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VALUES, SELF-PERCEIVED HEALTH, AND ATTITUDES TOWARD EXERCISE IN INDIVIDUALS OVER SIXTY-FIVE

The University of Arizona M.S. 1985

VALUES, SELF-PERCEIVED HEALTH, AND ATTITUDES TOWARD EXERCISE IN INDIVIDUALS OVER SIXTY-FIVE

by

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A Thesis Submitted to the Faculty of the

COLLEGE OF NURSING

In Partial Fulfillment of the Requirements
For the Degree of

MASTER OF SCIENCE

In the Graduate College

THE UNIVERSITY OF ARIZONA

1 9 8 5

STATEMENT BY AUTHOR

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ACKNOWLEDGMENTS

I wish to thank my thesis committee chairperson, Ms. Lois Prosser, and my committee members, Dr. Carolyn Murdaugh and Dr. Mary Alexander. Their help and encouragement were invaluable and made this a true learning experience.

I also wish to thank the men and women who participated in the study. This thesis would not have been possible without them.

Many thanks to my typist, Mrs. Susan Kinsey, for her professional assistance in typing the manuscript.

Finally, I especially wish to thank my family and friends for their encouragement and support during my studies. This support enabled me to complete this project.

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ABSTRACT

A descriptive study investigated the relationships between value of health, self-perceived health status, attitude toward exercise, situational barriers to exercise, and amount of physical exercise performed in an elderly age group.

Five questionnaires were administered to the convenience sample of 75 elderly individuals. The subjects, aged 65 to 95, were predominantly female, rated their health above average, and highly valued health.

The data supported a positive relationship between attitude toward physical exercise and amount of physical exercise performed ($r_s = 0.22$, $p = 0.03$). A weak correlation that approached significance was reported between health value and attitude toward exercise ($r_s = 0.17$, $p = 0.08$). No significant relationship was found between self-perceived health status and attitude toward physical exercise or between the number of situational barriers and amount of physical exercise performed. Multiple regression determined that the impact of the four independent variables on amount of physical exercise performed was minimal.

CHAPTER 1

INTRODUCTION

Aging, a natural developmental process, has traditionally been viewed by Americans as a process of decline in function (Bengtson, Manuel, and Burton, 1981; Maddox, 1981; Birren, et.al., 1971). Indeed aging is associated with a number of significant losses. These may include loss of job, income, health, independence, as well as loss of spouse and friends through death (Butler and Lewis, 1982; Green and Anderson, 1982; Whelihan, 1981; Eliopoulos, 1979; Butler, 1975).

In past years, these many losses have clouded Americans' perceptions of the elderly (Palmore and Maddox, 1977). Little was understood about the natural changes inherent in the aging process. Rather, aging and disease were viewed as one and the same (Dychtwald, 1983; Ouslander and Beck, 1982; Butler, 1975). With this view of the elderly contrasted with society's emphasis on achievement and productivity, it is no wonder that the elderly have been viewed, and indeed have viewed themselves, as "'beginning to fail' as they age, a phrase that refers as much to self-worth as it does to physical strength" (Butler and Lewis, 1982).

Rather than focus entirely on these losses and the negative image they convey, however, some authors have recognized the enormous coping ability that is demonstrated by the elderly in successfully managing the stress of these many losses (Butler and Lewis, 1982;

Filner and Williams, 1981; Bengtson, Manuel, and Burton, 1981; Hartford, 1981; Whelihan, 1981; Thorson and Thorson, 1981; Butler, 1975). Although each developmental stage in life is characterized by unique problems, the elderly as a group are faced with a far greater number of stresses than are other age groups. It is in their constant dealing with stressors that the elderly display their true competence.

The positive aspects of the tremendous coping ability demonstrated by the vast majority of elderly Americans is now being recognized (Butler and Lewis, 1982; Hartford, 1981; Bengston, Manuel, and Burton, 1981). As Whelihan (1981, 55) notes, "It is amazing how well most older people function in light of the losses they sustain and the attitudes of the society in which they live." It is the elderly's tremendous ability that enables them to successfully adapt to the many and varied changes that occur as part of the natural aging process.

A very different image of the elderly person comes with a positive emphasis on the coping skills utilized by the majority of older individuals. The image is one of competence in managing many day-to-day problems. By utilizing his capabilities, whether physical or mental, the elderly person is decreasing the chances of further decline in his capabilities (Filner and Williams, 1981). He is providing for a positive quality of life.

More and more Americans are living longer to become elderly citizens (Fries, 1981; U.S. Department of Health, Education, and Welfare, 1979; Fact Book on Aging: A Profile of America's Older Population, 1978). Whereas in 1900 the average life expectancy was 47.3 years for

white males, the average life expectancy in 1970 was 70.9 for the same group (Cutler and Harootyan, 1975). As average life expectancy has increased, there is a greater likelihood that the growing group of elderly will be at risk for chronic diseases and limitation of function (Filner and Williams, 1981; German, 1981).

Americans are now faced with a considerable period of time after retirement in which a positive quality of life is an important consideration. Murray (1979, 145) states so accurately, "The growing number of active, relatively healthy, and potentially productive retired persons has created the need to identify and give meaning to a new phase of considerable duration in the life cycle." Quality of life may well be more important to many Americans than mere length of life (German, 1981; U.S. Department of Health, Education, and Welfare, 1979). Indeed, quality of life for older Americans is becoming a predominant theme in current gerontological and health promotion literature (Carlson, 1983; Dychtwald, 1983; Green and Anderson, 1982; Riffle, 1982; Butler and Lewis, 1982; Filner and Williams, 1981; Smith, 1981; German, 1981; U.S. Department of Health, Education, and Welfare, 1979; Combs, 1978; Butler, 1975).

Purpose of the Study

The purpose of this study was to obtain information specific to an elderly age group to investigate the relationships between value of health, self-perceived health status, attitudes toward exercise, situational barriers to exercise, and amount of physical exercise performed. The following relationships were investigated:

1. The greater the value placed on health, the more positive attitude toward physical exercise.
2. The more positive the perceived health status, the more positive attitude toward physical exercise.
3. The more positive attitude toward physical exercise, the greater the physical exercise performed.
4. The greater the number of situational barriers, the less the physical exercise performed.

Significance

The ever-increasing number of elderly Americans is projected to become even larger in the years to come. By the year 2000, it is anticipated that 30.6 million people will be aged 65 and over, up from three million elderly in 1900. Between 2010 and 2020 the increase is expected to show a growth rate of 29 percent--from 33.2 million in 2010 to 42.8 million by 2020. The increase is attributed to the aging of the postwar baby boom (Fact Book on Aging: A Profile of America's Older Population, 1978). Another projection estimates that by the year 2025, 23 percent of the population will be over 65 years of age (Jacobs and Abbott, 1983). In less than fifty years, nearly a quarter of the total population will be comprised of citizens over 65 years of age.

The growing group of elderly will have problems and needs that will become even more important to consider in the future. Butler (1975) feels that we are not preparing for the increase in the number of America's elderly. "We have been unable to provide adequately even

for the elderly alive today. To extend the quantity of life but not its quality is a macabre joke" (Butler, 1975, 356).

Since quality of life for the elderly person is becoming increasingly important in our society, and because relatively little is known about the healthy aged, it is imperative that research be done to discover more about health-promoting behaviors that affect the well-being of America's healthy elderly population (Carlson, 1983; Holloszy, 1983; Ouslander and Beck, 1982; Maddox, 1981; Murray, 1979; Butler, 1975; Morgan, 1968). It is through research into the normal processes of aging, and the health-promoting behaviors that facilitate quality of life during the aging process, that a more realistic picture of aging will emerge. Future health planning may thus be more soundly based on definitive research (Birren, et.al., 1971). Health promotion as a means to improved quality of life for the elderly may thus become a reality.

It has become clear that many factors affect the natural aging process. One of the most important of these factors is the individual's interaction with his environment. As Smith (1981, 16) states, "Some of the current research suggests that 50% of the decline frequently attributed to physiological aging is, in reality, disuse atrophy resulting from inactivity in an industrialized world." By identifying the many factors that affect aging and the performance of health-promoting behaviors, health professionals may more effectively support the elderly in their health promotion efforts (Gelein, 1983).

Habitual exercise is one factor that can contribute significantly to the elderly's ability to cope and maintain quality of life (Harris, 1983; Butler and Lewis, 1982; Moolten, 1981; Serfass, 1981; U.S. Department of Health, Education, and Welfare, 1979; Butler, 1975). It is also evident that further research is needed to discover the relationships between the factors which contribute to the maintenance of habitual exercise in the healthy elderly population. The importance of exercise as an alternative to traditional medical care is being recognized as vital to the future of health care in America (Dychtwald, 1983; U.S. Department of Health, Education, and Welfare, 1979; Butler, 1975). The lay and health professional interest in exercise is evidenced by the number of local physical fitness classes offered for adults over fifty, as well as the number of fitness books written for this age group. Titles such as Youth in Old Age (Leaf, 1975), Fitness After Fifty (deVries, 1982), Be Alive As Long As You Live (Frankel and Richard, 1977), and Sixty-Plus & Fit Again (Rosenberg, 1977) are representative of the growing interest in exercise for the elderly population. As the limits of modern medical technology are reached in treating the chronic diseases so prevalent in the elderly population today, it has become even more important to investigate the alternative methods of prevention, such as physical exercise (Dychtwald, 1983; Carlson, 1983).

Conceptual Framework

The conceptual framework for this study was based on a model developed from literature review in the nursing and psychosocial fields.

Figure 1 presents the conceptual framework. The main constructs are value, health, attitude, barriers, and behavior.

Value is defined by Rokeach (1973, 5) as "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence." Rokeach describes two types of values--instrumental and terminal. Instrumental values refer to modes of conduct, such as responsible or honest behavior. Terminal values refer to end-states of existence, such as self-respect or happiness.

Values form a system that allows us to "choose between alternatives, resolve conflicts, and make decisions" (Rokeach, 1973, 14). In this manner, value systems guide an individual's behavior. Values also have a motivational component in that an individual desires to conduct himself in a certain manner (instrumental values) so as to achieve his ultimate goals (terminal values).

Health is a difficult construct to define. Although numerous definitions have been proposed in the literature, many lack clarity and preciseness. Moreover, many are based on morbidity and mortality measures and define health only as it relates to a lack of illness (Pender, 1982; Baranowski, 1981). Precise criteria for, and measures of, health are lacking.

Pender (1982), in originating a definition of the construct, health, developed a typology of health criteria utilizing the prevailing definitions of health from various scientific disciplines. The

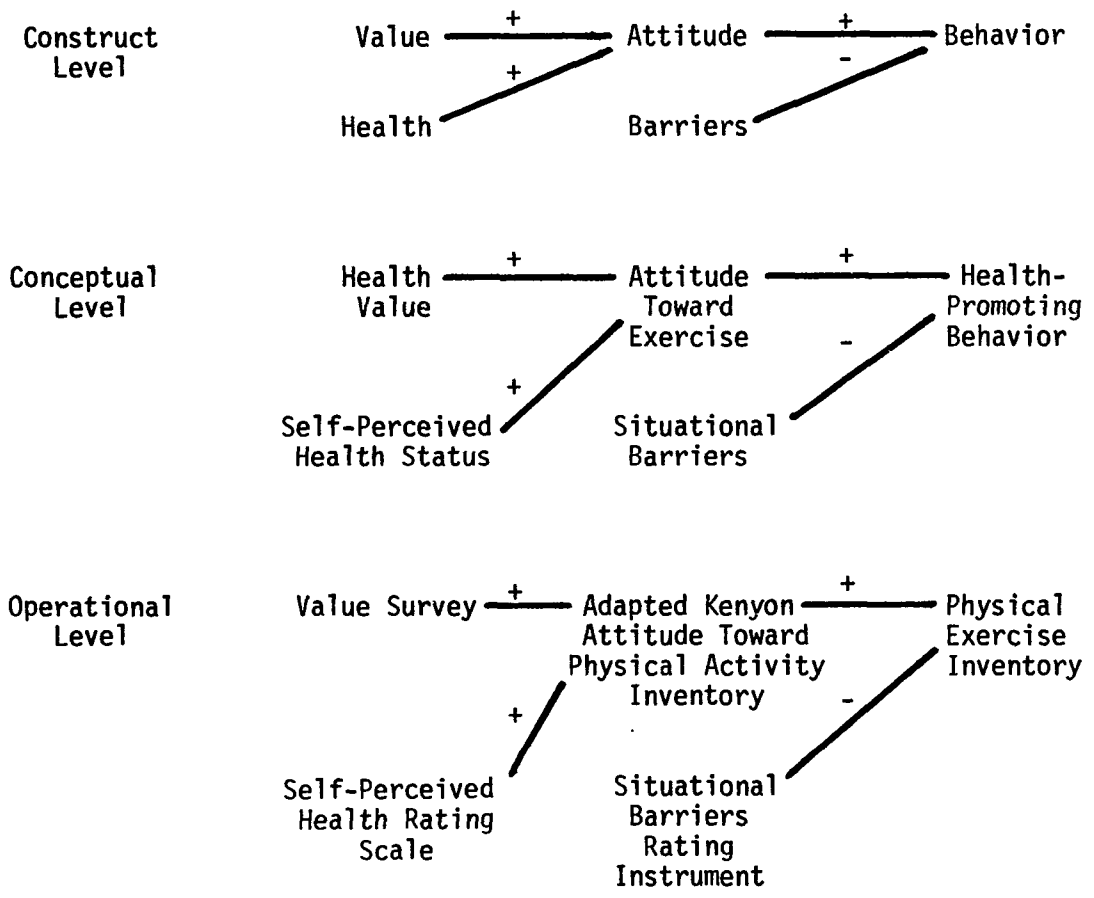

Figure 1. Conceptual Framework

typology is divided into four orientations--biologic, psychologic, sociologic, and biopsychosocial definitions of health.

Pender (1982) proposes such a definition with specific criteria to evaluate an individual's health. Health is defined as " ... the actualization of inherent and acquired human potential through satisfying relationships with others, goal directed behavior, and competent personal care while adjustments are made as needed to maintain stability and structural integrity" (Pender, 1982, 37). The criteria further clarify the definition and may be used to objectively evaluate one's health. This definition and the related criteria denote "a process of development characterized by frequent experiences of challenge, achievement, and satisfaction" (Pender, 1982, 37). By defining health as actualization rather than stabilization, Pender (1982) suggests that the type of health behaviors the individual chooses will also be influenced. Health behaviors that are self-initiated and directed toward achieving higher level wellness would be the result of such a definition of health.

Attitude is defined by Kenyon (1968 b, 567) as "a latent or non-observable, complex, but relatively stable behavioral disposition reflecting both direction and intensity of feeling toward a particular object, whether it be concrete or abstract."

In describing the differences between values and attitudes, Rokeach (1973) further clarifies the definition of attitude. Whereas a value concerns one belief, an attitude involves several beliefs about a single object or situation. Value is a more general concept,

while attitude refers to more specific objects or situations. A value is a standard and the number of values an individual holds, therefore, is relatively small in number as compared to the number of attitudes held. In summary, " ... values occupy a more central position than attitudes within one's personality makeup and cognitive system, and they are therefore determinants of attitudes as well as of behavior" (Rokeach, 1973, 18).

Barriers are obstacles to positive behavioral change (Pender, 1982). Barriers may arise from internal or external factors. Internal factors may include lack of knowledge, skills, or motivation. External barriers may include inclement weather, lack of facilities, or social support. Barriers to behavioral change must be considered in facilitating behavior changes (Pender, 1982).

Behavior is defined by Rotter (1954) as an interaction between an individual and the environment. Rotter stresses that the individual's perception of the environment, not the "objective" environment, is the important consideration. The way in which the individual perceives the environment and the significance it holds for him determines the manner in which he reacts. In this respect, Rotter (1954) considers "experience" synonymous with "behavior."

The next level of the conceptual framework includes the concepts "Health Value," "Self-Perceived Health Status," "Attitudes Toward Exercise," "Situational Barriers," and "Health-Promoting Behaviors." These concepts will be discussed in Chapter 2.

The operational level of the conceptual framework identifies the instruments to be utilized in measuring the variables to be studied. The instruments will be discussed in Chapter 3.

Definition of Constructs

Constructs

1. Value: "an enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or end-state of existence" (Rokeach, 1973, 5).
2. Health: "the actualization of inherent and acquired human potential through satisfying relationships with others, goal directed behavior, and competent personal care while adjustments are made as needed to maintain stability and structural integrity" (Pender, 1982, 37).
3. Attitude: "a latent or nonobservable, complex, but relatively stable behavioral disposition reflecting both direction and intensity of feeling toward a particular object, whether it be concrete or abstract" (Kenyon, 1968 b, 567).
4. Barriers are defined as obstacles to positive behavioral change (Pender, 1982).
5. Behavior is defined as an interaction between an individual and the environment (Rotter, 1954).

Summary

The performance of behavior is affected by an individual's values, health, and attitudes. Barriers to action may also affect the

performance of subsequent behavior. This study was designed to investigate the relationships between health value, self-perceived health status, attitude toward exercise, situational barriers to exercise, and amount of physical exercise performed in an elderly population.

CHAPTER 2

REVIEW OF THE LITERATURE

The review of the literature is divided into four sections. The first section includes a review of studies on the value of health and how this concept relates to health behaviors. The second section reviews studies concerning self-perceived health status in the elderly and how this relates to objective health and influences subsequent health behavior. The third section includes selected studies on attitudes of middle-aged and elderly subjects toward physical activity and exercise. The final section reviews studies that have considered various barriers to exercise in their designs.

Health Value

Values guide human behavior in many ways (Braden, 1984). Value systems enable individuals to make decisions regarding everyday life. In addition, individuals may choose to behave in certain ways so as to achieve certain goals or values such as self-esteem or happiness.

The selected studies that follow include locus of control and health value as independent variables in their design. The majority of research investigating health value has included locus of control in the design, and it is for this reason that locus of control is briefly discussed in this section. Locus of control is not considered in the

present study due to the nature of the population and the need to limit the variables and questionnaires.

Rotter's (1954, 1966) social learning theory states that individuals learn to hold certain expectations for reinforcements following behavior, based on previous experience. As Rotter (1966, 2) states, " ... a reinforcement acts to strengthen an expectancy that a particular behavior or event will be followed by that reinforcement in the future." Individuals may attribute these reinforcements to their own actions or to fate, luck, or to the influence of powerful others. Rotter (1966) hypothesized that generalized expectancies regarding the causal relationship between one's behavior and the subsequent consequences would influence many behavioral choices. The Internal-External (I-E) scale was developed to measure these generalized expectancies that individuals hold regarding the ways in which reinforcements are controlled. Individuals classified as "internals" believe that their own behavior leads to reinforcement. Those individuals who attribute reinforcements to luck, chance, or powerful others are considered to be "externals."

As values do guide human behavior, it is important to consider health value when studying health behavior. Rotter (1975) emphasizes that reinforcement value must be treated as a separate variable in such studies. Lau and Ware (1981) agree that this variable should be included in such research.

Wallston, et.al. (1976) incorporated the value of health as an independent variable in their studies involving the development and testing of the Health Locus of Control (HLC) scale. The HLC scale

was developed as a means of measuring the extent to which individuals believe their health is determined by their behavior. The scale utilized the internal-external dichotomy to classify individuals' beliefs. In order to determine the relationship between health locus of control, health value, and subsequent health-related behavior, Wallston, et.al. (1976) administered the Health Locus of Control scale and a Value Survey to 88 college students. The Value Survey was modeled after Rokeach's (1973) Value Survey, utilizing nine terminal values from the survey. A tenth value "health" was added to this list, and students were asked to rank them in order of importance. If "health" was ranked in one of the top four positions, the subject was then classified as having high health value. After then completing a rather difficult test on knowledge of hypertension, the students were asked to choose from among 16 pamphlets on hypertension those they might choose if coming to the hypertension clinic. Internals who highly valued health were found to choose the greatest number of health-related pamphlets. Those internals who did not value health as highly and those subjects with external beliefs, regardless of how they valued health, chose fewer pamphlets.

For 115 female subjects (aged 15-68) enrolled in a medical weight reduction program, a significant relationship ($p < 0.05$) between behavioral intentions to lose weight and subsequent behavior was found for those internal subjects who highly valued health (Saltzer, 1981). Internal subjects who valued health less highly did not show as strong a correlation between behavioral intention and subsequent behavior.

Parcel, Nader, and Rogers (1980) investigated health locus of control and health value as related to self-reports of susceptibility to, and frequency of, illness in 135 school-aged children. Those children with internal beliefs and high health value were less likely to report frequent illness or susceptibility to illness. Although the methodology could be criticized due to the use of self-reports of illness and susceptibility, the findings suggest that further research be done to clarify the important role that value of health plays in subsequent behavioral outcomes. Wallston, Wallston, and De Vellis (1978) even consider value of health to be the most important of a number of factors in explaining health behaviors.

The relationship between value of health with regard to preventive health behavior has also been investigated in the locus of control literature. The results are conflicting, although methodological issues may play a role in several of the findings. McCusker and Morrow (1979) studied preventive health behaviors such as breast self-examination, smoking reduction, and use of cancer-screening tests in a group of 404 elementary school staff and relatives. No significant relationship was found between health locus of control orientation, whether considered alone or in combination with the Value Survey, and the performance of the preventive behaviors. The authors suggest that the group as a whole practiced many preventive behaviors (either as individuals or through strong recommendation by their employers) prior to participating in the study and, therefore, were not beginning new practices that would be reflected in the study data. It is also

possible that the criterion for the high health value group was too stringent. In order to be classified in this group, subjects were required to rank "health" as their top value; otherwise, the subject would be placed in the low health value group.

Physical exercise was the health-promoting behavior studied in Laffrey and Isenberg's (1983) investigation of the relationship between locus of control, health value, perceived importance of physical exercise, and amount of physical exercise in leisure. For the 70 female subjects (aged 24-65) no relationship was found between the value of health and amount of physical exercise, as had been hypothesized by the authors. Rather, only the correlation between perceived importance of physical exercise and amount of physical exercise was significant ($r = 0.53$, $p < 0.001$), and a portion of the variance in physical activity during leisure was explained by this variable (multiple $R = 0.47$). The authors viewed perceived importance of physical exercise as a specific measure of reinforcement value and suggested that the subjects might have correlated physical exercise with values other than health, such as beauty, slimness, or social involvement. This emphasizes the fact that further research is needed in order to learn more about the values individuals hold in relation to various health-related behaviors such as exercise.

Self-Perceived Health

Self-reports of perceived health have been frequently utilized in the gerontological literature as an indirect means of measuring an individual's objective health status. Maddox and Douglass (1973)

found such self-reports to be a useful measure of health in the elderly when objective measures were not clinically feasible. In their multidisciplinary, longitudinal study on aging, 83 elderly subjects from the community were followed over a fifteen year period. During each of six observations, the subjects were asked to rate their health and were also evaluated by a physician using a six-point scale of physical functioning. Self-reports and physician ratings were congruent 64 percent of the time over the six observations. When incongruity was observed, the individual tended to overestimate his health as compared to the physician's rating. LaRue, et.al. (1979) also reported a significant correlation ($X^2 = 10.69$, $p < 0.01$) between self-reports and physician ratings of health in their sample of 60 community residents aged 77 to 93.

Other investigators have also reported significant correlations between self-assessed health and various objective health measures (Mossey and Shapiro, 1982; Linn and Linn, 1980; Tissue, 1972). A more recent study has suggested, however, that self-assessed health may reflect a person's sense of chronic illness, rather than acute changes in objective health status. Goldstein, Siegel, and Boyer (1984) utilized a relatively young (79.1 percent were under age 60) sample of 903 individuals from the Los Angeles Health Survey. During face-to-face and telephone interviews, the subjects were asked questions concerning health beliefs, value of health, self-assessed health, health behaviors, illnesses and injuries, chronic diseases, bed days, restricted activity days, use of medical services, and number of informal

health discussions with others. The dependent variable in this study was the change in self-health report over the one year period between the initial and final interviews. Health beliefs were related to self-health perceptions, as might be expected. Those who were more concerned with illness and more susceptible to it saw themselves in poorer health, for example. A significant ($r = -0.45$) correlation between the number of chronic health problems and change in self-health report over the year was found, suggesting to the authors that reports of self-perceived health may represent one's sense of long-term, chronic illness, rather than reflecting acute illness changes. The authors believe that this finding increases the sensitivity of perceived health measures for use by researchers.

Other investigators have attempted to identify factors which might influence an individual's self-health perception. A probability sample of 660 adults aged 18 to 93 were asked to rate their health as compared to others their age (Cockerham, Sharp, and Wilcox, 1983). Information was also collected from the respondents on the following seven items: (1) age, (2) sex, (3) education, (4) income, (5) race, (6) marital status, and (7) number of serious symptoms reported over the past year. Multiple regression was utilized in order to determine the effects of these seven independent variables on perceived health status. Number of symptoms, age, education, and race were found to be the strongest predictors, in that order, of perceived health status.

Garrity, et.al. (1978) found psychophysiological factors important when they studied 314 college freshmen in order to identify

factors that influence individuals' self-perceptions of health. The authors found four independent variables to be significantly correlated with perceived health. These included Langner's 22-item measure of psychophysiological symptoms, previous two-month illness self-report, life change, and self-perception of current life stressfulness. Utilizing a stepwise multiple regression technique, the authors determined that 17.6 percent of the variance in perceived health was explained by the psychophysiological symptoms.

Psychological health factors were also found to be important in Stoller's (1984) study of 753 elderly New York residents (mean age 73.5 years). Stoller found that although the scores measuring medical and functional health explained the largest portion (21 percent) of variance in self-assessed health, psychological health scores accounted for another 15 percent. The respondent's sex and number of activities enjoyed also had a direct effect on self-assessed health. It seems clear, then, that a multitude of factors affect an individual's perception of health and that this perception "represents a summary statement about the way in which numerous aspects of health, both subjective and objective, are combined within the perceptual framework of the individual respondent" (Tissue, 1972).

A basic question is raised by research of this type. Does a poor self-perception of health lead to decreased functional abilities or does a decreased ability to function lead to a poor perception of health? The answer is unknown (Linn and Linn, 1980). There is a strong relationship, however, between self-rated health and mortality,

even when controlling for objective health status, age, sex, life satisfaction, income, and urban/rural residence (Mossey and Shapiro, 1982). Kaplan and Camacho (1983) also found a strong relationship between self-rated health and mortality when they controlled for a number of variables such as age, sex, objective health status, and health practices. Several studies have also demonstrated a predictive relationship between self-ratings of health and subsequent adjustment after illness. One hundred fifty subjects aged 18-60 who had successfully undergone open-heart surgery were studied in regards to their tendency to relinquish the sick-role after surgery (Brown and Rawlinson, 1975). Subjects were given a semantic differential questionnaire wherein they distinguished between "most persons who are sick" and "myself after surgery." Although the information was gathered retrospectively, it was found that those who tended to reject the sick role preoperatively were more likely to do so after surgery as well ($r = 0.24$, $p < 0.05$).

Larson (1978) reviewed the gerontological literature on subjective well-being and determined that this concept has been most strongly related to health, with correlation coefficients ranging from $r = 0.20$ to $r = 0.50$. He concluded by suggesting further longitudinal research be done to clarify any causal relationship between health and well-being.

Palmore (1979), utilizing data from the First Duke Longitudinal Study of Aging, reported on the predictive relationship of health to successful aging. Successful aging was defined as survival to age 75,

a positive physical-function rating, and a positive happiness rating. For the 155 elderly subjects, physical function and happiness were the strongest predictors of successful aging. This finding was not unexpected, however, as these ratings were originally used as part of the criteria for successful aging. When eight other significant predictors were tested, it was found that social activity with others had nearly as strong a correlation with successful aging. The next highest correlations were for women, physical activities, and for men, work satisfaction. The author concludes that group and physical activity are important factors contributing to successful aging.

The morale of 104 elderly urban subjects as related to a number of health status and health behavior factors was the subject of research completed by Mancini and Quinn (1981). Subjects were asked to rate their present health, and to compare their present health with their health five years earlier. The authors found these two ratings to be significantly associated with morale ($r = 0.36$ and 0.42 respectively).

Although it is not clear how individuals ultimately assess their own health and why these perceptions influence such outcomes as morale and mortality, it is clear that self perceptions of health can influence subsequent health behavior. The influence of self-perceived health versus objective health status on health behavior was noted in Sidney and Shephard's (1976) investigation of attitudes of 42 elderly subjects towards health and physical activity before and after a physical training program. The volunteers completed the Cornell Medical Index (CMI) form and were evaluated by a project physician on the

basis of history, physical, and laboratory examination. Failure to enter the physical training program and a low frequency and intensity of participation were associated with high CMI scores, indicating multiple physical and psychological symptoms. This was true even though all volunteers were cleared by the project physician after the extensive evaluation. This subgroup of individuals apparently judged themselves to be in poorer health than objective measures might indicate, and subsequently chose not to participate in the physical activity training.

Maddox and Douglass (1973), in their longitudinal study on aging, found individual's self-health ratings to be generally better predictors of future health ratings by physicians than vice-versa. Two plausible explanations are given. It is possible that an individual's perception of his health may influence his behavior, in terms of his ability to carry out certain activities. In turn, the physician's rating of the individual's physical functioning would reflect this. A second explanation might be that the individual's rating is based on internal organic cues that are later detected as organic changes by the physician. Either explanation could account for the influence of one's health on subsequent health behavior. Mossey and Shapiro (1982) further suggest that maintenance of positive health habits, such as proper exercise and nutrition, may affect one's self-perception of health in a positive manner, as well as provide for a decreased mortality risk in and of themselves.

Attitude Toward Physical Exercise

Investigations into the various factors associated with attitudes towards physical activity have been common in the physical education literature. Studies have compared attitudes of male and female championship athletes (Alderman, 1970), delinquent and non-delinquent school-age girls (Straub and Felock, 1974), participants of two types of physical education courses (Zaichkowsky, 1975), and male college students of various athletic achievement backgrounds (Dotson and Stanley, 1972). Various attitude inventories have been utilized in this literature, including Kenyon's (1968 a, b) Attitude Toward Physical Activity Inventory.

Kenyon (1968 a, b) believed that physical activity could be viewed as a sociopsychological phenomenon that could be reduced to subdomains. He based his model on the belief that individuals hold various instrumental values for physical activity. Six subdomains were included: Physical activity as (1) Social experience, (2) Health and fitness, (3) Pursuit of vertigo, (4) Aesthetic experience, (5) Catharsis, and (6) Ascetic experience. A seventh subdomain, physical activity perceived as chance, was later added to the semantic differential scale format.

Sonstroem and Walker (1973) utilized Kenyon's Attitude Inventory to investigate relationships between locus of control, attitude toward physical activity, and fitness levels in 102 college males. Those internal subjects with positive attitudes towards physical activity reported more physical activity and out-performed other

groups on a timed 600-yard run. Massie and Shephard (1971), in comparing individual and formal gymnasium aerobic program training, found that the formal program produced a significant change in attitude towards physical activity as games of chance in the middle-aged male subjects (N = 49).

In Sidney and Shephard's (1976) study of 124 elderly subjects, physical activity was valued more as an aesthetic experience and as a means for health and fitness in the older subjects as compared to high school and middle-aged individuals. Social, cathartic, and ascetic aspects of physical activity were also valued by the elderly individuals, but no more so than the younger groups. After a formal three-month endurance training program, the elderly subjects showed small positive changes on each of the Kenyon subscales. The only statistically significant change, however, was on the catharsis (physical activity as the relief of tension) subscale ($p < 0.05$).

It is clear that relatively few studies have investigated the attitudes of elderly individuals toward physical activity (Sidney and Shephard, 1976). As Harris (1970) suggests, determination of such attitudes may enable investigators to determine the reasons why some elderly choose to be active and others choose to be sedentary. It is in this way that community exercise programs may be more effectively planned to attract and retain the elderly individual.

Situational Barriers

As health promotion is clearly part of nursing's responsibility, it is important for nurses to include an assessment of individuals'

health habits when assisting them to achieve high-level wellness. Moyer (1981) points out the importance of assessing people's knowledge and beliefs, as well as the situational barriers that may impede health-promoting behavior. As Gelein (1983, 66) states, "If gerontological nurses could begin to identify how environmental resources support behavior that protects health, interventions could be designed to promote maximal health with aging."

Although poor health has been associated with lack of physical exercise (Belloc and Breslow, 1972; Palmore, 1970), it is not certain whether an individual's poor health plays a role in the decision not to engage in physical exercise (Sidney and Shephard, 1977). Certainly, decreased physical functioning due to illness or disability could be a barrier to participation in physical activity. Jeffers and Nichols (1970) utilized data from the Duke University Medical Center's longitudinal study on aging and found that those elderly without disabilities had higher total activity scores ($r = 0.39$, $p < 0.001$). Serfass (1981) and Harris (1977) both note the vicious cycle that results from inactivity. The cycle begins when the individual chooses to be inactive. This inactivity then creates actual symptoms which may then prevent further activity.

Types of activities and facilities available to the elderly individual may influence his exercise behavior. Obviously, certain sports require a high level of fitness that requires long-term conditioning (Fuller, 1982). Lack of facilities and programs was cited as one reason for previous inactivity in Sidney and Shephard's (1976)

investigation of elderly Toronto residents. The authors cite numerous recreational facilities in Toronto, and hypothesize that perhaps crowding and inaccessibility of these facilities may be a barrier to the elderly's use of them. In addition, because these public facilities do not offer the elderly individual encouragement and an individualized exercise prescription, some may feel hesitant to participate. The authors also believed that their elderly subjects were concerned about possible dangers of over-exertion, although few subjects actually voiced this concern.

In investigating the differences in personality traits between male university staff members who participated in exercise and those who did not, Brunner (1969) found that many of the non-participants cited lack of time as a primary reason for not participating in an exercise program. This was true even though the subjects from various departments were matched with respect to work and time requirements. Whether lack of time is a significant barrier to elderly individuals, the majority of whom are retired, remains to be determined.

Socioeconomic status has been suggested as being related to amount of physical activity. Minkler (1978) surveyed health beliefs and attitudes of 755 elderly San Francisco residents. Forty-two percent of the subjects living in a low-income, high-crime area described themselves as less physically active than others their age. Although this group of subjects was, on average, an older group than the other more well-to-do groups in the study, Minkler found that the age difference seemed to influence the activity levels less than the residents'

fears of being mugged when venturing from their rooms. Thus, socio-economic status and, in turn, place of residence, may influence the elderly individual's activity level.

Health-Promoting Behavior

Health-promoting behavior is defined as that behavior which maintains or enhances an individual's health and psychological well-being. Pender (1982, 67) states, "Health-promoting behaviors represent man 'acting' on his environment as he moves toward higher levels of health rather than 'reacting' to external influences or threats posed by the environment." These behaviors are continuing activities that require lifestyle changes directed to one's personal habits or the environment in which one lives (Brubaker, 1983; Pender, 1982).

Research has shown a positive correlation between certain health-promoting practices (for example, physical exercise) and one's health status. Data from the Duke Longitudinal Study of Aging (Palmore, 1970) showed that exercise was significantly related to illness indicators such as time spent in bed and number of physician visits per year. Belloc and Breslow (1972) reported that a number of health practices, including physical activity, were associated with positive health as measured by self-report.

Summary

The literature review indicated that value of health (as measured by the Value Survey) and self-perceived health status (as measured by the Self-Perceived Health Rating Scale) have been associated with

subsequent health behavior. Attitudes toward exercise, as measured by Kenyon's Attitude Toward Physical Activity Inventory, have been shown to be associated with various fitness levels. In addition, situational barriers have been shown to influence individual's motivations and abilities to carry out health-promoting behavior. No research has been done relating these four factors and amount of physical exercise performed in the elderly population.

CHAPTER 3

METHODOLOGY

Introduction

The study was designed to investigate the relationship among health value, self-perceived health, attitudes toward exercise, situational barriers to exercise, and amount of physical exercise performed in an elderly population. This chapter presents the setting, sample, protection of human subjects, instruments, and methodology including data analysis, assumptions, and limitations of the study.

Relationships to be described include the following:

1. The greater the value placed on health, the more positive attitude toward physical exercise.
2. The more positive the self-perceived health status, the more positive attitude toward physical exercise.
3. The more positive attitude toward physical exercise, the greater the physical exercise performed.
4. The greater the number of situational barriers, the less the physical exercise performed.

Setting and Sample

The setting for this study was a metropolitan city of approximately 500,000 people in southwestern Arizona. A convenience sample of 75 men and women aged 65 and over voluntarily participated in the

study. Subjects were identified through their participation in physical exercise and social programs conducted through the County Health Department and the Salvation Army. Subjects were also contacted through individuals known to the researcher. Criteria for inclusion in the study included the following:

1. Subjects were 65 years of age or older.
2. Subjects were English-speaking.
3. Subjects might or might not have been exercising on a regular basis.

Protection of Human Subjects

The proposal was reviewed and approved by the Human Subjects Committee at the University of Arizona College of Nursing (Appendix A). Each participant was given a written disclaimer form, assuring them of confidentiality in the collection of data and anonymity in the reporting of findings (Appendix B). By responding to the questionnaire, subjects gave consent to participate in the study.

Instruments

Five questionnaires were utilized to collect data:

1. Value Survey (Wallston, et.al., 1976)
2. Self-Perceived Health Rating Scale (Cockerham, Sharp, and Wilcox, 1983)
3. Adapted Kenyon Attitude Toward Physical Activity Inventory (Kenyon, 1968 a, b)

4. Situational Barriers Rating Instrument
5. Physical Exercise Inventory.

Demographic data collected included age, sex, educational level, and participation status in exercise group or class (Appendix C).

Value Survey

The Value Survey (Wallston, et.al., 1976) is modeled after Rokeach's (1973) value survey. Nine terminal values from Rokeach's scale and a tenth value, "health," are included in the revised scale. The nine terminal values are "a comfortable life," "an exciting life," "freedom," "happiness," "health," "inner harmony," "pleasure," "a sense of accomplishment," "social recognition," and "self-respect." Subjects are asked to rank the ten values in order of importance, with "1" being the most important value. Subjects were also told that there are no right or wrong answers to the rankings. "Health" is considered to be held in high value if it is ranked in one of the top two positions. All other rankings constitute low health value. Subjects were classified in either the high or low health value group according to this criteria. The high health value group received a score of "two" and the low health value group a score of "one."

No validity or reliability data are available for the revised scale, although Wallston (personal communication, 1985) believes that an argument for construct validity can be made. This is based on the fact that the survey has been utilized in many research studies and the results are as expected. Those groups who would theoretically be expected

to highly value health (for example, individuals with chronic diseases), do hold health in higher value than other groups in good health. (Appendix D).

Self-Perceived Health Rating Scale

The subjects were asked one question, "Compared to others your age, how would you rate your health?" (Cockerham, Sharp, and Wilcox, 1983). Responses provided were "much better," "somewhat better," "about the same," "somewhat worse," and "much worse." Scoring ranged from five for the response "much better" to a score of one for the response "much worse." The higher the score, therefore, the more positive the individual's perceived health.

Reliability was not tested in this study. However, Maddox and Douglass (1973), in the longitudinal study on aging, did report stability over a fifteen-year period in the self-health ratings of 66 percent of the elderly subjects. Studies in which the validity of self-ratings of health have been assessed find that the number of health problems reported is one of the most important predictors of self-rated health (Cockerham, Sharp, and Wilcox, 1983; Maddox and Douglass, 1973; Tissue, 1972). (Appendix E).

Adapted Kenyon Attitude Toward Physical Activity Inventory

The original Kenyon Attitude Toward Physical Activity Inventory is composed of 54 to 59 alternative seven-point Likert-type attitude statements (Kenyon, 1968 a, b). These statements, with responses ranging from very strongly agree to very strongly disagree, represent

the six subscales of Kenyon's physical activity model. Scores for each statement ranged from one to seven, seven being the most positive score. The higher the score, the more positive is the individual's attitude. Scores are obtained for each subscale and are summed to obtain a total score. Two forms of the inventory were originally developed--one for males (Form DM) with 59 items and one for females (Form DW) with 54 items.

Validity of the original inventory was measured indirectly by assuming that subjects who expressed a strong preference for a particular sport or activity would also hold a positive attitude toward that sport or activity. The "Catharsis" subscale was the only one in which the scale score did not differentiate strong and weak activity preference groups in the predicted direction. Kenyon reported that this may have been due to the fact that the factor that was used as representative of "Catharsis" contained some loadings that were also representative of other subscale domains. Hoyt reliabilities were reported for each of the six subscales from 0.68 to 0.89. Factor analysis (oblique rotation of the first six factors following an incomplete image analysis) supported the subscales (Kenyon, 1968 a, b).

Sidney and Shephard (1976) utilized the original inventory in their research involving the attitudes of 42 elderly men and women towards health and physical activity both before and after an endurance training program. These subjects were found to value exercise more as an aesthetic experience, a means to health and fitness, a social experience, and as catharsis.

The original inventory was adapted for use due to the nature of the elderly sample in the present study. Three of the four subscales found to be valued by the elderly subjects in Sidney and Shephard's (1976) study were utilized as a more appropriate instrument for this sample population. The subscales utilized were Physical Activity as (1) Social experience, (2) Health and fitness, and as (3) Catharsis. The original form for women was utilized as it contained fewer items (28 statements) for the sample population. Wording of original statements which were inappropriate for the elderly population was changed slightly to reflect the nature of the sample population. For example, the statement "Colleges should sponsor many more physical activities of a social nature" in the original inventory was reworded "Health departments should sponsor many more physical activities of a social nature" in the adapted inventory. The Likert-type scale was also changed from a seven to a five-point scale, with response choices ranging from "Strongly agree" to "Strongly disagree." Scoring for each statement ranges from one to five, depending on the interpretive scoring information for each statement, as provided by Kenyon (personal communication, 1984). The total score for the adapted inventory could range from 28 - 140. These changes provided for a more appropriate and easily completed instrument for the elderly subjects.

Alpha reliabilities for the adapted inventory and its three subscales were computed with data from this study. Validity of the adapted inventory was not estimated for this study. (Appendix F).

Situational Barriers Rating Instrument

The Situational Barriers Rating Instrument was developed for this study through a review of the literature (Minkler, 1978; Sidney and Shephard, 1977; Sidney and Shephard, 1976; Belloc and Breslow, 1972; Palmore, 1970; Jeffers and Nichols, 1970; Brunner, 1969). Factors which have been identified as barriers to health-promoting behavior such as exercise are listed on the rating form. Subjects are asked to mark with a check (✓) those factors which prevent them from exercising as much as they might wish. Subjects may also mark "None of the above" if appropriate. The score for this section is determined by summing the number of factors marked by the subject. There are nine barriers listed, with space for additional barriers to be added by the subject, if desired. Scores for the rating, then, may range from zero to nine and above. The greater the number of situational barriers present, the greater will be the total score for this portion of the questionnaire. The instrument has not been tested for reliability or validity. (Appendix G).

Physical Exercise Inventory

This inventory was developed by the investigator from questionnaires reported in the literature (Cunningham, et.al., 1978; Campbell, 1969). The inventory included a list of activities common to this age group. Subjects are asked to mark the appropriate category for frequency of participation in each activity on a four-point scale. A blank is provided for any activities done by the subjects and not included in the formal list of activities. Originally, the response

categories included "Never," "Rarely (once per month)," "Frequently (one to three times per week)," and "Daily." The categories were later modified, however, when a typographical error was noted after the questionnaires had been distributed. The category "Frequently" which should have read "(1-3 times per week)," read "(1-3 times per month)." Thus, the two categories, "Rarely (once per month)" and "Frequently (1 - 3 times per month)," were overlapping and did not allow for sufficient differentiation between activity levels. In order to avoid overlapping between activity levels, the two categories, "Rarely" and "Frequently" were combined prior to data analysis. Scoring thus ranged from zero to thirty in the categories as follows: "Never" with a score of "0," "Rarely" and "Frequently" with a score of "3," and "Daily" with a score of "30." The scoring system was determined by counting the maximum number of days per month that a subject might participate in an activity, as defined by the category headings. For example, the "Rarely" and "Frequently" categories were defined as one to three times per month and the score for a mark in either of these categories was three. These categories provided for division of the subjects into high and low frequency physical exercise participants. A total score for the inventory was obtained by summing the scores for each activity. Total scores may range from 0 to 450 and above, depending on the number of additional activities the subject might list. The greater the subject's number of activities, as well as his frequency of participation, the higher would be his total score for the Physical Exercise Inventory.

As cardiovascular fitness was not being measured in this study, activities were not coded for intensity.

No reliability and validity measures have been obtained for this instrument. Other authors have found high correlation between subjectively and objectively ranked questionnaires of this type (Reiff, et.al., 1967; Alderson and Yasin, 1966). In studying the activity patterns of 34 elderly subjects, however, Sidney and Shephard (1977) found that although the majority of elderly men and women believed themselves to be more active than others of their age, there was no relationship between this belief and the results of the subjects' fitness tests. This over-estimation of fitness and activity levels could theoretically invalidate the use of such questionnaires. As Edholm (1966) points out, however, it is important to consider one's purpose in determining the amount of exercise in which a group of subjects participates. If the intent of the research is to divide groups of subjects into general categories of activity levels, Edholm (1966) concludes that any overestimation of activity levels that is likely to occur by individual subjects will be distributed throughout the groups. In this way, the goal of dividing subjects into general representative categories is unaffected. As the goal of the present research was to compare general categories of exercise participation (i.e., high and low), the Physical Exercise Inventory questionnaire format was utilized. (Appendix H).

Data Collection Procedure

Permission for distribution of the questionnaires was obtained from the group leaders of elderly individuals prior to distribution of the questionnaires in the groups. Individual subjects were also contacted directly and asked to complete the questionnaire. A total of 94 questionnaires were distributed with a response rate of 80 percent (N = 75).

Subjects completed the questionnaires either at home or at the senior centers. Questionnaires were either returned directly or by mail to the researcher or to the group leaders.

The investigator was available to answer questions at the initial distribution time, and, in addition, the questionnaires included the investigator's name and address in the event questions arose while the subjects were completing the questionnaires at home.

Data Analysis Plan

After data collection, the demographic data were coded in order to describe the sample. The data were coded according to age, sex, educational status, and status of participation in an exercise group or class. Frequencies, means, and percentages were computed to describe the sample population. Spearman rank order correlation coefficients were computed to describe the relationships between health value, self-perceived health, attitude toward exercise, situational barriers to exercise, and amount of physical exercise performed. The significance level was preset at the 0.05 level. Alpha reliabilities were computed for the Adapted Kenyon Attitude Toward Physical Activity Inventory and

its three subscales (Social experience, Health and Fitness, and Catharsis). Multiple regression analysis was done to ascertain the impact of the study variables on the amount of exercise performed. The impact of health value and self-perceived health on attitude toward physical exercise was also determined through multiple regression analysis.

Assumptions

1. The subjects who participated in this study answered the questionnaires honestly and to the best of their ability for recent memory.
2. The subjects were well elderly who resided in the community.

Limitations

1. The sample was not randomly selected.
2. Two new instruments were utilized that had not been previously tested for reliability or validity.
3. One instrument (the Self-Perceived Health Rating Scale) was composed of only one item.
4. Instruments were not randomly ordered.
5. There was no control for demographic variables.

Summary

The study utilized a descriptive design to investigate the relationships between health value, self-perceived health, attitude toward exercise, situational barriers to exercise, and amount of physical exercise performed in an elderly population. The sample was described through data analysis that included frequencies, means, and percentages.

Spearman rank order correlation coefficients were utilized to analyze the data and describe relationships between the study variables. Alpha reliabilities were calculated for the adapted Kenyon Attitude Toward Physical Exercise Inventory and its three subscales. Multiple regression analysis was performed to ascertain the impact of the variables on attitude toward exercise and amount of exercise performed.

CHAPTER 4

PRESENTATION AND RESULTS OF DATA ANALYSIS

Introduction

The purpose of this study was to obtain information specific to an elderly age group to investigate the relationships between value of health, self-perceived health status, attitude toward exercise, situational barriers to exercise, and amount of physical exercise performed. The following relationships were investigated:

1. The greater the value placed on health, the more positive attitude toward physical exercise.
2. The more positive the perceived health status, the more positive attitude toward physical exercise.
3. The more positive attitude toward physical exercise, the greater the physical exercise performed.
4. The greater the number of situational barriers, the less the physical exercise performed.

This chapter presents the results of the analysis of the data. Demographic characteristics of the sample will be presented and discussed. Results of the reliability testing of the Adapted Kenyon Attitude Toward Physical Activity Inventory and its three subscales (Social Experience, Health and Fitness, and Catharsis) will be presented and discussed. Data from the Value Survey (Wallston, et.al.,

1976), the Self-Perceived Health Rating Scale (Cockerham, et.al., 1983), the Adapted Kenyon Attitude Toward Physical Activity Inventory (Kenyon, 1968 a, b) the investigator's Situational Barriers Rating Instrument, and the investigator's Physical Exercise Inventory will then be presented and discussed. The relationships between the study variables will be discussed with the use of Spearman rank order correlation coefficients. The significance level was preset at the 0.05 level for this study. The results of the multiple regression analysis will then be presented. The influence of health value and self-perceived health status on attitude toward exercise will be discussed initially. The influence of health value, self-perceived health status, attitude toward exercise, and situational barriers to exercise on amount of physical exercise performed will then be discussed.

Characteristics of the Sample

A convenience sample of seventy-five individuals aged 65 and over participated in the study. Subjects included participants of two Salvation Army senior centers, a Pima County Health Department Adult Wellness exercise class, and elderly individuals known to family and friends of the researcher. Ninety-two questionnaires had originally been distributed, giving a response rate of 80 percent.

As presented in Table 1, ages of the subjects ranged from 65 to 95, with a mean age of 74 (S.D. = 6.79). Forty-three subjects (60 percent) were female and 29 subjects (40 percent) were male.

Table 2 presents the data on the educational levels of the subjects. The levels of education were rather evenly distributed

Table 1. Age and Sex of Subjects ≥ 65 Years Old by Ten-Year Age Categories by Frequency and Percent. (N = 72).*

Age	Sex		Total
	Male	Female	
65 - 74	20(27.8)	22(30.6)	42(58.3)
75 - 84	8(11.1)	13(18.1)	21(29.2)
85 - 95	1(1.4)	8(11.1)	9(12.5)
Total	29(40.3)	43(59.7)	72*(100)

Mean Age = 74

S.D. = 6.79

*. Missing data on three subjects.

Table 2. Educational Level of Subjects ≥ 65 Years Old by Frequency and Percent. (N = 75).

	Level of Education	Frequency (Percent)
1.	Eighth grade or less	11(15)
2.	Some high school	10(13)
3.	High school graduate	12(16)
4.	Trade/Business School	13(17)
5.	Some college	14(19)
6.	College graduate	12(16)
7.	Graduate degree	3(4)
	Total	75(100)

Mean = 3.76 S.D. = 1.79

from "less than eighth grade" to "college graduate." Only three subjects (four percent) held graduate degrees.

Subjects were asked whether or not they were participating in an exercise group or class. Table 3 presents the numbers and percentages of exercise class/group participants and nonparticipants by ten-year age categories. The majority (74 percent) of the subjects were not participating in an exercise group or class.

Of those subjects participating in an exercise group or class, 13 subjects (18 percent) were between the ages of 65 and 74. Four subjects (six percent) who were participants in an exercise group of class were between the ages of 75 and 84, and only two subjects (three percent) were between the ages of 85 and 95.

Reliability of Adapted Kenyon Attitude Toward Physical Activity Inventory

Reliability was estimated for the Adapted Kenyon Attitude Toward Physical Activity Inventory through computation of Cronbach's alpha based on the study data. Reliabilities were initially computed for the entire inventory and finally for each of the three subscales (Social Experience, Health and Fitness, and Catharsis).

Only 55 of 75 subjects answered all of the questions on the Inventory questionnaire and these were the only cases utilized in computing the alpha reliabilities. The Inventory was the last questionnaire administered to the sample and subject fatigue may have been a factor in the amount of missing data for this questionnaire. In

Table 3. Participants and Nonparticipants ≥ 65 Years Old in Exercise Group/Class by Ten-Year Age Categories by Frequency and Percent. (N = 72).*

Age	Exercise Group/Class Participants N = 19	Exercise Group/Class Nonparticipants N = 53	Total
65 - 74	13(18.0)	29(40.0)	42(58.0)
75 - 84	4(6.0)	17(24.0)	21(29.0)
85 - 95	2(3.0)	7(10.0)	9(13.0)
Totals	19(26.0)	53(74.0)	72(100)*

*. Missing data on three subjects.

addition, several subjects were unfamiliar with the Likert-type attitude statement format.

Table 4 presents the alpha reliabilities for the Adapted Kenyon Attitude Toward Physical Activity Inventory and its three subscales. The Cronbach's alpha reliability for the complete inventory was 0.85. The alpha reliability for the Social Experience subscale was 0.63. The Health and Fitness subscale had an alpha reliability of 0.71. The catharsis subscale alpha reliability coefficient was 0.72.

The computed alpha reliabilities compare favorably with the Hoyt reliabilities obtained for the original Inventory. The Hoyt reliability for the original Social Experience subscale (Form DW for women) was 0.72. The Hoyt reliability for the original Health and Fitness subscale (Form DW for women) was 0.83. The original Catharsis subscale (Form DW for women) had a Hoyt reliability of 0.79 (Kenyon, 1968 b). As noted, the reliability coefficients for the original and adapted Social Experience subscales were the lowest of the three scales.

The alpha reliability for the complete inventory meets the 0.80 criterion level for widely-used scales (Carmines and Zeller, 1982). The reliabilities for the subscales do not meet the criterion level. The alpha coefficient for the Social Experience subscale is particularly low (alpha = 0.63). The item-total correlations show that the alpha for this scale would not be greatly improved by deleting scale items, however. Reliability might be improved by adding items to this scale. The alpha coefficients for the two subscales, Health and Fitness and Catharsis, approach the criterion level for widely-used scales.

Table 4. Reliability Coefficients for Adapted Kenyon Attitude Toward Physical Activity Inventory and Its Three Subscales in Subjects ≥ 65 Years Old. (N = 55).

Name	Alpha Coefficient
Adapted Kenyon Attitude Toward Physical Activity Inventory	0.85
Social Experience Subscale	0.63
Health and Fitness Subscale	0.71
Catharsis Subscale	0.72

Findings Related to the Value Survey

Table 5 presents the first-ranked personal values from the Value Survey (Wallston, Maides, and Wallston, 1976). Of the ten values the subjects were asked to rank as guiding principles, health was ranked first by 40 individuals (58 percent). Fifty subjects (74 percent) ranked health as their first or second most important value. These 50 subjects were thus classified in the high health value group. Health was ranked last by only one participant.

"Happiness" was considered to be the first-ranked value by seven subjects (ten percent). Nine percent ranked "A comfortable life" as the most important value in their life. Five subjects (seven percent) each believed "Inner harmony" or "Self-respect" to be their first-ranked value. "Freedom" was ranked first by four percent of the subjects. One subject (one percent) each ranked "An exciting life," "A sense of accomplishment," "Social recognition," and "Pleasure" as the most important value. Clearly, health was valued by a majority of the study population. Indeed, health would seem to be of high value, considering the ages of the participants.

Findings Related to Self-Perceived Health Rating Scale

Table 6 presents the results of the Self-Perceived Health Rating Scale (Cockerham, Sharp, and Wilcox, 1983). The majority of subjects rated their health as above average for their age. Thirty-four subjects (47 percent) rated their health as "Much better" as compared to others their age. Eleven subjects (15 percent) rated their health as "Somewhat

Table 5. First-Ranked Personal Values From the Value Survey by Subjects ≥ 65 Years Old by Frequency and Percent. (N = 70).*

Value	Frequency	Percent
Health (Physical and mental well-being)	40	59
Happiness (Contentedness)	7	10
A comfortable life (A prosperous life)	6	9
Inner harmony (Freedom from inner conflict)	5	7
Self-respect (Self-esteem)	5	7
Freedom (Independence, Free choice)	3	4
An exciting life (A stimulating, active life)	1	1
A sense of accomplishment (Lasting contribution)	1	1
Social recognition (Respect, admiration)	1	1
Pleasure (An enjoyable, leisurely life)	1	1
Total	70*	100

*. Missing data on five subjects.

Table 6. Self-Perceived Health Rating of Subjects ≥ 65 Years Old by Frequency and Percent. (N = 73).*

Rating	Frequency (Percent)
5. Much better	34(47)
4. Somewhat better	11(15)
3. About the same	24(33)
2. Somewhat worse	3(4)
1. Much worse	1(1)
Total	73(100)*

Mean 4.01 S.D. 1.05

(Range 5 - 1)

*. Missing data on two subjects.

better" than others their age. Twenty-four subjects (33 percent) believed their health to be "About the same" as others their age. Three subjects (four percent) rated their health as "Somewhat worse" and only one subject (one percent) rated their health as "Much worse" than others their age. This subject was in the 65 - 74 year age category. Based on a rating of "5" for "Much better" to "1" for "Much worse," the group mean was 4.01 (S.D. = 1.05).

Forty-five of 75 subjects (62 percent) believe their health to be much better or somewhat better than others their age. This positive self-perception of health can be a factor in the elderly individual's beliefs about his physical exercise capabilities.

Findings Related to Adapted Kenyon Attitude Toward Physical Activity Inventory

Results of scores for the Adapted Kenyon Attitude Toward Physical Activity Inventory are shown in Table 7. The subjects as a group were slightly positive in their attitude toward physical activity, although there was a moderate spread between scores. The range of total possible scores for the Adapted Kenyon Attitude Toward Physical Activity Inventory was 0 to 140. The study results revealed a range from 0 to 108. The mean was 71.84 (S.D. = 23.16). The median was 75.00.

Table 8 presents the ranges, means, and standard deviations for the three subscales of the Adapted Kenyon Attitude Toward Physical Activity Inventory. The three subscales are Social Experience, Health and Fitness, and Catharsis.

Table 7. Range, Mean, and Standard Deviation for Adapted Kenyon Attitude Toward Physical Activity Inventory for Subjects ≥ 65 Years Old. (N = 75).

Inventory	Range	Mean	Standard Deviation
Adapted Kenyon Attitude Toward Physical Activity Inventory	0 - 108	71.84	23.16

Table 8. Ranges, Means, and Standard Deviations for Social Experience, Health and Fitness, and Catharsis Subscales of the Adapted Kenyon Attitude Toward Physical Activity Inventory for Subjects ≥ 65 Years Old. (N = 75).

Scale	Range	Mean	Standard Deviation
Social Experience	0 - 30	21.19	6.91
Health and Fitness	0 - 45	27.60	9.73
Catharsis	0 - 35	23.05	8.09

The range of possible scores for the Social Experience subscale was 0 to 40. The obtained range was 0 to 30. The mean was 21.19 (S.D. = 6.91), indicating a slightly positive attitude toward physical activity as a social experience.

The range of possible scores for the Health and Fitness subscale was 0 to 55. The obtained range was 0 to 45. The mean was 27.60 (S.D. = 9.73), indicating a slightly positive attitude toward physical activity as a means to health and fitness. This mean might have been greater if the attitude statements for this subscale had not utilized words such as "vigorous" and "strenuous" in describing physical exercise. Four of the 11 items contained one of these two words and many subjects commented that they would have agreed with the statements had they not included the words "vigorous" or "strenuous" in reference to physical activity. Several subjects believed that to describe exercise for elderly people as "strenuous" or "vigorous" was inappropriate and dangerous.

The range of possible scores for the Catharsis subscale was 0 to 45, with an actual range of 0 to 35. The mean was 23.05 (S.D. = 8.09). The subjects demonstrated a slightly positive attitude toward physical exercise as relief of tension (i.e., catharsis).

The subjects in the present study, then, valued physical activity more as a means to health and fitness and secondly as a means for catharsis. Physical activity as a means to social experience was valued least by these subjects.

Findings Related to Situational Barriers Rating Instrument

The Situational Barriers Rating Instrument included ten barriers to exercise, and subjects were asked to check those barriers which prevented them from exercising as much as they might desire. The response "None of the above" was also provided. Table 9 presents the situational barriers to exercise from most frequently identified to least frequently identified by the study population.

For many subjects, personal factors were viewed as barriers to exercising as often as they might wish. The most frequently indicated barrier was "Exercise has not been part of my lifestyle." Nineteen subjects (27 percent) responded that this was a barrier.

The next most frequently indicated barrier was "Too dangerous for my present health condition." Eighteen subjects (25 percent) agreed with this statement.

The third most frequently identified barrier was "Not interested." Ten subjects (14 percent) identified this as a barrier.

Three barriers were each identified by eight subjects (11 percent) as barriers to exercise. The barriers were as follows: "Exercise facilities too far away," "Lack of time," and "Lack of encouragement by others."

"Lack of transportation to exercise facilities" was a barrier for five subjects (seven percent). Only three subjects (four percent) identified "Exercise facilities too crowded" as a barrier to exercise.

Table 9. Situational Barriers to Exercise As Reported by Subjects ≥ 65 Years Old From Most Frequently Identified to Least Frequently Identified by Frequency and Percent. (N = 71).*

Barrier	Frequency	Percent
Exercise has not been part of my lifestyle.	19	27
Too dangerous for my present health condition.	18	25
Not interested.	10	14
Exercise facilities too far away.	8	11
Lack of time.	8	11
Lack of encouragement by others.	8	11
Lack of transportation to exercise facilities.	5	7
Exercise facilities too crowded.	3	4
Too expensive to exercise.	2	3
Total	89#	

*. Missing data on four subjects.

#. Total number of responses is greater than the number of subjects as multiple responses are permissible on the instrument.

Only two subjects (three percent) viewed "Too expensive to exercise" as a concern.

Fifteen subjects (21 percent) identified "Other" barriers to exercise. The additional responses added by the subjects were varied. Five subjects mentioned health problems which made it difficult to perform physical exercise. Two subjects mentioned arthritis and another had had four strokes, making it difficult to exercise as he once had. Another subject noted, "This past year only able to walk due to heart problem." Another mentioned a vision problem.

Environmental problems were of concern for several subjects. One noted that the heat caused her to avoid exercise in the summer months. Another respondent noted that the area near her trailer home was too dangerous to venture out to exercise.

Several subjects mentioned housework and yardwork, indicating that they viewed this as adequate exercise. One woman wrote, "Have a son home heart patient and a husband. I do all my own work and bend and walk quite a bit. I am pretty active." Another active subject noted that the many club, social, and church activities she was involved in prevented her from exercising as frequently as she wished.

Two subjects noted that laziness was a barrier for them. One respondent was not as concerned with exercise now as he once was. He noted, "Exercised considerably in early life and so not concerned too much about being out of shape."

In analyzing the above results of the Situational Barriers Rating Instrument, it is possible that the lack of familiarity with,

and interest in, physical exercise as shown by the elderly subjects in this study may reflect the attitudes toward physical exercise present in the schools during childhood years. In the past, participation for men was emphasized, and team sports were encouraged. Indeed, in the present study, 58 percent (N = 11) of subjects who noted "Exercise has not been part of my lifestyle" were female. As the majority of physical activities for adults are individual activities, it is possible that the subjects' early team sport training did not realistically prepare them for individual exercise participation in later life.

The prevalence of chronic illness in the elderly population is reflected in the second most frequently identified barrier, "Too dangerous for my present health condition." As chronic illnesses are common in the elderly, many individuals in this age group may have doubts about their ability to participate in exercise.

The lack of time, finances, transportation, and proper facilities for exercise was not a strong barrier to exercise for these subjects. This may be due to the fact that the exercise classes attended by the investigator during data collection were free-of-charge to the elderly participants. In addition, "Handi-Car" transportation was available. In addition, if a subject is not interested in, or unfamiliar with, a regular exercise program, other factors such as lack of time or transportation are irrelevant.

Table 10 presents the number of barriers indicated by the subjects by frequency and percent. The range of possible scores was 0 to 10 and above, depending on the number of additional barriers the

Table 10. Number of Situational Barriers Indicated by Subjects ≥ 65 Years Old by Frequency and Percent. (N = 70).*

Number Barriers Indicated	Frequency	Percent
0	13	19
1	30	43
2	19	27
3	4	6
4	3	4
5	1	1
Totals	70*	100

Mean 1.39 S.D. = 1.08

*. Missing data on five subjects.

subject wished to include. The number of barriers perceived by the study participants was quite low, with a range from zero to five. The mean was 1.39 (S.D. = 1.08). Sixty-two subjects (89 percent) of the sample marked two or less barriers.

Findings Related to Physical Exercise Inventory

Results of Analysis for Total Inventory

Table 11 presents the range, mean, and standard deviation for the Physical Exercise Inventory. The range of possible scores was 0 to 450 and above, depending on the number of additional activities the subject might wish to include in the list. The study results indicated a range from 0 to 183. The mean was 55.32 (S.D. = 43.60).

Results of Analysis for Individual Items

The frequencies and percentages of the subjects' responses to the individual items in the Physical Exercise Inventory are presented in Table 12. The activities are ranked from most frequently indicated by the subjects to least frequently.

Walking was the activity most frequently performed by the subjects. Thirty-nine subjects (60 percent) walked daily, 18 subjects (28 percent) walked moderately, and eight subjects (12 percent) never walked.

Stretching exercises were done by 25 subjects (42 percent) on a daily basis. Seventeen subjects (29 perent) performed stretching exercises moderately and another 29 percent (N = 17) never did them.

Table 11. Range, Mean, and Standard Deviation for Physical Exercise Inventory for Subjects ≥ 65 Years Old. (N = 75).

Inventory	Range	Mean	Standard Deviation
Physical Exercise Inventory	0 - 183	55.32	43.60

Table 12. Physical Exercise Inventory Responses Ranked by Daily Participation From Most to Least of Subjects ≥ 65 Years Old by Frequency and Percent.

Rank	Exercise	Never	Moderately	Daily	N
1	Walking	8(12)	18(28)	39(60)	65
2	Stretching Exercises	17(29)	17(29)	25(42)	59
3	Exercise/Work-Out Alone	23(44)	11(21)	18(35)	52
4	Yardwork/Gardening	25(43)	18(31)	15(26)	58
5	Bicycling	37(71)	5(10)	10(19)	52
6	Swimming	25(47)	20(38)	8(15)	53
7	Tennis	42(82)	6(12)	3(6)	51
8	Golf	42(82)	8(16)	1(2)	51
9	Social Dancing	29(59)	19(39)	1(2)	49
10	Fishing	36(75)	12(25)	0(0)	48
11	Bowling	40(87)	6(13)	0(0)	46
12	Square Dancing	42(89)	5(11)	0(0)	47
13	Jogging	43(91)	4(9)	0(0)	47
14	Hunting	43(96)	2(4)	0(0)	45
15	Racquetball	46(100)	0(0)	0(0)	46

Eighteen subjects (35 percent) exercised or worked-out alone on a daily basis. Twenty-one percent (N = 11) did this moderately and 44 percent (N = 23) never did.

Yardwork/Gardening was done by 15 subjects (26 percent) daily and by 18 subjects (31 percent) moderately. Twenty-five subjects (43 percent) never did yardwork or gardening.

Ten subjects (19 percent) bicycled on a daily basis, while five subjects (ten percent) bicycled moderately. Thirty-seven subjects (71 percent never bicycled.

Swimming was done daily by eight subjects (15 percent). Twenty subjects (38 percent) swam moderately and 25 subjects (47 percent) never swam.

The seventh most frequently performed physical activity was tennis. Three subjects (six percent) played daily and six subjects (12 percent) played moderately. The majority of subjects (82 percent) never played tennis.

Two activities were ranked eighth in frequency of participation. Social dancing and golf were each enjoyed by one subject (two percent) on a daily basis. Eight subjects (16 percent) played golf moderately and 82 percent never played golf. Social dancing was done moderately by 19 subjects (39 percent) and never by 59 percent of the subjects.

The remaining six activities were not performed daily by any of the elderly subjects. These activities, in order of decreasing frequency of moderate participation, were as follows: Fishing, Bowling, Square Dancing, Jogging, Hunting, and Racquetball.

Four subjects included other activities under the category "Other." One woman stated, "I make a game out of dusting, changing beds, etc. to get some stretching." Another participant included "Exercise classes," while another marked "Treadmill." "Rowing was indicated by a fourth subject.

Findings Related to the Relationships Among Study Variables

Spearman rank order correlation coefficients were computed to determine the relationships between the five study variables. The following section will discuss the findings as they relate to each of the four relationships that were investigated in this study. In addition, other significant correlations will also be discussed. The significance level was preset at the 0.05 level.

1. The greater the value placed on health, the more positive attitude toward physical exercise. The data partially supported this relationship. Results of the Spearman rank order correlation are presented in Table 13. The weak correlation between health value and attitude toward physical activity approached significance ($r_s = 0.17$, $p = 0.08$). When the correlations between health value and the three attitude subscales (Social Experience, Health and Fitness, and Catharsis) were computed, two coefficients approached the level of significance. These were the Health and Fitness subscale ($r_s = 0.18$, $p = 0.07$) and the Catharsis subscale ($r_s = 0.17$, $p = 0.08$). These were rather weak correlations, however.

Table 13. Spearman Rank Order Correlation Coefficients Between Health Value and Attitude Toward Physical Exercise in Subjects ≥ 65 Years Old (N = 75).

	Health Value
Attitude Toward Physical Exercise	0.17*

* N.S.

2. The more positive the perceived health status, the more positive attitude toward physical exercise. The data did not reflect a significant relationship between self-perceived health status and attitude toward exercise (r_s = -0.07, p = 0.26). Results of the correlation coefficients are presented in Table 14. A significant negative relationship was noted between self-perceived health and the Social Experience subscale of the Attitude Inventory (r_s = -0.21, p = 0.04). Thus, the individual who perceives himself to be in excellent health is less likely to perceive exercise as a social experience. Perhaps the individual in excellent health views physical exercise as a means to achieving and maintaining that good health.
3. The more positive attitude toward physical exercise, the greater the physical exercise performed. A significant relationship was noted between attitude toward exercise and amount of physical exercise performed (r_s = 0.22, p = 0.03). Results of the Spearman rank order correlations are presented in Table 15. The individual attitude subscales, Health and Fitness and Catharsis, also were significantly related to amount of physical exercise performed (r_s = 0.24, p = 0.02 and r_s = 0.22, p = 0.03 respectively).
4. The greater the number of situational barriers, the less the physical exercise performed. The data did not reveal a significant relationship between the number of situational barriers and the amount of physical exercise performed (r_s = -0.03, p = 0.39).

Table 14. Spearman Rank-Order Correlation Coefficients Between Self-Perceived Health Status, Attitude Toward Physical Exercise, and Attitude Toward Physical Exercise as a Social Experience in Subjects ≥ 65 Years Old. (N = 75).

	Self-Perceived Health Status
Attitude Toward	
Physical Exercise	-0.07
Social Experience	-0.21*

*. Significant at 0.05 level.

Table 15. Spearman Rank-Order Correlation Coefficients Between Attitude Toward Physical Exercise, Attitude Toward Physical Exercise as Health and Fitness and as Catharsis, and Amount of Physical Exercise Performed in Subjects $\geq$ 65 Years Old. (N = 75).

	Amount of Physical Exercise
Attitude Toward	
Physical Exercise	0.22*
Health and Fitness	0.24*
Catharsis	0.22*

*. Significant at 0.05 level.

Other Significant Correlations

The data analysis revealed a significant relationship between health value and amount of physical exercise. Value of health was determined to be significantly related to amount of physical exercise performed ($r_s = 0.20$, $p = 0.05$). Certainly, individuals who highly value health might be expected to exercise more frequently than those individuals who do not highly value health. (See Table 16).

Findings Related to the Multiple Regression Analysis

The multiple regression analysis was first performed to estimate the influence of health value and self-perceived health status on attitude toward physical activity. The forced-entry method was utilized, giving a multiple R of 0.12 (N = 67). Thus, the amount of variance (R^2) in attitude toward exercise explained by health value and self-perceived health status was only two percent.

Multiple regression was again utilized in order to estimate the influence of health value, self-perceived health status, attitude toward exercise, and situational barriers to exercise on amount of physical exercise performed. The forced entry method was again utilized, giving a multiple R of 0.25 (N = 66). The amount of variance (R^2) in amount of physical exercise performed as explained by the four independent variables was only six percent. It appears clear, then, that other factors should be considered in explaining the variance in amount of physical exercise performed.

Table 16. Spearman Rank Order Correlation Coefficient Between Health Value and Amount of Physical Exercise Performed in Subjects ≥ 65 Years Old. (N = 75).

	Amount of Physical Exercise
Health Value	0.20*

*. Significant at 0.05 level.

Summary

Seventy-five individuals aged 65 to 95 participated in the study designed to investigate the relationships between value of health, self-perceived health status, attitude toward exercise, situational barriers to exercise, and amount of physical exercise performed. The majority of the subjects were females aged 65 to 74, who rated their health as above average and who were not participating in an exercise group or class.

The data supported a positive relationship between attitude toward physical exercise and amount of physical exercise performed ($r_s = 0.22$, $p = 0.03$). A weak correlation that approached significance was found between health value and attitude toward exercise ($r_s = 0.17$, $p = 0.08$). No significant relationship was found between self-perceived health status and attitude toward physical exercise or between the number of situational barriers and amount of physical exercise performed. An additional significant finding was the relationship between health value and amount of physical exercise performed ($r_s = 0.20$, $p = 0.05$).

Multiple regression analysis found that the influence of health value and self-perceived health status on attitude toward physical exercise was minimal ($R = 0.12$, $R^2 = 0.02$, $N - 67$). Multiple regression analysis also found that the influence of health value, self-perceived health status, attitude toward physical exercise, and number of situational barriers on amount of physical exercise performed was minimal ($R = 0.25$, $R^2 = 0.06$, $N = 66$).

The Alpha reliability coefficients computed for the Adapted Kenyon Attitude Toward Physical Activity Inventory compared favorably with the original inventory. The computed Alpha coefficient for the complete adapted inventory was high (0.85).

CHAPTER 5

CONCLUSIONS AND IMPLICATIONS

The purpose of this study was to investigate the relationships between value of health, self-perceived health status, attitude toward exercise, situational barriers to exercise, and amount of physical exercise performed in an elderly population. This chapter presents a summary of the study, a comparison of the study findings with the literature, implications for nursing, and recommendations for further research.

Conclusions

The data results revealed that the majority of the 75 elderly subjects were between the ages of 65 and 74. The range of ages was 65 to 95. Sixty percent of the subjects were female. The educational levels of the subjects were rather evenly distributed from "less than eighth grade" to "college graduate." The majority (74 percent) of the sample was not participating in an exercise group or class.

The elderly group highly valued health, with the majority ranking it first among nine other values. These findings are consistent with other studies which have also found health to be highly valued among 70 females aged 24 to 65 (Laffrey and Isenberg, 1983) and 63 men and women aged 18 to 90 (Brown, et.al.).

The majority of subjects believed themselves to be above average in health as compared to others their age. Sidney and Shephard

(1976), in their study of attitudes toward health and physical activity in 42 elderly subjects, also found that all of the subjects rated their health to be average or above as compared to others their age. Cockerham, Sharp, and Wilcox (1983) found that the proportion of individuals aged 60 and over who rated their health as much better than others their age was approximately twice that for individuals under age 60.

The sample population held a slightly positive attitude toward physical activity in general, and valued the health and fitness aspects of exercise more than the aspects of catharsis and social experience. This is consistent with the findings of Sidney and Shephard (1976).

The number of situational barriers to exercise was minimal for the elderly individuals. For many, regular exercise had not been a developed habit. Many also believed exercise was too dangerous for their health. A number of subjects also indicated a lack of interest in exercise. Although the literature has not included specific instruments for determination of specific situational barriers to exercise, many of the identified barriers are included in several studies (Sidney and Shepard, 1977, 1976; Jeffers and Nichols, 1970; Brunner, 1969). The literature has not investigated barriers such as lack of experience with, and disinterest in, exercise.

The most common physical exercise performed was walking, an activity that the majority did daily. Many also exercised alone or performed stretching exercises on a daily basis. Nolan (1982) completed a descriptive study on the self-care practices of a group of 25 individuals aged 70 - 94 years old, in which she found walking,

cycling, and the performance of calisthenics and housework to be activities common to the group. Cunningham, et.al. (1968) and Stephens, et.al (1985) also found walking to be a popular exercise.

The study relationships were partially supported by the data. A weak correlation between health value and attitude toward physical activity approached significance (r_s = 0.17, p = 0.08). As Laffrey and Isenberg (1983) note, values other than health may affect one's performance of health-promoting behavior.

The fact that 50 subjects (74 percent) rated health as their first or second most important value and 58 percent ranked health first decreased the variance and skewed the relationship between health value and attitude toward exercise. Brown, et.al. (1983) noted similar limited values for health rank and reported no significant relationship between health value and any of the other study variables.

The data did not reflect a significant relationship between self-perceived health status and attitude toward exercise (r_s = -0.07, p = 0.26). A significant negative relationship was noted between self-perceived health status and the Social Experience subscale of the Attitude Inventory (r_s = -0.21, p = 0.04). Jeffers and Nichols (1970), involved in the Duke University Medical Center's longitudinal study on aging, did report a moderate correlation between those subjects without disability and a positive attitude score (r = 0.20, p = 0.01).

A significant relationship was noted between attitude toward exercise and amount of physical exercise performed (r_s = 0.22, p = 0.03).

This is consistent with the findings of Sidney and Shephard (1976) and Harris (1970). In both studies, adult subjects developed more positive attitudes toward physical activity after a regular exercise program.

The data did not reveal a significant relationship between the number of situational barriers and the amount of physical exercise performed (r_s = -0.03, p = 0.39). As instruments have not been developed for measuring the barriers to physical exercise, the literature merely subjectively suggests that an inverse relationship exists between the number of situational barriers and the amount of physical exercise performed (Sidney and Shephard, 1976).

The data analysis revealed that health value and amount of physical exercise were significantly correlated (r_s = 0.20, p = 0.05). Certainly, individuals who highly value health might be expected to exercise more frequently. Laffrey and Isenberg (1983) and Brown, et.al. (1983), however, did not find a significant relationship between health value and amount of physical exercise performed.

Implications for Community Health Nursing

Further research is needed to describe the relationships between health value, self-perceived health status, attitudes toward exercise, situational barriers to exercise, and amount of physical exercise performed in the elderly population. Several implications from the present study are evident.

Community health nurses are in a unique position to assist the well elderly in the community in health promotion efforts (Alford,

1982). This is due in part to the emphasis on wellness that has developed in the nursing profession. In order to more effectively assist in health promotion efforts, the nurse must consider the many factors involved in the performance of health-promoting behaviors (Moyer, 1981). It is through further research into the factors that affect the amount of physical exercise, that the elderly individual may be better aided in performing regular physical exercise.

As many in the present study were not interested in exercise and were unfamiliar with habitual exercise, it appears clear that nurses must aid the elderly in incorporating exercise into their daily routine. The belief that only vigorous exercise is beneficial is being debated in recent literature (LaPorte, et.al., 1985). Community health nurses must act as resource persons in spreading the most recent research findings on the benefits so that elderly individuals may realize the importance of even small amounts of physical exercise.

As the health and fitness aspects of physical exercise were valued most highly by the subjects in the present study, exercise programs developed for the elderly may be more effective if these aspects are emphasized. Physical activity as catharsis was also valued by the study group. The community health nurse, in planning various exercises for the older exercise group, may wish to include a "screaming holler" at the end of the program in order to release participant tension.

It should appear clear that the more completely understood are the factors influencing the amount of physical exercise in the elderly

individual, the more effective will be the community health nurse in promoting exercise in this group. In addition, information of this type more clearly points out the strengths of the elderly as a group.

Recommendations for Future Research

Several recommendations are made for future research based on this study. They include the following:

1. Revise the Situational Barriers Rating Instrument to estimate reliability and validity.
2. Revise the Physical Exercise Inventory to include distinct categories of exercise frequency.
3. Administer the complete Kenyon Attitude Toward Physical Activity Inventory to an elderly population in order to determine those aspects of physical activity most valued by the elderly population.
4. Replicate the study with groups of elderly exercise participants and nonparticipants and compare the two groups.
5. Revise the Self-Perceived Health Rating Scale to increase the number of items.

In summary, this study investigated the relationships between health value, self-perceived health status, attitude toward exercise, situational barriers to exercise and amount of physical exercise performed in an elderly age group. Clinical implications and recommendations for future study were discussed.

APPENDIX A

HUMAN SUBJECTS APPROVAL

THE UNIVERSITY OF ARIZONA

TUCSON, ARIZONA 85721

COLLEGE OF NURSING

MEMORANDUM

TO: Marianne Theiss Weeks
Graduate Student
College of Nursing

FROM: Ada Sue Hinshaw, PhD, RN ASH
Director of Research

Katherine Young, PhD, RN
Chairman, Research Committee

DATE: April 18, 1985

RE: Human Subjects Review: Values, Self-Perceived Health, and Attitudes Toward Exercises in Individuals Over Sixty-Five

Your project has been reviewed and approved as exempt from University review by the College of Nursing Ethical Review Subcommittee of the Research Committee and the Director of Research. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research if you need access to it.

We wish you a valuable and stimulating experience with your research.

ASH/fp

APPENDIX B

DISCLAIMER

MAY, 1985

I AM A GRADUATE STUDENT IN NURSING AT THE UNIVERSITY OF ARIZONA AND WOULD LIKE YOUR PARTICIPATION FOR A PROPOSED RESEARCH STUDY ENTITLED, "VALUES, SELF-PERCEIVED HEALTH, AND ATTITUDES TOWARD EXERCISE IN INDIVIDUALS OVER SIXTY-FIVE." THE PURPOSE OF THIS STUDY IS TO INVESTIGATE HOW PEOPLE'S HEALTH AND ATTITUDES TOWARD EXERCISE RELATE TO THEIR HEALTH PRACTICES SUCH AS EXERCISE.

THE STUDY WILL BE CONDUCTED BY ASKING YOU TO VOLUNTARILY GIVE YOUR OPINION ON THE QUESTIONNAIRE STATEMENTS. BY RESPONDING TO THE QUESTIONNAIRE, YOU WILL BE GIVING YOUR CONSENT TO PARTICIPATE IN THE STUDY. YOUR NAME WILL NOT BE ON THE QUESTIONNAIRE, AND YOU MAY CHOOSE NOT TO ANSWER SOME OR ALL OF THE QUESTIONS, IF YOU WISH. YOU MAY WITHDRAW FROM THE STUDY AT ANY TIME.

I WILL BE AVAILABLE TO ANSWER ANY QUESTIONS YOU MAY HAVE. THERE ARE NO RISKS TO PARTICIPATING IN THE STUDY. THE INFORMATION USED WILL NOT IDENTIFY INDIVIDUALS WHO COMPLETE QUESTIONNAIRES. THANK YOU VERY MUCH FOR PARTICIPATING IN THE STUDY.

MARIANNE WEEKS
6711 EAST ROSEWOOD CIRCLE
TUCSON, ARIZONA 85710

APPENDIX C

DEMOGRAPHIC DATA

AGE_____

SEX: MALE _____ FEMALE_____

LEVEL OF EDUCATION:

EIGHTH GRADE OR LESS	_____
SOME HIGH SCHOOL	_____
HIGH SCHOOL GRADUATE	_____
TRADE/BUSINESS SCHOOL	_____
SOME COLLEGE	_____
COLLEGE GRADUATE	_____
GRADUATE DEGREE	_____

ARE YOU PRESENTLY PARTICIPATING IN AN EXERCISE GROUP OR CLASS?

YES _____ NO _____

APPENDIX D

VALUE SURVEY

BELOW YOU WILL FIND A LIST OF TEN VALUES LISTED IN ALPHABETICAL ORDER. PLEASE ARRANGE THEM IN ORDER OF THEIR IMPORTANCE TO YOU, AS GUIDING PRINCIPLES IN YOUR LIFE. PLACE A NUMBER "1" IN THE SPACE TO THE LEFT OF THE ONE VALUE WHICH IS THE MOST IMPORTANT TO YOU. PLACE A NUMBER "2" TO THE LEFT OF THE VALUE WHICH IS SECOND MOST IMPORTANT TO YOU, AND SO FORTH. PLEASE RANK ALL 10 VALUES. THERE ARE NO RIGHT OR WRONG ANSWERS.

_____ A COMFORTABLE LIFE (A PROSPEROUS LIFE)

_____ AN EXCITING LIFE (A STIMULATING, ACTIVE LIFE)

_____ FREEDOM (INDEPENDENCE, FREE CHOICE)

_____ HAPPINESS (CONTENTEDNESS)

_____ HEALTH (PHYSICAL AND MENTAL WELL-BEING)

_____ INNER HARMONY (FREEDOM FROM INNER CONFLICT)

_____ PLEASURE (AN ENJOYABLE, LEISURELY LIFE)

_____ A SENSE OF ACCOMPLISHMENT (LASTING CONTRIBUTION)

_____ SOCIAL RECOGNITION (RESPECT, ADMIRATION)

_____ SELF-RESPECT (SELF-ESTEEM)

APPENDIX E

SELF-PERCEIVED HEALTH RATING SCALE

COMPARED TO OTHERS YOUR AGE, HOW WOULD YOU RATE YOUR HEALTH?

PLEASE CIRCLE ONE OF THE FOLLOWING:

MUCH BETTER

SOMEWHAT BETTER

ABOUT THE SAME

SOMEWHAT WORSE

MUCH WORSE

APPENDIX F

ADAPTED KENYON ATTITUDE TOWARD PHYSICAL ACTIVITY INVENTORY

THE STATEMENTS BELOW REFLECT ATTITUDES PEOPLE HAVE TOWARDS EXERCISE. BESIDE EACH STATEMENT IS A SCALE WHICH RANGES FROM STRONGLY AGREE (SA) TO STRONGLY DISAGREE (SD). FOR EACH ITEM, CIRCLE THE RESPONSE THAT REPRESENTS THE EXTENT TO WHICH YOU AGREE OR DISAGREE WITH THE ITEM STATEMENT. PLEASE CIRCLE ONLY ONE RESPONSE PER ITEM. THERE ARE NO RIGHT OR WRONG ANSWERS.

STRONGLY AGREE (SA)

AGREE (A)

UNDECIDED (U)

DISAGREE (D)

STRONGLY DISAGREE (SD)

EXAMPLE:

JOGGING IS THE ONLY EXERCISE THAT IS GOOD FOR YOUR HEART.	SA A U D (SD)
1. EXERCISE CLASSES SHOULD STRESS VIGOROUS EXERCISE SINCE IT CONTRIBUTES MOST TO PHYSICAL FITNESS.	SA A U D SD

STRONGLY AGREE	(SA)	DISAGREE	(D)
AGREE	(A)	STRONGLY DISAGREE	(SD)
UNDECIDED	(U)		

2.	THE NEED FOR MUCH HIGHER LEVELS OF PHYSICAL FITNESS HAS BEEN ESTABLISHED BEYOND ALL DOUBT.	SA A U D SD
3.	OF ALL PHYSICAL ACTIVITIES, THOSE WHOSE PURPOSE IS PRIMARILY TO DEVELOP PHYSICAL FITNESS, WOULD NOT BE MY FIRST CHOICE.	SA A U D SD
4.	THE BEST WAY TO BECOME MORE SOCIALLY DESIRABLE IS TO PARTICIPATE IN GROUP PHYSICAL ACTIVITIES.	SA A U D SD
5.	ALMOST THE ONLY SATISFACTORY WAY TO RELIEVE SEVERE EMOTIONAL STRAIN IS THROUGH SOME FORM OF PHYSICAL ACTIVITY.	SA A U D SD
6.	IF GIVEN A CHOICE, I SOMETIMES WOULD CHOOSE STRENUOUS, RATHER THAN LIGHT, PHYSICAL ACTIVITY.	SA A U D SD
7.	THERE ARE BETTER WAYS OF RELIEVING THE PRESSURES OF TODAY'S LIVING THAN HAVING TO ENGAGE IN OR WATCH PHYSICAL ACTIVITY.	SA A U D SD

STRONGLY AGREE	(SA)	DISAGREE	(D)
AGREE	(A)	STRONGLY DISAGREE	(SD)
UNDECIDED	(U)		

8.	I LIKE TO ENGAGE IN SOCIALLY ORIENTED PHYSICAL ACTIVITIES.	SA	A	U	D	SD
9.	A PART OF OUR DAILY LIVES MUST BE COMMITTED TO VIGOROUS ACTIVITIES.	SA	A	U	D	SD
10.	HEALTH DEPARTMENTS SHOULD SPONSOR MANY MORE PHYSICAL ACTIVITIES OF A SOCIAL NATURE.	SA	A	U	D	SD
11.	FOR A HEALTHY MIND IN A HEALTHY BODY, THE ONLY PLACE TO BEGIN IS THROUGH PARTICIPATION IN SPORTS AND PHYSICAL ACTIVITIES EVERY DAY.	SA	A	U	D	SD
12.	BEING PHYSICALLY FIT IS NOT THE MOST IMPORTANT GOAL IN MY LIFE.	SA	A	U	D	SD
13.	I ENJOY SPORTS MOSTLY BECAUSE THEY GIVE ME A CHANCE TO MEET NEW PEOPLE.	SA	A	U	D	SD
14.	PRACTICALLY THE ONLY WAY TO RELIEVE FRUSTRATIONS AND PENT-UP EMOTIONS IS THROUGH SOME FORM OF PHYSICAL ACTIVITY.	SA	A	U	D	SD

STRONGLY AGREE	(SA)	DISAGREE	(D)
AGREE	(A)	STRONGLY DISAGREE	(SD)
UNDECIDED	(U)		

15. THE TIME SPENT DOING DAILY CALISTHENICS COULD PROBABLY BE USED MORE PROFITABLY IN OTHER WAYS. SA A U D SD

16. OF ALL THE KINDS OF PHYSICAL ACTIVITIES, I DON'T PARTICULARLY CARE FOR THOSE REQUIRING A LOT OF SOCIALIZING. SA A U D SD

17. MOST INTELLECTUAL ACTIVITIES ARE OFTEN JUST AS REFRESHING AS PHYSICAL ACTIVITIES. SA A U D SD

18. STRENGTH AND PHYSICAL STAMINA ARE THE MOST IMPORTANT PRE-REQUISITES TO A FULL LIFE. SA A U D SD

19. PHYSICAL ACTIVITES THAT ARE PURELY FOR SOCIAL PURPOSES, LIKE SQUARE-DANCES, ARE SOMETIMES A WASTE OF TIME. SA A U D SD

20. I BELIEVE CALISTHENICS ARE AMONG THE LESS DESIRABLE FORMS OF PHYSICAL ACTIVITY. SA A U D SD

STRONGLY AGREE	(SA)	DISAGREE	(D)
AGREE	(A)	STRONGLY DISAGREE	(SD)
UNDECIDED	(U)		

21.	WATCHING ATHLETES BECOMING COMPLETELY ABSORBED IN THEIR SPORT NEARLY ALWAYS PROVIDES ME WITH A WELCOME ESCAPE FROM THE MANY DEMANDS OF PRESENT-DAY LIFE.	SA	A	U	D	SD
22.	THERE ARE BETTER WAYS OF GETTING TO KNOW PEOPLE THAN THROUGH GAMES AND SPORTS.	SA	A	U	D	SD
23.	PEOPLE SHOULD SPEND TWENTY TO THIRTY MINUTES A DAY DOING VIGOROUS CALISTHENICS.	SA	A	U	D	SD
24.	A HAPPY LIFE DOES NOT REQUIRE REGULAR PARTICIPATION IN PHYSICAL ACTIVITY.	SA	A	U	D	SD
25.	CALISTHENICS TAKEN REGULARLY ARE AMONG THE BEST FORMS OF EXERCISE.	SA	A	U	D	SD
26.	THE BEST THING ABOUT GAMES AND SPORTS IS THAT THEY GIVE PEOPLE MORE CONFIDENCE IN SOCIAL SITUATIONS.	SA	A	U	D	SD
27.	REGULAR PHYSICAL ACTIVITY IS THE MAJOR PRE-REQUISITE TO A SATISFYING LIFE.	SA	A	U	D	SD

STRONGLY AGREE	(SA)	DISAGREE	(D)
AGREE	(A)	STRONGLY DISAGREE	(SD)
UNDECIDED	(U)		

28. MOST PEOPLE COULD LIVE HAPPY LIVES WITHOUT DEPENDING UPON FREQUENT WATCHING OR PARTICIPATING IN PHYSICAL GAMES AND EXERCISES. SA A U D SD

APPENDIX G

SITUATIONAL BARRIERS RATING INSTRUMENT

CHECK (✓) ANY FACTORS BELOW WHICH PREVENT YOU FROM EXERCISING AS MUCH AS YOU WOULD LIKE TO:

_____ LACK OF TIME

_____ LACK OF ENCOURAGEMENT BY OTHERS

_____ TOO EXPENSIVE TO EXERCISE

_____ TOO DANGEROUS FOR MY PRESENT HEALTH CONDITION

_____ LACK OF TRANSPORTATION TO EXERCISE FACILITIES

_____ EXERCISE FACILITIES TOO FAR AWAY

_____ EXERCISE FACILITIES TOO CROWDED

_____ NOT INTERESTED

_____ EXERCISE HAS NOT BEEN PART OF MY LIFESTYLE

_____ OTHER_____

_____ NONE OF THE ABOVE

APPENDIX H

PHYSICAL EXERCISE INVENTORY

BELOW IS A LIST OF PHYSICAL EXERCISE ACTIVITIES. PLEASE MARK WITH A CHECK (✓) THE CATEGORY WHICH BEST DESCRIBES THE NUMBER OF TIMES YOU PARTICIPATE IN EACH ACTIVITY. PLEASE ADD ANY PHYSICAL EXERCISE ACTIVITIES YOU DO WHICH ARE NOT ON THE LIST.

	NEVER	RARELY (ONCE PER MONTH)	FREQUENTLY (1-3 TIMES) PER MONTH	DAILY
JOGGING				
GOLF				
TENNIS				
SWIMMING				
SQUARE DANCING				
HUNTING				
SOCIAL DANCING				
YARDWORK/GARDENING				
EXERCISE/WORK-OUT ALONE				
BICYCLING				
FISHING				
WALKING				
BOWLING				
RACQUETBALL				
STRETCHING EXERCISES				
OTHER				

APPENDIX I

ADAPTED KENYON ATTITUDE TOWARD PHYSICAL ACTIVITY INVENTORY ITEMS BY SUBSCALE CATEGORIES-- RESPONSES OF SUBJECTS ≥ 65 YEARS OLD BY FREQUENCY AND PERCENT[1]

Social Experience Subscale

4. The best way to become more socially desirable is to participate in group physical activities. (N = 68).

SA	A	U	D	SD
4(6)	22(32)	10(15)	25(37)	7(10)

8. I like to engage in socially oriented physical activities. (N = 67).

SA	A	U	D	SD
3(4)	29(43)	11(16)	21(31)	3(4)

10. Health departments should sponsor many more physical activities of a social nature. (N = 69).

SA	A	U	D	SD
5(7)	30(43)	12(17)	20(29)	2(3)

13. I enjoy sports mostly because they give me a chance to meet new people. (N = 66).

SA	A	U	D	SD
5(8)	15(23)	12(18)	29(44)	5(8)

1. Strongly Agree = SA, Agree = A, Undecided = U, Disagree = D, Strongly Disagree = SD.

11. For a healthy mind in a healthy body, the only place to begin is through participation in sports and physical activities every day. (N = 67).

SA	A	U	D	SD
1(1)	27(40)	10(15)	27(40)	2(3)

14. Practically the only way to relieve frustrations and pent-up emotions is through some form of physical activity. (N = 68).

SA	A	U	D	SD
4(6)	26(38)	8(12)	26(38)	4(6)

17. Most intellectual activities are often just as refreshing as physical activities. (N = 67).

SA	A	U	D	SD
2(3)	41(61)	13(19)	10(15)	1(1)

21. Watching athletes becoming completely absorbed in their sport nearly always provides me with a welcome escape from the many demands of present-day life. (N = 65).

SA	A	U	D	SD
1(2)	31(48)	8(12)	22(34)	3(5)

24. A happy life does not require regular participation in physical activity. (N = 70).

SA	A	U	D	SD
4(6)	39(56)	6(9)	20(29)	1(1)

27. Regular physical activity is the major pre-requisite to a satisfying life. (N = 69).

SA	A	U	D	SD
3(4)	31(45)	7(10)	26(38)	2(3)

16. Of all the kinds of physical activities, I don't particularly care for those requiring a lot of socializing. (N = 66).

SA	A	U	D	SD
3(5)	40(61)	10(15)	13(20)	0(0)

19. Physical activities that are purely for social purposes, like square dances, are sometimes a waste of time. (N = 68).

SA	A	U	D	SD
1(1)	20(29)	8(12)	36(53)	3(4)

22. There are better ways of getting to know people than through games and sports. (N = 69).

SA	A	U	D	SD
6(9)	40(58)	10(14)	13(19)	0(0)

26. The best thing about games and sports is that they give people more confidence in social situations. (N = 69).

SA	A	U	D	SD
3(4)	32(46)	12(17)	20(29)	2(3)

Health and Fitness Subscale

1. Exercise classes should stress vigorous exercise since it contributes most to physical fitness. (N = 69).

SA	A	U	D	SD
4(6)	11(16)	6(9)	28(41)	20(29)

2. The need for much higher levels of physical fitness has been established beyond all doubt. (N = 65).

SA	A	U	D	SD
11(17)	24(37)	14(22)	12(18)	4(6)

3. Of all physical activities, those whose purpose is primarily to develop physical fitness, would not be my first choice. (N = 67).

SA	A	U	D	SD
8(12)	28(42)	7(10)	16(24)	8(12)

6. If given a choice, I sometimes would choose strenuous, rather than light, physical activity. (N = 69).

SA	A	U	D	SD
3(4)	15(22)	3(4)	36(52)	12(17)

9. A part of our daily lives must be committed to vigorous activities. (N = 69).

SA	A	U	D	SD
2(3)	9(13)	8(12)	41(59)	9(13)

12. Being physically fit is not the most important goal in my life. (N = 68).

SA	A	U	D	SD
4(6)	43(63)	5(7)	14(21)	2(3)

15. The time spent doing daily calisthenics could probably be used more profitably in other ways. (N = 66).

SA	A	U	D	SD
2(3)	19(29)	5(8)	34(52)	6(9)

18. Strength and physical stamina are the most important prerequisites to a full life. (N = 65).

SA	A	U	D	SD
2(3)	21(32)	5(8)	35(54)	2(3)

20. I believe calisthenics are among the less desirable forms of physical activity. (N = 66).

SA	A	U	D	SD
0(0)	27(41)	11(17)	24(36)	4(6)

23. People should spend twenty to thirty minutes a day doing vigorous calisthenics. (N = 69).

SA	A	U	D	SD
1(1)	17(25)	6(9)	38(55)	7(10)

25. Calisthenics taken regularly are among the best forms of exercise. (N = 66).

SA	A	U	D	SD
4(6)	36(55)	8(12)	17(26)	1(2)

Catharsis

5. Almost the only satisfactory way to relieve severe emotional strain is through some form of physical activity. (N = 69).

SA	A	U	D	SD
6(9)	26(38)	9(13)	22(32)	6(9)

7. There are better ways of relieving the pressures of today's living than having to engage in or watch physical activity. (N = 67).

SA	A	U	D	SD
4(6)	37(55)	8(12)	16(24)	2(3)

28. Most people could live happy lives without depending upon frequent watching or participating in physical games and exercises. (N = 70).

SA	A	U	D	SD
6(9)	41(59)	11(16)	9(13)	3(4)

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