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The impact of physical fitness participation on mature female consumers: A study of selected perceptions and behavior

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THE IMPACT OF PHYSICAL FITNESS PARTICIPATION ON MATURE FEMALE CONSUMERS: A STUDY OF SELECTED PERCEPTIONS AND BEHAVIOR

by

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THE CITY UNIVERSITY OF NEW YORK

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by

Sylvia D. Clark

Adviser: Professor Leon Schiffman

This research explored the relationship of fitness participation to select perceptions and behavior among mature females. Specifically, it examined the linkage between fitness participation and: cognitive age; personal control; self-esteem; life satisfaction; happiness; television usage; and two facets of shopping behavior, shopping frequency and shopping motivation. The major purpose was to provide further insight into the healthy, mature female population, a large and powerful consumer group.

Simple random sampling was used to survey 376 able-bodied women aged 65 and older. Respondents were recruited from 19 senior citizen centers located in New York City. The use of such centers posed an inherent limitation, because the type of person who visits these facilities is more active than average. In addition, the use of only New York centers restricts generalizability.

Each respondent was given a self-administered questionnaire which included six established measures: (1) the Physical Advanced Activities of Daily Living Scale (AADL); (2) the cognitive age measure (CA); (3) the Personal Control Subscale (from the Spheres of Control Scale, PE); (4) the Texas Social Behavior Inventory (TSBI); (5) the Life Satisfaction Index A (LSIA) and (6) a standard happiness measure (SRC-NORC). In addition, the survey included items covering television usage, shopping behavior, reasons for fitness participation, perceived health, and assorted demographics.

Cognitive age, life satisfaction, and global happiness were all found to be strongly related to degree of fitness participation among mature women. Personal control and self-esteem were also found to have some relationship to fitness participation. However, television usage, shopping frequency, and shopping motivation were not found to be significantly related to fitness participation. Overall, findings confirmed the importance of physical fitness in enhancing the quality of life among mature women.

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Chapter 1

INTRODUCTION

Traditionally, old age has been considered a time when declines in health and vigor are inevitable. Mature women in particular seem to have readily accepted such deterioration as part of the normal aging process. Increasing research evidence has shown, however, that "normal aging" is most likely the result of physical inactivity (O'Brien and Vertinsky, 1990).

According to Wan (1985), the maintenance of one's well-being is based on a holistic approach to health which combines physical, social and mental activities. Of these, physical activity has been found to be the most significant factor in perpetuating a quality life experience (Lutter, et al., 1985; Short and Leonardelli, 1987; Gueldner and Spradley, 1988).

O'Brien and Vertinsky (1990) reviewed the many varied areas in which physical activity or exercise is a major positive force in the mature woman's life. Exercise produces a host of different benefits, both short- and long-term. The most visible and immediate ones tend to be physiological benefits.

In the short run, exercise has been shown to improve flexibility and coordination (Frekany and Leslie, 1978; Hartley-O'Brien, 1980). It has also been linked to heightened alertness and sharper cognitive functioning (Vallbona and Baker, 1984), stress reduction (DeVries, 1975) and improved sleep patterns (Osis, 1986).

Long-term physiological benefits are even more impressive. In general, exercise will increase longevity (Karvonen, et al., 1974; Paffenberger, et al., 1986). More specifically, it has been found to lower blood pressure and cholesterol levels (Vaccaro, et al., 1984; Weber, et al., 1983; Evans and Meredith, 1989); to strengthen the immune system (Eichner, 1987); to retard osteoporosis (Oyster, et al., 1984); and to reduce the risk of cancer (Gerhardsson, et al., 1986). It also facilitates weight control, always a concern for women (Evans and Meredith, 1989).

The psychological benefits of exercise have also received research attention. In the short run, new participants have been found to "feel better" almost immediately, simply because they are doing something good for themselves (Dowell, et al., 1988). Part of this effect is actually physiological. Exercise increases the level of endorphins in the brain, which produces greater feelings of

well-being and euphoria (Cronan and Howley, 1984; Siever and Davis, 1985). Beyond that, however, psychological benefits include greater feelings of personal accomplishment and enhanced body image (Klein, et al., 1985; Lutter, et al., 1985; Paige, 1987).

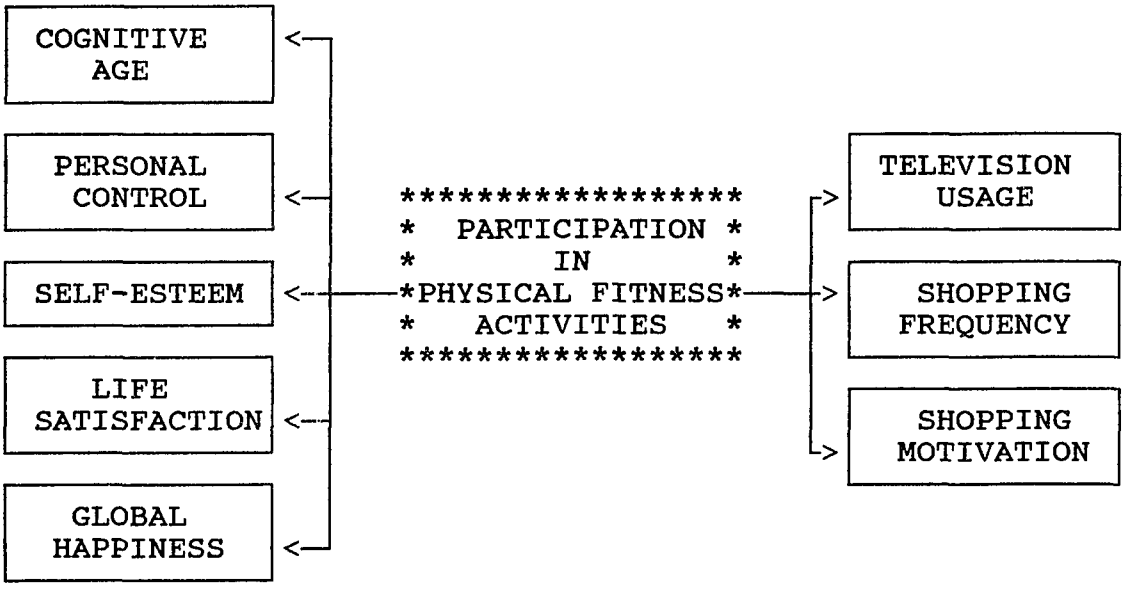
The physical potential of mature women is astounding. One study found that trained women over 80 years of age could actually achieve performance times in a one-mile run comparable to those of average teenage girls (ten to eleven minutes) (National Masters News, 1989). Interestingly, however, research has shown that even moderate levels of physical activity can yield some benefits (Ross and Hayes, 1988). In fact, Gueldner and Spradley (1988) found that a slow walk outdoors covering but one-tenth of a mile caused significant improvement in the energy levels of a group of institutionalized elderly.

In summary, the physiological benefits of physical exercise for mature women have been well-documented, while the psychological benefits have also been the subject of some study. There remain, however, many other possible areas worthy of investigation. This dissertation explored the relationship of participation in fitness activities to a variety of perceptions and behaviors among mature females.

The mature female consumer in particular represents a potentially fruitful choice. While the population in general is rapidly aging, older women comprise the vast majority of today's seniors. In 1990, the 65-plus age group included 13 million men and 19 million women (Vierck, 1990). Mature women are also living longer and healthier than ever before. Today's 65-year-old woman has an average life expectancy of nineteen years, a gain of seven years since the turn of the century. In addition, more than one-quarter of women aged 65 or over claim to exercise regularly (Vierck, 1990).

The current research examines the behaviors and perceptions of the mature female consumer. As Figure 1.1 illustrates, participation in physical fitness activities is the focal point. In general, the thesis is that regular participants in physical fitness activities will exhibit different responses and behaviors than those who are not, across eight distinct areas. Five of these areas cover self-perceptions regarding aspects of personal well-being, while the remaining three are consumption-related.

Figure 1.1 - The Relationship of Physical Fitness Participation to Selected Perceptions and Behavior



Referring to Figure 1.1, the first area examined is **cognitive age**. Cognitive or self-perceived age has garnered considerable research attention as an alternative to chronological age measures. In their seminal article, Barak and Schiffman (1981) found that elderly people frequently perceived themselves as being younger than their chronological ages. While studies in the past decade have examined self-perceptions in various age categories, the differences are sharpest among the elderly.

Regular participation in physical fitness activities was thought to make these differences even more pronounced, i.e., exercisers may view themselves as being even younger. Therefore, cognitive age was examined in relationship to degree of participation.

As shown in Figure 1.1, locus of control, more specifically the **personal control** facet, is the second area under investigation in this research. As conceptualized by Paulhus and Christie (1981), personal control is concerned specifically with an individual's attempts to gain control in situations requiring personal achievement. It was derived from the more general locus of control concept originally developed by Rotter (1966). A generalized study of applications of the scale in aging research found that locus of control could be used to advantage in examining

aging populations (Lachman, 1986). In addition, the personal control construct has been strongly linked to mastery efforts in any life arena in which individual effort might be a critical factor (Gurin, 1978).

Regular participation in physical fitness activities is certainly an area in which individual effort could make a difference. Those possessing greater personal control may be more likely to participate in physical fitness activities. Thus, the linkage between personal control and degree of participation was examined.

Referring to Figure 1.1, the third area under investigation in this research is **self-esteem**. The notion of one's attitude toward self has been linked to achievement in many different scenarios, most frequently with respect to either academic or vocational training (e.g., Burley, 1985; Hendry and Raymond, 1986). Of greater relevance here are studies linking self-esteem to both actual and perceived health in older men and women (Duffy and MacDonald, 1990; Hunter, et al., 1982).

Participation in physical fitness activities could be linked to self-esteem, as a means of improving one's health (actual or perceived). Therefore, the relationship between self-esteem and degree of participation was examined.

As shown in Figure 1.1, the fourth area investigated in this dissertation is overall **life satisfaction.** As proposed by Neugarten et al. (1961), life satisfaction is an all-encompassing measure of well-being, including more than just morale, adjustment, competence or happiness. The basic linkage between participation in physical fitness and life satisfaction is not new. As noted earlier, O'Brien and Vertinsky (1990) have cited numerous gerontological studies reaffirming the psychological benefits of exercise for elderly women. In addition, Larson (1975) found health to be the single most significant factor in predicting mental well-being.

In this research, regular participants in physical fitness activities were expected to report even greater life satisfaction. Thus, the relationship between fitness participation and life satisfaction was explored. The present research also added to the existing literature by examining life satisfaction among those with varying degrees of commitment to fitness, distinguishing the occasional walker from the multi-sport participant.

Referring to Figure 1.1, a fifth, related area of interest is the concept of **global happiness.** This generalized assessment of one's sense of well-being has enjoyed a long history of application in studies of the

American population. Most notably, it has been linked to such demographic factors as marital status, socioeconomic status, and age (Campbell, et al., 1976). Research by Stones and Kozma (1980, 1986) found happiness to be linked to a variety of constructs, including perceived health, activity level and locus of control. Relatedly, this dissertation examined the possibility that a more physically active person is relatively happier.

Finally, three areas of consumption-related behavior are investigated as part of this research. First, as shown in Figure 1.1, **television usage** levels are examined. In general, the elderly have been found to be heavy users of television (Stephens, 1981). Dawson and Spangenberg (1987) found, however, that chronological age alone might be a poor predictor of TV viewing levels. Other recent research has gone a step further, by studying differences in TV viewing habits within the elderly market. For example, Rahtz, et al. (1989) found an inverse relationship between TV viewership and several variables (including income, education, morale, and perhaps of greatest interest, outside home activities). Clearly, physical fitness might be classified as one type of outside home activity. In this dissertation, the link between participation in fitness activities and levels of TV viewership was investigated.

The last two consumption-related areas of interest in this research focus on different aspects of **shopping behavior**. First is the issue of department store **shopping frequency** (see Figure 1.1). In general, the elderly have not been found to be particularly frequent shoppers, but when they **do** shop they often choose department stores (Lumpkin and Greenberg, 1982). Another study revealed that frequent department store shoppers tended to be much more active overall than nonpatrons (Crask and Reynolds, 1978). In this research, then, the thesis was that more physically active individuals would be more likely to be frequent department store shoppers.

Finally, beyond the issue of simple frequency is the issue of **shopping motivation** (see Figure 1.1). Crask and Reynolds (1978) found that behaviors, including participation in assorted activities, tended to better differentiate the frequent department store shopper than did demographics. In addition, Bellenger and Korgaonkar (1980) developed the notion of the "recreational shopper," who truly enjoys shopping for its own sake. Among other findings, they discovered that recreational shoppers were more likely to engage in out-of-home activities and less likely to watch television. Similarly, the present research examined the linkage between participation in physical

fitness activities and recreational shopping tendencies. Regular participants were expected to be more likely to engage in recreational shopping.

Problem Statement

This dissertation explored the relationship of fitness participation to select perceptions and behavior among mature females. More specifically, it examined the relationship of fitness participation to perceptions and behavior in the following dimensions of their lives: cognitive age, personal control, self-esteem, life satisfaction, happiness, television usage, and two facets of shopping behavior.

Rationale

Healthy, mature females represent a major consumer group. As the population ages, this segment will become even more important. This dissertation provides further insight into their perceptions and behavior.

Limitations

This research focuses on females aged 65 and older. Therefore, results are not generalizable to males or to other age groups.

Respondents were recruited by visiting 19 senior citizen centers. The use of such centers as the basis for sampling posed an inherent limitation. There was an immediate bias because the type of person who visits such a facility is apparently more active than average. [1] In addition, all the centers utilized in this research were located in New York City. Results, therefore, are not generalizable to other geographic areas. Also, this research utilized a cross-sectional design, restricting measurement to a single administration. Longitudinal measurement may have been preferable. For instance, individuals may vary with respect to their levels of global happiness at different times. Time constraints would not permit this investigation to employ a longitudinal design.

Finally, a self-administered survey was utilized to facilitate data collection. This is a quantitative study with a total sample size of 376. [2] Thus, the self-administered survey was the most feasible method. This choice, however, carried an intrinsic self-report bias which could not be measured. Also, it necessitated limiting

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[1] Fitness participation rates were high in comparison to the expected levels. Chapter four (Results) will present this information in greater detail.

[2] A sample size of 376 results in a sampling error of approximately ± 5% at the 95% level of confidence. With smaller subgroups, the sampling error will grow.

survey administration to women who could comprehend written English at an adequate level.

Definitions

Fitness participation gauges the individual's self-reported participation in a series of fitness activities. The cumulative response to this series differentiates the more vigorous exercisers from the less vigorous and non-exercisers (Reuben, et al., 1990).

Cognitive age is a non-chronological measure of self-perceived age. In an expansion on the original concept, it was defined in terms of six dimensions: (1) feel-age, how old a person feels; (2) look-age, how old a person looks; (3) health-age, how old a person feels based on her health status; (4) do-age, how old a person is in doing "things" favored by members of a certain age group; (5) interest-age, how similar a person's interests are to those of members of a certain age group and (6) think-age, how old a person feels based on her thinking processes (Barak and Schiffman, 1981).

Personal control indicates one's belief in one's own control in dealing with life in general. Composite scores on a ten-item measure tapped this construct (Paulhus, 1983).

Self-esteem focuses on the individual's degree of self-acceptance. Cumulative responses to a 16-item battery provided a multidimensional assessment (Helmreich and Stapp, 1974).

Life satisfaction is a composite assessment of one's psychological well-being. The measure covers five distinct areas: (1) zest vs. apathy in approaching life's everyday acivities; (2) resolution and fortitude in accepting one's life and its personal meaning; (3) congruence between desired and achieved goals; (4) self-concept and (5) mood tone (Neugarten, et al., 1961).

Global happiness is a measure of generalized well-being. It was tapped using a single-item measure of perceived overall life quality (Gurin, et al., 1960).

Television usage reflects frequency of television viewing. Categories were designed to be combined as appropriate, to distinguish heavy TV viewers from the moderate and light viewing segments (Bernhardt and Kinnear, 1975).

Shopping behavior encompasses several aspects of the individual's outlook on shopping. These included *frequency* of patronizing department stores; *time* expended per shopping excursion and the *tendency* to consider shopping to be a recreational activity (Bellenger and Korgaonkar, 1980).

Chapter 2

REVIEW OF THE LITERATURE

This dissertation explored the relationship of fitness participation to select behaviors and self-perceptions among mature females. More specifically, it examined the relationship of participation in fitness activities to perceptions and behaviors in the following dimensions of their lives: cognitive age, personal control, self-esteem, life satisfaction, global happiness, television usage, and shopping behavior. This chapter includes eight separate sections covering each factor addressed in the research. Each section will discuss the concept in general, the instrument used to measure that concept, and several related applications.

Fitness Participation

Researchers have made progress in studying the elderly consumer from a number of different vantage points. One direction, as suggested by Meadow et al. (1980), pinpoints quality of life issues. To better satisfy the needs of the mature female consumer, it is important to understand "variables, relationships and processes that produce a given level of well-being or quality of life" (p. 745).

Participation in physical fitness activities is certainly one variable that could contribute to enhanced quality of life. It is also an area in which tendencies may well have changed over time. In 1975, Bernhardt and Kinnear surveyed 3,435 elderly consumers on many issues, noting that they "do not take part in physically oriented activities very much, as we might expect" (p. 452).

In 1992, however, results of a much larger-scale research study showed that mature adults (aged 55+) led the nation in walking for exercise. The survey sampled 50,000 people in all age groups and covered 45 different sports and exercise activities. Projections indicated that, among mature adults, exercise walking attracted 19.7 million participants. Second and third choices within this age segment were swimming, with 6.8 million participants and exercising with equipment, with 5.2 million (National Sporting Goods Association, 1992).

Research in the field of gerontology has frequently employed standard functional assessment instruments. Those focusing on basic Activities of Daily Living (ADL) have been used in predicting critical turns in an elderly person's condition (e.g., the chances of in-hospital mortality; recovery from a severe injury) (Katz and Akpom, 1976). More recently, intermediate-level Activities of Daily Living

(IADL) scales have been implemented, primarily to determine whether an older adult can continue to live independently (Spector, Katz, et al., 1987).

ADL and IADL were designed to measure specific levels of impairment among the relatively frail. The Advanced Activities of Daily Living (AADL) scales, however, were developed to assess the capabilities of the more mobile elderly (Reuben and Solomon, 1989). The researchers divided the activities into two groups, social and physical, and created separate batteries to assess each group. The scale for measuring physical AADL is composed of three questions which collectively define the individual's level of performance in recreational activities, yielding four participation categories.

Reuben et al. (1990) used a sample of 736 community-dwelling elderly to obtain baseline levels of participation for each of the four response categories and also to establish reliability. A follow-up study one year later showed that 63% of the sample had retained their earlier exercise habits. Mortality was somewhat higher among the non-exercisers as compared to the three exercising groups. Those in the highest category of the physical AADL also tended to be most active in the social AADL classification.

Recent work in nursing and gerontology has focused more attention on what Brown and McCreedy (1986) have called "the hale elderly." Many have attempted to isolate those characteristics which are most likely to result in health protective behavior, most notably better nutrition and exercise habits. Interestingly, correlations between such practices and a host of demographic variables (e.g., gender, marital status and socioeconomic status) were extremely modest in some cases (Brown and McCreedy, 1986; Speake, et al., 1989).

The linkage between health protective behavior and actual health status remains unclear. However, the relationship between health protective behavior and perceived health is apparent. Speake et al. (1989) specifically selected the Pender Health Promotion Model as their focus. Pender's model (1987) stresses the overriding importance of maintaining self-responsibility for health. According to Pender, the goal of health promotion is to increase well-being, personal fulfillment and self-actualization. Thus, the emphasis is more on pursuing a healthy lifestyle every day, not simply on avoiding disease. Duffy and MacDonald (1990) found support for the Pender model in their study of 179 elderly men and women.

In part, this dissertation builds on this research. Level of commitment to physical fitness (as measured by the physical AADL) was examined in relationship to various behaviors and self-perceptions which might indicate a healthy, day-to-day lifestyle. The relationships investigated included concepts related to personal fulfillment (e.g., life satisfaction and happiness) as well as aspects of consumer behavior (e.g., television usage and shopping behavior). Specific attention was given to the elderly female market which, as noted earlier, is poised to become an ever more important force.

Cognitive Age

Cognitive or self-perceived age has been proposed as an alternative to the more traditional, chronological age measure. In their original research, Barak and Schiffman (1981) emphasized the need for an age measure that would more accurately account for people's consumption patterns. Their measure was based on the four dimensions of personal age, as conceptualized by Kastenbaum et al. (1972). For them, personal age is a self-report measure based on the following dimensions: (1) feel-age (how old a person feels), (2) look-age (how old a person looks), (3) do-age (how involved a person is in doing "things" favored by members of a certain age group) and (4) interest-age (how similar a

person's interests are to members of a certain age group). In a study of 324 women aged 55 or older, Barak and Schiffman (1981) found a consistent tendency for respondents to classify themselves as younger on all four dimensions. In fact, as chronological age increased, respondents were increasingly likely to identify themselves with a younger cognitive age group.

Related research over the past decade has examined age perceptions in different age and gender groups. Younger people frequently perceived themselves as being older, while older people consistently viewed themselves as younger (Barak, 1987; Barnes-Farrell and Piotrowski, 1989; Montepare, 1991). One study found that even among institutionalized elderly, two-thirds perceived themselves to be younger than their chronological ages (Terpstra, et al., 1989). Also, according to Underhill and Cadwell (1983), "ages 30 to 39 last forever psychologically" (p. 27).

The cognitive age measure (CA) has shown itself to be a powerful choice. Barak and Gould (1985) compared six alternative age measures and found CA to be especially promising. In particular, they noted that it had potential

in marketing applications as a means of psychographic segmentation. Similarly, a recent study by Stephens (1991) found CA to be superior to other perceived age measures. Stephens specifically recommends CA for advertising applications.

Markidis and Boldt (1983) examined changes in the "subjective ages" of 323 elderly over a four-year period. Subjective age is a different, somewhat simpler measure: it focuses strictly on feel-age, by asking respondents whether they feel young, middle aged, old or very old. Findings revealed that those who changed from young or middle aged to old were less educated, chronologically older, had been in poorer health to begin with, and had shown greater declines in their health conditions.

Maintaining one's health, to the extent that it can be done through exercise, might be an important part of feeling younger. Chua et al. (1990) found that life satisfaction, social activity levels, health and culture all contributed to the discrepancy between cognitive and chronological age.

This dissertation examined the linkage between cognitive age and degree of commitment to physical fitness. In order to capture this concept more fully, two new dimensions were added to the CA measure, (5) health-age (how

old a person feels in terms of his perceived physical condition) and (6) think-age (how old a person considers himself to be based on his thinking processes). Also, while earlier work included age categories spanning the 20's through the 80's, the 90's were added here in recognition of elderly women's increasing life expectancy.

Personal Control

Personal control, as conceptualized by Paulhus and Christie (1981), is one of three facets comprising global locus of control, which, in turn, may be considered an expansion or refinement of Rotter's Internal - External Locus of Control (LOC) Scale (1966).

The original term, locus of control, is drawn from Rotter's social learning theory (Rotter, 1966). Specifically, locus of control refers to the individual's discerned connection between personal traits and/or actions and the subsequent outcomes. Those individuals who perceive outcomes to be relatively more dependent on their own efforts are classified as internally-oriented. Those who place greater emphasis on circumstance or pure chance are described as externally-oriented.

Rotter's LOC (1966) was the first formal measure of its kind. It consists of twenty-three pairs of items, with each pair comprised of an internal statement and an external one. Composite scores determine the individual's overall locus of control. Rotter's scale has been by far the most widely used and is generally established as being psychometrically sound (Robinson, 1991). However, more recent efforts have questioned the global nature of locus of control. While Rotter clearly assumed a unidimensional construct, others have not been so easily convinced. Indeed, Rotter himself encouraged other researchers to explore more domain-specific measures of locus of control (Robinson, 1991).

Paulhus and Christie (1981) put forth one of the more recent attempts to subdivide the locus of control construct. Their Spheres of Control (SOC) Scale consists of three ten-item subscales: Personal Control (or Personal Efficacy), Interpersonal Control and Sociopolitical Control. Factor analysis was used to partition Rotter's global LOC concept into these domains. Paulhus and Christie (1981) envisioned the individual's self at the center of these three, progressively more all-encompassing behavioral spheres. Personal Control (PC) focuses on the individual's attempts to gain control in situations requiring personal achievement, including all types of individual activities.

Since participation in fitness activities as defined in this study would fall into this category, it is this specific subscale which will be utilized here.

The PC subscale has been established as internally consistent, with an alpha reliability level of .75. [3] In addition, Paulhus et al. (1979) conducted validity studies to establish the three domains. In one study of particular interest here, they compared the power profiles of two groups of athletes (football players and tennis players) with those of non-athletes. The tennis players were found to score highest on the PC subscale, in keeping with the individual achievement emphasis necessary for solid tennis playing (Paulhus, et al., 1979).

Paulhus' original version of the SOC was published in 1983. In the decade since, there have been numerous applications of the scale, in some cases leading to pointed evaluations of the subscales' properties. Parkes (1988) lent support to the three-dimensional, internal-external structure of SOC. She found, however, that the internally-worded items tended to discriminate more finely among the three dimensions, while the external ones were more closely associated with the global LOC construct.

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[3] Alpha reliability, more specifically Cronbach's coefficient alpha, provides an estimate of test reliability based on item intercorrelations.

Palenzuela (1987, 1988) specifically criticized the item content of the PC subscale. He maintained that Paulhus had included a mixture of items tapping self-efficacy and locus of control. (This confusion, actually, is evident even in the manner in which Paulhus named the scale, wavering between Personal Efficacy and Personal Control.) Paulhus and Van Selst (1990) corrected this problem. Using as a basis a summary of psychometric data assembled over the years, they acknowledged the somewhat weaker performance of the PC on internal consistency measures. Their solution was to replace three of the ten items, tilting the scale more in the direction of what they termed, "personal efficacy." The PC containing the new items was tested against the old version for content and psychometric soundness. Alpha reliability improved to .80 from a median value of .59 over the range of research summarized. These new items were included in the version of the PC used in this research.

The locus of control construct has been a favorite of social science researchers for decades. In one study of particular interest here, Lachman (1986) confirmed the value of LOC in studying elderly populations. She sampled 188 college students and 192 older adults (aged 60 to 91),

utilizing a combination of general and domain-specific LOC measures. Her major finding: the domain-specific constructs were better predictors of behavioral outcomes for the elderly, within every domain.

In an earlier study applying Rotter's original scale, Gurin (1978) found that personal control was strongly related to mastery efforts in any life arena in which individual effort could be seen as having some effect. Clearly, exercise could be considered one such arena. In fact, Duffy and MacDonald (1990) have recommended exercise and nutrition as means of achieving stronger internal LOC.

As Paulhus has defined it, PC measures perceived competence, which he describes as personal efficacy (Paulhus and Van Selst, 1990). Similarly, Lianov (1991) examined the effects of solid, long-term exercise programs on the personal efficacy of 81 middle-aged adults. He found dramatic increases for both men and women, but more so for women. In fact, although their efficacy levels had initially been lower, the women generally equalled or surpassed the men following exercise. A similar pattern might easily be seen among able elderly women. Hofstetter et al. (1991) have suggested that interventions aimed at increasing exercise, with an eye towards increasing personal efficacy, must take into account illness or injury status.

This dissertation focuses solely on ambulatory elderly women. Degree of participation in physical fitness was therefore expected to be related to internally-oriented LOC as measured specifically by the PC subscale.

Self-Esteem

Self-esteem, the extent to which one values oneself, has been an important construct in social science research for decades. As Crandall (1973) put it, "self-esteem has been related to almost every variable at one time or another" (p. 45). Global measures utilizing self-report methods have generally been favored to evaluate self-esteem. Of these, among the most widely used in recent years has been the Texas Social Behavior Inventory (TSBI). The version utilized here is the 16-item short form (Helmreich and Stapp, 1974).

One useful basis for evaluating the TSBI is by comparison to the Rosenberg Self-Esteem Scale (RSES) (1965). This scale is by far the most popular measure of its kind and generally serves as the yardstick against which all later self-esteem scales are measured. TSBI is slightly longer than RSES (16 items rather than 10), but it is still fairly quick and easy to administer. Both suffer from potential problems with socially desirable patterns of response, a problem shared to some extent by most measures

of self-esteem. The TSBI has a slightly different slant, however, as it is focused on self-esteem in social situations.

A great deal of research in this area has centered on the need to develop healthy levels of self-esteem in children. For instance, Krotee and Wamukhoya (1986) explored the role of physical education in training children's minds and bodies. Similarly, Yau (1992) proposed a theory linking self-esteem in children to their "creative productivity." And yet, it can be argued that self-esteem needs to be actively cultivated over the entire life span. In fact, Gray (1989) held that the individual's life can be greatly enhanced by purposefully introducing a variety of self-esteem building activities throughout.

Related research on elderly populations focused initially on the need to keep active in general. One early study of ninety-five institutionalized elderly women found that self-esteem was greater among those who participated in more activities (Gfeller-Varga and Long, 1973). Similarly, Fling et al. (1982) found significant gains in self-esteem among a group of older men and women participating in a "creative living" class. The ten-week session included exercise as well as assorted other activities.

The relationship between self-esteem and physical health in the elderly has also received attention. Hunter et al. (1982) studied 250 elderly adults, finding that those with lower self-esteem reported poorer health, more pain and higher disability. In a larger study, Antonucci and Jackson (1983) surveyed more than two thousand adults spanning every age category. They confirmed a direct relationship between self-esteem and physical health, particularly for women.

Participation in fitness activities, as a means of improving one's physical health, should certainly be linked to greater self-esteem. In fact, a recent study (Duffy and MacDonald, 1990) suggests that exercise and nutrition should be considered critical health promotion activities in achieving better scores on a number of "functional dimensions," including self-esteem. The present research allowed for comparative evaluation of self-esteem levels based on the individual's degree of commitment to physical fitness. This type of analysis is more traditionally conducted on younger populations. For example, Tucker (1982) found significant differences in the self-esteem levels of two groups of college men, based on participation in a sixteen-week weight training program. And yet, as has been suggested, similar correlations might well exist among elderly women.

Self-esteem, as noted before, has always been cultivated in the young. Myers (1991) takes it one step further by pointedly attacking this age bias. In Empowerment for Later Life, she explains that because society stereotypes strictly on the basis of age, "empowerment," or gaining control over one's life, is vital to shoring up self-esteem in the elderly. A program of "holistic wellness," of which exercise would be considered a key part, is promoted. Results of the current research were expected to support this concept.

Life Satisfaction

Life satisfaction, as conceptualized by Neugarten et al. (1961), was described as an all-encompassing measure of psychological well-being. In her seminal work, Neugarten attempted to fine-tune such a measure based on several ingoing concerns. First, there was a need to arrive at a unified concept of just what the measure would include. A variety of terms, such as morale, adjustment, competence and happiness, had been used almost interchangeably, and yet none of these apparently covered the whole concept of life satisfaction.

Secondly, Neugarten posited a need for such a measure specifically for purposes of conducting research on aging. She noted that in the past, two general approaches had been pursued. The first was based on observation of the individual's overt behavior. In such cases, levels of activity and/or social participation tended to form the basis for judging the individual's mental well-being. The second method required the individual to report his own feelings. Here, the assumption was that only the individual was capable of assessing his own well-being (Neugarten, et al., 1961).

Neugarten et al. proceeded to develop Life Satisfaction Ratings (LSR) and Life Satisfaction Indices (LSI), measures of the second type. The LSR provided a quicker method of measuring life satisfaction, but still required the conduct of at least one lengthy interview per respondent. The LSI were therefore developed from the LSR, in order to create shorter, self-report instruments. Life Satisfaction Index A (LSIA), the version to be used in this study, is composed of twenty closed-ended items scored on a dichotomous agree/disagree scale.

Although the LSIA measure is more than thirty years old, it apparently remains a credible and respected means

of measuring life satisfaction. One attempt to develop a thirteen-item variation, LSI-Z, was only marginally successful, and was recommended only for older male populations (Wood, et al., 1969).

Larson (1978) reviewed thirty years' worth of research on what he termed the "subjective well-being" of older Americans. He proposed subjective well-being as a summary measure of life satisfaction, morale, adjustment and other related constructs, noting that all were highly inter-correlated. Larson acknowledged that the self-report format of these various measures was an inherent shortcoming. Nevertheless, he maintained that the body of research itself was solid and yielded consistent findings across a number of areas.

Of particular interest in this dissertation, health was found to be most significantly related to subjective well-being. It is worth noting that the strongest relationships of this type were from studies employing self-assessment questions, i.e., "In general, would you say your health is ..." (e.g., Palmore and Luikart, 1972; Spreitzer and Snyder, 1974; Larson, 1975). Items requiring respondents to list their ailments produced weaker linkages (e.g., Pihlblad and McNamara, 1965). Physicians' ratings, while high on objectivity, similarly yielded weaker relationships (e.g.,

Palmore and Luikart, 1972). The individual's own perception of his physical condition overall thus seems to hold the key.

Also of interest in the present research, advancing age in and of itself was not found to be significantly related to subjective well-being. Rather, it is a host of negative factors that may accompany aging which are responsible for a decline in subjective well-being. Factors cited include widowhood, loss of friends, diminished financial resources, deteriorating health, and decreased activity level (Edwards and Klemmack, 1973; Larson, 1975; Kivett, 1976). These last two factors, perhaps the most controllable of those listed, can therefore contribute greatly to maintaining a sense of well-being, even relatively far into old age.

Mancini and Orthner (1980) studied the activity levels of the elderly, propelled by the notion that "an active older person is a happy older person." Specifically, they founded their research on "activity theory," a popular focus among gerontologists. Activity theory suggests that older people are more likely to remain happy if they continue to pursue the activities they enjoyed during middle age. In their study of 104 non-institutionalized adults aged 65 and over, Mancini and Orthner found a substantial relationship between leisure satisfaction and morale.

Mancini and Orthner's research was among the first of many gerontological studies documenting a linkage between activity and life satisfaction levels in older adults (e.g., Maguire, 1983; Riddick, 1985; Smith, et al., 1986; Kelly, et al., 1987). A recent article by O'Brien and Vertinsky (1990) examined the long- and short-term results of exercise among elderly women, uncovering physical, social and psychological benefits.

The present research focuses largely on the social and psychological areas, with life satisfaction as one specific component. In addition, this research added to the existing literature by investigating life satisfaction levels of those with varying degrees of commitment to physical fitness, rather than merely separating the active from the inactive.

Global Happiness

Closely related to life satisfaction is the notion of global happiness. In The Sense of Well-Being in America, Campbell (1981) aptly describes and contrasts the two concepts. Happiness is considered a momentary evaluation of positive affect, subject to daily mood fluctuations. Satisfaction tends to be a more stable assessment of one's position in life, a comparison between one's aspirations and

accomplishments. Clearly, while one might reasonably expect the two to move in similar directions, they do not measure exactly the same concept.

Instruments to measure happiness generally consist of a single item (Campbell, 1976), as is the case in the present study. The specific measure used here is in fact the first standard happiness measure. It has been used by both the University of Michigan's Survey Research Center (SRC) and the National Opinion Research Center (NORC), hence its designation as the SRC-NORC measure.

Happiness items tend to exhibit remarkable consistency, with respondents usually reporting moderate happiness levels. Research thus has not attempted to differentiate the happy from the unhappy. The earliest studies examined the comparative distributions of relatively happier people among different demographic groupings (Gurin, et al., 1960; Bradburn and Caplovitz, 1965). Overall, older individuals tended to be less happy than younger ones, although they also worried less (Gurin, et al., 1960). However, a later study (Bradburn, 1969) uncovered a positive relationship (although not necessarily causal) between social participation and happiness, regardless of age. Bradburn

observed that those who were happy were more likely to engage in a variety of social experiences as part of a "dynamic cycle."

More recently, Stones and Kozma (1980) presented a totally different interpretation of happiness, depicting it as a higher-order construct which exerted a directive influence on many lower-order attitudes and behaviors. Of particular interest in this research, happiness was thought to exert a downward influence on such variables as perceived health, activity level and locus of control. While the researchers acknowledged that other sources might also exert influence, happiness was treated as the dominant source in their proposed hierarchical model.

In a follow-up study, Stones and Kozma (1986) compared their conception to the more traditional earlier model (assumed by Gurin and Bradburn), in which external factors were thought to contribute to happiness. They surveyed 408 individuals aged 65 and over, utilizing a battery which covered happiness and five lower-order variables: housing satisfaction, perceived health, financial satisfaction, locus of control and activity level. Findings supported the superior predictive ability of the new model, particularly in the areas of housing satisfaction, perceived health and activity level. Stones and Kozma cautioned, however, that

they had purposely avoided utilizing any demographic variables for which the directionality might be unclear (e.g., socioeconomic status; marital status). It is also worth noting that they did not use the SRC-NORC happiness measure in their research, but a multi-item construct instead.

Fengler et al. (1983), on the other hand, did use the standard SRC-NORC measure in a study of 1400 urban and nonurban elderly. Results showed a high proportion of urban elderly to be bored, depressed and lonely and, at the same time, proud, excited and interested. Fengler attributed these inconsistencies to a general feeling of deprivation. Physical activity may well be one means of counteracting such feelings. Shoskes and Glenwick (1987) used the SRC-NORC measure to study the relationship of happiness to activity levels in older adults. In a survey of 49 elderly at a senior citizen center, they found that happiness level was related to changes in socializing and activity level over time.

This dissertation investigated the relationship between levels of happiness and degree of commitment to physical fitness. Although the Stones and Kozma (1986) approach would assume specific directionality, with happiness as the higher-order construct, the overwhelming

body of research is indicative of simple association. This was the basis used in the proposed research as well, especially since Stones and Kozma did not use the SRC-NORC measure, as all the other researchers did.

Television Usage

A single item measure of television viewing frequency was included here because the elderly tend to watch a lot of television (e.g., Bernhardt and Kinnear, 1975). Research has documented the important role that television plays in the lives of the elderly. An early study by Davis (1971), successfully replicated fifteen years later (Davis and Westbrook, 1985), described the elderly in general as "embracers" of the medium. In the more recent study, seven in ten older adults expressed overall satisfaction with television as a form of entertainment. Viewing itself was seen as providing companionship, involvement and a useful means of structuring one's time. And, of greatest relevance to the present study, elderly women were found to spend more time watching television than any other age/gender subcategory (Davis and Westbrook, 1985).

Television has been shown to influence the choices of older adults in a variety of ways, ranging from voting patterns (Wimmer, 1976) to fashion preferences (Kaiser and Chandler, 1985). In addition, some research has focused on

differentiating various subgroups of elderly viewers. One study revealed different television program preferences between affluent elderly women (with incomes of $30,000+) and their less well-to-do counterparts (Burnett, 1991). Davis and French (1989) used media consumption patterns to identify three distinct psychographic segments of elderly women.

One major stream of research has attempted to understand the importance of television in the lives of the elderly. Korzenny and Neuendorf (1980) found that television viewing among older adults was inversely related to self-concept and may reflect increasing alienation from society. Similarly, Real and associates (1980) noted that television served a compensation function, i.e., its use basically made up for other activities.

Fortunately, a more positive view of television has also received research attention. Robinson (1981) confirmed that an assortment of away-from-home activities competes successfully for Americans' leisure time, regardless of age. More specifically, Rubin and Rubin (1981) found that television viewing was a means of passing time or relieving boredom for elderly and/or confined individuals. Those with the opportunity or capability generally preferred to be active.

More recently, Rahtz et al. (1989) conducted two large-scale studies of elderly individuals (with a total sample of over 1500) to determine correlates of "television orientation." Television orientation is the tendency "to rely on television for entertainment and information-gathering purposes" (p. 10). Results suggest an inverse relationship between television orientation and income, education, perceived respect for the elderly and, of greatest interest here, morale and outside home activity.

Dawson and Spangenberg (1987) found that chronological age alone is a poor predictor of television viewing habits, possibly because of a variety of other, underlying factors. It seems that considering elderly women as a whole to be heavy television viewers may be an oversimplification when other factors are taken into account. In the present research, level of participation in physical fitness activities was proposed as one such mediating factor.

Shopping Behavior

One facet of shopping behavior that received attention in this research was department store shopping frequency. A single item measure was used to categorize participants into relatively heavier or lighter shopping segments.

In general, the elderly are not particularly frequent shoppers, but when they do shop they tend to patronize department stores (Lumpkin and Greenberg, 1982). In fact, they are somewhat more likely to shop at conventional department stores rather than at discount outlets, simply because they apparently value quality interaction with salespeople over lower prices (Lambert, 1979).

Elderly women have been found to enjoy shopping when they can view it as a more personalized experience (Martin, 1975; Lumpkin and Greenberg, 1982). Relatedly, other research has shown that the elderly rely more on store personnel than on mass media for product information (Lumpkin and Festervand, 1988). Darian (1987) has also found elderly consumers to be fairly infrequent in-home shoppers despite the apparent convenience, possibly for the same primary reason.

Beyond a simple examination of shopping frequency, however, is the issue of shopping motivation. Crask and Reynolds (1978) found that behaviors, more so than demographics, tended to distinguish the frequent department store shopper. Of greatest relevance here, they noted that frequent shoppers were much more likely to engage in such activities as tennis, golf, bowling and swimming.

Bellenger and Korgaonkar (1980) introduced the notion of the "recreational shopper" to exemplify a particular type of shopping style. The recreational shopper is best described as someone who specifically enjoys shopping as an activity. To this end, (s)he seeks a pleasant shopping environment featuring large varieties of quality merchandise from which to choose.

In their original study, Bellenger and Korgaonkar (1980) found that recreational shoppers were more likely to: (1) make unplanned purchases; (2) spend more time shopping per trip; (3) continue shopping after making a purchase; and (4) be department store shoppers. For purposes of this research, therefore, categorical measures corresponding to all these tendencies were included.

Of particular interest here, Bellenger and Korgaonkar (1980) also linked recreational shopping tendencies to a variety of other behaviors. They found that recreational shoppers were more likely to be involved in an assortment of out-of-home activities and less likely to watch television. Also, more recent research by Tongren (1988) has found the elderly as a whole to be active shoppers, because of their considerable disposable income.

In this dissertation, the meaning of activity took on a new dimension, by examining the relationship of increasing physical activity to recreational shopping patterns.

Summary

This dissertation explored the relationship of fitness participation to select behaviors and self-perceptions among mature females. As discussed in this chapter, the research examined the specific linkages between fitness participation and each of the following areas: cognitive age, personal control, self-esteem, life satisfaction, global happiness, television usage, and shopping behavior.

Chapter 3

RESEARCH DESIGN

This research explored the relationship of fitness participation to select perceptions and behaviors among mature females. This chapter will detail the following areas: (1) hypotheses, (2) sample design, (3) instrumentation, (4) data collection procedures, and (5) analytic techniques employed.

Hypotheses

In order to fulfill the purposes of this research, the following hypotheses were proposed:

Hypothesis 1:

Frequent participants in fitness activities will have lower cognitive ages than will infrequent or non-participants.

Hypothesis 2:

Frequent participants in fitness activities will report greater personal control than will infrequent or non-participants.

Hypothesis 3:

Frequent participants in fitness activities will profess higher levels of self-esteem than will infrequent or non-participants.

Hypothesis 4:

Frequent participants in fitness activities will express greater life satisfaction than will infrequent or non-participants.

Hypothesis 5:

Frequent participants in fitness activities will express greater global happiness than will infrequent or non-participants.

Hypothesis 6:

Frequent participants in fitness activities will spend less time engaged in television viewing than will infrequent or non-participants.

Hypothesis 7:

Frequent participants in fitness activities will spend more time engaged in department store shopping than will infrequent or non-participants.

Hypothesis 8:

Frequent participants in fitness activities will be more likely to engage in recreational shopping behavior than will infrequent or non-participants.

Sample Design

Simple random sampling [4] was employed to examine the population of interest, i.e., able-bodied women aged 65 and older. More specifically, in order to facilitate contact, respondents were recruited from 19 randomly-selected senior citizen centers located in New York City. These facilities offered easy access to large numbers of qualified prospective respondents, i.e., attendees were likely to meet both the age and mobility criteria. The use of multiple centers from different parts of New York City gave breadth and greater diversity to the research by ensuring some variety in socioeconomic status variables.

In order to implement the simple random sampling selection method, a complete list of senior citizen centers located in New York City was secured from the Department of Aging. Also, because the survey was self-administered, it was important to ensure that only respondents with adequate knowledge of written English be solicited for participation. For this reason, neighborhoods with below-median income levels (as classified by census tract data) were eliminated.

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[4] Simple random sampling is a type of probability sampling method in which units comprising a population are assigned numbers. A set of random numbers is then generated, and the units having those numbers are included in the sample.

Thus, a list of all New York City senior citizen centers with median income or higher served as the population frame.

A Table of Random Numbers was utilized to select a sample of 36 centers from this list. This sample was included in a mailing inviting them to participate in the survey. After a week, follow-up phone calls were placed in an effort to secure cooperation and book appointments. Ultimately, 19 centers took part in the research, yielding a total sample size of 376. In any event, the use of simple random sampling offered the key benefit of projectability to other senior citizen centers within New York City.

Under the on-site supervision of the researcher, respondents were asked to complete self-administered questionnaires. Each woman was asked to respond to items regarding age group and participation in fitness activities. The total sample size of 376 permitted analysis of all subgroups of interest.

Instrumentation

The questionnaire developed for this study is a multi-faceted measurement instrument, with six established measures: (1) the Physical Advanced Activities of Daily Living Scale (AADL); (2) a cognitive age measure (CA); (3) the Personal Control Subscale (from the Spheres of Control

Scale, PE); (4) the Texas Social Behavior Inventory (TSBI); (5) the Life Satisfaction Index (LSIA) and (6) a standard happiness measure (SRC-NORC). In addition, the survey includes items covering television usage, shopping behavior, reasons for fitness participation, perceived health and assorted demographics. The following subsections address each of the preceding areas individually.

The final version of the questionnaire containing all these items was pre-tested for clarity and timing using a group of 15 elderly women. No adjustments were required in the content or sequencing of questions. The survey was found to run approximately 15 minutes, and generally required little, if any, assistance from the researcher.

Physical Advanced Activities of Daily Living Scale

As shown in Exhibit 3.1, the Physical Advanced Activities of Daily Living Scale (AADL) consists of three questions designed to measure degree of fitness participation. The scale was developed specifically for use with elderly populations.

Reuben and Solomon (1989) adapted these questions from similar items taken from the 1984 National Health Interview Supplement on Aging and the Duke Older American Resources and Services Procedures. Based on these three questions, the sample can be separated into four levels: frequent

Exhibit 3.1

PHYSICAL ADVANCED ACTIVITIES OF DAILY LIVING SCALE

1. Do you frequently (at least three times a week) participate in any active sports, such as swimming, jogging, tennis, bicycling, aerobics, exercise classes, or other, similar activities that cause you to work up a sweat or become winded?

Yes _____ * No _____

2. Do you frequently (at least three times a week) walk a mile or more at a time, about eight to twelve blocks, without resting?

Yes _____ + No _____

3. Do you frequently (at least three times a week) walk a quarter of a mile, about two or three blocks, without resting?

Yes _____ # No _____ @

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* Frequent vigorous exercisers
\+ Frequent long walkers
\# Frequent short walkers
@ Non-exercisers (checked "no" in response to all three items)

vigorous exercisers, frequent long walkers, frequent short walkers, and non-exercisers. Scoring proceeds in a hierarchical fashion, e.g., affirmative responses to the first item are classified as frequent vigorous exercisers, affirmative responses to the second item, frequent long walkers, and so on. In the original study used to develop the AADL, the four groups were represented at the following respective levels: 8 percent, 10.8 percent, 23.7 percent and 57.5 percent.

As part of the initial study, Guttman scalogram analysis of the four levels of fitness participation yielded a coefficient of reproducibility of .96 and a coefficient of scalability of .80. [5] A Guttman reliability program was utilized to assess construct validity for the AADL against a variety of other measures. Specifically, Reuben and Solomon (1989) tested items from a Social AADL scale including (1) entertaining others in-one's home, (2) visiting others in their homes, (3) traveling out of town and (4) being fully employed. It was hypothesized that for less rigorous

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[5] Guttman scalogram analysis is a technique used to derive scales for subjects and stimuli simultaneously. Items are arranged in order of increasing extremeness, which should permit accurate reproduction of subjects' response patterns. The coefficients of reproducibility and scalability assess the scale's ability to predict these patterns.

social activities, [such as (1) and (2)], there would be little difference between participation levels among members of the four different fitness groups. For the more vigorous activities, [such as (3) and (4)], it was predicted that the most vigorous exercisers would take part most frequently. These differences were, in fact, borne out at substantial levels. For instance, 55 percent of non-exercisers did not travel out of town, as compared to 39 percent of the frequent short walkers, 28 percent of frequent long walkers and 20 percent of vigorous exercisers (Reuben, et al., 1990).

Construct validity [6] was also tested by measuring self-assessed current health status and mental health status based on a five-item scale (from the Medical Outcome Study Short Form). In both cases, scores were higher among the exerciser groups than among the non-exercisers. Progressively increasing levels of fitness participation did not positively affect either measure, however (Reuben, et al., 1990). In the present research, measuring gradations of fitness participation through the use of the AADL permitted a fuller exploration of potential linkages to the assorted other variables.

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[6] Construct validity assesses the extent to which a specific set of operations actually measures hypothesized constructs.

Cognitive Age

Self-perceived or cognitive age (CA) is an alternative to the traditional chronological age measure. As noted earlier, there is frequently little correspondence between the two. Further, as noted by Barak and Schiffman (1981), such a measure may be useful in predicting people's consumption patterns, as they may be more likely to consume based on their cognitive ages.

The four dimensions originally employed to derive the CA are feel-age, look-age, do-age and interest-age (Kastenbaum, et al., 1972). As shown in Exhibit 3.2, in the present research, two new dimensions, think-age and health-age, were added. Also, while earlier work included age categories spanning the 20's through the 80's, the 90's were added in recognition of elderly women's increasing life expectancy.

The six age dimensions can be scored separately or combined to obtain a composite score. In the latter case, the midpoint values of the six dimensions (e.g., "55" would be used to represent "50's") would be averaged. In this research, both the composite score and the individual dimensions were analyzed.

Exhibit 3.2

COGNITIVE AGE

Most people seem to have other "ages" besides their official or "date of birth" age. The questions which follow have been developed to find out about your "unofficial" age. Please specify which **age group** you FEEL you really belong to: twenties, thirties, forties, fifties, sixties, seventies, eighties or nineties.

	20's	30's	40's	50's	60's	70's	80's	90's
I **feel** as though I am in my --	____	____	____	____	____	____	____	____
I **look** as though I am in my --	____	____	____	____	____	____	____	____
My **health** is as though I were in my -	____	____	____	____	____	____	____	____
I **do** most things as though I were in my -	____	____	____	____	____	____	____	____
My **interests** are mostly those of a person in her --	____	____	____	____	____	____	____	____
I **think** as though I am in my --	____	____	____	____	____	____	____	____

Barak and Schiffman initially tested the CA in a large-scale study of elderly females with impressive results. Guttman Lambda and Spearman-Brown split-half correlations [7] were .86 and .85, respectively. Test-retest reliability [8] was .88 (Barak and Schiffman, 1981).

This research proposed a positive relationship between participation in physical fitness activities and CA.

Personal Control

The Personal Control Subscale used here (PC) is the modified version taken from the Spheres of Control (SOC) battery (Paulhus and Van Selst, 1990). PC, one of three ten-item subscales which comprise SOC, focuses specifically on the personal aspects of control in a given situation.

As shown in Exhibit 3.3, PC is scored on a seven-point Likert scale. Five items are worded positively and five negatively. Scoring is in the direction of internal LOC in each case, with possible total scores ranging from 10 to 70.

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[7] Guttman Lambda represents one means of assessing error in measurement. The Spearman-Brown split-half correlation estimates test reliability by dividing the test into two parts and intercorrelating them.

[8] Test-retest correlations assess the reliability of a measure over repeated administrations to the same individuals.

Exhibit 3.3

SPHERES OF CONTROL BATTERY/
PERSONAL CONTROL SUBSCALE

1. I can usually achieve what I want when I work hard for it. (+)

7	6	5	4	3	2	1
AGREE						DISAGREE

2. Once I make plans, I am almost certain to make them work. (+)

3. I prefer games involving some luck over games requiring pure skill.

4. I can learn almost anything if I set my mind to it.

5. My major accomplishments are entirely due to hard work and intelligence. (+)

6. I usually do not set goals because I have a hard time following through on them.

7. Bad luck has sometimes prevented me from achieving things.

8. Almost anything is possible for me if I really want it. (+)

9. Most of what will happen (in my career) is beyond my control. *

10. I find it pointless to keep working on something that is too difficult for me.

(+): Indicates items which are positively keyed
* : The reference to career in this item was dropped because of the population being surveyed in this research.

Construction and validation of SOC and its component subscales were based on samples of college students. Alpha reliability for the original PC was .75, while later testing on the modification yielded a coefficient of .80 (Paulhus, 1983; Paulhus and Van Selst, 1990). Test-retest correlations were above .90 for a four-week interval and above .70 for a six-month interval (Robinson, et al., 1991).

In this research, a positive relationship was predicted between personal control and participation in fitness activities.

Texas Social Behavior Inventory

The Texas Social Behavior Inventory (TSBI) is a measure of self-esteem focused on social situations. The version utilized here is a 16-item variation created from the original 32-item inventory (Helmreich and Stapp, 1974). It is one of two parallel short-forms drawn from the original version. The original, 32-item version was compiled using a sample of over 1000 college students. Alternate-form reliability [9] was reported at .89 (Helmreich and Stapp, 1974). The two short-form versions correlate .97 with the original, and .87 with each other (Robinson, et al., 1991).

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[9] Alternate-form reliability is measured by using two or more tests that cover the same content but use different specific components.

As shown in Exhibit 3.4, scoring is based on a five-point Likert scale requiring respondents to indicate the degree to which each item is characteristic of him/herself. Some of the items are reverse-scored, as shown. For each item, scoring ranges from zero to four, with possible total scores ranging from 0 to 64. Higher total scores denote higher levels of self-esteem. In the area of convergent validity [10], TSBI was found to be significantly related to locus of control; specifically, high self-esteem was positively related to internal locus of control (Sadowski, et al., 1983). Helmreich and Stapp (1974) also found that self-esteem was strongly related to masculinity in both males and females, at levels of .81 and .83, respectively.

In this research, a positive relationship was predicted between participation in physical fitness activities and higher levels of self-esteem.

Life Satisfaction Index

Life satisfaction was measured using the Life Satisfaction Index A (LSIA) developed by Neugarten, et al. (1961). LSIA was designed specifically for use in research on aging. Earlier approaches to this problem sometimes used

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[10] Convergent validity, a facet of construct validity, assesses the correlation between different measures of the same trait.

Exhibit 3.4

TEXAS SOCIAL BEHAVIOR INVENTORY

*1. I am not likely to speak to people unless they speak to me.

a	b	c	d	e
NOT AT ALL CHARACTERISTIC OF ME	NOT VERY	SLIGHTLY	FAIRLY	VERY MUCH CHARACTERISTIC OF ME

2. I would describe myself as self-confident.

3. I feel confident of my appearance.

4. I am a good mixer.

*5. When in a group of people, I have trouble thinking of the right things to say.

6. I would describe myself as one who attempts to master situations.

7. Other people look up to me.

*8. When in a group of people, I usually do what others want rather than make suggestions.

9. When in a disagreement with other people, my opinion usually prevails.

10. I enjoy social gatherings just to be with people.

*11. I cannot seem to get others to notice me.

12. I make a point of looking other people in the eye.

*13. I would rather not have very much responsibility for other people.

14. I feel comfortable being approached by someone in a position of authority.

*15. I would describe myself as indecisive.

16. I have no doubts about my social competence.

only measures of overt behavior, such as levels of activity and social participation, to indirectly gauge individual well-being (Havighurst and Albrecht, 1953; Cavan, et al., 1949). Others relied more heavily on individuals' own evaluations of their satisfaction or happiness levels (Havighurst, 1957). The LSIA focuses almost exclusively on the latter, i.e., self-evaluations.

LSIA was developed by conducting lengthy interviews with respondents ranging from 50 to 90 years of age. Interviewing was conducted in four rounds and covered many aspects of respondents' daily lives, attitudes and values. Ultimately, five components were derived: (1) zest vs. apathy; (2) resolution and fortitude; (3) congruence between desired and achieved goals; (4) positive self-concept and (5) mood tone. In sum, an individual would score high on the scale to the extent that (s)he (1) took pleasure from the activities that constituted his/her everyday life; (2) regarded his/her life as meaningful and accepted it as it had been; (3) felt (s)he had achieved his/her major life goals; (4) maintained a positive self-image and (5) displayed an upbeat mood (Neugarten, et al., 1961).

As shown in Exhibit 3.5, LSIA consists of 20 Likert-type items [11] designed to tap the five dimensions uncovered in the earlier rounds of interviewing. Respondents score one point for each response in the desired direction, as determined by the question wording itself. Possible scores thus range from 0 to 20.

The earlier rounds of interviewing used to construct LSIA had actually been used to develop its predecessor measure, Life Satisfaction Ratings (LSR) (Neugarten, et al., 1961). LSR is a highly subjective measure based on inferences drawn from a panel of raters evaluating the five key areas. Considering the time and effort required to determine LSR, its prime utility has been as a point of comparison for gauging the measurement properties of LSIA.

The coefficient of correlation [12] between LSIA and LSR is .55 overall. While this is not especially high, there is some indication in the original research (Neugarten, et al., 1961) that LSIA performs more successfully when used to measure individuals over age 65, as is the case here.

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[11] Likert scales represent one means of measuring subjects. For a variety of items, the subject responds to one of several categories. Total scores are then summed over all items.

[12] The coefficient of correlation measures the degree of association between two variables.

Exhibit 3.5

LIFE SATISFACTION INDEX A

Here are some statements about life in general that people feel differently about. Would you read each statement on the list, and if you agree with it, put a checkmark in the space under "AGREE." If you do not agree with a statement, put a checkmark in the space under "DISAGREE." If you are not sure one way or the other, put a checkmark in the space under "X." PLEASE BE SURE TO ANSWER EVERY QUESTION ON THE LIST.

	AGREE	DISAGREE	X
1. As I grow older, things seem better than I thought they would.	_____	_____	_____
2. I have gotten more of the breaks in life than most of the people I know.	_____	_____	_____
3. This is the dreariest time of my life. *	_____	_____	_____
4. I am just as happy as when I was younger.	_____	_____	_____
5. My life could be happier than it is now. *	_____	_____	_____
6. These are the best years of my life.	_____	_____	_____
7. Most of the things I do are boring or monotonous. *	_____	_____	_____
8. I expect some interesting and pleasant things to happen to me in the future.	_____	_____	_____

EXHIBIT 3.5 (continued)

9.	The things I do are as interesting to me as they ever were.	_____	_____	_____
10.	I feel old and somewhat tired.	_____	_____	_____
11.	I feel my age, but it does not bother me.	_____	_____	_____
12.	As I look back on my life, I am fairly well satisfied.	_____	_____	_____
13.	I would not change my past life even if I could.	_____	_____	_____
14.	Compared to other people my age, I've made a lot of foolish decisions in my life.	_____	_____	_____
15.	Compared to other people my age, I make a good appearance.	_____	_____	_____
16.	I have made plans for things I'll be doing a month or a year from now.	_____	_____	_____
17.	When I think back over my life, I didn't get most of the important things I wanted. *	_____	_____	_____
18.	Compared to other people, I get down in the dumps too often. *	_____	_____	_____
19.	I've gotten pretty much what I expected out of life.	_____	_____	_____
20.	In spite of what people say, the lot of the average man is getting worse, not better. *	_____	_____	_____

* Reverse-scored: "disagree" rates one point.

Global Happiness

Global happiness as a measure of generalized satisfaction is distinguished by its successful, long-term application in studies of the American population. The measure used here, SRC-NORC, originated as part of a 1957 mental health study. "Taking all things together, how would you say things are these days -- would you say you are very happy, pretty happy, or not too happy?" This simple, single-item measure has been used to assess overall well-being repeatedly, with highly consistent results (Campbell, 1976).

Over time, the trend exhibited by SRC-NORC has mirrored that of other happiness measures. Happiness was high in the late 1950's into the sixties, dipped sharply heading into the seventies, then rose and remained high into the eighties. Also, relatively few people (maximum 10-15 percent) have classified themselves as "not too happy" (Campbell, 1976). In other words, on balance American people have described themselves as being reasonably happy. However, SRC-NORC has also tended to classify 8 to 15 percent fewer people into the "very happy" category than have other similar measures (Robinson, et al., 1991).

Research has also shown that certain types of people are more likely to express happiness. Marital status has proven to be the single strongest correlate. Of greater interest in the present study, age is also correlated, with younger people more likely to express happiness. In this case, participation in physical fitness was expected to foster greater happiness in older people, chronological age notwithstanding.

Television Usage

Television usage was measured using a single item requesting frequency of viewing. Specifically, respondents were asked how many hours they watched per day: less than 1 hour, 1 to 3, 3 to 5, 5 to 7, 7 to 9, 9 to 11, or more than 11 hours. This categorization allowed for fine differentiation between relatively heavier and lighter TV viewers.

The elderly have been found to be consistently heavy TV viewers (e.g., Stephens, 1981). Frequent fitness participants, however, were expected to watch fewer hours of TV than were less frequent participants.

Shopping Behavior

As shown in Exhibit 3.6, the survey included a short series of questions designed to tap into various areas of shopping behavior. The item on department store usage permitted discrimination between more and less frequent patronage levels. The elderly in general have been shown to be relatively frequent department store shoppers (Lumpkin and Greenberg, 1982). The physically active elderly were expected to be even more frequent patrons.

The remaining shopping-related items attempted to assess recreational shopping tendencies. The time spent per trip, propensity to plan purchases, and tendency to continue shopping post-purchase are all indicators of the extent to which an individual genuinely enjoys shopping (Bellenger & Korgaonkar, 1980). Additionally, recent work by Anderson and Schiffman (in press) suggests that the elderly are more likely to visit malls for health-related reasons, especially for walking. Thus, it was proposed that the physically active elderly female would be more likely to engage in recreational shopping behavior.

Exhibit 3.6

SHOPPING BEHAVIOR ITEMS

1. During the past year, how often have you shopped at a department store?

   Never _____

   1 to 4 times _____

   5 to 8 times _____

   9 to 11 times _____

   12 to 24 times _____

   25 to 51 times _____

   52 times or more _____

2. While shopping at a department store, how much time do you normally spend?

   Less than 1 hour _____ 1 hour or more _____

3. When shopping at a department store, do you usually have an idea of what you are going to buy?

   Yes _____ No _____

4. Do you usually continue to shop after you've made the last purchase you initially planned?

   Yes _____ No _____

Perceived Health

A single item requiring respondents to describe their health on a four-point rating scale was included. "In general, would you say your health is very good, good, fair or poor?"

This item was used as a descriptive measure of the sample and also as a means of segmentation. Perceived health measures have been linked previously to many of the constructs examined in this research, so in this manner it can serve as a verification.

Exercise Motivations

As shown in Exhibit 3.7, two checklist-style questions requiring respondents to enumerate their reasons for exercising were included following the AADL scale. The first item requested the main reason; the follow-up item, other reasons. (Respondents, however, tended to combine their answers for the two questions. Therefore, their responses could not be analyzed separately.) In any case, these items were used solely for descriptive purposes.

Exhibit 3.7

EXERCISE MOTIVATIONS

1. Which of the following is the main reason that you exercise? (PLEASE CHECK ONLY ONE RESPONSE.)

To stay in shape	_____
To feel good or better (physically)	_____
To stay healthy	_____
For weight control	_____
To relieve stress	_____
To feel good about myself (psychologically)	_____
For fun	_____
For medical reasons	_____

2. For which other reasons, if any, do you exercise? (PLEASE CHECK ALL THAT APPLY.)

To stay in shape	_____
To feel good or better (physically)	_____
To stay healthy	_____
For weight control	_____
To relieve stress	_____
To feel good about myself (psychologically)	_____
For fun	_____
For medical reasons	_____

Demographics

As shown in Exhibit 3.8, the survey concluded with a set of demographic items covering employment status, marital status, household income before taxes, and formal education. This information was requested mostly for descriptive purposes. Possible relationships to the constructs of interest in the research were also explored.

Data Collection Procedures

Thirty-six senior citizen centers in New York City were contacted by mail and asked for their cooperation in conducting this survey. Follow-up phone calls were instituted as needed, to attain necessary participation levels. Appointments were set up for relatively busy days, to ensure maximum participation levels at each center. Full-scale administration of the survey spanned four weeks.

Although the questionnaire was designed to be self-administered, the researcher was present at each site to supervise the data collection process. A brief oral description of the research and a request for cooperation introduced the survey. Anyone clearly disinterested or unwilling to participate was accommodated at that point.

Exhibit 3.8

DEMOGRAPHIC ITEMS

1. Please indicate your current employment status. (CHECK ONE)

   Employed, full-time ____

   Employed, part-time ____

   Not employed ____

   Retired ____

2. Please indicate your marital status. (CHECK ONE)

   Married ____ Divorced ____

   Single ____ Separated ____

   Widowed ____ Living with significant other ____

3. Which of the following best describes your total household income *before* taxes?

   Under $10,000 ____ $30,000 to $39,999 ____

   $10,000 to $19,999 ____ $40,000 to $49,999 ____

   $20,000 to $29,999 ____ $50,000 or more ____

Exhibit 3.8

DEMOGRAPHIC ITEMS
(continued)

4. Which of the following best describes the amount of formal education you have? (CHECK ONE)

Elementary school ____

Some high school ____

Completed high school ____

Some college ____

Completed college ____

Some graduate or professional school ____

Completed graduate or professional school ____

Other (non-college) education beyond high school ____

The questionnaires were distributed along with the explanatory cover letter (see Appendix). Also preceding the actual questionnaire was a screening question to verify the individual's age as 65 or over (see Appendix). After reading the cover letter and completing the screener, anyone ineligible or unwilling to take part was thanked and removed from the research effort.

An assistant was also present at the busier sites, as needed. He was familiarized with the survey administration procedures during a prior session and assisted the researcher in answering any questions broached by the respondents.

Data Analysis

An exploratory descriptive analysis was completed for all measures obtained in this research. The Number Cruncher Statistical System (NCSS) software was utilized to generate summary statistics and also to produce the data tables used to analyze the hypothesized relationships.

In order to complete the analysis, the data were divided into two parts, separating the quantitative variables from the qualitative. Specifically, multiple analysis of variance (MANOVA) was used to explore the composite relationship between participation in fitness activities and (1) cognitive age, (2) personal control, (3)

self-esteem, and (4) life satisfaction. Simple analyses of variance (ANOVA) and Scheffé pairwise tests were then utilized to further investigate differences in each of these relationships individually.

For the qualitative data, contingency tables were generated to examine the relationships between participation in fitness activities and (1) happiness, (2) television usage, and (3) shopping behavior. Chi-square tests and Scheffé-type comparisons for categorical data were then performed in order to further investigate differences.

Chapter 4

RESULTS

This dissertation explored the relationship of fitness participation to select perceptions and behavior among mature females. More specifically, it examined the relationship of participation in fitness activities to perceptions and behavior in the following dimensions of their lives: cognitive age, personal control, self-esteem, life satisfaction, global happiness, television usage, and shopping behavior.

This chapter presents the results of the research. Descriptive statistics obtained from each section of the survey, beginning with the sample demographics, will be addressed first. As part of this analysis, cognitive and chronological age measures, income, education, and perceived health were examined in combination with many of the other variables. These results are also included here in cases in which they provide additional information. Analysis of the hypothesized relationships among the variables will follow.

Sample Demographics

Three hundred seventy-six women aged 65 or over were surveyed for this research. Nearly half were between the ages of 65 and 74, with 44 percent between 75 and 84. The remainder (7 percent) was 85 or over.

Better than 90 percent classified themselves as "retired," although presumably many had never worked. (Possibly they were describing themselves based on their spouses' employment status.) Nearly two-thirds were widowed, while 22 percent were married. The rest were single (6 percent), divorced or separated (6 percent).

Income was relatively low, with more than a third reporting "under $10,000." Twenty-six percent earned between $10,000 and $20,000, while ten percent reported between $20,000 and $30,000. It is worth noting that almost one quarter did not respond to this question, in some cases because they were not aware of their own income levels. More than forty percent had less than a high school education, while 37 percent were high school graduates. Eighteen percent had at least some college education.

Fitness Participation

Fitness participation was measured using the Physical Advanced Activities of Daily Living Scale. This scale consists of three questions designed to assess degree of fitness participation. As noted earlier, the scale was developed specifically for use with elderly populations.

This group presented a much more active profile than did the benchmark sample used to develop the scale originally (see Chapter 3). As shown in Table 4.1, thirty percent were considered "frequent vigorous exercisers," with another one-third classified as "long walkers." These levels contrast sharply with the 8 and 11 percent figures obtained in the original study. At the other extreme, less than one-quarter of this sample was "inactive," as compared to more than half of those in the original study.

Table 4.1 Fitness Participation Levels

	Current Research %	Benchmark Research %
Frequent vigorous exercisers	30	8
Long walkers	33	11
Short walkers	15	24
Inactive	23	58

Note. Numbers may not add to 100 percent due to rounding.

Frequent vigorous exercisers were clearly the highest earning group, with short walkers a distant second. They reported the greatest income, with 26 percent earning $20,000 or more. Only 9 percent of long walkers claimed $20,000 or more, while 14 percent of short walkers did. Nine percent of inactives reported income of $20,000 or more. Similarly, frequent vigorous exercisers are the best educated, with 29 percent indicating at least some college education. This contrasts sharply with corresponding levels of 16 percent and 21 percent for long and short walkers, respectively, and a mere 7 percent for inactives.

Exercise Motivations

The most common reason for exercising was simply "to stay healthy" (34 percent). Other frequently-cited reasons were "to feel good or better," 28 percent; "to relieve stress," 27 percent; "to feel good about myself," 26 percent; "for weight control," 24 percent; and "for fun," 21 percent. Only 16 percent mentioned "medical reasons," while 14 percent cited "staying in shape."

Perceived Health

Perceived health was measured using a single item requiring respondents to describe their health on a four-point rating scale. Forty-five percent rated their health "good," while 11 percent considered it "very good." Thirty-eight percent perceived their health to be "fair," while only 6 percent rated it "poor."

Perceived health peaked among the most active group. Nearly one-fifth of frequent vigorous exercisers described their health as "very good," as compared to 15 percent of long walkers, 4 percent of short walkers and only 2 percent of inactives.

As shown in Table 4.2, perceived health declined with increasing chronological age. The vast majority, however, described their health as "fair" or "good," regardless of age.

Table 4.2 Perceived Health by Chronological Age Category

	65 to 74 %	75 to 84 %	85 or over %
Very good	14	10	4
Good	48	40	50
Fair	33	43	31
Poor	5	7	15

Note. The oldest age category was comprised of only 26 respondents.

Those with greater income perceived their health to be better. Nineteen percent of those with incomes of $20,000 or more described their health as "very good," as compared to 10 percent of those reporting less than $20,000. Similarly, those with more education indicated better perceived health. Specifically, 24 percent of those with at least some college education considered their health to be "very good," as compared to 11 percent of those with less education.

Cognitive Age

Cognitive age was measured across six dimensions, using age categories spanning the twenties through the nineties. As Table 4.3 shows, respondents averaged a composite cognitive age of 62 years. More specifically, their thoughts and interests made them feel younger, while their health and appearance made them feel older.

As might be expected, cognitive age increased with chronological age on every dimension. As shown in Table 4.4, however, respondents consistently indicated ages that were many years younger than their chronological ages. Also, referring to Table 4.5, perceived health declined consistently with every dimension of cognitive age. Finally, as indicated in Table 4.6, increasing education generally yielded a decline in cognitive age.

Table 4.3 Average Cognitive Ages

	Mean Years	SD
Think-Age	58	13
Interest-Age	59	12
Do-Age	60	13
Feel-Age	63	14
Health-Age	64	14
Look-Age	65	10
Composite	62	11

Note. Means and standard deviations are rounded.

Table 4.4 Average Cognitive Age by Chronological Age Category

	65 to 74		75 to 84		85 or over	
	Mean	SD	Mean	SD	Mean	SD
Think-Age	54	12	61	12	67	15
Interest-Age	54	11	62	11	72	11
Do-Age	55	11	63	11	75	11
Feel-Age	58	13	67	12	75	13
Health-Age	59	13	68	12	75	13
Look-Age	61	9	68	10	76	8

Note. Means and standard deviations are rounded.

Table 4.5 Average Cognitive Age by Perceived Health

	Very Good		Good		Fair		Poor	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Think-Age	53	13	58	12	59	13	63	14
Interest-Age	53	13	58	12	60	11	67	14
Do-Age	54	12	59	12	62	12	68	13
Feel-Age	58	14	61	13	66	13	68	15
Health-Age	52	15	62	12	67	12	79	10
Look-Age	61	12	65	10	66	9	70	13

Note. Means and standard deviations are rounded.

Table 4.6 Average Cognitive Age by Education

	Elementary School		Some High School		High School Grad		Some College or more	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Think-Age	60	15	60	12	58	11	53	14
Interest-Age	64	13	62	11	58	11	53	13
Do-Age	64	13	61	12	60	11	57	15
Feel-Age	68	13	66	12	63	13	57	15
Health-Age	65	15	66	12	65	13	59	15
Look-Age	67	12	67	9	65	10	63	12

Note. Means and standard deviations are rounded.

Personal Control

Locus of control, more specifically the personal control component, is concerned with an individual's attempt to gain control in situations requiring personal achievement. It was derived from the general locus of control concept due to Rotter. Personal Control was measured using a 10-item subscale taken from the Spheres of Control battery. Possible total scores ranged from 10 to 70, with higher scores indicating greater internal locus of control.

As Table 4.7 indicates, this sample as a whole proved to be slightly internally-oriented, with more than half attaining scores of 46 or higher. The distribution of the sample data is in conformance with the range of the norms established for the Personal Control subscale (Paulhus and Van Selst, 1990).

Table 4.7 Personal Control Scores

	%
35 or less	8
36 to 40	19
41 to 45	22
46 to 50	21
51 to 55	19
56 or more	12

Note. Numbers may not add to 100 percent due to rounding.

As shown in Table 4.8, those with better perceived health tended to have greater internal locus of control (scores of 45 or more). Of those who rated their health "very good," nearly three-quarters achieved Personal Control scores of 45 or more. Since a perception is an internal construct based on the individual's feelings, this seems to make sense.

Table 4.8 Personal Control by Perceived Health

	Very Good %	Good %	Fair %	Poor %
External LOC	26	41	53	63
Internal LOC	74	59	47	38

Referring to Table 4.9, chronologically younger respondents did not necessarily express greater internal LOC. Lower cognitive age, however, does tend to accompany greater internal LOC. As shown in Table 4.10, patterns are evident for each dimension except Feel-Age. In most cases, the trends are clear except for those in the oldest age categories.

Table 4.9 Personal Control by Chronological Age Category

	65 to 74 %	75 to 84 %	85 or over %
External LOC	44	48	42
Internal LOC	57	52	58

Note. Numbers may not add to 100 percent due to rounding.

Table 4.10 Personal Control by Cognitive Age

	45 or lower	55	65	75	85 or over
	%	%	%	%	%
Feel-Age:					
External LOC	31	36	60	41	56
Internal LOC	69	64	41	60	44
Look-Age:					
External LOC	32	34	50	53	40
Internal LOC	68	66	50	47	60
Health-Age:					
External LOC	23	46	47	51	56
Internal LOC	77	54	53	49	44
Do-Age:					
External LOC	29	45	51	55	45
Internal LOC	71	55	49	46	55
Interest-Age:					
External LOC	28	42	59	50	42
Internal LOC	72	58	41	50	58
Think-Age:					
External LOC	32	42	60	46	50
Internal LOC	68	58	40	54	50

Note. Numbers may not add to 100 percent due to rounding.

As indicated in Table 4.11, respondents with greater income also indicated greater internal locus of control. Among those with incomes of $20,000 or more, better than two-thirds attained Personal Control scores of 45 or higher.

Those with incomes below $20,000 were more externally-oriented. Having greater income presumably enables people to exercise greater control over their lives. Similarly, as shown in Table 4.12, among those groups with high school education or less, greater education did not necessarily accompany greater internal locus of control. Those with at least some college education, however, were far more internally-oriented than were any of the less educated groups. As was the case with income, increasing education also gives the individual more options, thus greater ability to control her own life.

Table 4.11 Personal Control by Income Category

	Under $10,000 %	$10,000 - 19,999 %	$20,000 or more %
External LOC	47	52	32
Internal LOC	53	48	68

Table 4.12 Personal Control by Education

	Elementary School %	Some High School %	High School Grad %	Some College or more %
External LOC	44	51	53	26
Internal LOC	56	49	47	74

Self-Esteem

Self-esteem was measured using the Texas Social Behavior Inventory. The 16 items, scored on a five-point Likert scale, yielded possible total scores ranging from 0 to 64. Higher scores indicate higher levels of self-esteem. This sample exhibited moderate self-esteem, with an average score of 38. As indicated in Table 4.13, nearly two-thirds scored between 31 and 45 points.

Table 4.13 Self-Esteem Scores

	%
20 or less	5
21 to 25	5
26 to 30	6
31 to 35	17
36 to 40	27
41 to 45	21
46 to 50	9
51 to 55	10
56 or more	1

Note. Numbers may not add to 100 percent due to rounding.

As shown in Table 4.14, chronologically younger respondents generally reported greater self-esteem. Specifically, more than half of those 65 to 74 years of age attained self-esteem scores of 40 or more, as compared to only 35 percent of those 85 or older. Also, as indicated in Table 4.15, cognitively younger respondents tended to express greater self-esteem on every dimension. Results are in some cases inconsistent among the cognitively oldest groups, however.

As indicated in Table 4.16, those with better perceived health indicated greater self-esteem. Among those who described their health as "very good," seven out of ten had self-esteem scores of 40 or more. Apparently, those who feel better physically also feel better about themselves in general.

Referring to Table 4.17, self-esteem also tended to improve with education. Two-thirds of those with only elementary school backgrounds had self-esteem scores below 40. At the other extreme, almost two-thirds of those with at least some college education had self-esteem scores of 40 or more.

Table 4.14 Self-Esteem by Chronological Age Category

	65 to 74	75 to 84	85 or over
	%	%	%
Lower SE	46	58	65
Higher SE	54	42	35

Table 4.15 Self-Esteem by Cognitive Age

	45 or lower	55	65	75	85 or over
	%	%	%	%	%
Feel-Age:					
Lower SE	37	39	57	64	72
Higher SE	63	61	43	36	28
Look-Age:					
Lower SE	32	38	53	65	76
Higher SE	68	62	47	35	24
Health-Age:					
Lower SE	33	57	50	59	64
Higher SE	67	43	50	41	36
Do-Age:					
Lower SE	37	49	51	76	70
Higher SE	63	51	49	24	30
Interest-Age:					
Lower SE	33	52	52	79	75
Higher SE	67	48	48	21	25
Think-Age:					
Lower SE	37	46	58	82	75
Higher SE	63	54	42	18	25

Table 4.16 Self-Esteem by Perceived Health

	Very good %	Good %	Fair %	Poor %
Lower SE	30	52	60	54
Higher SE	70	48	40	46

Table 4.17 Self-Esteem by Education

	Elementary School %	Some High School %	High School Grad %	Some College or more %
Lower SE	66	57	53	36
Higher SE	34	43	48	63

Life Satisfaction

Life Satisfaction was measured using the Life Satisfaction Index A, a scale designed specifically for use in research on aging. The 20 Likert-type items yielded possible scores from 0 to 20, with higher scores signaling greater life satisfaction.

As shown in Table 4.18, life satisfaction levels in this sample varied considerably, with the largest single group in the 13- to 16-point range. The average score was a moderate 11.9. A comparatively wide standard deviation of 4.27 highlights the variability on this measure. It is

worth noting that these scores are quite similar to those seen for the original panel used to develop the instrument (mean of 12.4, standard deviation of 4.4).

Table 4.18 Life Satisfaction Index A Scores

	%
0 to 4	5
5 to 8	21
9 to 12	25
13 to 16	33
17 to 20	17

Note. Numbers may not add to 100% due to rounding.

Life satisfaction is generally higher among those with better perceived health. Those who rated their health as "very good" averaged scores of 15, as compared to averages of 14, 11 and 8 for those in the "good," "fair" and "poor" categories, respectively.

Global Happiness

Global happiness was assessed using a single-item measure which asked respondents to rate themselves as "very happy," "pretty happy," or "not too happy."

As expected based on previous applications of the measure, the majority (61 percent) described themselves as "pretty happy." Nearly one-fourth classified themselves as "not too happy," however, which is notably higher than the

10-15 percent level normally seen for this category. Earlier research had also found, though, that younger people tended to be more likely to express happiness, so this finding is not surprising. At the other end of the spectrum, 15 percent described themselves as "very happy."

As shown in Table 4.19, the chronologically youngest respondents tended to be slightly happier. Eighteen percent of those 65 to 74 described themselves as "very happy," as compared to 12 percent of those in the two older groups. In addition, as indicated in Table 4.20, cognitively younger respondents were generally more likely to describe themselves as "very happy."

Table 4.19 Global Happiness by Chronological Age Category

	65 to 74 %	75 to 84 %	85 or over %
Very happy	18	12	12
Pretty happy	61	62	58
Not too happy	22	26	31

Note. Numbers may not add to 100% due to rounding.

Table 4.20 Global Happiness by Cognitive Age

	45 or lower	55	65	75	85 or over
	%	%	%	%	%
Feel-Age:					
Very happy	24	21	10	8	7
Pretty happy	59	64	63	62	56
Not too happy	16	15	27	30	37
Look-Age:					
Very happy	37	28	7	10	12
Pretty happy	37	58	68	63	44
Not too happy	26	14	25	27	44
Health-Age:					
Very happy	29	22	13	5	8
Pretty happy	56	66	64	66	38
Not too happy	15	12	23	29	54
Do-Age:					
Very happy	24	17	9	9	15
Pretty happy	60	63	66	56	40
Not too happy	16	20	25	35	45
Interest-Age:					
Very happy	26	15	9	10	8
Pretty happy	59	62	65	60	33
Not too happy	15	22	26	31	58
Think-Age:					
Very happy	33	17	7	10	9
Pretty happy	52	63	71	58	46
Not too happy	15	20	23	32	46

Note. Numbers may not add to 100 percent due to rounding.

As indicated in Table 4.21, those who perceived themselves to be in better health definitely were the happiest. Of those who considered their health to be "very good," 44 percent described themselves as "very happy." Among those who considered their health "poor," almost six in ten described themselves as "not too happy."

Also, as shown in Table 4.22, those with higher income tended to be slightly happier. Eighteen percent of those with incomes of $20,000 or more described themselves as "very happy," as compared to 13 percent of those in the two lower income categories.

Table 4.21 Global Happiness by Perceived Health

	Very good	Good	Fair	Poor
	%	%	%	%
Very happy	44	17	6	-
Pretty happy	47	70	59	42
Not too happy	9	14	36	58

Table 4.22 Global Happiness by Income Category

	Under $10,000	$10,000 - 19,999	$20,000 or more
	%	%	%
Very happy	13	13	18
Pretty happy	56	63	66
Not too happy	31	24	16

Television Usage

Television usage was assessed using a single item measuring frequency of viewing. While the elderly have been found to be consistently heavy TV viewers, the present research does not substantiate these findings. As shown in Table 4.23, more than half claimed to watch less than 3 hours of television per day, while only 18 percent reported watching more than 5 hours. Perhaps this was because this sample was more active than the norm.

As indicated in Table 4.24, the oldest chronological age group tended to watch more television than did the two younger groups. Better than one-third of those aged 85 or older watched five hours or more of television per day, as compared to only about one-sixth of those in the two younger categories.

Table 4.23 Television Hours Viewed Per Day

	%
Less than 1	7
1 to 3	44
3 to 5	32
5 to 7	12
7 to 9	3
9 to 11	2
More than 11	1

Note. Numbers may not add to 100 percent due to rounding.

Table 4.24 TV Hours Viewed by Chronological Age Category

	65 to 74 %	75 to 84 %	85 or over %
Less than 1	8	7	4
1 to 3	46	45	23
3 to 5	31	32	39
5 or more	15	16	35

Note. Numbers may not add to 100 percent due to rounding.

Shopping Behavior

Several measures covering various aspects of shopping behavior were included. The first one, addressing department store shopping frequency, requested the number of visits in the previous year. Earlier research had found the elderly to be relatively frequent department store shoppers. As Table 4.25 shows, however, the current findings indicate light to moderate patronage levels. Nearly half the sample reported four or fewer visits in the previous year, while only 28 percent had made 12 or more visits. Given that this research was conducted in New York City, it is possible that this group prefers shopping in the specialty stores which tend to dominate the urban retailing environment. It is also possible that they might prefer other, more active pursuits to shopping.

Table 4.25 Past Year Department Store Visits

	%
None	11
1 to 4	35
5 to 8	15
9 to 11	12
12 to 24	13
25 to 51	8
52 or more	7

Note. Groupings are derived from the original scale.

As indicated in Table 4.26, department store shopping is most frequent in the youngest chronological age category. Nearly one-third of those aged 65 to 74 visited department stores at least a dozen times in the previous year. This contrasts sharply with figures of 24 percent and 8 percent for the two older categories.

Table 4.26 Past Year Department Store Visits by Chronological Age Category

	65 to 74 %	75 to 84 %	85 or over %
None	6	13	35
1 to 4	32	37	42
5 to 8	16	15	4
9 to 11	13	10	12
12 or more	33	24	8

Note. Numbers may not add to 100 percent due to rounding.

The remaining shopping-related items were all intended to measure recreational shopping tendencies. Recreational shoppers are defined as **frequent** department store patrons who spend **more** than one hour per visit, make **unplanned** purchases, and **continue** to shop after making their final planned purchase. As Table 4.27 shows, only 28 people (7 percent) qualified as recreational shoppers by meeting all these criteria. Apparently, impulse shopping is fairly uncommon. In fact, the lack of impulse shopping largely accounts for the low number of recreational shoppers in the sample.

These individuals **do** tend to spend considerable time shopping on those occasions when they visit a department store. Specifically, nearly three-quarters reported spending one hour or more. As might be expected, the chronologically youngest group spent the most time shopping, with 82 percent indicating one hour or more. Two-thirds of those aged 75 to 84 claimed to spend at least an hour, while only 42 percent of those 85 or older did.

Table 4.27 Recreational Shopping Behavior

	%
No recreational shopping characteristics	17
One characteristic:	
Spend more than one hour shopping	29
Impulse shop	5
Continue shopping after planned purchases	5
Two characteristics:	
Spend more than one hour shopping and impulse shop	5
Impulse shop and continue shopping after planned purchases	1
Spend more than one hour shopping and continue shopping after planned purchases	32
Recreational shoppers	7

Interestingly, the least educated group spent less time department store shopping than did any of the other groups. Fifty-seven percent of those with only elementary school education reported spending one hour or more per trip, as compared to three-quarters of those in the better educated groups.

Unlike recreational shoppers, however, the vast majority of the sample claimed to have planned their purchases ahead of time (82 percent). The oldest chronological group is somewhat more likely to shop impulsively, however. Twenty-seven percent of those 85 or older did not necessarily know what they planned to buy ahead of time, as compared to 21 percent of those 75 to 84 and only 15 percent of those 65 to 74. Also unlike recreational shoppers, less than half (45 percent) continued to shop after making their final planned purchase. The youngest chronological group was most likely to continue shopping (51 percent), as compared to 43 percent of those 75 to 84 and only 23 percent of those 85 or over.

The Relationship to Fitness Participation

In order to analyze the hypothesized relationships, the data were divided into two parts, separating the quantitative variables from the qualitative. Initially, multiple analysis of variance (MANOVA) was used to explore the composite relationship between participation in fitness activities and (1) cognitive age, (2) personal control, (3) self-esteem and (4) life satisfaction.

The four fitness groups (i.e., frequent vigorous exercisers, long walkers, short walkers, and inactives) were found to differ significantly with respect to this group of variables [$F(30, 1066) = 2.81$, $p = 0.0$]. For this reason, simple analyses of variance (ANOVA) and Scheffé pairwise tests were employed to explore differences in each of these relationships individually.

Fitness Participation and Cognitive Age

The four fitness groups were significantly different on every dimension of cognitive age. As shown in Table 4.28, F-values ranged from 6.8 to 15.8, with p values of 0.0 in each case.

In Table 4.29, an "X" in the body of the table indicates a significant difference between the groupings in the corresponding row and column. Scheffé pairwise testing revealed that differences separated the two most active groups from the others. Overall, frequent vigorous exercisers (FVE) were significantly cognitively younger than both short walkers (SW) and inactives (I). Long walkers (LW) were also significantly cognitively younger than inactives. Similarly, an examination of differences on the six dimensions shows frequent vigorous exercisers to be significantly cognitively younger than both short walkers and inactives, on every dimension except Feel-Age. Long

Table 4.28 ANOVA of Cognitive Age by Fitness Participation

	Sum of Squares	Degrees of Freedom	Mean Square	F
Composite	4475.5	3	1492	15.1 *
Residual	36760.4	372	98.8	
Feel-Age	4799.2	3	1599.7	9.4 *
Residual	63497.7	372	170.7	
Look-Age	2126.8	3	708.9	6.8 *
Residual	38760.1	372	104.2	
Health-Age	7453	3	2484.3	14.2 *
Residual	64908.5	372	174.5	
Do-Age	6672	3	2224	15.8 *
Residual	52510.9	372	141.2	
Interest-Age	3553	3	1184.3	8.5 *
Residual	52000	372	139.8	
Think-Age	4202	3	1401	8.9 *
Residual	58253	372	98.8	

* Note. The critical value at the .05 level of significance with $(3,\infty)$ degrees of freedom is 2.60.

Table 4.29 Pairwise Comparisons for Cognitive Age

	Means	Significant Difference Vs. FVE	LW	SW	I
Composite:					
FVE	58			X	X
LW	60				X
SW	64	X			
I	67	X	X		
Feel-Age:					
FVE	59				X
LW	63				X
SW	64				
I	68			X	X
Look-Age:					
FVE	62			X	X
LW	65				
SW	67	X			
I	69	X			
Health-Age:					
FVE	59			X	X
LW	62				X
SW	67	X			
I	71	X	X		
Do-Age:					
FVE	55			X	X
LW	59				X
SW	63	X			
I	67	X	X		
Interest-Age:					
FVE	55			X	X
LW	58				X
SW	61	X			
I	63	X	X		
Think-Age:					
FVE	55			X	X
LW	56			X	X
SW	62	X	X		
I	63	X	X		

walkers were significantly cognitively younger than inactives on every dimension except Look-Age. In addition, on Think-Age, long walkers were significantly cognitively younger than short walkers as well.

Thus, the results lend complete support to the hypothesized relationship. Frequent participants in fitness activities do have lower cognitive ages than do infrequent or non-participants.

Fitness Participation and Personal Control

The four fitness groups differed significantly on the personal control variable, with more vigorous participation linked to greater internal locus of control [$F(3,372) = 4.40$, $p = 0.0047$].

Possible scores on the personal control subscale range from 10 to 70, with higher scores indicating greater internal locus of control. Mean scores in this case fell within a fairly narrow range, averaging 48 for frequent vigorous exercisers, 46 each for long and short walkers, and 44 for inactives. Nevertheless, Scheffé pairwise testing found the average scores for the two extreme groups to be significantly different.

Thus, there is some support for the second hypothesis. The most frequent participants in fitness activities do report greater personal control than do the non-

participants. They do **not**, however, indicate greater levels than do the less frequent participants.

Fitness Participation and Self-Esteem

The relationship between fitness participation and self-esteem, while significant, was somewhat weaker than the others [$F(3,372) = 2.90$, $p = 0.04$].

Possible scores on the Texas Social Behavior Inventory range from 0 to 64, with higher scores denoting higher levels of self-esteem. Once again, mean scores here fell within a fairly narrow range: frequent vigorous exercisers, (40); long walkers, (39); short walkers, (38) and inactives, (36). Scheffé tests, however, found the scores from the two extreme groups to be significantly different.

Therefore, there is some support for the third hypothesis. The **most** frequent participants **do** profess higher levels of self-esteem than do the non-participants. They do **not**, however, report higher levels than do the less frequent participants.

Fitness Participation and Life Satisfaction

Analysis of variance revealed a highly significant relationship between fitness participation and life satisfaction [$F(3,372) = 8.08$, $p = 0.0$].

The LSIA is scored from 0 to 20, with higher scores indicating greater life satisfaction. In this case, Scheffé testing indicated that the mean scores attained by frequent vigorous exercisers and long walkers (14 and 12, respectively), were significantly higher than those attained by the two other groups (11 each).

Thus, the results show strong support for the fourth hypothesis. Frequent participants in fitness activities do express greater life satisfaction than do infrequent or non-participants.

Fitness Participation and Global Happiness

Chi-square testing revealed a significant relationship between fitness participation and happiness [$\chi^2(6) = 22.71$, $p = 0.0$]. As indicated in Table 4.30, differences across the four fitness groups show a clear trend.

Table 4.30 Happiness by Fitness Participation

	Frequent Vigorous Exercisers %	Long Walkers %	Short Walkers %	Inactives %
Very happy	20	17	9	8
Pretty happy	70	58	61	55
Not too happy	11	25	30	37

Note. Numbers may not add to 100% due to rounding.

A Scheffé-type procedure for comparing proportions of qualitative variables was utilized to further investigate these differences. Significant differences were found in comparing the two more active groups to the others. Specifically, frequent vigorous exercisers and long walkers were significantly more likely to describe themselves as "very happy" than were short walkers and inactives. [The calculated χ^2 of 3.61 > 2.80, the square root of the critical value for χ^2 (.05, 3)].

The results therefore lend considerable support to the fifth hypothesis. Frequent participants in fitness activities do express greater happiness than do infrequent or non-participants.

Fitness Participation and Television Usage

Chi-square testing showed a weak albeit insignificant relationship between fitness participation and television viewing [$\chi^2(18) = 22.76$, $p = .20$]. As noted earlier, the elderly in this sample seemed to be fairly light TV viewers on the whole. An examination of the differences across the four fitness groups, however, shows that inactives seem to watch more television than do any of the three active groups. Specifically, 66 percent of inactives watch three or more hours of television per week, as compared to 42 percent of frequent vigorous exercisers, 47 percent of long walkers and 42 percent of short walkers. Thus, there is some suggestion that a lighter level of physical activity may take the place of television viewing.

There is, however, no statistical support for the sixth hypothesis. Participants in fitness activities do not tend to watch significantly less television than do non-participants.

Fitness Participation and Shopping Behavior

Visual inspection revealed an apparent linkage between fitness participation and time spent engaged in department store shopping. Seventy-eight percent of frequent vigorous exercisers tended to spend at least one hour, as compared to 72 percent of long walkers, 71 percent of short walkers, and

67 percent of inactives. The relationship proved to be statistically insignificant, however [$\chi^2 = 3.37$, $p = .33$].

Thus, the results do not support the seventh hypothesis. Frequent participants in fitness activities do **not** spend more time engaged in department store shopping than do infrequent or non-participants. Rather, department store shopping seems to be an activity in which **most** spend considerable time, across the board.

Chi-square testing also showed no relationship between recreational shopping behavior and fitness participation [$\chi^2 = 4.11$, $p = .25$]. [As discussed in the descriptive section, however, only seven percent of the sample (28 individuals) qualified as recreational shoppers. It **is** interesting to note that 13 of these 28 individuals were frequent vigorous exercisers.] In any event, there is no support for the eighth hypothesis.

Chapter 5

SUMMARY, DISCUSSION AND CONCLUSIONS

This dissertation explored the relationship of fitness participation to select behaviors and self-perceptions among mature females. More specifically, it examined the relationship of participation in fitness activities to perceptions and behaviors in the following dimensions of their lives: cognitive age, personal control, self-esteem, life satisfaction, global happiness, television usage, and two facets of shopping behavior.

Through an integrated dicussion of data, theory, and research, this chapter examines the major findings within the context of existent literature, explore limitations, and offer recommendations for future research.

Summary

The most significant findings to emerge from this research center on the areas related to personal well-being. In specific, cognitive age, life satisfaction, and global happiness were all found to be strongly related to degree of fitness participation among mature women. Personal control and self-esteem were also found to have some relationship to fitness participation.

Linkages to the consumption-related variables, however, were not established as hypothesized. Specifically, television usage, shopping frequency, and shopping motivation were not found to be significantly related to degree of fitness participation among mature women.

The Role of Fitness Participation in Personal Well-Being

As pinpointed by Meadow et al. (1980), quality of life isssues have become increasingly important in attempting to understand consumer behavior. Based on the present findings, participation in physical fitness activities has been shown to be strongly associated with enhanced quality of life. In specific, this research identified strong linkages between fitness participation and cognitive age, life satisfaction, and global happiness. Personal control and self-esteem were also found to have some relationship to physical activity level.

In 1992, a large-scale study of exercise habits among mature adults (aged 55+) showed high rates of participation in a wide range of physical activities (National Sporting Goods Association, 1992). Results from the present research are consistent with this finding, as better than three-quarters of the elderly women interviewed reported some physical activity. This level of participation bodes well for elderly women in general. Feelings of personal

fulfillment and well-being will certainly improve as large numbers of women take part in such activity.

The Relationship to Cognitive Age

This research examined the linkage between fitness participation and six specific dimensions of cognitive age: (1) feel-age, (2) look-age, (3) do-age, (4) interest-age, and two newly-added dimensions, (5) health-age and (6) think-age. Results show strong relationships between degree of fitness
participation and every dimension. In most cases, the two more active groups (i.e., frequent vigorous exercisers and long walkers) considered themselves to be significantly younger than did the other two groups (i.e., short walkers and inactives).

Greater participation in fitness activities is clearly linked to lower cognitive age. Earlier studies by Markidis and Boldt (1983) and Chua et al. (1990) had found health to be a major factor in "subjective aging." Similarly, the current findings show that those with better perceived health report lower cognitive ages. Maintaining one's health, to the extent that it can be done through exercise, may be an important part of feeling younger.

The present research also found a consistent tendency for respondents to classify themselves as younger on all six dimensions. These results are in accord with the foundational study by Barak and Schiffman (1981), as well as with a host of other studies (Underhill and Cadwell, 1983; Barak, 1987; Barnes-Farrell and Piotrowski, 1989; Terpstra, et al., 1989; Montepare, 1991).

The two new dimensions, think-age and health-age, were added in order to capture the cognitive age concept more fully. Results show that the think-age component produced the youngest cognitive age (58), while health-age yielded the second oldest (64). In fact, the lower cognitive ages, for think-age (58), interest-age (59) and do-age (60), indicate a tendency toward a younger mind-set. The higher cognitive ages, for feel-age (63), health-age (64) and look-age (65), reflect perhaps a more physical evaluation of age. Thus, elderly women who are young **psychologically** are also likely to engage in physical activities, possibly to reinforce that mental image.

The Relationship to Life Satisfaction

The results of this research indicate a strong relationship between degree of fitness participation and life satisfaction. In specific, the two more active groups expressed significantly greater life satisfaction than did

the other two groups.

In her seminal work on the subject, Neugarten (1961) described life satisfaction as an all-encompassing measure of psychological well-being. The present research shows that life satisfaction varies widely (with a mean score of 11.9 on a 20-point scale and a standard deviation of 4.27). These results are consistent with those obtained in the original study. Life satisfaction tends to vary considerably.

Larson (1978) provided a comprehensive review of thirty years' research into the "subjective well-being" of older Americans. He proposed subjective well-being as a summary measure of life satisfaction, morale, adjustment and other related constructs.

Health apparently plays a substantial role in life satisfaction. Research cited by Larson found a variety of self-reported health measures to be significantly related to subjective well-being (Palmore and Luikart, 1972; Spreitzer and Snyder, 1974; Larson, 1975). The present research supports and extends these earlier findings, as life satisfaction is generally higher among those with better perceived health.

Several other studies mentioned by Larson identified decreased activity level as a factor in declining subjective well-being (Edwards and Klemmack, 1973; Larson, 1975; Kivett, 1976). In addition, Mancini and Orthner (1980) focused on the activity levels of elderly people, confirming that "an active older person is a happy older person." In examining the pursuit of assorted leisure-time activities among the elderly, they found a substantial relationship between leisure satisfaction and morale.

The present research takes these findings a step further, confirming a relationship between degree of physical activity and life satisfaction. While life satisfaction may vary widely, elderly who engage in at least moderate physical activity also tend to express greater life satisfaction.

The Relationship to Global Happiness

Closely related to life satisfaction is the notion of global happiness. According to Campbell (1981), happiness is a momentary evaluation of positive affect, while life satisfaction tends to be a more stable assessment of one's position in life. This research indicates a highly significant relationship between fitness participation and global happiness. Specifically, the two more active groups were significantly happier than were the other two groups.

The single-item happiness measure employed here has been used extensively since its introduction more than 35 years ago. Consistent with previous findings, the majority of respondents in this research expressed moderate happiness. As fitness participation level increased, however, more respondents tended to describe themselves as "very happy." At the extremes, 20 percent of frequent vigorous exercisers considered themselves "very happy," as compared to only 8 percent of inactives.

Research by Bradburn (1969) uncovered a positive relationship between social participation and happiness. Bradburn observed that those who were happy were more likely to engage in a variety of social experiences as part of a "dynamic cycle." Later research (Stones and Kozma, 1980, 1986; Shoskes and Glenwick, 1987) similarly confirmed the value of social activity in raising happiness levels. The present research supports and extends these results, finding evidence of a linkage between fitness participation and happiness. Perhaps fitness participation may be considered one part of the individual's dynamic cycle, one element of his or her social activity.

Other early studies contrasted happiness levels among different demographic groupings (Gurin, et al., 1960; Bradburn and Caplovitz, 1965). Older individuals tended to be less happy than younger ones, a finding supported here as well. The present research also found some relationship to income, suggesting that money **can** buy happiness, at least to some degree. But money **cannot** buy health, and this is where the greatest differences were seen. Among those who perceived their health to be "very good," 44 percent described themselves as "very happy." Happiness levels drop precipitously for those describing their health as "good," with only 17 percent "very happy." These findings are generally compatible with those of Stones and Kozma (1980, 1986), who examined the link between happiness and perceived health as part of a group of variables. Exercise, as a means of improving or maintaining one's health, might be at the root of this linkage.

The Relationship to Personal Control

Personal control, one of three subscales due to Paulhus and Christie (1981), is concerned with an individual's attempt to gain control in situations requiring personal achievement. This research posited a relationship between increasing fitness participation and personal control. In this case, results indicate **some** support for the hypothesis.

Specifically, significant differences were found between the two extreme groups. The most frequent participants reported significantly greater personal control than did the inactives. They did not, however, indicate higher levels than did the less frequent participants.

A 1978 study by Gurin found that personal control was related to mastery efforts in any life arena in which individual effort could be seen as having some effect. Relatedly, Duffy and MacDonald (1990) recommended exercise as one method of achieving stronger internal locus of contol. Frequent vigorous exercisers may in fact be such fervent participants because they view their participation intensity as a means of mastering their lives. Those exercising at more moderate levels may be doing so for different reasons. They also may be keeping their exercise level lower because they do not perceive as strong a linkage to personal control.

The relationship to perceived health, however, is unmistakable. The sample as a whole proved to be slightly internally-oriented, with more than half attaining scores above 45. Among those describing their health as "very good," however, nearly three-quarters scored at least 45. At the other extreme, among those describing their health as "poor," nearly two-thirds scored under 45.

Even for the most frequent participants, exercise is but one factor in exerting control over one's life. As might be expected, higher income respondents indicated greater internal locus of control. Similarly, those with at least some college education were more internally-oriented than were any of the less educated groups.

The Relationship to Self-Esteem

The results of this research indicate a significant but somewhat weaker relationship between fitness participation and self-esteem, the extent to which one values oneself. As with the personal control construct, significant differences were found between the extreme groups. The **most** frequent participants professed higher levels of self-esteem than did the inactives. They did **not**, however, report higher levels than did the less frequent participants.

While those in the more moderate exerciser groups may not perceive the linkage, fitness participation may well be a route to developing greater self-esteem. Research focused on developing healthy levels of self-esteem in children found that different types of activity had a positive impact (Krotee and Wamukhoya, 1986; Yau, 1992). And Gray (1989) proposed that the individual's life could be greatly enhanced through self-esteem building activities. While fitness could certainly be characterized as "self-esteem

building," it is apparently just one means of enhancing self-worth. Participation in activities in general -- not just fitness -- may be one alternative (Gfeller-Varga and Long, 1973; Fling, et al., 1982).

The relationship between self-esteem and perceived health, however, again underscores the importance of fitness participation. Previous research has documented the linkage between self-esteem and poorer physical health (Hunter, et al., 1982; Antonucci and Jackson, 1983). In this case, the relationship between self-esteem and **perceived** health is clear. The sample as a whole expressed moderate self-esteem, with an average score of 38. Among those who considered their health to be "very good," however, 70 percent had self-esteem scores of 40 or more. Apparently, those who feel better physically also feel better about themselves in general.

In Empowerment for Later Life, Myers (1991) emphasizes the need for elderly people to gain control over their lives in order to shore up their self-esteem. In the present research, education apparently provided one measure of empowerment. Nearly two-thirds of those with at least some college education attained self-esteem scores of 40 or higher. But fitness participation, at least at the most vigorous level, seems to be empowering as well.

An Examination of Selected Consumer Behaviors

The present research also explored possible linkages between fitness participation and television viewing, shopping frequency, and shopping motivation. In these cases, the relationships did not prove to be significant.

Television Usage

A single item measuring frequency of television viewing was included here simply because the elderly have been classified as heavy television viewers (Bernhardt and Kinnear, 1975). Elderly women in particular have been found to watch more television than any other age/gender subcategory (Davis and Westbrook, 1985). The present research, however, does not support this finding. Specifically, more than half the sample claimed to watch less than three hours of television per day, while only 18 percent reported watching five hours or more. This may be because this sample was substantially more active than the norm.

An examination of the relationship between fitness participation and television viewing revealed a weak but insignificant trend. In specific, visual inspection showed that two-thirds of inactives watched three or more hours of television per week, as compared to less than half of those in the three active groups. It appears that other forms of

activity, not necessarily just fitness, may be successfully competing for these women's time. This finding is in accord with some of the earlier research. Robinson (1981) found that an assortment of away-from-home activities tends to occupy Americans' leisure time, regardless of age. Of greater relevance here, Rahtz et al. (1989) uncovered an inverse relationship between television viewing and outside home activities among the elderly.

The oldest group did tend to watch more television than did the two younger groups. Specifically, better than one-third of those aged 85 or older watched five or more hours of television per day, as compared to only about one-sixth of those in the two younger categories. Thus, perhaps the "oldest old" are less active in general and therefore more likely to choose television as a form of entertainment. This finding is consistent with Rubin and Rubin (1981), who found that television viewing was a means of passing the time and relieving boredom among elderly or confined individuals. As a whole, however, the elderly in the current sample are light television viewers and generally active.

Shopping Behavior

One facet of shopping behavior that received attention in this research was department store shopping frequency. Previous studies had shown that while the elderly were not particularly frequent shoppers, when they **did** shop they tended to patronize department stores (Lumpkin and Greenberg, 1982).

The present research, however, does not support these findings, indicating only light to moderate patronage levels. Specifically, nearly half the sample reported four or fewer visits in the previous year, while only 28 percent had made 12 or more visits. This may be because this sample prefers other, more active pursuits. It may also be because this research was conducted in New York City, where shoppers today tend to favor the large variety of available specialty stores. Outside of such urban areas, malls dominate, again affording shoppers a wide selection of specialty stores along with the traditional department stores.

The present research also posited a linkage between fitness participation and the amount of time spent engaged in department store shopping. While visual inspection revealed an apparent directional trend, the relationship was statistically insignificant. Seventy-eight percent of frequent vigorous exercisers tended to spend at least one

hour on a typical visit, as compared to 72 percent of long walkers, 71 percent of short walkers, and 67 percent of inactives. These numbers fall within a very narrow range, indicating a lack of statistically significant differentiation with respect to this variable based on the subsample sizes used.

Overall, when these women **do** visit department stores, **most** of them (73 percent) tend to spend at least one hour. Consistent with earlier studies, therefore, they apparently enjoy shopping when they do go (Martin, 1975; Lumpkin and Greenberg, 1982). Age is a factor, however: 82 percent of those 65 to 74 reported spending at least an hour on a typical visit, as compared to only 42 percent of those aged 85 or older. As noted in the previous section, the "oldest old" appear to be less active across the board.

Beyond a simple examination of shopping frequency, however, is the issue of shopping motivation. Crask and Reynolds (1978) found that behaviors, more so than demographics, tended to distinguish the frequent department store shopper. With this as a springboard, the relationship between fitness participation and recreational shopping behavior was examined.

Bellenger and Korgaonkar (1980) introduced the notion of a "recretional shopper," an individual who specifically enjoys shopping as an activity. Operationally, they described recreational shoppers as being more likely to: (1) make unplanned purchases, (2) spend more time per shopping trip, (3) continue shopping after making a purchase, and (4) be department store shoppers.

Bellenger and Korgaonkar also linked recreational shopping tendencies to a variety of other behaviors. They found that recreational shoppers were more likely to be involved in an assortment of out-of-home activities. In the present research, therefore, the linkage between fitness participation and recreational shopping behavior was explored.

In this case, the relationship proved insignificant. It is worth noting, however, that only seven percent of the sample (28 individuals) qualified as recreational shoppers, largely because the vast majority (82 percent) did not tend to make unplanned purchases. Perhaps this is a reflection of the current economic climate. It is also possible, though, that for this group, shopping is yet another organized activity to fit into their busy, social schedules.

Limitations

This research studied behaviors and perceptions of women aged 65 and older. Therefore, results are not generalizable to males or to other age groups. Also, all respondents were recruited by visiting senior citizen centers. The population who visits these centers proved to be more active than the norm, creating an inherent bias. In addition, all participating centers were located in New York City. Thus, results are not generalizable to other geographic areas.

A self-administered survey was utilized in order to facilitate data collection. This method was deemed most feasible based on the sheer size of the desired sample. Its use, however, carries an intrinsic self-report bias which cannot be measured. Also, it necessitated limiting survey administration to women who could comprehend written English at an adequate level. In order to address this problem, sample selection was restricted to senior citizen centers located in areas of the city with above-median income, as determined by Census data.

Finally, this research utilized a cross-sectional design, restricting measurement to a single administration. Longitudinal measurement may have been preferable. For instance, individuals may vary with respect to their levels

of global happiness at different times. Time constraints would not permit this investigation to employ a longitudinal design.

Conclusions and Recommendations for Future Research

As noted at the onset, the elderly are poised to become an increasingly important force in our society. Indeed, with the aging of the baby boomers, their numbers will skyrocket within the next twenty years. Mature females comprise the majority of this group, and were therefore a particularly fruitful segment to investigate. Also, females as a whole have traditionally been under-researched. Considering their representation among the elderly, it is important to gain insight into their perceptions and behavior. Future research efforts might focus on similar areas among mature males.

This dissertation sought to add to the existent base of knowledge concerning the elderly female consumer. Previous research had underscored the importance of segmenting the elderly market (e.g., Sherman, Schiffman and Dillon, 1988). In this case, degree of fitness participation was applied as a method of partitioning mature females. This measure provided an alternative to the more conventional demographic

methods of segmentation. Similarly, future research might utilize other behavioral measures, in order to gain a further understanding of this segment.

This research did not reveal significant linkages to any of the three consumer behavior measures investigated. Other consumption-related areas, however, may show stronger relationships to fitness participation. Clearly, other measures of personal well-being could be considered as well.

Managerial and Public Policy Implications

Fitness participation is a timely choice, given the current national emphasis on health care. This research identified perceived health as a critical construct, linked to several measures of personal well-being. Since fitness participation is a solid approach to health maintenance, this suggests that marketers and public policy advocates ought to promote health through fitness.

In Serving the Ageless Market, Wolfe (1990) discussed how the health and fitness industry could capitalize on the mature market by tailoring its facilities as well as its appeals to meet this segment's needs. The main issue is what he describes as *New Age* thinking, emphasizing the inseparability between fit bodies and fit minds. The current research underscores this connection, uncovering several specific links to measures of personal well-being.

From a public policy standpoint, this research confirmed the tremendous importance of physical fitness in enhancing quality of life among mature women. In Age Wave, Dychtwald stated that "becoming more than we've ever been before is the point of extended life" (p. 342). Physical fitness may be key to becoming more, and should be actively promoted.

Effort and funding should be devoted to encouraging the elderly to make physical fitness a key part of their lives and contributing to enhanced quality of life. Marketers can help in this endeavor, by depicting active elderly in their advertisements. Show them engaging in fitness activities, but also in restaurants, traveling, shopping, and so forth. The power of the media can always spark the power of suggestion.

APPENDIX

Dear Participant:

I would greatly appreciate your cooperation in filling out this questionnaire. It will help me to obtain information on the attitudes and behaviors of a wide range of women. I am conducting the study in partial fulfillment of the requirements for my Ph.D. at The City University of New York.

If you have any questions, please feel free to ask me or one of my assistants. Thank you very much for your help.

Sincerely,

Sylvia D. Clark
Ph.D. Candidate,
The City University of New York

CONSUMER BEHAVIOR STUDY

A. In this particular survey, I am only studying women who are at least 65 years of age. Do you qualify?

Yes _____ No _____ --> Thank you. Please return this form to me or one of my assistants.

B. More specifically, which of the following categories represents your age group?

65 to 74 _____
75 to 84 _____
85 or over _____

Respondent #

CONSUMER BEHAVIOR STUDY

1. Here are some statements about life in general that people feel differently about. Would you read each statement on the list, and if you agree with it, put a check mark in the space under "AGREE." If you do not agree with a statement, put a check mark in the space under "DISAGREE." If you are not sure one way or the other, put a check mark in the space under "?". PLEASE BE SURE TO ANSWER EVERY QUESTION ON THE LIST.

	AGREE	DISAGREE	?
As I grow older, things seem better than I thought they would be.	____	____	____
I have gotten more of the breaks in life than most of the people I know.	____	____	____
This is the dreariest time of my life.	____	____	____
I am just as happy as when I was younger.	____	____	____
My life could be happier than it is now.	____	____	____
These are the best years of my life.	____	____	____
Most of the things I do are boring or monotonous.	____	____	____
I expect some interesting and pleasant things to happen to me in the future.	____	____	____
The things I do are as interesting to me as they ever were.	____	____	____
I feel old and somewhat tired. ...	____	____	____

	AGREE	DISAGREE	?
I feel my age, but it does not bother me.	_____	_____	_____
As I look back on my life, I am fairly well satisfied.	_____	_____	_____
I would not change my past life even if I could.	_____	_____	_____
Compared to other people my age, I've made a lot of foolish decisions in my life.	_____	_____	_____
Compared to other people my age, I make a good appearance.	_____	_____	_____
I have made plans for things I'll be doing a month or a year from now.	_____	_____	_____
When I think back over my life, I didn't get most of the important things I wanted. ...	_____	_____	_____
Compared to other people, I get down in the dumps too often.	_____	_____	_____
I've gotten pretty much what I expected out of life.	_____	_____	_____
In spite of what people say, the lot of the average person is getting worse, not better.	_____	_____	_____

2. In general, would you say your health is ...? (CHECK ONE)

Very good_____ Good_____ Fair_____ Poor_____

3. Do you frequently (at least three times a week) participate in any active sports, such as swimming, jogging, tennis, bicycling, aerobics, exercise classes, or other similar activities that cause you to work up a sweat or become winded?

Yes_____ ---> SKIP to q.6a No_____

4. Do you frequently (at least three times a week) walk a mile or more at a time, about eight to twelve blocks, without resting?
Yes_____ ---> SKIP to q.6a No_____

5. Do you frequently (at least three times a week) walk a quarter of a mile, about two or three blocks, without resting?
Yes_____ No_____ ---> SKIP to q.7

6a. Which of the following is the main reason that you exercise? (PLEASE CHECK ONLY ONE RESPONSE.)

To stay in shape _____
To feel good or better (physically) _____
To stay healthy _____
For weight control _____
To relieve stress _____
To feel good about myself (psychologically) _____
For fun _____
For medical reasons _____

6b. For which other reasons, if any, do you exercise? (PLEASE CHECK ALL THAT APPLY.)

To stay in shape _____
To feel good or better (physically) _____
To stay healthy _____
For weight control _____
To relieve stress _____
To feel good about myself (psychologically) _____
For fun _____
For medical reasons _____

7. Taking all things together, how would you say things are these days -- would you say you are very happy, pretty happy, or not too happy?

Very happy _____ Pretty happy _____ Not too happy _____

8. Please indicate the extent to which each of the following statements characterizes you.

	NOT AT ALL CHARACTERISTIC OF ME	NOT VERY	SLIGHTLY	FAIRLY	VERY MUCH CHARACTERISTIC OF ME
I would describe myself as self-confident.	1	2	3	4	5
I feel confident of my appearance.	1	2	3	4	5
I am a good mixer.	1	2	3	4	5
When in a group of people, I have trouble thinking of the right things to say.	1	2	3	4	5
I would describe myself as one who attempts to master situations.	1	2	3	4	5
Other people look up to me.	1	2	3	4	5
When in a group of people, I usually do what others want rather than make suggestions.	1	2	3	4	5
When I am in a disagreement with other people, my opinion usually prevails.	1	2	3	4	5
I enjoy social gatherings just to be with people.	1	2	3	4	5
I cannot seem to get others to notice me. ...	1	2	3	4	5

	NOT AT ALL CHARACTERISTIC OF ME	NOT VERY	SLIGHTLY	FAIRLY	VERY MUCH CHARACTERISTIC OF ME
I make a point of looking other people in the eye.	1	2	3	4	5
I would rather not have very much responsibility for other people.	1	2	3	4	5
I feel comfortable being approached by someone in a position of authority.	1	2	3	4	5
I would describe myself as indecisive. ..	1	2	3	4	5
I have no doubts about my social competence. ..	1	2	3	4	5

9. Most people seem to have other "ages" besides their official or "date of birth" age. The questions which follow have been developed to find out about your "unofficial" age. Please specify which age group you FEEL you really belong to: twenties, thirties, forties, fifties, sixties, seventies, eighties, or nineties.

	20's	30's	40's	50's	60's	70's	80's	90's
I **feel** as though I am in my --	____	____	____	____	____	____	____	____
I **look** as though I am in my --	____	____	____	____	____	____	____	____
My **health** is as though I were in my --	____	____	____	____	____	____	____	____

	20's	30's	40's	50's	60's	70's	80's	90's
I **do** most things as though I were in my --	____	____	____	____	____	____	____	____
My **interests** are mostly those of a person in her -	____	____	____	____	____	____	____	____
I **think** as though I am in my --	____	____	____	____	____	____	____	____

10. Please circle the number which best represents the extent to which you agree or disagree with each of the following statements.

	AGREE						DISAGREE
I can usually achieve what I want when I work hard for it.	7	6	5	4	3	2	1
Once I make plans, I am almost certain to make them work.	7	6	5	4	3	2	1
I prefer games involving some luck over games involving pure skill.	7	6	5	4	3	2	1
I can learn almost anything if I set my mind to it.	7	6	5	4	3	2	1
My major accomplishments are entirely due to hard work and intelligence.	7	6	5	4	3	2	1
I usually do not set goals because I have a hard time following through on them. ...	7	6	5	4	3	2	1

	AGREE						DISAGREE
Bad luck has sometimes prevented me from achieving things.	7	6	5	4	3	2	1
Almost anything is possible for me if I really want it.	7	6	5	4	3	2	1
Most of what will happen to me is beyond my control.	7	6	5	4	3	2	1
I find it pointless to keep working on something that is too difficult for me.	7	6	5	4	3	2	1

11. In an average day, how many hours of television do you watch?
    Less than 1 hour .. _____
    1 to 3 hours ..... _____
    3 to 5 hours ..... _____
    5 to 7 hours ..... _____
    7 to 9 hours ..... _____
    9 to 11 hours ..... _____
    More than 11 hours _____

12. During the past year, how often have you shopped at a department store?
    Never ..... _____
    1 to 4 times _____
    5 to 8 times _____
    9 to 11 times _____
    12 to 24 times _____
    25 to 51 times _____
    52 times or more _____

13. While shopping at a department store, how much time do you normally spend?
    Less than 1 hour _____ 1 hour or more _____

14. When shopping at a department store, do you usually have an idea of what you are going to buy?
    Yes _____ No _____

15. Do you usually continue to shop after you've made the last purchase you initially planned?
Yes _____ No _____

Now, just a few additional questions for descriptive purposes only.

16. Please indicate your current employment status. (CHECK ONE)
Employed, full time _____
Employed, part-time _____
Not employed ..... _____
Retired ..... _____

17. Please indicate your marital status. (CHECK ONE)
Married ..... _____
Single ..... _____
Widowed ..... _____
Divorced ..... _____
Separated ..... _____
Living with significant other _____

18. Which of the following best describes your total household income *before* taxes? (CHECK ONE)

Under $10,000 ..... _____
$10,000 to $19,999 _____
$20,000 to $29,999 _____
$30,000 to $39,999 _____
$40,000 to $49,999 _____
$50,000 or more .... _____

19. Which of the following best describes the amount of formal education you have? (CHECK ONE)

Elementary school ..... _____
Some high school ..... _____
Completed high school ..... _____
Some college ..... _____
Completed college ..... _____
Some graduate or professional school ..... _____
Completed graduate or professional school ... _____
Other (non-college) education
beyond high school ..... _____

Thank you very much for taking the time to complete this survey. Your cooperation has been greatly appreciated. Please return this questionnaire to the interviewer or one of her assistants.

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