
5	DNL	6	I am not happy with my life.
5	10	15	I like my body.
5	1	20	I feel I can adjust to changes in my life.
5	1	27	I am very satisfied with my life.
5	1	37	I am aware of my priorities in life.

(table continues)

Framework factor	Study factor	Item number	Item statement
6	6	8	If I feel myself becoming tense, I know how to relieve it.
6	6	16	I concentrate on pleasant thoughts several times a day.
6	2, 6	28	I practice some form of relaxation technique or method.
6	2, 6	42	I consciously relax my muscles at least twice a day.
7	4	10	I like trying new ideas and experiences.
7	1	11	I am aware of my purpose in life.
7	1	40	I feel I can do anything or accomplish anything I want to.
7	1	41	I have made long-term goals to work toward.
7	1, 5	43	I feel I am making or have made the correct occupational choice.

(table continues)

Framework factor	Study factor	Item number	Item statement
8	8	5	I eat a minimal amount of saturated fats in my diet.
8	2, 8	12	I read product labels for preservative and sodium content before buying.
8	2	23	I attend educational programs on health.
8	2	38	I read articles and books about nutrition, exercise, and stress management.
9	9	3	I have difficulty handling my feelings in a constructive way.
9	9	4	I have difficulty telling my health care provider what concerns me about my health.
9	5, 7	7	I feel like a failure if my day does not go as I planned it.
9	5	30	I have difficulty verbalizing my health needs and desires.
9	5	44	I have difficulty when my daily routines are changed or altered.

(table continues)

Framework factor	Study factor	Item number	Item statement
10	10	17	I eat three well-balanced meals a day.
10	2	39	I eat at least four servings of fruits and vegetables daily.

DNL = did not load on any factor.

Reliability and Validity Analysis
of 44-Item YAHPI Based on
Present Study Sample

The 10 extracted factors (Table 10) and results of the factor loadings (Table 11) were used as the basis for further reliability and validity testing of the 44-item instrument. Table 13 represents the findings of the reliability analysis of the correlation of the item to the 10 factors or attributes based on the present study sample.

Table 13

Reliability Analysis Results of 10 Factors on 44-ItemYAHPI Based on Study Sample

Item number	Item-Total correlation	Alpha if item deleted
Factor 1 (alpha = .8539)		
11	.4632	.8482
19	.5545	.8373
20	.5084	.8416
27	.6386	.8283
32	.6093	.8319
35	.6501	.8279
37	.6443	.8293
40	.5593	.8371
41	.5403	.8387

Factor 2 (alpha = .7585)		
23	.5114	.7166
36	.4973	.7268
38	.6371	.6702
39	.5124	.7166
42	.4717	.7300

Factor 3 (alpha = .7863)		
9	.5321	.7606
18	.4314	.7856
21	.6501	.7188
26	.5602	.7477
34	.6564	.7143

Factor 4 (alpha = .7320)		
10*	.3322	.7704
22	.6048	.6294

(table continues)

Item number	Item-Total correlation	Alpha if item deleted
25	.6518	.6022
29	.5405	.6717

Factor 5 (alpha = .5722)		
7*	.2480	.5771
30	.4146	.4553
43	.3994	.4752
44	.3872	.4786

Factor 6 (alpha = .6543)		
8	.3652	.6348
16	.3312	.6598
28	.5277	.5209
42	.3443	.5143

Factor 7 (alpha = .6084)		
1	.4302	.4909
13	.3679	.5780
31	.4645	.4390

Factor 8 (alpha = .5403)		
5	.2947	.5296
12	.4145	.3338
14	.3539	.4896

Factor 9 (alpha = .4544)		
3	.2940	**
4	.2940	**

(table continues)

Item number	Item-Total correlation	Alpha if item deleted
Factor 10 (alpha = .4098)		
15	.2577	**
17	.2577	**

*Indicates the item was deleted.

**Indicates no coefficient alpha was given by the computer.

As Table 13 illustrates, Factors 9 and 10 contain only two items per factor (3 and 4, 15 and 17, respectively). No coefficient alpha is given by the computer if only two items load on a factor. Items 7 and 10 reduced the reliability of their factors (5 and 4, respectively). Items 2, 6, 24, and 33 did not load on any factors at the .40 level (Table 11). Therefore, a total of 10 items (2, 3, 4, 6, 7, 10, 15, 17, 24, and 33) were deleted from the instrument. Although Factors 5 and 8 possessed low reliability (.5722 and .5403, respectively), the researcher chose to retain the factors as a large number of the items were already being deleted. Thirty-four items remained to be subjected to the second series of reliability and validity testing.

Reliability and Validity Analysis of the
34-Item YAHPI

Because the YAHPI tended to indicate sufficient total scale reliability but lacked sufficient validity, the 34 remaining items were first subjected to factor analysis. The varimax rotation extracted eight factors from the 34 items. A summary of the eight factors, which explained 56.8% of the variance, is presented in Table 14.

Table 14

Factor Extraction Summary of Eight Factors on
34-Item YAHPI

Factor	Eigenvalue	Factor extraction percent variance explained	Cumulative percent of variance explained
1	9.3418	25.9	25.9
2	2.6300	7.3	33.3
3	1.9317	5.4	38.6
4	1.6225	4.5	43.1
5	1.3662	3.8	46.9
6	1.2502	3.5	50.4
7	1.17035	3.5	53.6
8	1.11813	3.1	56.8

Table 15 summarizes the factor loading of the eight factors on the 34-item YAHPI. The table illustrates that three items (13, 18, and 38) loaded at the .40 level, or above, on more than one factor. All 34 items loaded at the .40 level on at least one of the eight factors.

Table 15

Factor Loading Summary on 34-Item YAHPI

<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>	<u>Factor 4</u>
11 = .5810	9 = .6543	22 = .7396	5 = .5596
18 = .4601*	18 = .4351*	25 = .7880	12 = .6321
19 = .6727	21 = .7565	29 = .6296	14 = .7061
20 = .5625	23 = .5227		39 = .5500
27 = .5806	26 = .6429		
32 = .6007	34 = .7505		
35 = .6097	38 = .4194*		
37 = .7292			
40 = .6108			
43 = .4077			

<u>Factor 5</u>	<u>Factor 6</u>	<u>Factor 7</u>	<u>Factor 8</u>
28 = .7382	1 = .7817	8 = .5381	30 = .5369
38 = .4026*	13 = .5239*	13 = .4457*	44 = .7457
42 = .7062	31 = .6078	16 = .5337	
	36 = .5166		

*Indicates item loaded on more than one factor.

Table 15 summarizes the reliability of the eight factors on the 34-item YAHPI. The alpha coefficient for the total scale was .9092. Only two items (30 and 44) loaded on Factor 8; therefore, it was eliminated. Factor 7 possessed a low reliability (.4651), but it was retained because the items on that factor related to stress management behaviors which are strongly supported in the literature as health-promoting behaviors. Item 13 was deleted from Factor 6 because it reduced the alpha

coefficient of that factor. Item 18 was retained on Factor 2, rather than Factor 1, because it better "fits" that attribute of health promotion. Item 38, which loaded on both Factor 2 and Factor 5, was maintained on Factor 5 because it enhanced the reliability of that factor. Item 5 was deleted from Factor 4, and thus the instrument, because it contributed essentially nothing to the factor reliability. Item 29 was maintained on Factor 3. Even though the item reduced the reliability coefficient of the factor minimally, it was needed as the third item for the factor.

Following a second series of reliability and validity analysis, a total of three items (5, 30, and 44) were deleted from the 34-item YAHPI. Therefore, 31 items were retained for the third series of testing.

Table 16

Reliability Analysis Results of Eight Factors
on 34-Item YAHPI

Item number	Item-Total correlation	Alpha if item deleted
Factor 1 (alpha = .8611)		
11	.4698	.8524
19	.5369	.8457

(table continues)

Item number	Item-Total correlation	Alpha if item deleted
20	.5113	.8477
27	.6500	.8356
32	.6110	.8398
35	.6381	.8376
37	.6438	.8380
40	.5617	.8437
41	.5635	.8434
43	.5004	.8512

Factor 2 (alpha = .8213)		
9	.5008	.8129
18	.4559	.8164
21	.6617	.7837
23	.5328	.8049
26	.6318	.7887
34	.6382	.7868

Factor 3 (alpha = .7761)		
22	.6084	.6874
25	.6843	.6072
29	.5342	.7802

Factor 4 (alpha = .6365)		
5*	.3199	.6337
12	.4635	.5325
14	.4346	.5562
39	.4526	.5413

Factor 5 (alpha = .7293)		
28	.5872	.5930
38	.4869	.7152
42	.5805	.6078

Factor 6 (alpha = .6901)		
1	.4332	.6576
13*	.3579	.6971

(table continues)

Item number	Item-Total correlation	Alpha if item deleted
31	.6247	.5283
36	.5131	.6092

Factor 7 (alpha = .4651)		
8	.2646	.4068
13	.2855	.3707
16	.3160	.3139

Factor 8 (alpha = .5090)		
30	.3414	**
44	.3414	**

* Indicates the item was deleted.

** Indicates no coefficient alpha was given by computer.

Following a second series of reliability and validity analysis, a total of three items (5, 30, and 44) were deleted from the 34-item YAHPI. Therefore, 31 items were retained for the third series of testing.

Reliability and Validity Studies on 31-Item YAHPI

The 31-item instrument, the YAHPI, was first subjected to factor analysis to determine validity of the factors and their loadings. Using the varimax rotation results, seven factors were extracted with eigenvalues ≥ 1.00 . A summary of the factor extraction, which accounts for 58.2% of the variance, is presented in Table 17.

Table 17

Factor Extraction Summary of Seven Factors on
31-Item YAHPI

Factor	Eigenvalue	Factor extraction percent variance explained	Cumulative percent of variance explained
1	8.7747	28.3	28.3
2	2.5558	8.2	36.6
3	1.9220	6.2	42.8
4	1.4349	4.6	47.4
5	1.1663	3.8	51.1
6	1.1254	3.6	54.8
7	1.0673	3.4	58.2

A summary of the seven factors and their loadings is represented in Table 18. Seven items (12, 18, 26, 28, 31, 36, and 43) loaded on more than one factor.

The reliability coefficient for the entire scale was .9089. Table 19 depicts the reliability analysis results of the seven factors on the 31-item YAHPI.

As Tables 18 and 19 indicate, Factor 7 possessed only two items (12 and 14); therefore, it was eliminated from the instrument. Although item 12 cross-loaded on Factor 2, the item reduced the reliability of the factor and was deleted.

Table 18

Factor Loading Summary of Seven Factors on 31-Item YAHPI

<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>	<u>Factor 4</u>
11 = .5994	12 = .4954*	9 = .6941	22 = .7924
18 = .4684*	26 = .5268*	18 = .4221*	25 = .8305
19 = .6873	28 = .4311*	21 = .7407	29 = .6065
20 = .5681	31 = .4144*	26 = .5006*	
27 = .6212	36 = .6217*	34 = .7506	
32 = .6106	38 = .6603		
35 = .6245	39 = .5437		
37 = .7203			
40 = .6130			
41 = .6102			
43 = .4369*			
<u>Factor 5</u>	<u>Factor 6</u>	<u>Factor 7</u>	
8 = .4839	1 = .8097	12 = .4974*	
16 = .5278	13 = .5997	14 = .7979	
28 = .6401*	31 = .6171*		
42 = .6671	36 = .4714*		
43 = .4375*			

* Indicates item loaded on more than one factor.

The reliability coefficients on Factors 5 and 6 continued to remain below the .70 level (.6543 and .6084). Because items 28, 31, and 36 cross-loaded on Factor 2, the researcher concluded that those three items measured more of the variance in exercise and stress management than did any of the other items on Factors 5 and 6. Consequently, Factors 5 and 6 were deleted; thus items 1, 8, 13, 16, and 42 were eliminated. The elimination of seven items (1, 8,

Table 19

Reliability Analysis Results of Seven Factors
on 31-Item YAHPI

Item number	Item-Total correlation	Alpha if item deleted
Factor 1 (alpha = .8611)		
11	.4698	.8524
19	.5369	.8457
20	.5113	.8477
27	.6500	.8356
32	.6110	.8398
35	.6381	.8376
37	.6438	.8380
40	.5617	.8437
41	.5635	.8434
43	.5004	.8512
Factor 2 (alpha = .8352)		
12*	.4989	.8364
23	.5384	.8284
31	.5521	.8106
36	.6072	.8123
38	.6735	.8015
39	.5118	.8299
Factor 3 (alpha = .7868)		
9	.5321	.7605
18	.4314	.7856
21	.6501	.7188
26	.5602	.7477
34	.6564	.7143

(table continues)

Item number	Item-Total correlation	Alpha if item deleted
Factor 4 (alpha = .7761)		
22	.6084	.6874
25	.6843	.6072
29	.5342	.7802
Factor 5 (alpha = .6543)		
8	.3652	.6348
16	.3312	.6598
28	.5277	.5209
42	.3443	.5143
Factor 6 (alpha = .6084)		
1	.4302	.4909
13	.3679	.5780
31	.4645	.4390
Factor 7 (alpha = .5312)		
12	.3619	**
14	.3619	**

* Indicates item was deleted.

** Indicates no alpha coefficient given by the computer.

12, 13, 14, 16, and 42) following reliability and validity analysis of the 31-item instrument left 24 items to be tested during the fourth, and final, analysis of the YAHPI.

Reliability and Validity Analysis of the
24-Item YAHPI

The reliability results using internal consistency measures are shown in Table 20. All items possessed good reliability. No items possessed an item-total correlation below .20. Item-total correlations on the 24-item YAHPI ranged from .3408 to .6413. Inter-item correlations ranged from .0399 to .6398. The 24-item scale alpha coefficient was .9073, which indicated high reliability for the entire instrument.

Table 20

Item-Total Correlation Summary on 24-Item YAHPI

Item number	Item-Total correlation	Alpha if item deleted
9	.4001	.9029
11	.3408	.9030
18	.4830	.9001
19	.4537	.9008
20	.4718	.9005
21	.5480	.8987
22	.4813	.9002
23	.4964	.8999
25	.4849	.9001
26	.5876	.8977
27	.6094	.8976
28	.5127	.8995
29	.4814	.9002
31	.5041	.8999
32	.6413	.8975
34	.5543	.8985

(table continues)

Item number	Item-Total correlation	Alpha if item deleted
35	.6371	.8975
36	.5154	.8997
37	.5393	.8995
38	.5876	.8977
39	.4878	.9000
40	.4882	.9000
41	.4761	.9003
43	.4626	.9006

A summary of the factor extraction of the 24-item YAHPI is depicted in Table 21. The four extracted factors explain 53.2% of the variance.

The four factors and their factor loadings from the 24-item YAHPI are summarized in Table 22. Nine items (18, 21, 23, 36, 31, 32, 35, 38, and 41) loaded on more than one factor. Factor loadings of items retained on specified factors (Table 23) had loadings ranging from .5206 to .8582 (Table 22).

Table 21

Factor Extraction Summary of Four Factors on
24 Item YAHPI

Factor	Eigenvalue	Factor extraction percent variance explained	Cumulative percent of variance explained
1	7.7624	32.3	32.3
2	2.2214	9.3	41.6
3	1.6275	6.8	48.4
4	1.1462	4.8	53.2

Table 22

Factor and Factor Loading Summary of Four Factors
on 24-Item YAHPI

<u>Factor 1</u>	<u>Factor 2</u>	<u>Factor 3</u>	<u>Factor 4</u>
11 = .6330	9 = .7256	22 = .8270	21 = .4314*
18 = .5059*	18 = .5786*	25 = .8582	23 = .5206*
19 = .6512	21 = .7898*	29 = .7439	26 = .6118*
20 = .6045	23 = .5556*	31 = .4547*	28 = .6198
27 = .7137	26 = .6257*	41 = .4048*	31 = .7347*
32 = .6701*	32 = .4195*		32 = .4566*
35 = .6876*	34 = .7647		35 = .4274*
37 = .7343	38 = .4869*		36 = .8270
40 = .6595			38 = .7174*
41 = .6394*			39 = .6089
43 = .5723			

* Indicates item loaded on more than one factor.

Table 23 depicts the reliability studies of each item and factor. All 24 items loaded on the four factors and were retained. Item 18 (Factor 2) did not significantly enhance the reliability of Factor 2, but was retained because the researcher believed the item measured an important component of the factor. Item 29 (Factor 3) was again retained to assure the validity of the factor with three items.

Table 23

Reliability Analysis Summary of Four Factors on
24-Item YAHPI

Item number	Item-Total correlation	Alpha if item deleted
Factor 1 (alpha = .8611)		
11	.4698	.8524
19	.5369	.8457
20	.5113	.8477
27	.6500	.8356
32	.6110	.8398
35	.6381	.8376
37	.6438	.8380
40	.5617	.8437
41	.5635	.8434
43	.5004	.8512
Factor 2 (alpha = .7868)		
9	.5321	.7600
18	.4314	.7856
21	.6501	.7188

(table continues)

Item number	Item-Total correlation	Alpha if item deleted
26	.5602	.7477
34	.6564	.7143
Factor 3 (alpha = .7761)		
22	.6084	.6874
25	.6843	.6072
29	.5342	.7802
Factor 4 (alpha = .7889)		
23	.4680	.7732
28	.4957	.7673
31	.5317	.7593
36	.6123	.7384
38	.6302	.7356
39	.5064	.7649

The correlation of the four factors on the 24-item YAHPI is shown in Table 24. The factor correlations range from $-.3454$ to $.3622$.

The factors were then labeled, based on the attribute of health promotion that the factor was measuring. Factor 1 was labeled "integration," Factor 2 was labeled "self-care," Factor 3 was labeled "social interaction," and Factor 4 was labeled "individuated health behaviors." Ten items were retained under Factor 1, five items were retained under Factor 2, three items were retained under

Table 24

Correlation of Four Factors on 24-Item YAHPI

	Factors			
	1	2	3	4
Factor 1	1.0000			
Factor 2	-.2987	1.0000		
Factor 3	-.3454	.1539	1.0000	
Factor 4	-.3179	.3595	.3622	1.0000

Factor 3, and six items were retained under Factor 4. Retained items, and the factor they loaded on, are presented in Appendix Q.

Definitions for the four attributes or factors were formulated:

1. Integration--the ability to organize self into a harmonious whole (Beck et al., 1984; MacLeod & Pauson, 1989).

2. Self-care--the practice of activities that an individual personally initiates and performs for self, to maintain or promote maximum life, health, and well-being (Orem, 1983; Steiger & Lipson, 1985).

3. Social interaction--"the process of acting in awareness of others and responding to the ways others respond" (Broom, Bonjean, & Broom, 1990, p. 350).

4. Individuated health behaviors--"those behaviors or actions which can be accomplished by oneself" (Stutte, 1987a, p. 20).

Summary

A total of 20 items was deleted from the 44-item YAHPI following four series of reliability and validity analyses on data gathered from 458 young adults. The sample, obtained from four agencies in two cities located in the south-central United States, was predominantly female and white, was more likely to report their highest level of education as "some college" and be between 18 and 25 years of age. They were also more likely to have yearly incomes of either less than \$15,000 or between \$25,001 and \$40,000. The sample was almost equally represented by single and married subjects. Over 33% of the subjects were university students, over 25% were manufacturing plant workers, and 40% were city-county health department and fitness center attendants.

Four series of reliability and validity analyses, using internal consistency measures, item analysis, and factor analysis were performed. The first series of

testing tended to indicate that the 44-item instrument and corresponding factors or attributes, in its present form, possessed adequate reliability, but lacked sufficient validity for measurement of health promotion in the young adult population. Therefore, more reliability and validity analyses were indicated.

The initial factor analysis extracted 10 factors which accounted for 56.7% of the variance, but items did not always load on factors or attributes identified in the conceptual framework of the study. Ten items were deleted following reliability and validity testing. No item was eliminated following item analysis. The reliability for the entire instrument was .9010 and alpha coefficients for the eight remaining factors ranged from .5403 to .8539.

The second series of analysis extracted eight factors, which accounted for 56.8% of the variance, from the 34-item YAHPI. Three items and one factor were deleted. The total scale alpha was .9092 the seven remaining factors had alpha coefficients ranging from .4651 to .8611. The researcher chose to retain the factor with low reliability (.4651) because the items which loaded on it measured stress management, a behavior strongly supported in the literature as health-promoting.

The third series of analysis extracted seven factors, accounting for 58.2% of the variance, from the remaining 31-item YAHPI. Three factors were dropped due to insufficient items and rather low alpha coefficients. The reliability coefficient for the entire scale was .9089 and coefficients for the four remaining factors ranged from .7761 to .8611.

The fourth and final analysis tended to indicate that the 24-item instrument possessed sufficient reliability and validity. The total scale alpha was .9073. The four factors, which explained 53.2% of the variance, and their alpha coefficients were: Factor 1 = .8611; Factor 2 = .7868; Factor 3 = .7761; and Factor 4 = .7889. Item-total correlations ranged from .3408 to .6413. The four factor correlations ranged from -.3454 to .3622.

CHAPTER V

SUMMARY OF THE STUDY

The study was conducted to develop a reliable and valid instrument to measure the concept of health promotion in the young adult. To accomplish this purpose, the research study was designed to test the reliability and validity of the 44 items of the Young Adult Health Promotion Inventory (YAHPI) and each of its factors or attributes: interaction, self-awareness, energetic, self-care, integration, centering, individuation, self-discipline, coping efficacy, and nurturance. In the final sections, the conclusions and implications of the findings are stated in relation to the current study and the literature review. Recommendations for further study are also set forth.

Summary

A methodological approach was used to test the reliability and validity of the YAHPI. The 44-item instrument was derived by the researcher following concept development of health promotion, instrument development to measure health promotion in the general adult population, a pilot study on 305 adults, instrument development of

additional items believed to measure lifestyle health risk factors and developmental tasks in the young adult population, content validation by 10 experts in the field of health promotion, and a pilot study on 282 young adults.

Four hundred and fifty-eight young adults between the ages of 18 and 35, inclusive, from two cities with populations of 93,000 and 6,000 in the south-central United States and representing four agencies, participated in the present study. The sample was predominantly female (59%), white (78.2%), reported having yearly family incomes of either less than \$15,000 (24.2%) or between \$25,001 and \$40,000 (23.6%), and reported their highest educational level as "some college" (56.3%). The sample was almost equally represented by married (45.6%) and single (42.8%) subjects. Over a third (34%) of the subjects were university students, almost 27% were manufacturing plant workers, 20.3% were city-county health department participants, and nearly 19% were fitness center attendants.

Data from the 458 subjects were subjected to four series of reliability and validity analyses to develop the final 24-item YAHPI. Reliability was tested through internal consistency measures using Cronbach's alpha. Validity was measured through item analysis, using a

t-test on the upper and lower quartile scores, and factor analysis using principal components analysis with varimax rotation.

Ten factors, which accounted for 56.7% of the variance, were extracted from the 44-item instrument. During the first analysis, results from the 458 subjects tended to indicate that the instrument possessed reliability, but not validity, in its present form. The entire scale alpha coefficient was .9190, indicating high reliability. The 10 extracted factors, with eigenvalues ≥ 1.00 , possessed fair (.5508) to good (.7890) reliability. However, factor analysis results indicated that items did not always load on the 10 factors identified in the conceptual framework as measuring health promotion in the young adult.

Ten items, including two factors, were deleted from the 44-item instrument following the first series of analysis. Two items (7 and 10) reduced the reliability of their factors (5 and 4, respectively) and four items (2, 6, 24, and 33) did not load on any of the extracted factors at the .40 level. Only two items per factor (3 and 4, 15 and 17) loaded on two factors (9 and 10); therefore, the factors were deleted. Consequently, items 2, 3, 4, 6, 7, 10, 15, 17, 24, and 33 were deleted from the instrument.

Alpha coefficients for the eight remaining factors were: Factor 1, .8539; Factor 2, .7585; Factor 3, .7868; Factor 4, .7320; Factor 5, .5722; Factor 6, .6543; Factor 7, .6084; and Factor 8, .5403.

Eight factors, which explained 56.8% of the variance, were extracted from the 34-item YAHPI. The alpha coefficient for the entire scale was .9092. Three items (5, 30, and 44) were deleted following the second analysis. One factor (8) loaded only two items (30 and 44), and was not retained. One item (5) essentially contributed no added reliability to its factor (4), and was deleted. The reliability coefficients for the seven remaining factors were: Factor 1, .8611; Factor 2, .8213; Factor 3, .7761; Factor 4, .6365; Factor 5, .7293; Factor 6, .6901; Factor 8, .4651. Although a reliability of .4651 was low, the researcher chose to retain the factor for the third analysis because items measuring stress management, which are strongly supported in the literature as health-promoting, composed that factor.

Seven factors, which accounted for 58.2% of the variance, were extracted from the 31-item instrument during the third series of testing. The total scale alpha was .9089. A total of seven items was deleted. Three items (28, 31, and 36) that loaded on Factor 2 also cross-loaded

on either Factor 5 or Factor 6. Believing the three items on Factor 2 measured more of the variance in exercise and stress management than the remaining items on Factors 5 and 6, and because the reliability coefficients of Factors 5 and 6 remained below the .70 level, the two latter factors were not retained. Items 28, 31, and 36 were, however, retained on Factor 2. Factor 7 was not retained because only two items (12 and 14) loaded on it. Item 12, which cross-loaded on Factor 2, was not retained because it reduced the reliability of that factor. Therefore, items 1, 8, 12, 13, 14, 16, and 42 were eliminated following analysis. The alpha coefficients of the four remaining factors were: Factor 1, .8611; Factor 2, .7804; Factor 3, .7868; and Factor 4, .7761.

Four factors, which explained 53.2% of the variance, were extracted from the 24-item YAHPI during the final analysis. The inter-item correlation ranged from .0399 to .6398. Item-total correlations ranged from .3408 to .6413. All items loaded at the .40 level although nine items loaded on more than one factor. Factor correlations of the four factors ranged from $-.3454$ to $.3622$. The alpha coefficient for the entire scale was .9073 and alpha coefficients of the four factors were: Factor 1, .8611; Factor 2, .7868; Factor 3, .7761; and Factor 4, .7889.

Factors were relabeled: Factor 1 was labeled Integration; Factor 2 was labeled Self-Care; Factor 3 was labeled Social Interaction; and Factor 4 was labeled Individuated Health Behaviors.

Discussion of Findings

The description of the sample indicates a diverse sampling of young adults. However, the sample was skewed particularly in relation to demographic characteristics of age, race, and education. This is probably due to the limited geographical location and the data collection settings. Over a third of the subjects were university students; nearly a third of the subjects were between 18 and 20 years of age. More data collection settings and a greater geographical distribution might provide a more representative sampling of the young adult population. This skewness might explain the clustering of the nutrition, exercise, and stress management items on one factor, although the researcher did identify this attribute cluster during concept development.

Findings from the first reliability and validity analysis conducted on the 44-item YAHPI tended to indicate three findings. First, factors or attributes of health promotion were different than identified in the conceptual framework. Second, the reliability of the instrument,

although good, could be strengthened by the deletion of items and/or factors. Third, validity of the instrument in its present form was insufficient and further analysis was indicated.

The final instrument, the 24-item YAHPI (Appendix R), was produced following four series of reliability and validity analyses. The instrument alpha coefficient was .9073 and the alpha for the four factors or attributes of health promotion ranged from .7761 to .8611. According to Nunnally (1978), these coefficients indicate sufficient reliability for both the entire scale and the factors or subscales. Deletion of the 20 items from the original 44-item YAHPI reduced the total scale reliability only minimally, from .9190 to .9073.

Both content and construct validity, according to Burns and Grove (1987) are necessary, and were obtained on the YAHPI. Content validity was obtained through input from 10 experts in the field of health promotion prior to the present study. Also, construct validity was obtained prior to the instrumentation process through concept analysis. The results of the item analysis from data received from the 458 subjects in the present study indicated that items discriminated the characteristic of health promotion in the sample. All extracted factors had

factor loadings of at least a .40. Factor loadings of items retained on the four factors during the final analysis ranged from .5206 to .8582. These loadings are considered significant (Burns & Grove, 1987; Nunnally, 1978; Tabachnick & Fidell, 1983).

Many similarities, yet many differences, exist between the Health-Promoting Lifestyle Profile (HPLP) and the Young Adult Health Promotion Inventory (YAHPI), both during their developments and in the final products. All negatively-worded items on the researcher's health promotion instruments were lost during reliability and validity analyses. A total of 12 negatively-worded items were deleted from the instrument prior to the dissertation study: 6 were lost through content validation by experts in the field of health promotion and 6 were lost during the two pilot studies. During the present study, the remaining six items were eliminated from the instrument. This finding is consistent with the development of the HPLP. Twenty-six of the 107 items were negatively-worded and all of the negatively-worded items were lost during the reliability and validity analyses. This may be related to the positive, versus negative, focus of health promotion. Another explanation might be the subjects' inability to

understand the underlying content of a negatively-worded item.

Similarities and differences in the composition of the HPLP and the YAHPI are noteworthy. The HPLP instrument is composed of 48 items, measures health promotion in the general adult population, explains 47.1% of the variance, and has an alpha coefficient of .922. The YAHPI comprises 24 items, measures health promotion in the young adult population, explains 53.2% of the variance, and has an alpha coefficient of .9037. The total scale alpha and factor alphas are slightly lower on the YAHPI than those on the HPLP. Fewer factors and factor items, however, explain a greater percentage of variance on the YAHPI when compared to the HPLP.

The HPLP is comprised of six factors; the YAHPI is comprised of four factors. Although the number of factors differs, the content of the factors is very similar. For example, the factor of "integration" on the YAHPI can be compared to the factor of "self-actualization" on the HPLP. Items measuring the "integration" factor relate to purpose in life; one's ability to adjust to changes; awareness of abilities, feelings, and priorities; goal-setting; and occupational and general life satisfaction. Ten items measure this attribute. It has an alpha of .8611, and the

attribute explains 32.3% of the variance. In comparison, the "self-actualization" factor on the HPLP encompasses 13 items related to optimism and enthusiasm in life; liking oneself; growth and change; goal-setting; being happy and content; awareness of one's priorities, strengths, and weaknesses; respect for accomplishments; purpose in life; and satisfaction with the environment. It has an alpha of .904 and explains 23.4% of the variance. These two factors were the first ones to be extracted during factor analysis of the two instruments.

The factor of "self-care" on the YAHPI can be compared to the "health responsibility" factor on the HPLP. These two similar factors were the ones to be extracted second during factor analysis of the two instruments. The "self-care" factor items measure an individual's ability to care for himself. It encompasses five items, explains 9.3% of the variance, and has an alpha of .7868. The "health responsibility" factor on the HPLP measures the individual's ability to obtain and validate health-related information. It incorporates 10 items, explains 8% of the variance, and has an alpha of .814.

The factor of "social interaction" on the YAHPI can be compared to the factor of "interpersonal relationships" on the HPLP. The "social interaction" factor was the third

factor to be extracted on the YAHPI, contains three items, explains 6.8% of the variance, and has an alpha of .7761. The "interpersonal relationships" factor was the fifth factor to be extracted on the YAHPI, contains seven items, explains 3.8% of the variance, and has an alpha of .800.

The "social interaction" factor is composed of items measuring interaction with others, whereas the "interpersonal relationship" factor is comprised of items measuring relationships and responses to others in certain situations. The difference in the level of the two factors may be related to the young adult samples' lack of mastery of the developmental task of intimacy (Erikson, 1968). The difference in the two factors might also be the result of the young adults' variety of social contacts, as acclaimed in the literature by Rogers (1988).

The three item statements related to intimate relationships were lost during reliability and validity analysis of the YAHPI. The statements of, "I maintain a close relationship with a significant other (spouse/friend)" and "I maintain a good relationship with my family" were lost during the pilot study on 282 young adults (Pilot II). The statement, "I can depend on my family and/or friends for support," did not load on any of the initial 10 extracted factors in the present study.

This tendency for intimate relationship items to appear insignificant for measuring health promotion in young adults may be related to the skewed results of the subjects' ages. Almost one-third (32.8%) of the sample was between 18 and 20 years of age.

The HPLP factored nutrition, exercise, and stress management as three separate components of health promotion; whereas, they clustered on one factor (individuated health behaviors) on the YAHPI. Exercise was the third factor to be extracted on the HPLP, includes five items, explains 4.6% of the variance, and has an alpha of .809. Nutrition was the fourth factor to be extracted, includes six items, explains 4.2% of the variance, and has an alpha of .757. Stress management was the last, or sixth, factor to be extracted, includes seven items, explains 3.2% of the variance, and has an alpha of .702. The individuated health behavior factor of the YAHPI, by contrast, encompasses six items (1 on nutrition, 1 on stress management, 2 on exercise, and 2 on education about these behaviors), accounts for 4.8% of the variance, and has an alpha of .7889.

The decreased percentage of variance in health promotion explained, by the components of stress management, nutrition, and exercise in young adults, as

opposed to the general adult population, may be related to sample demographics. Allen (1987) found that relationship stress (35%) and job stress (31%) were common in the young adults that she studied. The literature points out that divorces are also common in young adults, with the median age being 31 for females and 33-34 for males (U.S. Census Bureau, 1986). Only 20% of the sample fell within the 31-35 year old age group, and only 8% of the sample reported they were divorced or separated. Therefore, marital status and age skewness may have influenced this finding.

Nutrition, too, was found to account for a smaller percentage of health promotion in young adults (YAHPI) than of the general adult population (HPLP). Although Allen (1987) found nutrition to be a problem in 26% of the young adults she studied, this study does not support nutrition as a significant measure of health promotion in young adults. Again, the skewness of the subjects' demographic characteristics may have significantly influenced this finding.

Table 25 is a comparison of the HPLP and the YAHPI on percentages of variance explained by the factors or attributes of health promotion. These statistics tend to indicate that the psychological attributes of the two instruments, self-actualization and integration, account

Table 25

Factor (Attribute) Percentage Comparison of HPLP
and YAHPI

	HPLP (47.1%)		YAHPI (53.2%)
Self- Actualization	23.4%	Integration	32.3%
Health Responsibility	8%	Self-Care	9.3%
Interpersonal Relationships	3.8%	Social Interactions	6.8%
Exercise (4.6%), Nutrition (4.2%), and Stress Management (3.2%)	12%	Individuated Health Behaviors	4.8%

for the greatest percentage of variance in the two instruments. The percentage, however, is considerably higher for the young adult. That difference holds true for the social component, too. Social interaction accounts for 6.8% of the variance on the YAHPI; 7% of the variance on the HPLP is explained by interpersonal relationships. The physical components of individuated health behaviors account for only 4.8% of the variance on the YAHPI; exercise, nutrition, and stress management, conversely, account for 12% of the variance on the HPLP. Self-care and health responsibility appear to explain about the same

percentage of variance on both instruments. These findings support Erikson's (1968) claim that successful mastery of the psychosocial tasks is necessary for health. Sheehy's (1974) assertion, that the young adult must develop and expand his own autonomy, relationships, and thus, horizons, is supported by the findings of this study.

Similarities between the factors and items on the HPLP and YAHPI tend to provide quantitative support for the conceptual components of health promotion found in the literature. Therefore, more validity for the movement toward a theory of health promotion is provided by the findings of the study.

Walker et al. (1987) reported that during the development of the HPLP, the factor of environmental sensitivity was lost. Although the YAHPI possessed no specific factor of environmental sensitivity, items related to the environment were incorporated in the instrument. For example, statements such as, "I like where I live" and "I find my environment to be very unpleasant" were items found on the original YAHPI. These items, and others related to the environment, were deleted following reliability and validity analysis prior to the present study. Results from development of both instruments tend to indicate that environmental sensitivity is not an

attribute of health promotion, but it might possibly be a characteristic of health protection or disease prevention.

Four lifestyle risk factors of young adults were found in the literature: stress, malnutrition or overnutrition, inadequate exercise, and inadequate health screening. Items specifically measuring these factors were, however, frequently eliminated from the instrument. Item statements such as, "I have health exams," "I snack on non-nutritious foods between meals," "If I feel myself becoming tense, I know how to relieve it," "I eat beef, pork, or lamb more than four times a week," "I can depend on my family and/or friends for support," and "I maintain a close relationship with a significant other (spouse/friend)" are examples of items lost during reliability and validity analyses, either prior to, or during, the dissertation study. Perhaps, it is the good health and resilience that the young adult possesses that makes the attributes of nutrition, exercise, and stress management contribute less to health promotion than is true of the general adult population. Another possible explanation of the findings may be found in the skewed demographic characteristics of the sample.

The four factors on the YAHPI identified following quantitative data analysis are: integration, self-care, social interaction, and individuated health behaviors.

Integration and self-care were two of the original 10 attributes or factors to be analyzed in this study. They have been supported in the literature, and were identified during concept development by the researcher. Individuated health behaviors, too, were identified by the researcher during concept development. The attribute, however, was not identified during quantitative research analysis on data from the two pilot studies. The attribute did surface in this study, perhaps because of the appropriate number of subjects needed for instrument development (10 subjects per item statement). The attribute of social interaction had formerly been labeled "interaction;" however, following analysis of the 44-item YAHPI, the label name became more clearly identified. This attribute, frequently labeled "interpersonal relationships," has been supported in the literature and was identified as an empirical referent during concept development under "enhanced holistic well-being."

One of the reasons for conducting this study was to determine if other attributes of health promotion could be identified through an inductive versus a deductive approach. "Integration" tends to be somewhat different from Walker et al.'s (1987) label of "self-actualization". To the researcher, integration appears to be a component of

self-actualization. Self-actualization is possibly a result of health promotion; however, the literature and concept development by the researcher point more toward a psychological component of health promotion that is less inclusive. The researcher chose to retain the label of integration because the definition more closely "fits" the attribute.

Self-care was not a term identified by Walker et al. (1987), but self-care does appear to be a component of "health responsibility." Other behaviors tend to be inherent in the "health responsibility" attribute, too. Self-care has been extensively referred to in the literature (see concept development) as an attribute of health promotion. Until this study, however, it has not been identified through quantitative research analysis. "Social interaction" was the label chosen over "interpersonal relationships" because the intimacy found in the general adult population (HPLP) was not found in the young adult population (YAHPI).

Conclusions and Implications

The following conclusions were derived from this study:

1. The findings of this study support the general literature on health promotion. Attributes of nutrition,

exercise, stress management, social interaction, self-care, and integration are necessary for health promotion in the young adult.

2. The 24-item YAHPI does appear to have sufficient reliability and validity to measure health promotion in the young adult population.

3. Although 10 attributes of health promotion were presented in the conceptual framework for the study, 4 attributes, which explain over half of the variance of health promotion in young adults, emerged. It appears that the remainder of the attributes--self-awareness, energetic, centering, individuation, self-discipline, coping efficacy, and nurturance--are inherent in the four identified attributes of health promotion in young adults--integration, self-care, social interaction, and individuated health behaviors.

The following implications were derived from this study:

1. Health promotion in a variety of young adult populations needs to be measured.

2. Health promotion programs for young adults based on the four identified attributes need to be developed.

Recommendations for Further Study

The recommendations for further study include:

1. Additional reliability and validity studies on the 24-item YAHPI are necessary. To ensure an adequate number of items on each factor, more items need to be developed for Factors 2 and 3. Because the behaviors of exercise, nutrition, and stress management clustered on one factor (4), more items need to be developed to measure that factor to determine if the items continue to cluster, or if they factor separately, as was found in the general adult population (HPLP).

2. To ensure generalizability, more studies need to be conducted on large heterogeneous samples in a variety of settings. A special effort to include the older young adults (ages 26 to 35) and those divorced or separated should be made. A special effort to study different races and ethnic groups should also be made.

3. Although negatively-worded items tend to be lost during reliability and validity analyses, incorporating the negative form of the 24-item statements might provide insight into the reason for negatively-worded item losses. In addition, inclusion of negatively-worded items prevents response sets.

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APPENDIX A

The Young Adult Health Promotion Inventory (44-Item)

COMPLETION AND RETURN OF THIS INSTRUMENT WILL BE CONSTRUED AS YOUR INFORMED CONSENT TO ACT AS A SUBJECT IN THIS STUDY.

THE YOUNG ADULT HEALTH PROMOTION INVENTORY

The following are statements about a young adult's lifestyle. Please respond, by circling the correct letter, to each statement as it relates to the frequency of your present lifestyle.

R = routinely or regularly

O = often

S = sometimes

H = hardly ever or never

- | | | | | |
|--|---|---|---|---|
| 1. I participate in a group sport at least twice a week | R | O | S | H |
| 2. I know that I make the right decisions about my health care. | R | O | S | H |
| 3. I have difficulty handling my feelings in a constructive manner. | R | O | S | H |
| 4. I have difficulty telling my health care provider what concerns me about my health. | R | O | S | H |
| 5. I eat a minimal amount of saturated fats in my diet. | R | O | S | H |
| 6. I am not happy with my life. | R | O | S | H |
| 7. I feel like a failure if my day does not go as I planned it. | R | O | S | H |
| 8. If I feel myself becoming tense, I know how to relieve it. | R | O | S | H |
| 9. I know when to check my blood pressure, pulse, and temperature. | R | O | S | H |
| 10. I like trying new ideas and experiences. | R | O | S | H |
| 11. I am aware of my purpose in life. | R | O | S | H |
| 12. I read product labels for preservative and sodium content before buying. | R | O | S | H |

- | | | | | |
|---|---|---|---|---|
| 13. I participate in leisure-time activities. | R | O | S | H |
| 14. I eat at least 2 servings of whole grain foods daily. | R | O | S | H |
| 15. I like my body. | R | O | S | H |
| 16. I concentrate on pleasant thoughts several times a day. | R | O | S | H |
| 17. I eat 3 well-balanced meals a day. | R | O | S | H |
| 18. I know what signs and symptoms to report to my health care provider. | R | O | S | H |
| 19. I am aware of my abilities. | R | O | S | H |
| 20. I feel I can adjust to changes in my life. | R | O | S | H |
| 21. I have my blood pressure checked. | R | O | S | H |
| 22. I like to visit with my friends. | R | O | S | H |
| 23. I attend educational programs on health. | R | O | S | H |
| 24. I have a lot of energy. | R | O | S | H |
| 25. I like to spend time with other individuals. | R | O | S | H |
| 26. I check my pulse while exercising. | R | O | S | H |
| 27. I am very satisfied with my life. | R | O | S | H |
| 28. I practice some form of relaxation method or technique. | R | O | S | H |
| 29. I like to participate in group activities. | R | O | S | H |
| 30. I have difficulty verbalizing my health needs and desires. | R | O | S | H |
| 31. I participate in a minimum of 20 minutes of exercise at least 3 times a week. | R | O | S | H |

- | | | | | |
|---|---|---|---|---|
| 32. I know what's normal for my body. | R | O | S | H |
| 33. I can depend on my family and/or friends for support. | R | O | S | H |
| 34. I know what my blood pressure and pulse are. | R | O | S | H |
| 35. I am aware of my feelings. | R | O | S | H |
| 36. I participate in some form of aerobic exercise. | R | O | S | H |
| 37. I am aware of my priorities in life. | R | O | S | H |
| 38. I read articles and books about nutrition, exercise, and stress management. | R | O | S | H |
| 39. I eat at least 4 servings of fruits and vegetables daily. | R | O | S | H |
| 40. I feel I can do anything or accomplish anything I want to. | R | O | S | H |
| 41. I have made long-term goals to work toward. | R | O | S | H |
| 42. I consciously relax my muscles at least twice a day. | R | O | S | H |
| 43. I feel I am making or have made the correct occupational choice. | R | O | S | H |
| 44. I have difficulty when my daily routines are changed or altered. | R | O | S | H |

Please complete the following information about yourself:

1. Age _____ (write in numerical age)
2. Gender: (check one correct answer only)

Female

Male

3. Race: (check one correct answer only)

<input type="checkbox"/>	White	<input type="checkbox"/>	American Indian
<input type="checkbox"/>	Black	<input type="checkbox"/>	Asian
<input type="checkbox"/>	Hispanic	<input type="checkbox"/>	Other (please specify) _____

4. Family Income: (check one correct answer only)

<input type="checkbox"/>	less than \$15,000 per year
<input type="checkbox"/>	\$15,001 - \$25,000 per year
<input type="checkbox"/>	\$25,001 - \$40,000 per year
<input type="checkbox"/>	\$40,001 - \$55,000 per year
<input type="checkbox"/>	\$55,001 - \$75,000 per year
<input type="checkbox"/>	greater than \$75,000 per year

5. Educational Level: (check only highest level obtained)

<input type="checkbox"/>	less than 8th grade
<input type="checkbox"/>	completed 8th grade
<input type="checkbox"/>	completed high school
<input type="checkbox"/>	some college
<input type="checkbox"/>	Bachelor's degree
<input type="checkbox"/>	Master's degree
<input type="checkbox"/>	Doctoral degree

6. Marital Status (check one correct answer only)

<input type="checkbox"/>	married
<input type="checkbox"/>	single
<input type="checkbox"/>	divorced
<input type="checkbox"/>	separated
<input type="checkbox"/>	widow(er)

APPENDIX B

Ten Attributes and Item Statements of the Young Adult Health Promotion Inventory

TEN ATTRIBUTES AND ITEM STATEMENTS OF THE
YOUNG ADULT HEALTH PROMOTION INVENTORY

Interaction:

- 13. I participate in leisure-time activities.
- 22. I like to visit with my friends.
- 25. I like to spend time with other individuals.
- 29. I like to participate in group activities.
- 33. I can depend on my family and/or friends for support.

Self-Awareness:

- 2. I know that I make the right decisions about my health care.
- 18. I know what signs and symptoms to report to my health care provider.
- 19. I am aware of my abilities.
- 32. I know what's normal for my body.
- 35. I am aware of my feelings.

Energic:

- 1. I participate in a group sport at least twice a week.
- 24. I have a lot of energy.
- 31. I participate in a minimum of 20 minutes of exercise at least 3 times a week.
- 36. I participate in some form of aerobic exercise.

Self-Care:

- 9. I know when to check my blood pressure, pulse, and temperature.
- 21. I have my blood pressure checked.
- 26. I check my pulse while exercising.
- 34. I know what my blood pressure and pulse are.

Integration:

- 6. I am not happy with my life.
- 15. I like my body.
- 20. I feel I can adjust to changes in my life.
- 27. I am very satisfied with my life.
- 37. I am aware of my priorities in life.

Centering:

- 8. If I feel myself becoming tense, I know how to relieve it.
- 16. I concentrate on pleasant thoughts several times a day.
- 28. I practice some form of relaxation technique or method.
- 42. I consciously relax my muscles at least twice a day.

Individuation:

- 10. I like trying new ideas and experiences.
- 11. I am aware of my purpose in life.
- 40. I feel I can do anything or accomplish anything I want to.
- 41. I have made long-term goals to work toward.
- 43. I feel I am making or have made the correct occupational choice.

Self-Discipline:

- 5. I eat a minimal amount of saturated fats in my diet.
- 12. I read product labels for preservative and sodium content before buying.
- 23. I attend educational programs on health.
- 38. I read articles and books about nutrition, exercise, and stress management.

Coping Efficacy:

- 3. I have difficulty handling my feelings in a constructive way.
- 4. I have difficulty telling my health care provider what concerns me about my health.
- 7. I feel like a failure if my day does not go as I planned it.
- 30. I have difficulty verbalizing my health needs and desires.
- 44. I have difficulty when my daily routines are changed or altered.

Nurturance:

- 14. I eat at least 2 servings of whole grain foods daily.
- 17. I eat 3 well-balanced meals a day.
- 39. I eat at least 4 servings of fruits and vegetables daily.

APPENDIX C

The Adult Health Promotion Inventory

COMPLETION AND RETURN OF THIS INSTRUMENT WILL BE CONSTRUED
AS YOUR INFORMED CONSENT TO ACT AS A SUBJECT IN THIS STUDY.

THE ADULT HEALTH PROMOTION INVENTORY

The following are statements about an adult's lifestyle.
Please respond, by circling the correct letter, to each
statement as it relates to the frequency of your present
lifestyle.

R = routinely

O = often

S = sometimes

N = never

- | | | | | |
|---|---|---|---|---|
| 1. I eat 3 well-balanced meals per day. | R | O | S | N |
| 2. I participate in a group exercise sport at least twice a week. | R | O | S | N |
| 3. I have difficulty verbalizing my health needs and health desires. | R | O | S | N |
| 4. I know when to check my blood pressure, pulse, and temperature. | R | O | S | N |
| 5. I like my body. | R | O | S | N |
| 6. I feel uncomfortable being around my family. | R | O | S | N |
| 7. I have a lot of energy. | R | O | S | N |
| 8. I have difficulty handling my feelings in a constructive manner. | R | O | S | N |
| 9. I fail to see humor in difficult times. | R | O | S | N |
| 10. I limit my salt intake. | R | O | S | N |
| 11. I consciously relax my muscles at least twice a day. | R | O | S | N |
| 12. I have yearly health exams. | R | O | S | N |
| 13. I have difficulty telling my doctor what concerns me about my health. | R | O | S | N |

- | | | | | |
|---|---|---|---|---|
| 14. If I feel myself becoming tense, I know how to relieve it. | R | O | S | N |
| 15. I know what's normal for my body. | R | O | S | N |
| 16. I feel like a failure if my day does not go as I planned it. | R | O | S | N |
| 17. I like getting up each morning. | R | O | S | N |
| 18. I don't accomplish much in a day. | R | O | S | N |
| 19. I like trying new ideas and experiences. | R | O | S | N |
| 20. My doctor takes responsibility for my health. | R | O | S | N |
| 21. I take a nap daily. | R | O | S | N |
| 22. I participate in a stress management class or program. | R | O | S | N |
| 23. I read articles and books about nutrition, exercise, and stress management. | R | O | S | N |
| 24. I have problems seeing my weaknesses. | R | O | S | N |
| 25. I feel uncomfortable hugging or touching the people I care about. | R | O | S | N |
| 26. I feel I can adjust to changes in my life. | R | O | S | N |
| 27. I sleep at least 6-7 hours a night. | R | O | S | N |
| 28. I like where I live. | R | O | S | N |
| 29. I check my pulse while exercising. | R | O | S | N |
| 30. I am aware of my feelings. | R | O | S | N |
| 31. I exercise vigorously without first stretching my muscles. | R | O | S | N |
| 32. I have my blood pressure checked at least yearly. | R | O | S | N |
| 33. I eat beef, pork, or lamb more than 4 times a week. | R | O | S | N |

- | | | | | |
|--|---|---|---|---|
| 34. I feel I can do anything or accomplish anything I want to. | R | O | S | N |
| 35. I have difficulty when my daily routines are changed or altered. | R | O | S | N |
| 36. I check my body at least monthly for abnormal changes. | R | O | S | N |
| 37. I am aware of my abilities. | R | O | S | N |
| 38. I sit and relax at least 15 minutes twice a day. | R | O | S | N |
| 39. I walk or use the stairs whenever possible. | R | O | S | N |
| 40. There are so many things I want to do in life, but feel that I can't. | R | O | S | N |
| 41. I read product labels for preservation and sodium content before buying. | R | O | S | N |
| 42. I find it difficult to accept praise from others. | R | O | S | N |
| 43. I like to visit with my friends. | R | O | S | N |
| 44. I feel as if my life is crumbling around me. | R | O | S | N |
| 45. I find my environment to be very unpleasant. | R | O | S | N |
| 46. I eat at least 4 servings of fruits and vegetables daily. | R | O | S | N |
| 47. I know that I make the right decisions about my health care. | R | O | S | N |
| 48. I am very satisfied with my life. | R | O | S | N |
| 49. I participate in 20-30 minutes of exercise at least 3 times a week. | R | O | S | N |
| 50. I snack on non-nutritious foods between meals. | R | O | S | N |

- | | | | | |
|--|---|---|---|---|
| 51. I know what signs and symptoms to report to my doctor. | R | O | S | N |
| 52. I have made long-term goals to work toward. | R | O | S | N |
| 53. When I have a minor illness, it doesn't last very long. | R | O | S | N |
| 54. I find it difficult to praise others. | R | O | S | N |
| 55. I like to participate in group activities. | R | O | S | N |
| 56. I eat at least 2 servings of whole grain foods daily. | R | O | S | N |
| 57. I am not happy with my life. | R | O | S | N |
| 58. I want to change so many things in my life. | R | O | S | N |
| 59. I am unable to reach short-term goals I have made for myself. | R | O | S | N |
| 60. I have difficulty taking care of myself when I have a minor illness. | R | O | S | N |
| 61. I attend educational programs on health. | R | O | S | N |
| 62. I know what my blood pressure and pulse are. | R | O | S | N |
| 63. I feel there is a reason or purpose for everything that happens to me. | R | O | S | N |
| 64. I am aware of my priorities in life. | R | O | S | N |
| 65. I like spending time with other individuals. | R | O | S | N |
| 66. I am aware of my purpose in life. | R | O | S | N |
| 67. I know who to talk to when I have problems. | R | O | S | N |

Please use the attached blank sheet to make comments/remarks about statements which you felt were unclear, ambiguous, or vague. Be sure to identify the statement number when commenting/remarking about the statement.

Please complete the following information about yourself:

1. Age _____

2. Gender:

_____ Female _____ Male

3. Marital Status:

_____ married
_____ single
_____ divorced
_____ separated
_____ widow(er)

APPENDIX D

Research Review Committee Exemption Form