

Research since 1971 was evaluated in which subjective age, operationalized as self-perceived age, was the dependent variable. Five types of measures have been used to assess subjective age: identity age, comparative age, feel/age, cognitive age, and stereotype age. Bivariate and multivariate studies revealed four categories of correlates of self-perceived age: biological and physiological, demographic, psychographic and social psychological, and behavioral.
Key Words: Self-perceived age, Age identity, Self-age categorization

Subjective Age Correlates: A Research Note

Benny Barak, PhD¹ and Barbara Stern, PhD²

Subjective age has been systematically examined since the 1950s by researchers as a way of understanding the age at which individuals perceive themselves. The most recent thorough examination dates from 1971 (Peters). While the literature dealing with functional age uses "subjective age" in a variety of ways, this research note, as an update of Peters's work, is limited to self-perceived age, and, in turn, the focus is on studies in which subjective age was the dependent variable. Table 1 provides a summary of bivariate relationships between subjective age, measured by 5 different types of scales, and a wide variety of independent variables. Table 2 summarizes multivariate studies in which subjective age forms the dependent variable. Greater causality is inferred in these studies when the several variables introduced into discriminant or multiple regression analyses are interpreted as factors predictive of subjective age. Table 3 provides population and sample data of the studies reviewed.

Subjective Age Measurement

While self-perceived age can be measured in many ways (Cutler, 1982), 5 types of scales characterize this research.

1. Identity age is assessed when a respondent is asked to rank himself or herself in terms of age groups. This standard measure is typically phrased: "We would like to know how old you feel. Would you say you feel young, middle aged, old or very old?" (Markides & Boldt, 1983, p. 424).

2. Comparative age is assessed when a respondent is asked to rate himself or herself in comparison to his or her chronological age, measured by the response to a statement such as, "I feel older, the same, younger than my real age" (Baum & Boxley, 1983, pp. 533–534). Only insignificant relationships have been found between this measure and chronological age (Baum & Boxley, 1983; Jeffers et al., 1962).

3. Feel/age is determined by asking a respondent to answer a question such as, "Some people have told us that they feel a different age — either older or younger — than their actual age. What age do you feel on the inside?" (Underhill & Cadwell, 1983, p. 18). Unlike identity or comparative age, this measure is continuous in nature and elicits a numerical response.

4. Cognitive age incorporates feel/age, and adds the three other age dimensions suggested by Kastenbaum et al. (1972): look/age, do/age, and interest/age. The respondent is asked to describe his or her age by checking off decades — ranging from the pre-teens to the 80s — as responses to four statements: "I feel as though I am in my . . ."; "I look as though I am in my . . ."; "I do most things as though I were in my . . ."; "My interests are mostly those of a person in his/her . . ." (Barak & Schiffman, 1981, p. 605; Barak & Stern, 1985, p. 46). Cognitive age is then determined by averaging the responses to the four questions, and forms a continuous measure, expressed in years.

5. Stereotype age is the only measure that does not require a respondent to answer direct questions about his or her age perception. This measure relies, as does Cuptill's (1969) semantic age identification scale, on semantic differential items. George et al. (1980) used 12 bi-polar items to determine stereotype age: "insecure-secure, worthless-valuable, not free to do things-free to do things, useless-useful, look to the past-look to the future, ineffective-effective, dissatisfied-satisfied, shaky-steady, inactive-active, not respected-respected, sick-healthy, unsure-confident." Respondents rate themselves on the basis of how well these items describe them in comparison to "An Old Person" or "A Middle-Aged Person." As the discriminant function shown in Table 2 illustrates, the 12 items are predictors of age identification, enabling the use of this function's coefficients to score stereotype age (George et al., 1980).

Relationships Among Measures

In a few studies the relationships between identity age and the other measures have been considered.

¹Hofstra University, Department of Marketing & International Business, Hempstead, NY 11550.

²Kean College of New Jersey, Department of Management Science, Union, NJ 07083.

Table 1. Data-based Established Bivariate Relationships Between Subjective Age and Selected Independent Variables

Independent variables	DIR ^a	Subjective age measures	Sources
Health	(-) (-)	Comparative age Identity age	Baum & Boxley (1983); Linn & Hunter (1979) Bultena & Powers (1978); George et al. (1980); Markides & Boldt (1983); Mutran & Burke (1979); Mutran & George (1982)
# days sick	(-)	Stereotype age	George et al. (1980)
# doctor visits	(0)	Identity age	Mutran & George (1982)
# hospital	(+)	Identity age	Mutran & George (1982)
# hospital	(+)	Identity age	Mutran & George (1982)
Gender	(*) (0) (0)	Cognitive age Comparative age Identity age	Ross (1981) — data indicates women's age perception as younger. Baum & Boxley (1983); Linn & Hunter (1979) Bultena & Powers (1978); George et al. (1980); Mutran & George (1982)
	(0)	Stereotype age	George et al. (1980); Mutran & George (1982)
Race	(0) (0)	Comparative age Identity age	Linn & Hunter (1979) Markides & Boldt (1983); Mutran & Burke (1979)
Marital status	(0)	Comparative age	Baum & Boxley (1983)
Widowhood	(*) (0) (+)	Identity age Identity age Stereotype age	Markides & Boldt (1983) — unmarries perceive selves as older. George et al. (1980); Mutran & Burke (1979); Mutran & George (1982) George et al. (1980)
Education	(-) (0) (-) (-) (0) (0)	Cognitive age Comparative age Feel/age Identity age Identity age Stereotype age	Barak (1979) Baum & Boxley (1983) Underhill & Cadwell (1983) — inferred negative relationship. Bultena & Powers (1978); Markides & Boldt (1983) George et al. (1980); Mutran & George (1982) George et al. (1980)
Employment	(-) (-)	Cognitive age Feel/age	Barak (1979) Underhill & Cadwell (1983) — inferred relationship.
Retirement	(0) (+) (+)	Comparative age Identity age Stereotype age	Baum & Boxley (1983) George et al. (1980); Mutran & George (1982) George et al. (1980)
Income	(-) (-) (-) (-)	Comparative age Feel/age Identity age Stereotype age	Baum & Boxley (1983) Underhill & Cadwell (1983) — inferred relationship. George et al. (1980); Mutran & George (1982) George et al. (1980)
Social class	(-) (0) (0)	Comparative age Identity age Stereotype age	Linn & Hunter (1979) George et al. (1980) George et al. (1980)
Family ages			
Youngest child	(+)	Cognitive age	Barak & Gould (1985)
Oldest child	(+)	Cognitive age	Barak & Gould (1985)
Youngest grandchild	(0)	Cognitive age	Barak & Gould (1985)
Oldest grandchild	(+)	Cognitive age	Barak & Gould (1985)
Children	(+)	Feel/age	Underhill & Cadwell (1983)
Offspring (#)			
Children	(+)	Cognitive age	Barak & Gould (1985)
Grandchildren	(+)	Cognitive age	Barak & Gould (1985)
All offspring	(+)	Cognitive age	Barak (1979); Barak & Gould (1985)
Group membership	(+) (-)	Comparative age Identity age	Baum & Boxley (1983) George et al. (1980)
Psychographic & social traits			
Life satisfaction	(-) (-) (-) (-)	Cognitive age Comparative age Identity age Stereotype age	Barak (1979) Linn & Hunter (1979) — inferred relationship. George et al. (1980); Mutran & George (1982) George et al. (1980)
Morale	(-)	Cognitive age	Barak (1979); Barak & Gould (1985)
Ideal age	(+) (+) (+)	Cognitive age Feel/age Identity age	Barak & Gould (1985); Barak (in press) Barak (in press); Zola (1962) Barak (in press)
Affect balance	(-) (-)	Identity age Stereotype age	George et al. (1980); Mutran & George (1982) George et al. (1980)
Positive affect	(-) (-)	Identity age Stereotype age	George et al. (1980); Mutran & George (1982) George et al. (1980)
Negative affect	(0) (0)	Identity age Stereotype age	George et al. (1980); Mutran & George (1982) George et al. (1980)
Psych. health	(-)	Comparative age	Baum & Boxley (1983)
Self-esteem	(-)	Comparative age	Linn & Hunter (1979) — inferred relationship.
Self-confidence	(-)	Cognitive age	Barak (1979); Barak & Gould (1985)
Locus-of-control	(-)	Comparative age	Baum & Boxley (1983); Linn & Hunter (1979) — inferred relationship.
Purpose-in-life	(-)	Comparative age	Baum & Boxley (1983)

Table 1. Data-based Established Bivariate Relationships Between Subjective Age and Selected Independent Variables (continued)

Independent variables	DIR ^a	Subjective age measures	Sources
Traditionality	(+)	Cognitive age	Barak (1979); Barak & Gould (1985)
	(+)	Identity age	Bengtson & Cutler (1976)
Venturesomeness	(-)	Cognitive age	Barak (1979)
Homebodiness	(+)	Cognitive age	Barak & Gould (1985)
Price-sensitive	(+)	Cognitive age	Barak & Gould (1985)
Perceived risk	(0)	Cognitive age	Barak (1979)
Opinion leader	(-)	Cognitive age	Barak (1979)
Sex-traits			
Femininity	(0)	Cognitive age	Barak & Gould (1985)
Masculinity	(-)	Cognitive age	Barak & Gould (1985)
Behavioral factors			
TV viewing	(0)	Cognitive age	Barak (1979)
	(+)	Cognitive age	Barak & Gould (1985)
Radio listening	(-)	Cognitive age	Barak (1979)
	(0)	Cognitive age	Barak & Gould (1985)
Reading	(0)	Cognitive age	Barak (1979)
	(-)	Cognitive age	Barak & Gould (1985)
Shampooing	(-)	Cognitive age	Barak (1979)
Shampoo brand-switching	(-)	Cognitive age	Barak (1979)
Telephoning	(-)	Cognitive age	Barak (1979)
Dining out	(-)	Cognitive age	Barak & Gould (1985)
Exercise	(-)	Cognitive age	Barak & Gould (1985)

^aDIR = Direction of relationship.

* = Association with nominal categories (i.e., with different racial groupings)

0 = No association

+ = Positive association

- = Inverse relationship

Table 2. Multivariate Subjective Age Functions

Barak (1979)	Discriminant function with cognitive age (own age perceived to be under 55 OR 55 and over). Cognitive age = $f(+ \text{ chron. age} + \text{ traditionality} - \text{ opinion leadership} - \text{ morale} - \text{ education})$ Wilks' Lambda = .67; Canonical $r = .57$; $p < .001$; 324 White New York women aged 55–90.
Barak & Gould (1985)	Regression function with cognitive age (in years). Cognitive age = $f(+ \text{ youngest child's age} + \text{ oldest grandchild's age} - \text{ masculinity} + \text{ homebody} - \text{ time spent eating out})$ Adjusted $R^2 = .39$; $F = 42.0$; d.f. = 5; $p < .0000$; 430 New York women aged 30–69.
Barak & Stern (in press)	Discriminant function with identity age (young OR middle-aged). Identity age = $f(+ \text{ chron. age} + \text{ ideal age} - \text{ masculinity} + \text{ marital status} - \text{ health status} - \text{ playing computer games} + \text{ number of children} - \text{ shampoo frequency})$ Wilks' Lambda = .52; Chi-Square = 163.27; d.f. = 8; $p < .0000$; 567 New York women aged 25–69.
Baum & Boxley (1983)	Regression function with comparative age (older OR same/younger than real age). Comparative age = $f(- \text{ health} - \text{ psych. health} - \text{ income} - \text{ purpose in life} + \text{ institutional affiliation})$ $R^2 = .15$; $p < .01$; 242 Los Angeles residents with mean age 75.4.
Bultena & Powers (1978)	Regression function with age identity (old/elderly OR middle-aged self-identification). Age identity = $f(+ \text{ comparative index} + \text{ chron. age} - \text{ education} - \text{ health})$ Comparative index = perception of self relative to age-cohorts as being: more (+) in need of help in daily needs, less (-) frequency of sibling interaction, less (-) frequency of group participation, and less (-) healthy. $R^2 = .25$; $p < .05$; 212 Iowa residents aged 70+.
George et al. (1980); Mutran & George (1982)	Discriminant function with stereotype age (middle-aged OR old-age identification in terms of 12 semantic differential items). Stereotype age = $f(- \text{ secure} - \text{ valuable} - \text{ free to do things} - \text{ useful} - \text{ look to the future} - \text{ effective} - \text{ satisfied} - \text{ steady} - \text{ active} - \text{ respected} - \text{ healthy} - \text{ confident})$ Wilks' Lambda = .51; Canonical $r = .70$; $p < .0001$; 341 North Carolina residents aged 47–96.
Markides & Boldt (1983)	Discriminant function with age identity (young/middle-age OR old/very-old identification). Age identity = $f(- \text{ education} + \text{ chron. age} + \text{ change in health} - \text{ health status})$ Wilks' Lambda = .78; Canonical $r = .47$; $p < .01$; 209 San Antonio, Texas residents aged 60+.

Table 3. Populations Sampled in Studies Reviewed

Source (year)	<i>n</i>	Description of respondents	Age
Barak (1979)	324	White New York women	55 to 90
Barak (in press)	422	New York women	30 to 69
Barak & Gould (1985)	430	New York women	30 to 69
Barak & Stern (in press)	567	New York women	25 to 69
Baum & Boxley (1983)	308	White U.S. born Los Angeles residents	\bar{x} = 75.4
Bengtson & Cutler (1976)	2,700	National 1972 survey sample	60 +
Bultena & Powers (1978)	235	Iowa residents	70 +
George et al. (1980)	341	North Carolina residents	47 to 96
Linn & Hunter (1979)	150	Miami, Florida residents	65 +
Markides & Boldt (1983)	338	San Antonio, Texas residents	60 +
Mutran & Burke (1979)	1,170	National probability sample	18 +
Mutran & George (1982)	341	North Carolina residents	47 to 96
Underhill & Cadwell (1983)	1,009	National probability sample	18 +
Ross (1981)	386	National consumer mail panel	65 +
Zola (1962)	219	New England residents	65 +

Baum and Boxley (1983) found no association between comparative age and identity age, a finding that might indicate that comparative age measures a different type of subjective age. Identity age was found positively related to feel/age (Barak, in press). Additionally, the other three dimensions of cognitive age as well as the combined measure were also positively related to identity age (Barak, in press). Identity age and stereotype age were also reported to be positively related (George et al., 1980; Mutran & George, 1982).

Subjective Age Correlates

Researchers in many disciplines have asked the question, "Why does an individual perceive his or her subjective age to be 'X'?" Clues to the "why" have been found in the assortment of correlates shown to affect subjective age. The purpose of much of this research has been to determine whether a variable is associated with subjective age, and, if so, with what strength. Potential correlates are among the cognitive factors social gerontologists find influential in the aging process: Mangen & Peterson (1982) provided an excellent review of the operationalization of these factors. In the early 1970s, marketers became interested in age research, and they started to consider other factors possibly related to the aging process. Such related areas as information processing, communication, and leisure time behavior have become potential sources of age correlates (Barak & Gould, 1985; Barak & Stern, in press; Meadow et al., 1981; Phillips & Sternthal, 1977; Ross, 1981; Schiffman, 1972). Subjective age correlates can be schematized in four umbrella groupings of variables: (1) biological and physiological, (2) demographic, (3) psychographic and social psychological, and (4) behavioral.

Biological and Physiological Correlates

According to both bivariate and multivariate studies, self-rated good health is an inverse correlate to subjective age: the better a respondent considers his

or her physical health, the younger he or she perceives himself or herself to be (Barak & Stern, in press; Baum & Boxley, 1983; Bultena & Powers, 1978; George et al., 1980; Markides & Boldt, 1983; Mutran & Burke, 1979; Mutran & George, 1982). One multivariate longitudinal subjective age study (Markides & Boldt, 1983) has shown that both health and declining health status are associated with perceived age identity. Other nonlongitudinal multivariate studies (Barak & Stern, in press; Baum & Boxley, 1983; Bultena & Powers, 1978; George et al., 1980) also found health among the critical self-perceived age determinants. Further, Mutran & George (1982) reported that as a respondent's number of visits to a doctor and number of times hospitalized increases — both worsening of health events — a similar increase in subjective age takes place.

Demographic Correlates

1. **Chronological Age** — It seems intuitively obvious that chronological age is an important positive correlate of subjective age. This is confirmed by most researchers — so many that they are not listed in Table 1. Chronological age is also a relevant subjective age predictor variable in a multivariate context (see Table 2). The only subjective age measure that does not have chronological age as a correlate is comparative age (Baum & Boxley, 1983; Jeffers et al., 1962).

2. **Gender** — Recent data-based studies (Baum & Boxley, 1983; Bultena & Powers, 1978; George et al., 1980; Linn & Hunter, 1979; Mutran & Burke, 1979; Mutran & George, 1982) indicated that there is no association between subjective age and gender. Earlier commentaries, however, implied that women, particularly older women, tend to perceive themselves as younger than their male cohorts (Bengtson et al., 1977; Peters, 1971). This relationship requires further study, especially since a nationwide survey has generated data that strongly suggests that in general, women do perceive themselves as younger than men (Ross, 1981).

3. **Race** — No clear relationship has been found

between race and subjective age (Linn & Hunter, 1979; Markides & Boldt, 1983; Mutran & Burke, 1979).

4. **Marital Status** — No conclusive evidence exists about the relationship between either marital status or widowhood and self-perceived age. While Barak and Stern (in press) found that unmarried women (30–69) perceive themselves as younger, another study reported that unmarried men and women (60+) perceive themselves as older (Markides & Boldt, 1983). A third study (mean age 75.4) found no significant relationship between marital status and subjective age (Baum & Boxley, 1983). Conflicting evidence has also been found for widowhood. One study reported a positive relationship with subjective age when measured by stereotype age (George et al., 1980). No association is found, however, when the measure is identity age (George et al., 1980; Mutran & Burke, 1979; Mutran & George, 1983). It seems reasonable to conclude that the differing results are attributable to methodological or sample differences.

5. **Educational Status** — While some studies indicated no relationship (Baum & Boxley, 1983; George et al., 1980; Mutran & George, 1982), others have found that individuals who have risen to higher educational levels experience themselves as younger (Barak, 1979; Barak & Stern, in press; Bultena & Powers, 1978; Markides & Boldt, 1983). This finding is corroborated by multivariate studies (Barak, 1979; Bultena & Powers, 1978; Mutran & Burke, 1982), in which education has been found to be among the most important causal subjective age determinants.

6. **Employment Status** — Employment status, defined as full employment outside the home, is a subjective age correlate: fully employed individuals are likely to perceive themselves as younger (Barak, 1979; Barak & Stern, in press; Underhill & Cadwell, 1983).

7. **Retirement Status** — Retirement status is related to employment status, but not identical, since only those members of the population who have been in the measurable labor force refer to a cessation of employment at an agreed upon age as "retirement." The distinction becomes significant when one compares housewives to their spouses; housewives in a sense never retire, while their spouses clearly do. Retirement status has been found to be positively related to subjective age: retired people perceive themselves as older than their cohorts (George et al., 1980; Mutran & Burke, 1979; Mutran & George, 1982). This is consistent with Neugarten's (1977) suggestion that loss of a critical role and the associated role-status can bring about a rise in subjective age. Only one study has not found an association between retirement and subjective age, perhaps because comparative age was the measure used (Baum & Boxley, 1983).

8. **Income** — Income has been found to correlate inversely with subjective age: the higher the income level, the younger the age perceived (Baum & Boxley, 1983; George et al., 1980; Mutran & George, 1982; Underhill & Cadwell, 1983).

9. **Socio-Economic Status** — Commentaries report

that socio-economic status (SES) composite indexes are related to subjective age: individuals from the higher social class strata are more likely to perceive themselves as younger (Bengtson et al., 1977; Linn & Hunter, 1979; Peters, 1971; Rosow, 1967). There are very few empirical tests of this relationship, however, and the evidence is conflicting. One study found an inverse relationship between SES and comparative age (Linn & Hunter, 1979), while another found no association using either identity or stereotype age (George et al., 1980).

10. **Family Demographics** — This variable deals with both age and number of an individual's offspring: that is, children and grandchildren.

a. **Age of offspring/progeny:** This family demographic is positively correlated to subjective age (Barak & Gould, 1985; Underhill & Cadwell, 1983). As children and grandchildren age, a respondent's age perception becomes older. In fact, a multivariate study (Barak & Gould, 1985) has found age of offspring to be one of the main determinants of subjective age.

b. **Number of offspring/progeny:** This is also positively related to subjective age: the more children and grandchildren an individual has, the more likely he or she will see him or herself as older (Barak, 1979; Barak & Gould, 1985; Barak & Stern, in press; Underhill & Cadwell, 1983).

11. **Group Membership** — The multivariate studies of institutional affiliation of respondents provide conflicting evidence. One study (Baum & Boxley, 1983) found group membership not only positively associated with subjective age, but also a predictor variable. Another study, however, found no association between the two (George et al., 1980). Since conflicting findings are reported, more investigation is called for.

Psychographic and Social Psychological Correlates

Psychographic research, also called life-style research, is a field of study developed by the consumer behavior discipline (Wells, 1975). It aims to combine social, psychological, and behavioral characteristics to create a richer portrait of the consumer than demographics alone provide (Plummer, 1974). This goal is obtained through factor analyses of Likert agree-disagree statements to develop new research measures of social psychological traits. Social gerontological measures such as the LSI-A and LSI-Z life-satisfaction inventories (Neugarten et al., 1961; Wood et al., 1969) rely on similar methodology, and can be considered psychographic variables as well. Life satisfaction and related psychographic characteristics dealing with such issues as locus-of-control have been found to affect age perception. In general, those who feel they have more control over their lives view themselves as younger, while members of the population who have relinquished internal control view themselves as older, and show poorer psychological functioning (Baum & Boxley, 1983; Bultena & Powers, 1979; Linn & Hunter, 1979; Pugliesi & Jackson, 1978).

Several types of variables studied in social/psychological and psychographic research are related to subjective age.

1. **Life Satisfaction** — A number of studies found a greater degree of subjective well-being in terms of life satisfaction among those who identify themselves as younger (Barak, 1979; Bengtson et al., 1977; George et al., 1980; Linn & Hunter, 1979; Mutran & Burke, 1979; Mutran & George, 1982; Peters, 1971). Morale, operationalized in different ways, such as a subfactor of the LSI-Z (Barak & Gould, 1985) or in terms of the affect balance (Bradburn, 1969), has also been found inversely related to subjective age (Barak & Gould, 1985; George et al., 1980; Mutran & George, 1982). Multivariate research findings corroborate the establishment of morale, as well as psychological health, as important correlates (Barak, 1979; Baum & Boxley, 1983). A comparison of studies focusing on life satisfaction rather than subjective age shows that many correlates are common to both: for instance, health status, education, income, and social class (Adams, 1971; Blau, 1973; George et al., 1985; Larson, 1978). It is, therefore, possible that life satisfaction functions as a covariate of age perception; future research is needed to verify that assumption.

2. **Ideal Age** — Ideal or desired age is the age an individual evaluates as ideal either for himself or herself or for people in general. Desired age was shown to be positively correlated with feel/age for women, but not for men (Zola, 1962). In recent studies, ideal age was found to be positively correlated for women with both cognitive age (Barak, in press; Barak & Gould, 1985) and identity age (Barak, in press; Barak & Stern, in press). Ideal age as a self-concept trait has not yet been sufficiently explored and deserves further research.

3. **Self-Concept and Psychological Functioning Traits** — Traits such as self-esteem, self-confidence, locus-of-control, and purpose in life, are inversely related to various forms of subjective age (Barak, 1979; Barak & Gould, 1985; Baum & Boxley, 1983; George et al., 1980; Linn & Hunter, 1979; Mutran & George, 1983). Purpose in life is a factor that also appears as a predictor variable in a multivariate function of comparative age (Baum & Boxley, 1983).

4. **Consumer Behavior Traits** — Innovative consumption behavior is reflected by such psychographic traits as traditionality, venturesomeness, homebodiness, and price sensitivity. The innovative individual is one who leads in the adoption and diffusion of new ideas, products, and services, a process crucial to the success of new market offerings (Assael, 1984; Schiffman & Kanuk, 1983). The consumer behavior discipline has also paid special attention to such social traits such perceived risk and opinion leadership, which help to explain innovative behavior (Gatignon & Robertson, 1985). Blau (1973) was among the first to suggest an inverse association between innovativeness and subjective age.

a. **Traditionality:** Studies in both the disciplines of political science and consumer behavior have shown that those with younger subjective ages tend to be

less traditional and old-fashioned in outlook (Barak, 1979; Barak & Gould, 1985; Bengtson & Cutler, 1976). In a multivariate study, traditionality was found to be a determinant of subjective age (Barak, 1979).

b. **Venturesomeness:** Venturesomeness, a psychographic trait describing an individual's interest in experimenting with new ideas or products, is inversely associated with subjective age (Barak, 1979).

c. **Homebodiness:** This trait, determined through agreement/disagreement with such statements as "I am a homebody," is positively associated with subjective age. In fact, in a multivariate study, homebodiness was found to be a determinant of subjective age (Barak & Gould, 1985).

d. **Price sensitivity:** This trait, a consumer's tendency to allow purchase behavior to be dominated by price, is positively associated with subjective age (Barak & Gould, 1985). In this study of female consumers 30 to 69 years old, the older a consumer considers herself to be, the more likely she is to be concerned with the cost of goods and services.

e. **Perceived risk:** This trait refers to the degree of uncertainty an individual feels about possible consequences of a purchase decision. A lower perceived risk reflects greater innovativeness: the innovator is willing to take chances and make mistakes, and thus will try new things (Arndt, 1967; Schiffman, 1972). A test of this trait's potential as a subjective age correlate provides no evidence of any association (Barak, 1979).

f. **Opinion leadership:** This trait describes an individual's tendency to informally influence the actions or attitudes of others (Katz & Lazarsfeld, 1955; Schiffman & Kanuk, 1983). Opinion leadership is usually associated with innovativeness (Reynolds & Darden, 1971; Schiffman & Gaccione, 1974; Summers, 1970) and was established as one of the determinant subjective age factors in a multivariate study using the cognitive age measure in a population of women age 55+ (Barak, 1979).

5. **Sex Traits** — Just as chronological age is not the sole variable in age research, neither is gender the sole variable in sex-role assessments. The respondent's masculine or feminine sex traits, rather than gender alone, may represent a more accurate determinant of self-perceived age. Studies using sex traits often use the BSRI, the Bem Sex Role Inventory (Bem, 1974) as a self-descriptive survey instrument enabling respondents to reveal masculine and feminine traits. Pugliesi (1983) believed that such traits as femininity and masculinity are inversely related to perceived age. Nonetheless, only masculinity was found to be an inverse subjective age correlate in multivariate functions predictive of cognitive age (Barak & Gould, 1985) as well as identity age (Barak & Stern, in press).

Behavior Correlates

Behavior is an important element in age perception, for our society encourages "age grading" on the basis of behavior considered appropriate to different age groups (Wood, 1971). Behavioral variables

have a skimpy research tradition to date. In the studies that review age research, leisure time activities are one behavioral category indicated as likely age correlates (Meadow et al., 1981; Phillips & Sternthal, 1977). There are, however, no clear findings concerning behavioral variables as subjective age correlates because of a lack of investigation. The results so far are contradictory. In a study of white women aged 55 to 90, Barak (1979) found media behavior opposite that of findings in data collected from racially mixed women aged 30 to 69 (Barak & Gould, 1985). In the 55 to 90 sample, Barak found that both television viewing and reading were not associated with self-perceived age, while radio listening was inversely related. In the 30 to 69 sample, however, very different results occurred: no association with radio listening, a positive correlation with television viewing, and an inverse relationship with reading (Barak & Gould, 1985).

Additional behavioral subjective age correlates which have been considered and found inverse are, respectively: shampoo frequency (Barak, 1979; Barak & Stern, in press) and shampoo brand switching (Barak, 1979), telephoning (Barak, 1979), dining out (Barak & Gould, 1985), exercising (Barak & Gould, 1985), and playing computer games (Barak & Stern, in press). The paucity of research indicates that further studies are needed to ascertain the association of self-perceived age and behavior.

Conclusion

While a wide number of variables with an established history of relationships to subjective age are available for the researcher, more research would be desirable in all areas documented by this note. Studies designed to assess multivariate relationships of subjective age correlates are especially needed, as well as studies specifically controlling for age and cohorts as suggested by Bengtson et al. (1985). The complex and varied nature of self-perceived age implies an equally complex set of interrelated variables whose definition and interaction still require further exploration.

References

- Adams, D. L. (1971). Correlates of satisfaction among the elderly. *The Gerontologist*, 11 (Part II), 64-68.
- Arndt, J. (1967). The role of product-related conversations in the diffusion of a new product. *Journal of Marketing Research*, 4, 292-294.
- Assael, H. (1984). *Consumer behavior and marketing action* (2nd ed.). Boston, MA: Kent Publishing Company.
- Barak, B. (1979). *Cognitive reference age among the elderly: A new concept for marketing*. Unpublished doctoral dissertation, The City University of New York.
- Barak, B. (in press). Cognitive age: A new multidimensional approach to measuring age identity. *The International Journal of Aging & Human Development*.
- Barak, B., & Schiffman, L. G. (1981). Cognitive age: A nonchronological age variable. In K. B. Monroe (Ed.), *Advances in consumer research*, Vol. 9 (pp. 602-606). Ann Arbor, MI: Association for Consumer Research.
- Barak, B., & Gould, S. (1985). Alternative age measures: A research agenda. In E. C. Hirshman & M. B. Holbrook (Eds.), *Advances in consumer research*, Vol. 12 (pp. 53-58). Provo, UT: Association for Consumer Research.
- Barak, B., & Stern, B. (1985). Fantastic at forty! The new young woman consumer. *The Journal of Consumer Marketing*, 2, 41-54.
- Barak, B., & Stern, B. (in press). Women's age in advertising: An examination of two age profiles. *The Journal of Advertising Research*, 25, 38-47.

- Baum, S. K., & Boxley, R. L. (1983). Age identification in the elderly. *The Gerontologist*, 23, 532-537.
- Bem, S. L. (1974). The measurement of psychological androgyny. *Journal of Consulting and Clinical Psychology*, 42, 155-162.
- Bengtson, V. L., & Cutler, N. E. (1976). Generations and intergenerational relations: Perspectives on age groups and social change. In R. H. Binstock & E. Shanas (Eds.), *Handbook of aging and the social sciences* (pp. 130-159). New York: Van Nostrand Reinhold Company.
- Bengtson, V. L., Cutler, N. E., Mangen, D. J., & Marshall, V. W. (1985). Generations, cohorts, and relations between age groups. In R. H. Binstock & E. Shanas (Eds.), *Handbook of aging and the social sciences* (2nd ed.), (pp. 304-338). New York: Van Nostrand Reinhold Company.
- Bengtson, V. L., Kasschau, P. L., & Ragan, P. K. (1977). The impact of social structure on aging individuals. In J. E. Birren & K. W. Schaie (Eds.), *Handbook of the psychology of aging* (pp. 327-359). New York: Van Nostrand Reinhold Company.
- Blau, Z. S. (1973). *Old age in a changing society*. New York: Franklin Watts, Inc.
- Bradburn, N. M. (1969). *The structure of psychological well-being*. Chicago: Aldine.
- Bultena, G. L., & Powers, E. A. (1978). Denial of aging: Age identification and reference group orientations. *Journal of Gerontology*, 11, 748-754.
- Cutler, N. E. (1982). Subjective age identification. In D. J. Mangen & W. A. Petersen (Eds.), *Research instruments in social gerontology: Clinical and social psychology*, Vol. 1 (pp. 437-461). Minneapolis: University of Minnesota Press.
- Gatignon, H., & Robertson, T. S. (1985). A propositional inventory for new diffusion research. *Journal of Consumer Research*, 11, 849-867.
- George, L. K., Mutran, E. J., & Pennybacker, M. R. (1980). The meaning and measurement of age identity. *Experimental Aging Research*, 6, 283-298.
- George, L. K., Okun, M. A., & Landerman, R. (1985). Age as a moderator of the determinants of life satisfaction. *Research on Aging*, 7, 209-233.
- Cuptill, C. S. (1969). A measure of age identification. *The Gerontologist*, 9, 96-102.
- Jeffers, F. C., Eisdorfer, C., & Busse, E. W. (1962). Measurement of age identification: A methodological note. *Journal of Gerontology*, 17, 437-439.
- Kastenbaum, R., Derbin, V., Sabatini, P., & Arrt, S. (1972). 'The ages of me' toward personal and interpersonal definitions of functional aging. *Ageing and Human Development*, 3, 197-211.
- Katz, E., & Lazarsfeld, P. E. (1955). *Personal influence*. New York: Free Press.
- Larson, R. (1978). Thirty years of research on the subjective well-being of older Americans. *Journal of Gerontology*, 33, 109-125.
- Linn, M. W., & Hunter, K. (1979). Perception of age in the elderly. *Journal of Gerontology*, 34, 46-52.
- Mangen, D. J., & W. A. Petersen (Eds.). *Research instruments in social gerontology: Clinical and social psychology*, Vol. 1 (pp. 437-461). Minneapolis: University of Minnesota Press.
- Markides, K. S., & Boldt, J. S. (1983). Change in subjective age among the elderly: A longitudinal analysis. *The Gerontologist*, 23, 422-427.
- Meadow, H. L., Cosmas, S. C., & Plotkin, A. (1981). The elderly consumer: Past, present and future. In K. B. Monroe (Ed.), *Advances in consumer research*, Vol. 8 (pp. 742-747). Ann Arbor, MI: Association for Consumer Research.
- Mutran, E., & Burke, P. J. (1979). Personalism as a component of old age identity. *Research on Aging*, 1, 38-63.
- Mutran, E., & George, L. K. (1982). Alternative methods of measuring role/identity: A research note. *Social Forces*, 60, 866-875.
- Neugarten, B. L. (1977). Personality and aging. In J. E. Birren & K. W. Schaie (Eds.), *Handbook of the psychology of aging* (pp. 626-649). New York: Van Nostrand Reinhold Company.
- Neugarten, B. L., Havinghurst, R., & Tobin, S. (1961). The measurement of life satisfaction. *Journal of Gerontology*, 16, 134-143.
- Peters, G. R. (1971). Self-conceptions of the aged, age identification and aging. *The Gerontologist*, 11, (Part II), 69-73.
- Phillips, L. W., & Sternthal, B. (1977). Age differences in information processing: A perspective on the aged consumer. *Journal of Marketing Research*, 14, 444-457.
- Plummer, J. T. (1974). The concept and application of life style segmentation. *Journal of Marketing*, 38, 33-37.
- Pugliesi, J. T. (1983). Self-perceived age changes in sex role self concept. *International Journal of Aging and Human Development*, 16, 183-191.
- Pugliesi, J. T., & Jackson, D. W. (1978). Age identification and self concept in later adulthood. *Psychological Reports*, 43, 789-790.
- Reynolds, F. G., & Darden, W. R. (1971). Mutually adoptive effects of interpersonal communication. *Journal of Marketing Research*, 8, 449-454.
- Rosow, I. (1967). *Social integration of the aged*. New York: The Free Press.
- Ross, I. (1981). Information processing and the older consumer: Marketing and public policy implications. In A. Mitchell (Ed.), *Advances in consumer research*, Vol. 9 (pp. 31-39). Ann Arbor, MI: Association for Consumer Research.
- Schiffman, L. G. (1972). Perceived risk in new product trial by elderly consumers. *Journal of Marketing Research*, 9, 106-108.
- Schiffman, L. G., & Gaccione, V. (1974). Opinion leaders in institutional markets. *Journal of Marketing*, 38, 49-53.

Schiffman, L. G., & Kanuk, L. L. (1983). *Consumer behavior*. Englewood-Cliffs, NJ: Prentice-Hall, Inc.

Summers, J. O. (1970). The identity of women's clothing fashion opinion leaders. *Journal of Marketing Research*, 7, 178-185.

Underhill, L., & Cadwell, F. (1983). 'What age do you feel' age perception study. *Journal of Consumer Marketing*, 1, 18-27.

Wells, W. D. (1975). Psychographics: A critical review. *Journal of Marketing Research*, 12, 196-213.

Wood, V. (1971). Age-appropriate behavior for older people. *The Gerontologist*, 11 (Part II), 74-78.

Wood, V., Wylie, M., & Sheaffer, B. (1969). An analysis of a short self-report measure of life-satisfaction: Correlation with rater judgments. *Journal of Gerontology*, 24, 465-469.

Zola, I. K. (1962). Feelings about age among older people. *Journal of Gerontology*, 17, 65-68.

SYSTED

SYSTED

SYSTED

STSTED

**SYSTEM SCIENCE IN HEALTH-SOCIAL
SERVICES FOR THE ELDERLY AND THE DISABLED**

PROCEEDINGS OF THE FIRST SYSTED INTERNATIONAL CONFERENCE

174 technical and review papers (120 English / 54 French with extensive English summary) covering all major aspects of the delivery of health-social services for the elderly and the disabled; 884 p.; 295 illustr. approx; 1000 lit. refs. approx.

PARTIAL CONTENTS

Society and the elderly
New models of service delivery
Program evaluation
Family and staff education/training
Need, utilization, cost studies

Community support service system
Home care and aid programs
Family caregiving
Sheltered housing
Specialized home services

Bio-psycho-social status measurement
Workload and quality measurement
Policy analysis
Information systems

ORDER FORM: _____ copies of SYSTED Proceedings at US \$75/copy; address _____

Make check payable and mail to C. Tilquin, EROS, University of Montréal, C.P. 6128, Succ. A, Montréal, H3C 3J7 Phone (514) 343-5973 (Eve)

SEE YOU IN PERTH, WESTERN AUSTRALIA, 16-20 November 1987, for SYSTED 87.

SYSTED 87 will be interdisciplinary. Medical, paramedical and psycho-social services professionals as well as systems analysts, management scientists, operations researchers, economists, sociologists, etc. are invited to attend, submit paper or organize sessions.

For more information, contact Dr. Duncan Boldy, Western Australian Institute of Technology, Centre for Advanced Studies, Division of Health Sciences, Kent street, Bentley 6102, Western Australia. Telephone: (09) 350-7942. Telex: AA 92983.
