

THE DISCREPANCY BETWEEN  
PERCEIVED AGE AND CHRONOLOGICAL  
AGE IN THE ELDERLY

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Master of Arts

by

Gabrielle D'Amato

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## ABSTRACT

Perceived age lags behind chronological age in the elderly. This discrepancy is well noted in the literature and is often referred to as age denial. Up to now, perceived age has only been measured by a forced choice questionnaire procedure using verbal categories (VC). In this study, two new measures of perceived age were developed, both of which gave an exact age estimate for perceived age: a direct self-report method (SA), and an indirect measure utilizing a photograph association technique (PAT).

Seventy-one elderly subjects living independently in the community were tested for the three measures of perceived age. Ninety-one percent saw themselves as middle-aged or younger, with a mean perceived age of at least 12 years less than the mean chronological age for the entire sample. Correlational analysis revealed a strong association between perceived age by self-report (SA) and the other two measures of perceived age.

Past research has associated perceived age (VC) in the elderly with socioeconomic status, health, sex, and overall stress level as it related to life events. Other research (Linn & Hunter, 1979; Gupthill, 1969) has associated perceived age (VC) with overall psychological functioning and with self concept.

Correlational analysis of the three different measures of perceived age with all the above variables revealed a strong association between perceived age (VC) and overall health when it is measured in terms of how well one feels (psychological complaints and self-reported mental disorders). In addition, an association was found between the two

measures of perceived age, VC and SA, and a more positive self-concept. The third measure, PAT, also showed some association in the expected direction.

Two surprising results were noted. No association was found between any of the three measures of perceived age and socioeconomic status, although this association is well noted in the literature. Also, a negative association between perceived age (PAT) and life stress as measured by life events was discovered.

In addition, a statistically significant multiple regression analysis was performed in which perceived age (PAT) was the dependent variable. Significantly contributing variables were perceived age (SA), sex, number of medical conditions, and number of psychological complaints.

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## CHAPTER I

### INTRODUCTION

Older persons often define themselves or identify themselves as belonging to a much younger age category than that of their actual chronological age (Riley and Foner, 1968; Peters, 1971; Bultena & Powers, 1978). These and other investigators have extensively documented that people of 65 years and older describe themselves as middle aged or younger even when it is apparent that they have moved out of these age groups. This phenomenon is referred to in the literature under various headings: "age denial" (Bultena & Powers, 1978), "perceived age" or "age perception" (Reno, 1979; Linn & Hunter, 1979), "subjective age" (Ward, 1979) and "age identification" (Guptill, 1969). For the purpose of this study the phenomenon will be referred to as "perceived age".

This phenomenon has been of interest to researchers in the field of aging since the 1950's when Tuchman and Lorge (1952) first described it. Earlier research tended to relate perceived age in the elderly to such external factors as socioeconomic status (Neugarten & Peterson, 1957), race and sex (Busse, Jeffers & Obrist, 1957). Other studies focused on variables such as state of health (Atchley, 1972) and severe negative life changes (Anderson, 1967).

In contrast, more recent research has been stressing internalized or psychological factors and perceived age. Bultena & Powers (1978) found that negative attitudes toward aging were related to younger perceived age. Furthermore, Lowenthal (1975) found that a sense of being in control of the environment creates a younger perceived age. Gupta (1969) found

more positive self concepts associated with younger age identification in men. In addition, Linn and Hunter (1978) found that a younger perceived age was associated with better overall psychological functioning. The above seems to imply in general that a younger perceived age is related to a more positive state of mental health or vice versa.

Most of the research up to the present which has investigated perceived age has made use of a questionnaire procedure, which forces the respondent to make a choice between young, middle age, elderly and/or old. Under these conditions it is not surprising that people avoid placing themselves in the category old or elderly, especially since there is a vast literature pointing to negative stereotypes and stigmatization of the concept "old" in our society (Tuchman & Lorge, 1953, 1954; Bola, 1962; Rosencranz and Nevin, 1969; Riley & Foner, 1968; McTavish, 1971; Butler, 1977). These attitudes are held not only by the young toward the old, but also by older people about the concept "old" (Harris & Associates, 1975).

It is the contention in this study that the forced choice questionnaire is unlikely to give the researcher as accurate an estimate of perceived age as is possible (Kogan, 1979). It is also hypothesized that feelings and ideas about perceived age may not be totally part of one's conscious awareness. In order to overcome this problem, and to explore perceived age further, this study will utilize a more sensitive technique. Instead of a forced choice questionnaire the participant will be shown photographs of people of different ages and asked to place himself/herself somewhere within an age-graded grouping of photographs. This technique represents a variation of one developed by Kogan (1979) in a study employing age categorization. The measure of perceived age obtained from

this photographic technique throughout this study will be called "perceived age test" (PAT), and since it represents perceived age in terms of an actual age estimate, it should reflect a more accurate underlying perception of one's felt or subjective age, then has been previously obtained. This perceived age test will be related to external variables which include sex, health and socioeconomic status, and internal variables which include self concept, anxiety and stress levels.

## CHAPTER II

## REVIEW OF THE LITERATURE

Age Perception

In all societies, differences between basic life periods such as infancy and adulthood have been recognized. In modern Western society, there has been a recent emergence of increasingly differentiated life periods (Neugarten, 1978). Childhood only became a recognized life period in the seventeenth and early eighteenth centuries, adolescence developed as a life period in the nineteenth century (Gillis, 1974). Recently middle age has been distinguished from young adulthood (Neugarten & Datan, 1974). Up to now, old age is still considered to be a single life period, although a new differentiation process of young-old and old-old is beginning to emerge. In this differentiation, the young-old would represent the newly-retired, still vigorous old person from the very old, physically infirm and socially dependent elderly person (Neugarten, 1974). As these life periods become defined they become psychologically meaningful to the individual as to where they perceive their own position as they move from youth to old age (Neugarten, 1977). In this review, the term old and elderly are used interchangeably and are in no way meant to distinguish between different age groups.

Numerous researchers have pointed to an interesting phenomenon in which elderly persons tend to deny their chronological age and tend to identify themselves with a younger age period than their chronological age would suggest (Tuchman & Lorge, 1954; Phillips, 1957; Riley & Foner, 1968;

McTavish, 1971; Guptill, 1969; Kalish, 1975; Bultena & Powers, 1978; Linn & Hunter, 1979). Phillips (1957) found that 20% of his 219 subjects who were over 65 years of age considered themselves to be elderly. Riley & Foner (1968) found that substantial proportions of people over 65 consider themselves young or middle aged, and reject the label "old" or "elderly". Bultena & Powers (1978) collected data from a 10-year longitudinal study of older persons in Iowa, U.S.A. In the initial stage, nearly 75% of a group of 235 subjects with a median age of 67 saw themselves as middle aged. Only 6% saw themselves as old. Ten years later when the subjects' median age was 76, 32% said they were middle aged. Of the respondents aged over 85 years in the restudy, 52% said they were middle aged or elderly and denied being old.

This discrepancy between perceived age and chronological age has been of interest to gerontologists for several decades and has been referred to in the literature under various headings: "age denial" (Bultena & Powers, 1978); "perceived age" or "perception of age" (Reno, 1979; Linn & Hunter, 1979); "subjective age" (Ward, 1979), and "age identification" (Guptill, 1969).

This perceived age phenomenon is of interest because it related to many aspects of psychological functioning (Linn & Hunter, 1979). In their study, Linn & Hunter investigated the discrepancy between perceived age and chronological age in persons over 65 years, and found that those subjects who saw themselves as younger than others their age had better psychological functioning. Psychological functioning was defined by tests measuring such variables of life satisfaction, self-esteem, focus of control, anxiety level, and depression level.

A similar and closely related question asked is "when does old age begin?" Tuchman and Lorge (1953) asked subjects when old age began, and found that younger subjects up to and including middle aged respondents (with a mean age of 50.3 years) assume that it starts sometime in their middle 60s. On the other hand, older subjects (mean age, 74.8 years) tended to place the onset of old age at a much later date, or denied that old age ever begins. In a national survey, Harris and Associates (1975) noted that 50% of their respondents would not give chronological age estimates when asked when old age begins. Instead they defined old age in terms of health, retirement, among others. Kogan (1979) explored onset of age periods using a set of photographs as stimulus materials on a large sample of subjects of diverse ages. He asked the subject to estimate a chronological age for each photograph, and subsequently sort the set into five age categories ranging from adolescent to aged. He found that estimates for the different age categories started at later ages when estimated by older subjects. He also found that photographs of females were perceived to attain middle age and older status at an earlier chronological age than photographs of males. This study is an improvement on the forced choice questionnaire used in previous research on perceived age since the sorting of photographs allows the respondents to establish their own age groupings. Forced choice questionnaires are not sufficiently discriminating because the categories may be too broad and therefore may force the subject to select a category that does not truly represent the subject's self perception of their subjective age.

### Time and Age Perception

Many investigators have noted the importance of differentiating and understanding two different concepts of time as they relate to the life span of an individual. Chronological time is the objective passage of calendar time. It plays an important role because it is an objective marker and determines the sequencing of many life events, some of which have become institutionalized (Bengtson & Black, 1973). It is obvious, however, that the flow of psychological or subjective time is often independent of the flow of calendar time although there seem to be relatively few studies of the ways in which subjective time is experienced (Neugarten, 1977).

Wallach and Kogan (1961) published a study in which they demonstrated that time is perceived as moving more quickly for the aged. In this study, phrases were used which described time in terms of movement similes, e.g. time is like a rushing train. The authors noted that, presumably because older people have a decreased amount of time left to live, they attach a greater value and significance to the passage of time than do young people.

Neugarten and Moore (1968) stated that, starting in middle age, both men and women become aware of a new difference in the way in which time was perceived. Life was restructured in terms of time-left-to-live rather than time-since-birth. Along with this develops the awareness that time is finite. Neugarten and Datan (1973) have discussed the relation of "life time", "social time", and "historical time" as all three interact in influencing the life course. They note that there was an internalized perception of social norms, expectations and social roles which lead to a sense of one's social age. People are socialized at different times and

have different concepts as to what age role they should play, for example the expression, "Act your age". Social roles are fixed on top of chronological age and biological indications of age. Neugarten comments that movement through various roles plus declines in health, and other age-related life changes are all indications of advancing age. Bengtson, Kasschau and Ragan (1978) comment that these indicators influence whether others will perceive the person as young, middle aged, or old. They will also influence the individual's own age perception.

#### Socioeconomic Status (SES)

According to Bengtson et al., (1977), there are three primary social status variables which explain the greatest amounts of variation in the attitudes and behaviors of individuals: socioeconomic status (SES), sex, and ethnicity (racial or national origin group). These three variables influences the life style - the life experiences and life chances that an individual in our society will have - to a great extent.

According to Hollingshead and Redlich (1958), an individual's social class position is best measured by occupational position, and education. Accordingly, the Hollingshead Index of Social Position, which is a widely used and well known test to measure class rating, was developed. Several studies have confirmed that old people from low SES groups are more likely to see themselves as old than old people with higher SES (Neugarten & Peterson, 1957; Shanas, 1962; Rosow, 1967). Neugarten and Peterson found that working class elderly identified old age as beginning at 60 years, whereas higher SES groups of elderly people estimated old age as starting at 70 years.

Neugarten and Moore (1968) also noted that SES was a powerful variable, correlating, in general, with better overall positive adjustment and better integrated personalities for all upper middle class old people. Lower SES groups, on average, showed the least integrated, least resourceful personality structures. Bengtson et al (1977) point out that class distinctions interact with aging behavior in the sense that it adds another dimension of self concept in the aged. Retired people tend to continue to identify themselves with their previous occupations. Previous occupations vary in terms of the intrinsic rewards and satisfaction associated with them.

Edward and Kleemack (1973) found that family income was the most important determinant of life satisfaction, with high SES elderly subjects showing considerably more life satisfaction than low SES elderly subjects. McTavish (1971) found that persons of higher SES tend to have more positive attitudes toward old age, whereas working class persons have more negative attitudes toward the aged.

### Ethnicity

The black population of the U.S.A., has been the most extensively studied minority group in terms of its aged population. According to Bengtson et al (1978), this was due to the fact that the black population was the only minority group sufficiently dispersed throughout the country to obtain adequate statistics.

Differences between black and white old people have been found by Busse (1957); they noted that blacks viewed themselves as older than whites of similar age. Jackson (1970) found that blacks perceive themselves as old

at an earlier age than whites, and suggests that this finding relates to their comparatively harder life. The National Urban League introduced the term "double jeopardy" in 1964 to describe the situation of all minority group elderly individuals in the sense that their disadvantages include age, poorer SES, plus all the accumulated social problems which are associated with being a member of a disadvantaged minority group. In addition, older blacks consider their health to be poorer than that of whites of comparable chronological age. They also have a shorter life span than whites, and there is evidence that their health in old age was poorer than that of whites (Bengtson et al, 1977).

Wylie (1971) points out that blacks may have a more positive attitude toward aging in that elderly blacks are more likely to be included in the family structure and regarded with respect. Jackson (1970) suggests that for aged blacks with families, the family was the primary source of assistance and group contact. According to Wylie (1971), studies of blacks by sociologists and anthropologists indicate that there was an acceptance of old age and that people can look forward to the rewards of their advanced years. Wylie notes that this differs from elderly whites and might be explained by the cultural heritage of West African values and attitudes toward aging which incorporate a respect and even veneration of age.

### Sex

Age identity was originally found to be similar for men and women (Busse et al., 1957). Riley, Foner and Associates (1968) reported that older women do not appear to label themselves old any more than do older men. Several studies, however, found that women have more negative

attitudes about aging and old people than men do (Gurin, Veroff & Feld, 1960; McTavish, 1971). Streib and Schneider (1971) found that women had a younger perceived age than men, as did Ward (1977) and Linn and Hunter (1979). Ward (1977) noted that this younger age identity may reflect a double standard of aging for the sexes whereby aging was viewed more negatively for women than for men. Williams (1977) found that women are perceived by younger subjects to age more rapidly than men do. This finding was confirmed by Kogan (1979) who found, using the photographic sorting technique described earlier, that male subjects assign female photographs to older age categories. This evidence supports the opinion put forward by Sontag (1975), in which she proposes a "double standard of aging for women" in which the idea of physical deterioration for women was more critical than for men. This might be a partial explanation of the overall finding that women, in general, have more negative attitudes toward aging and perceive themselves as having a younger age identity than men do.

### Life Changes

Lehr and Puschner (1961) found that awareness of age was due to health changes, changes in appearance, changes in intellect, and the way in which other people behaved toward the older individual. Anderson (1967) found that severe changes in life patterns such as institutionalization affect acceptance of being old. Atchley (1972) states that critical factors which make a person accept himself as old relate to 1) poor health, 2) low income, 3) institutional care, 4) retirement, and 5) loss of independence. To summarize, severe changes in life patterns which are experienced as detrimental and stressful lead to a change in the individual's own concept

of age. Keith (1977) and Ward (1977) found that negative stereotyping of old age was only weakly associated with subjective age definition as old. Instead, detrimental changes, such as declining health and diminished activities both in and out of the home were associated with older age identification. Bultena and Powers (1978) noted that those subjects who accepted the term "old" to describe themselves, typically mentioned their altered life circumstances, particularly declines in their physical independence and health. Therefore, it would appear that a series of detrimental life events force reluctant acceptance of "old". This represents a powerful factor in determining perceived age.

### Stress

Detrimental life events, which have been shown to influence perceived age, are related to the stress level of an individual. In most physiological and psychological theories of aging, the concept of stress and disease play basic roles (Eisdorfer & Wilkie, 1977). According to these authors, "stress may accelerate the aging process over a given time or it may lead to physical disease". (p. 251)

There are many definitions of stress, and the research literature on the topic is enormous. However, for the purposes of this study I will follow the concept of stress utilized by Holmes and Rahe (1967). They subscribe to a theory of stress in which every life event, regardless of social desirability, evokes an adaptation response. They assert that this adaptation response is based on bodily changes which, according to Selye (1956), represent a physiological state in which the individual prepares for "fight or flight". This physiological response results in increases

in autonomic nervous system activity as well as endocrine activity. Holmes and Rahe (1967), following Selye's theory of stress, have suggested that these physiological events - the result of life event changes - can lead to the development of illness. Lowenthal and Chiriboga (1973) have suggested that disease may be a response to stress, or it may be the event which causes stress.

The presence of emotional activity usually represents a concomitant of stress. Eisdorfer and Wilkie (1977) mention anxiety, fear, tension, depression, and somatic symptoms as typical examples of such activity.

#### Definition of Aging

The word "old" has many different meanings and connotations, all of which are relevant when we consider the phenomenon of age perception. Kalish (1975) states that "old" can be defined in terms of chronological age (e.g. 65 years) or in terms of physical changes such as posture, gait, and hair loss. These physical changes are usually incorporated in the definition of biological age which, according to Birren and Renner (1977), is defined as an "estimate of the individual's present position with respect to his potential life span". (p.4) The term "old" can also be defined in terms of behavior reflecting physical decline, for example, slower reaction time and poorer memory. This is closely related to the concept of functional age (Birren & Renner, 1977), which is "an individual's level of capacity relative to others of his age for functioning in a given human society". (p.5)

"Old" can also be defined in terms of social age. This usually refers to social roles and habitual behavior associated with these roles,

for example, grandparent, retiree (Kalish, 1975). The idea of social age also implies the notion of age appropriate behavior - whether the individual behaves younger or older than society expects. Havighurst (1957) states that "old" should be defined in terms of social competence, instead of the standard occupational roles which usually stop at 65 years. Social competence can continue well into the eighth decade, he notes.

Some of the above definitions of old are associated with negative images of aging. According to Atchley (1977), old age is a stigma, which occurs because of false stereotypes associated with it. Because of this, Atchley introduces a term, "late maturity", to cover the more positive aspects of aging. Kalish (1975) conceives of "old" as a positive concept, relating it to growth and development. Butler (1977) states that old age should be defined as a healthy time in which a unique developmental task of adapting and thriving should be the norm. Unfortunately, he finds that there are many associations within our culture through which older persons are led to believe they are "failing" as they age. This seems to refer to self worth as much as to physical decline. Kalish (1977) notes that - because of advanced technology - death now occurs mainly at old age, and consequently becomes associated with old age only. Kalish also notes that with formal education occurring mainly at an early age, the knowledge old people have accumulated throughout life is usually dated. This creates a sense of built in obsolescence in old people.

## Stereotypes

### a) How Other Groups See the Old

R.M. Butler (1975) has coined the term "age-ism", to sum up the process of systematically stereotyping and discriminating against people because they are old. Substantial literature exists to verify Butler's statement. Tuchman and Lorge (1952, 1953) showed that the elderly tend to be perceived as mentally deteriorated. Riley and Foner (1968) and McTavish (1971), in their review of the literature, found views about the old to include senile, absent-minded, rigid, meddlesome, isolated, dependent, poverty-stricken, and in poor health. Bennett and Eckman (1973) and McTavish (1971) consistently came to the conclusion that Americans hold negative attitudes toward the elderly.

Negative stereotyping of the old person is important to this study because it represents a possible explanation of the phenomenon of age denial. According to Bultena and Powers (1978), to resist being labelled "old" is to deny the personal appropriateness of these negative appraisals. They hypothesize that acceptance of the "old" identity may actually trigger off psychological disorders. They had subjects compare several aspects of their lives, such as health, financial well-being, and dependency with those of other persons their own age, in terms of "better off", "about the same", or "worse off". The authors found that substantial psychological resistance to aging is related to favorable self-comparison with the reference group.

There is some evidence to indicate some positive attitudes of other age groups toward the elderly. Bekker and Taylor (1966) found that children have ambiguous attitudes toward the aged, although contact with an elderly person within the family often results in a rejection of negative stereotypes.

Bell and Stanford (1973) were able to obtain a more positive evaluation of an older person if the description of the person was comparable to the achievements of a younger person. Crockett, Press and Osterkamp (1979) obtained similar findings, noting that in such cases the older person is seen as the exception to the rule; furthermore negative stereotypes are unaffected by the presentation of one positive individual.

Thorsen, Whatley, and Hancock (1974) and Brubaker and Powers (1976) found that better educated persons have positive stereotypes of old age. There seems to be little difference in the attitudes held toward women in relation to men. Up until the age of 50, the aging process is perceived in a similar way for both males and females. After 50, evaluations become more negative for both sexes. Males are perceived as being more effective and autonomous than females up to 75 years, and females are perceived as being more personally acceptable at all ages (O'Connell & Rotter, 1979).

b) How the Old View Other Old People

Up to this point in this study, research has been reviewed which reflected the attitudes of younger people about old people. For the purposes of this study it is useful to investigate also how the old perceive old people.

A review of the literature by Brubaker and Powers (1976) indicated that positive stereotyping of old age was reported in several studies. Kogan (1961) found that stereotyping of old age was positive or at least ambivalent among the aged of high-level occupation and/or high-level education. In a recent U.S. National Council on the Aged study (1975), Brubaker reported that older individuals within this nation-wide sample generally held more

positive attitudes toward the old. This is emphasized if the older person is in a higher income bracket. In addition, when older persons come into contact with their own contemporaries, direct experience results in the formation of more favorable attitudes (Tuchman & Lorge, 1958; Stennett & Montgomery, 1968; Weinberger & Milhan, 1975).

Some studies seem to indicate that negative stereotyping does not have a powerful effect on age perception. Guphill (1969) found that those old persons who identified themselves with the concept "old" saw the concept in a more positive light than those who identified with the concept "middle aged". Keith (1977) found that negative stereotyping of old age was only weakly associated with subjective age definition as old. Instead, detrimental life changes were the critical factors.

Harris and Associates (1975), working together with gerontologists, developed an in-depth survey in which people over 65 and people under age 65 were asked about personal qualities and activities of older persons. The survey showed that both age groups have negative stereotypes about older persons. In terms of self-image, older respondents saw old people in positive terms, i.e., warm and friendly, wise from experience. However, on the other hand, they saw old people as not good at getting things done, and not very bright or alert. In terms of activities they saw old people as sedentary, i.e., watching T.V., sleeping, thinking, etc., whereas in reality the activities of old people are similar to those of middle aged people (Harris & Associates).

The evidence on how older persons view the aged is somewhat contradictory, although more favourable than how the young view the old, and there definitely continues to be negative stereotyping.

### Self Concept

Self-concept is the image individuals have of themselves, reflecting their actual experiences and the way they perceive them. Self esteem is considered to be the affective component of self concept (Breytspraak & George, 1979; Kalish, 1975). Wylie (1960) stated that the self concept usually includes the definition of the person's attitudes, feelings and perceptions of themselves as an object. Lowenthal (1977) commented that self concept was not very precisely conceived and the term was interchangeable with self esteem identity, and ego strength.

For the purposes of this study self concept will be defined according to Fitts (1955), in which self concept is conceived as an internal frame of reference, or the way in which a person perceives himself. Fitts also includes as subsidiary concepts: "identity", which refers to the "who" and "what" one is; physical self; moral and ethical self; personal worth; family self; and social self. Fitts (1955) developed a scale to test all the above dimensions - the Tennessee Self Concept Scale.

Fitts (1955) commented that knowledge of a person's self concept is a short cut to other information such as feelings and attitudes. Kuhlen (1964) noted that well-adjusted individuals will have positive self-regarding attitudes, whereas the individual with a poor self concept will be more likely to be maladjusted, insecure, more susceptible to anxiety and threat, and lacking in self confidence.

Since it was thought to be through awareness of self that an individual interacts with the world, the self concept was assumed to be an integral part of one's personality and a particularly appropriate focus for investigating personality differences (Grant, 1967).

Social psychologists often define self concept in terms of social roles and role identities assumed by persons throughout their lifetime. Kimmel (1974) noted that many social roles have behavior associated with them, allowing individuals to take on appropriate role behavior. Guttman (1961) pointed out that such a situation (e.g. an occupational stance associated with being a judge or a teacher) produces a self for the individual to act out. The concept of role identity is the character and role a person devises for himself as an occupant of a particular social position (Lemon, Bengtson & Peterson, 1972). The term "role supports" relates to the specific support given to an individual for his role identity (Lemon, Bengtson and Peterson, 1972).

According to social role theory, individuals form their self concepts by interpreting reactions of others toward themselves.

Hurlock (1980) stated that many elderly people develop unfavorable self concepts because of unfavorable social attitudes directed toward them. On the other hand, Lemon, Bengtson and Peterson (1972) maintain that individuals form their self concepts by adulthood, so that self concepts are stabilized, only requiring occasional confirming responses from other people. According to Breytspraak and George (1977), the relationship between age and self concept was a particularly ambiguous one.

It is necessary for the purposes of this study to investigate whether self concept deteriorates with age, or whether it remains stable and/or improves. In particular, does self concept deteriorate or remain stable or improve with different age perceptions. Guptill (1969) studied self concept in older people in relation to age identification. He used the semantic differential technique to examine the concepts of: "Myself", "Middle-aged

man", and "Old man". He found a more positive self concept for elderly men who perceived themselves as middle aged.

Mason (1954) administered a number of measures of self concept and found that institutionalized indigent old people had more negative self concepts than did a group of independent middle class old people. Both in turn had more negative self concepts than did a more youthful low SES group. Individual differences among groups of old people were found to be greater than among young people, suggesting that reactions to the aging process vary substantially among individuals.

Bloom (1961) found that the relationship between age and self acceptance (positive self concept) was curvilinear, with self acceptance peaking in the 40-49 age range. Commenting on this study, Kuhlen (1964) added that the self concept becomes more favorable during periods of gain and increased status and less favorable when losses are experienced.

Kuypers and Bengtson (1973) suggested a model to explain declining self concept. Certain social life conditions, e.g., role losses, vague or inappropriate normative information, and lack of reference groups, deprive the individual of feedback concerning his self concept. This in turn leads to vulnerability and a dependence upon external sources for the person's self labelling (negative stereotypes). As role losses increase, no new roles are developed to take their place. As a result the individual develops a self concept of incompetence, uselessness, and worthlessness.

Rose (1967) commented that with the death of a spouse and/or friend, both a role change and a narrowing of the self concept occur. This happens because of the psychological dependency of the person on the friend or spouse involved. Rose also notes that sudden awareness of physical decline and/or

mental decline have been found to result in the development of negative self concepts.

According to Mass and Kuypers (1974), there are some differences in self image between men and women. Men tend to view themselves more negatively after retirement if the work role was predominant in earlier life, whereas women are more subject to the effects of current circumstances. Ward (1977) found that education and income were more important in determining male self esteem, while age-related deprivation and current activities were more important for female self esteem.

Riley and Foner (1968) reviewed the literature in this area and found that older people (as compared to younger people) are: equally likely to view their job performance as adequate; almost as likely to view their intelligence as being as good as others; more likely to consider themselves as having positive moral values; and somewhat more likely to feel adequate in their marriage and as parents.

According to Bennett and Eckman (1973) self attitudes are less affected by age than some of the concomitants of aging, namely isolation, inactivity, ill-health and institutionalization. Bischof (1976) furthers the argument by commenting that these same factors would influence the self concept of individuals of any age and are not age-specific.

In contradiction to the previous notions and findings, Neugarten (1968) suggested that in older life the self concept becomes less dependent on external factors and more dependent on an inner orientation that stresses consistency in self concept. Achtley (1977) commented that stability in self concept is related to the continuing identity with roles which were important in midlife. Once a stable self concept has developed and closure

has occurred, further social interactions or role losses will not affect self image.

Brubaker and Powers (1976) examined 47 reports of research into stereotypes of old age and found positive stereotyping of old age in some of the research in which the subjects were non-institutionalized and independent. They added that the significant variables which led to positive or at least ambivalent attitudes were independence, a high level of education, and a high level of occupation. The authors suggested that some aged individuals were able to incorporate selectively positive elements into their self concept and therefore a self definition as old does not necessarily assume a negative self-concept. Kaplin and Pokorny (1970) reported data that suggest that for some aged an acceptance of a self concept as old is considered desirable and bolsters self-evaluation.

Secord and Bachman (1974) hypothesized that individuals will actively attempt to maintain stability of self by refusal to perceive negative feedback, by avoidance and devaluation of people who give negative feedback, and by downgrading those aspects of self which make one feel vulnerable. Bultena and Powers (1978) ran a longitudinal study and found those subjects who saw themselves as middle-aged used a reference group as a comparison, and continued to retain a more youthful self image when they compared their life circumstances to their own peer group. Those who accepted the word "old" for themselves mentioned their altered life circumstances - in particular, declines in their physical independence and health. This finding is confirmed by Ward, 1977. Linn and Hunter (1979) found that younger age perception in old people was associated with higher self esteem where self esteem was one of several variables measuring psychological functioning.

In summary, there are contradictory findings. It would seem that self concept can be positive in the elderly if certain conditions are met. A high level of education coupled with independence both in terms of income and way of living would seem to be some of the basic prerequisites. In addition those old people who accept "old" as an age identification and who have been able to incorporate some positive aspects of that identification will have a positive self concept. These people probably represent a small group. More typically, older people who are able to maintain a positive self concept are those who can successfully deny their correct age identification, and continue to identify themselves with a younger age category. It is hypothesized that this denial occurs because the concept "old" has overwhelmingly negative components including physical decline, loss of physical attractiveness, loss of competence, illness and negative stereotyping. It is hypothesized that age denial would therefore lead to a feeling that these unpleasant events are not associated with oneself. Age denial and the concomitant perception of oneself as being much younger than one really is could clearly have an adaptive function in that it allows one to live "as if" one is middle aged or even younger. Linn and Hunter's 1979 findings would seem to support these hypotheses. They found better overall psychological functioning, including higher self esteem, to be associated with a younger age perception.

It is further hypothesized that the defence mechanism of "denial" seems to operate adaptively for some individuals until a series of detrimental and stressful life events occur. The literature has shown that a significant number of the events usually lead to stress and the concomitants of stress, namely tension and anxiety. These, in turn, can lead to disease which may

be both the result and the cause of more stress. The sum of these events may tend to overwhelm these individuals so that the defence mechanism of age denial breaks down. If this occurs, according to Linn and Hunter, it leads on to a sort of fatalistic acceptance of one's true age. The acceptance of this reality includes incorporating into one's self concept all the previously rejected negative associations of "old" against which the individual has been defending himself. This, most probably, leads to the development of very negative feelings about oneself, ones competence, usefulnesses and self worth. And so the acceptance of old could lead to the development of a negative self concept.

The purpose of this study, will be to explore further the Linn and Hunter findings that younger age perception is associated with better overall psychological functioning within the context of the above suggested model of events.. It is predicted that there will be an association between age perception and social class, self concept, anxiety, stress and a better health level.

While the literature discussed earlier indicates a younger perceived age for women, compared to men, there is no evidence suggesting that this leads to better psychological adjustment. Consequently, sex differences will be investigated, without any specific predictions as to outcome.

In addition to the above, the phenomenon of age denial has only been investigated by the use of a questionnaire forced choice procedure in which the subjects are asked to indicate whether they feel young, middle aged and old/elderly. This method is limiting because it relies on self report and because the categories of choice are not sufficiently discriminating. Kogan has suggested that feelings and ideas about one's subjective age may

not be totally a part of one's conscious awareness and therefore not fully available for self report. A comparison utilizing a more indirect method not requiring self report will be an interesting further exploration of the concept of perceived age. As well, it would be desirable to have a technique that discriminated more finely between perceived age categories. To achieve this end the study will utilize a variation of a "photo sorting" technique developed by Kogan in which the subjects are able to place themselves along a more finely differentiated age continuum. This technique results in a more specific perceived age than the global categories of young, middle aged and old/elderly used in earlier research, and should reflect more accurately the underlying perception one has of one's 'felt' or subjective age. This new method of obtaining perceived age will be referred to as the photograph association technique (PAT) hereafter.

Using PAT, the questionnaire forced choice technique (VC) and a third measure, asking subjects to report by year how old they feel, (subjective age or SA) - intercorrelations between these three techniques will be examined.

A comparison will then be made between the perceived age found by PAT and perceived age as found by SA and the older method of the forced questionnaire to see if there is a positive correlation between them.

In addition, an attempt will be made to measure directly the denial phenomenon previously discussed. If it is operating in a majority of subjects who choose a younger age perception, then there should be a negative correlation between younger age perception and greater denial of negative attributes as measured by the denial conflict section of the Tennessee Self Concept Scale.

Hypotheses and Questions

- (1) There will be a positive correlation between perceived age as measured by (PAT) and perceived age as estimated from a forced choice questionnaire.
- (2) There will be a positive relationship between perceived age as measured by PAT and subjective age as perceived by self report (SA).
- (3) Previous research using a questionnaire procedure has shown a relationship between perceived age and sex, and SES. This study will investigate if the same relationships are maintained when perceived age is measured by the perceived age test (PAT).
- (4) Previous research has indicated a positive relationship between perceived age and self concept. It is hypothesized that the same relationship will maintain when perceived age is measured by PAT.
- (5) There will be a positive relationship between perceived age as measured by PAT and life stress as measured by the Social Readjustment Scale.
- (6) There will be a negative relationship between perceived age as measured by PAT and better overall health as measured by an abridged and amended Cornell Medical Index.
- (7) There will be a negative relationship between age perception as measured by PAT and denial of negative attributes as measured by the denial conflict section of the Tennessee Self Concept Scale.

## CHAPTER III

## METHOD

Subjects

There were 71 subjects in the study. Sixty-nine of the subjects' ages ranged from 65 to 75 years. There were two subjects whose ages were 60 and 80 respectively. The mean for the subjects' chronological age (CA) was 70.4 years ( $SD = 4.47$ ) and the range, 60 - 80 years.

The sample consisted of 70 white and one Chinese individuals. All of these persons were volunteers drawn from nine Age and Opportunity Centres, which are day activity centres for people over 60, within the city of Winnipeg, Manitoba. All subjects were living independently within the city. Since these Age and Opportunity centres are distributed in different areas of the community, it was expected that the subjects' socioeconomic status would vary considerably.

Materials

Two sets of photographs consisting of 14 female and 14 male achromatic passport sized pictures were used as the stimulus material presented to the subjects in phase 1 of the procedure. This material approximates a technique developed by N. Kogan (1979) and discussed earlier in the introduction section of this paper. The total set of 28 (14 male and 14 female) photographs represented an age spread of 40 - 79 years, each picture representing a specific age at a three-year interval

so that there will be a male and female photograph representing the 40th year, the 43rd year, the 46th year and so on up to the 79th year. The chronological age of each picture was known to the researcher since these were obtained from back copies of Time Magazine and Newsweek, publications which generally include the chronological age (CA) of the person depicted. It was considered unlikely that subjects would recognize these photographs as famous persons were excluded. Pictures were selected in terms of equal attractiveness and similarity of appearance to actual chronological age. All pictures represented white caucasians. With one exception, pictures of bespectacled persons were excluded.

#### Tennessee Self Concept Scale (TSCS)

The Tennessee Self Concept Scale was developed by W.H. Fitts in 1965, to measure or assess an individuals' self perception and concept. Fitts believes that an individual's concept of himself is highly influential in determining much of a person's behavior and also is directly related to his general personality and state of mental health.

The scale is a pencil and paper inventory suitable for administration to individuals and groups and typically takes ten to twenty minutes to complete (Fitts 1965). The scale consists of one hundred items that are self descriptive and have been derived from a number of pre-existing self concept measurea and from written self description. The subjects respond to these statements on a five point scale from "completely true" to "completely false". The counselling and research form (to be used in this study) yields many scores in the self concept domain. Scores divided into

a "self-criticism" score, a positive score which represents an internal frame of reference and which in turn yields other sub-scores: identity, self-scale factor, behavior, physical self, moral ethical self, personal self, family self, and social self. In addition there are net conflict, total conflict scores and empirical scales. In addition the TSCS includes a denial conflict section, which provides for a measure of "denial".

Normative data for the TSCS is based on a group of 626 subjects from various parts of the U.S., with equal numbers of both sexes. There is a wide range of social, economic and intellectual levels represented (Fitts, 1965).

The test-retest reliability coefficients for all sub-scores based on a two week period on sixty college students ranges from .60 to .92. Validity data is extensive, according to Fitts (1965). The TSCS is able to clinically discriminate between psychiatric patient and non-patient groups for almost every subscore of the test. The test also discriminates among patient groups and between people high in personality integration.

#### The Cornell Medical Index (CMI)

The Cornell Medical Index-Health Questionnaire is a pencil and paper health inventory containing 195 questions in informal language pertaining to a large body of medical and psychiatric data. For the purposes of this study, one or two questions have been selected from each section. This abridged version was sufficient to obtain information in general about the subject's overall health - his specific complaints, and whether these complaints have been severe enough to warrant a visit to the doctor.

Questions were selected from those sections relating to bodily symptoms and not to those relating to family history. Questions in the inventory are arranged so that a response of "yes" indicates that a bodily symptom is present.

During the course of the testing, new variables developed. It was felt they might have had an association with perceived age, and so they were incorporated into the analysis.

Some subjects spontaneously volunteered that they had suffered from a nervous breakdown or were experiencing depression, or had a "chemical addiction". These conditions were summarized under a new heading, Mental Disorder (MD).

The abridged Cornell Medical Index (see Appendix A) seemed naturally to subdivide into three basic categories: number of medical conditions from which the subject reported suffering (this became variable MD CON): number of reported psychological complaints, which emerged from positive responses to sections I, J-2, and L, (this became variable PSYCH): and number of times the subject had seen a doctor in the past year, a variable which emerged from the final question on the test (variable VISITS).

#### Social Readjustment Rating Scale (SRRS)

This is an unpublished test developed by T.H. Holmes and R.H. Rahe in 1967 in order to measure life stress. In using the SRRS, the subject simply checks off the life events that have been experienced during a specified time period.

With this particular rating procedure, life events include both

pleasant and unpleasant ones. Holmes and Rahe have developed a notion of stress which emphasizes the concept of life change by itself as being the significant contributor to the reaction of stress. Stress is defined as the intensity of the demand made upon the adaptive mechanisms of the body. It is measured in terms of intensity and length of time necessary for the person to accommodate to the life event. In order to obtain a measure for this, Holmes and Rahe obtained data from a large group of subjects who were asked to rate each item according to the intensity and length of time necessary to accommodate. Marriage was arbitrarily assigned a stress value of 50; all other items were then evaluated using this reference point. No event was found to be more than twice as stressful as marriage. Stress values ranged from 11 for a minor violation of law, up to 100 for the item death of a spouse. Ratings were then totalled for all events actually experienced to produce a Life Change Unit score.

The authors also found that illness-health problems were strongly related to the life change unit when the score was greater than 300. At that level, 79% of these events were accompanied by health problems.

### Procedure

All subjects were provided with a consent form. All subjects were seen in groups. Testing was done with the help of an assistant and total testing time was about one hour for each subject.

In the first phase of the experiment, each subject was given a randomly arranged set of same-sex photographs. The respondent was asked to write in a chronological age estimate for each photograph. The instructions were

as follows:

"Here are a set of pictures. Please mark an age for each picture in the space provided. Give your best guess. Don't take too long over each picture."

The cards were removed prior to phase 2 which consisted of the completion of various scales. A test packet was presented to each subject and consisted of the following scales:

1. The Tennessee Self Concept Scale
2. The Social Readjustment Scale
3. The Cornell Medical Index - amended and abridged.

The tests inside the package were randomly placed in the package. Initially all 9 possible sequences of test order were given a number. The sequence number for each package was then assigned by using a random number table. This assured random order so that only chance determines which sequence each subject receives. In this way position effects can be controlled for. Subjects were then asked to fill in all tests in the package.

While subjects filled in these tests, the experimenter and an assistant rearranged the previously presented photographs. This was done so that each subject would receive an arrangement of photographs based on the subject's own rankings of estimated age. The photographs were arranged from youngest to oldest. No chronological age was presented with the newly arranged pictures. It was hoped that phase 2, aside from supplying important data, would also function as an intervening task which would interfere with the memory of the subjects so that they would forget the ages they had previously assigned to the photographs. It has been shown

that providing subjects with an intervening task negatively effects recall of materials which have been previously learned. This is typically called retroactive inhibition (Norman, 1976).

In the third phase of the experiment, completed test packets were collected, and all subjects were given the set of newly arranged pictures, and the following verbal instructions:

- (1) "Use the marker provided and place it between any 2 pictures where you feel that you belong in terms of how old you feel. Give your best guess but don't take too long making your decision."

All sets of pictures will then be collected. Each subject will be given a final form on which will be written the following two questions:

- (1) "If you could put an age to it, how old do you feel yourself to be? Please be specific and write down a single number."
- (2) "If you had to choose between (1) young, (2) middle age, or (3) old, which category would you choose for yourself? Please be specific and write down one of the categories."

Finally, this test material was collected thus ending the testing session. A discussion of the research will follow.

### Statistical Analysis

The Statistical Package for the Social Sciences (SPSS; Nie, Hull, Jenkins, Steinbrenner & Bent, 1975) was used to analyze the data.

Initially a Pearson's correlation coefficient was assessed to determine the degree of relationship between perceived age, as measured by the photograph association technique (PAT), estimated subjective age (SA), and perceived age obtained through the forced choice method (VC). In addition Pearson's correlation coefficients were calculated to estimate the relationships between PAT and sex, SES, life stress, self concept and overall health.

Finally, the relationship between PAT and SES, Age, Sex, Health, Self Concept and Life Stress was examined using a multiple regression procedure in which PAT was the dependent or criterion variable and all the other variables were the independent or predictor variables.

## CHAPTER IV

## RESULTS

Description of the Sample

A description of the education level and occupation level of the sample is shown in Table 1. From this table it can be seen that almost half (47.9%) of the subjects never entered high school. Only 12.7% had received some college education. The mode for the education level fell at the 7th - 9th grade category. The mean for the subjects' education level was some high school. In addition, 42.3% of the subjects filled unskilled or semi-skilled jobs, while none of the subjects had obtained occupations in the top two occupational categories. The mode for the occupation level was at both the semi-skilled manual worker and clerical worker categories.

Table 2 represents a summary of the descriptive statistics relating to the reported medical conditions and number of visits to the doctor during the past year for all subjects. Subjects' visits to the doctor ranged from none at all in past year to one visit per week.

The subjects were asked to choose their perceived age in terms of a forced choice questionnaire in which they indicated whether they felt young, middle aged, or old. Table 4 summarizes the statistics. Over 91% of the subjects described themselves as middle aged or younger, while 8.5% described themselves as old. Perceived age also measured by two other methods which obtained a perceived age in terms of a specific number of years rather than a broad verbal category. These two new measures were

TABLE 1  
SAMPLE DISTRIBUTION BY EDUCATION  
AND OCCUPATION LEVEL

| Variable                                                   | <u>n</u> | %    |
|------------------------------------------------------------|----------|------|
| <u>Education Level</u>                                     |          |      |
| College plus                                               | 1        | 1.4  |
| College graduate                                           | 2        | 2.8  |
| Some college                                               | 6        | 8.5  |
| High school                                                | 11       | 15.5 |
| Some high school                                           | 17       | 23.9 |
| 7th - 9th grades                                           | 20       | 28.9 |
| Below grade 7                                              | 14       | 19.7 |
| <u>Occupation Level</u>                                    |          |      |
| Major Professionals<br>and higher executives               | 0        | 0    |
| Minor Professionals<br>and business managers               | 0        | 0    |
| Administrative personnel and<br>owners of small businesses | 11       | 15.5 |
| Clerical                                                   | 21       | 29.6 |
| Skilled manual                                             | 9        | 12.7 |
| Semi-skilled manual                                        | 21       | 29.6 |
| Unskilled                                                  | 9        | 12.7 |

TABLE 2

SUMMARY OF DESCRIPTIVE STATISTICS FOR  
MEDICAL CONDITIONS AND VISITS TO THE DOCTOR

|                                                        | Mean | Range | SD   |
|--------------------------------------------------------|------|-------|------|
| No. of Medical Conditions<br>within the past 12 months | 3.6  | 0-10  | 2.47 |
| No. of visits to Doctor<br>within the past 12 months   | 5.0  | 0-52  | 7.69 |

Table 3 summarizes the number of psychological complaints (as taken from the Cornell Medical Index reported by each subject. A total of 66.8% reported at least one psychological complaint.

TABLE 3

DESCRIPTION OF SAMPLE IN TERMS OF  
NUMBER OF REPORTED PSYCHOLOGICAL COMPLAINTS

|                                                | <u>n</u> | %    |
|------------------------------------------------|----------|------|
| No. of complaints within<br>the last 12 months |          |      |
| 0                                              | 23       | 32.0 |
| 1                                              | 27       | 38.0 |
| 2                                              | 19       | 26.0 |
| 3                                              | 2        | 2.8  |

estimated by an indirect method, PAT, in which the subjects placed themselves somewhere within a series of age-graded photographs, and by a direct self report method, SA, in which the subjects estimated to a year how old they perceived themselves to be. The frequency distributions of these two measures are summarized in Figure 1. The mean for PAT was 56.0, the range, 31 - 78 years, and the SD, 10.0. The mean for SA was 57.9, the range, 25 - 80 years, and the SD, 11.4.

TABLE 4

PERCEIVED AGE FOR ALL SUBJECTS AS  
MEASURED BY VERBAL AGE CATEGORIES

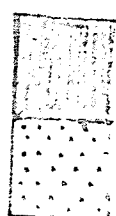
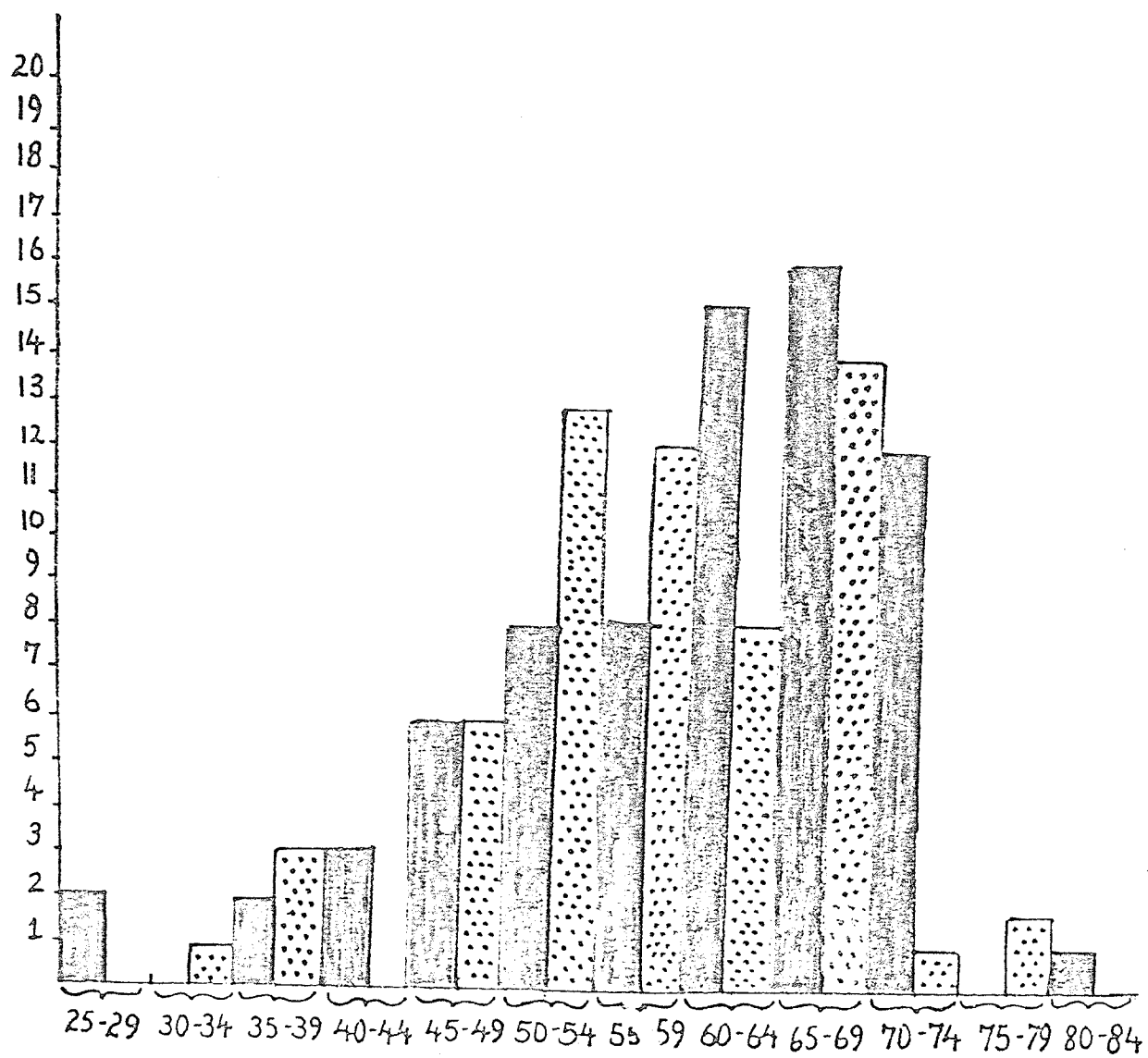
| Verbal Category | <u>n</u> | %    |
|-----------------|----------|------|
| Young           | 11       | 15.5 |
| Middle Aged     | 54       | 76.1 |
| Old             | 6        | 8.5  |

Both the PAT and SA measures of perceived age gave a mean age at least 12 years younger than the mean CA, for the entire sample.

In addition, Table 5 summarizes the descriptive statistics of all age estimates for the 14 photographs each subject saw. The table shows that there is a tendency for the younger photographs to be judged as older than their chronological age, and for the older photographs to be judged as younger than their chronological age, for both sexes. Both men and women were less consistent when judging the younger photographs and more consistent when the chronological age of the persons depicted in the photographs was nearer to their own age.

FIGURE 1

FREQUENCY DISTRIBUTION OF PERCEIVED  
AGE ESTIMATES FOR SA AND PAT



SA

PAT

TABLE 5  
SUMMARY OF DESCRIPTIVE STATISTICS  
FOR ALL AGE ESTIMATES OF ALL MALE AND FEMALE PHOTOGRAPHS

| C.A. | MALE  |           | FEMALE |           |
|------|-------|-----------|--------|-----------|
|      | Mean  | <u>SD</u> | Mean   | <u>SD</u> |
| 40   | 47.06 | 13.82     | 44.86  | 12.28     |
| 43   | 51.58 | 14.93     | 40.97  | 15.63     |
| 46   | 50.62 | 9.90      | 49.59  | 11.82     |
| 49   | 60.20 | 8.25      | 51.68  | 12.36     |
| 52   | 55.41 | 10.28     | 59.68  | 8.08      |
| 55   | 58.20 | 9.60      | 48.79  | 10.91     |
| 58   | 58.75 | 8.55      | 55.02  | 10.67     |
| 61   | 63.89 | 7.32      | 57.88  | 10.64     |
| 64   | 61.10 | 9.29      | 54.64  | 11.62     |
| 67   | 58.96 | 7.67      | 56.88  | 10.19     |
| 70   | 67.89 | 10.34     | 64.69  | 8.74      |
| 73   | 66.03 | 8.42      | 68.50  | 9.56      |
| 76   | 71.10 | 6.23      | 66.93  | 7.34      |
| 79   | 77.27 | 7.75      | 75.20  | 8.92      |

Overall, the male subjects seemed to be more consistent in their judgements than the women. Because male and female subjects were looking at different sets of stimuli, it is not clear at this stage whether this greater consistency is related to the subjects' judgement or the stimuli presented. There may be more clues when determining the age of males, i.e. baldness, differential use of cosmetics.

The next variable to be investigated was stress level. This was measured by the Social Readjustment Rating Scale (SRRS), which has the subject check the number of life events experienced during the past twelve months. One subject did not provide data. The mean for the scores on the SRRS was 155.4, the range varied from a score of 12 to a score of 410, and the SD was 99.5. Holmes and Rahe found, with a younger population, that a mean score of 300 and above had a strong association with health problems.

The final variable investigated was self concept. The results of the score for the Tennessee Self Concept Scale (TSCS) are summarized in Table 6. Overall self esteem is based on a total positive score and represents an internal frame of reference for the respondents. The mean score for the entire sample was 348.9, which is well within the normal range of 315-420. The lower limit of the sample range is somewhat below the lower limit of the normative range.

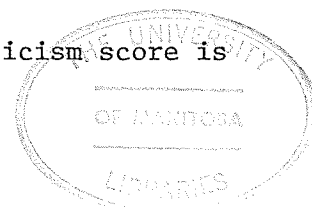
TABLE 6  
DESCRIPTION OF SCORES OBTAINED FROM THE  
TENNESSEE SELF CONCEPT SCALE FOR ALL SUBJECTS

|                     | Mean  | Range   | <u>SD</u> |
|---------------------|-------|---------|-----------|
| Overall Self Esteem | 348.9 | 265-400 | 31.0      |
| Total Net Conflict  | 15.6* | -31-74  | 24.1      |
| Total Conflict      | 41.0  | 18-74   | 13.8      |
| Self Criticism      | 31.7  | 14-48   | 6.4       |

\*1.6 score units above norms

The subscore Total Net Conflict relates to the degree of stress one lays on one's positive or negative attributes. Positive scores mean that the subject is over-affirming his/her positive attributes, and negative scores means that the subject is over-denying his/her negative attributes. A high negative score on this subscore indicates that a denial mechanism is operating for that particular subject and would be expected to affect the subject's perceived age. The high positive score for the group as a whole indicates a tendency on the part of the group to over-affirm their positive attributes rather than to over-deny their negative attributes.

Total Conflict is a further subscore which represents a subject's level of general confusion in taking the TSCS. The normal range is from 13.5 to 42.0. The sample mean of 41.0 is just inside these norms, indicating that the upper level of the sample range ranges far above the normative upper level. This points to a trend in this particular group to show some confusion in overall scoring of the TSCS. The Self Criticism score is



within the normal range, and therefore indicates that the group as a whole showed a healthy tendency to be self-critical.

### Major Hypotheses

#### Multiple Regression

A simultaneous multiple regression analysis was performed on the data using PAT as the dependent variable and all the aforementioned variables as the independent variables in order to see how much of the variance of PAT could be accounted for. Multiple regression was chosen as the appropriate statistical method since attribute variables were being investigated. In many instances these variables are correlated and therefore it would have been almost impossible to set up equal numbers for each variable category. Subprogram regression of the Statistical Package for the Social Sciences (Nie, Hull, Jenkins, Steinbrenner, & Brent, 1975) was used to conduct the analysis. Table 7 represents the regression statistics obtained. Only variables that uniquely accounted for a significant proportion of the variance of PAT at the .05 level are presented. Medical Conditions is included because its F value is close to significance at the .05 level.

The multiple R indicates that 65% of the variance of PAT can be explained by all the independent variables (R = .809; df = 31, 38; p < .01). The four variables, Subjective Age, Psychological Complaints, Sex, Medical Conditions, together account for approximately 30% of the total or half of the explained variance in PAT.

The simple correlation between SA and PAT is .46 and SA accounts for 21% of the total variance in PAT. In the multiple regression analysis SA uniquely accounts for 19% of the variance and accounts for 19% of the

TABLE 7  
SIMPLE REGRESSION ANALYSIS FOR  
PREDICTING PERCEIVED AGE

| Variable                 | Simple <u>r</u> | <u>r</u> sq. change | <u>df</u> | <u>p</u> |
|--------------------------|-----------------|---------------------|-----------|----------|
| SA                       | .46             | .19224              | 1/38      | < .05    |
| Psychological complaints | .10             | .07251              | 1/38      | < .05    |
| Sex                      | -.18            | .03527              | 1/38      | < .05    |
| Medical conditions       | .08             | .009                | 1.38      | > .05    |

Note: Multiple R = .809  
Total variance = 65%  
F (31,38) = 2.32, p < .05

explained variance in the multiple regression analysis. This indicates that the unique effect does not change when all the other variables are added to the regression equation. This implies that SA, another measure of perceived age, although significantly overlapping with PAT, is not redundant with the other independent variables.

#### Pearson's Product Moment Correlations

The Pearson's Product Moment Correlations for all the hypotheses, with the r values and p values, are summarized in Table 8. Hypothesis 1 stated that there would be a positive relationship between the photograph association indirect method of obtaining perceived age (PAT) and the forced choice verbal age stage method of obtaining perceived age (VC). It was not substantiated, although there was a tendency in the predicted direction (r = .16; p = .08). The third measure of perceived age, SA,

TABLE 8

PEARSON PRODUCT-MOMENT CORRELATIONS OF THREE DIFFERENT MEASURES OF  
PERCEIVED AGE WITH VARIABLES RELATED TO HYPOTHESIS TESTING

| Variables          | VC       |          | SA       |          | PAT      |          |
|--------------------|----------|----------|----------|----------|----------|----------|
|                    | <u>r</u> | <u>p</u> | <u>r</u> | <u>p</u> | <u>r</u> | <u>p</u> |
| VC                 |          |          | .40      | .00**    | .16      | .08      |
| SA                 | .40**    | .01      |          |          | .46      | .00**    |
| Sex                | -.11     | .17      | -.07     | .28      | -.18     | .06      |
| Education          | .08      | .24      | -.00     | .49      | .08      | .23      |
| Occupation         | .01      | .44      | .00      | .47      | .06      | .28      |
| Medical Conditions | .13      | .13      | .15      | .10      | -.08     | .25      |
| Visits to Doctor   | .08      | .24      | -.01     | .45      | -.08     | .24      |
| Psych. Complaints  | .24      | .02*     | .12      | .14      | .10      | .19      |
| Mental Disorders   | .25      | .01**    | .10      | .18      | .16      | .08      |
| SRRS               | .11      | .18      | -.02     | .42      | -.20     | .04*     |
| TSCS Self-Esteem   | -.26     | .01*     | -.20     | .04*     | -.16     | .09      |
| TSCS-TNC           | -.03     | .38      | -.10     | .19      | .11      | .17      |
| TSCS-TC            | .03      | .37      | -.03     | .38      | .16      | .08      |

\* Significant at  $p \leq .05$

\*\* Significant at  $p \leq .05$

was significantly associated with VC ( $r = .40$ ;  $p \leq .01$ ).

Hypothesis 2 stated that there would be a positive relationship between PAT, an indirect measure of perceived age, and SA, a direct measure of perceived age. This was supported by the data ( $r = .46$ ;  $p \leq .01$ ).

Hypothesis 3 stated that women would show a younger perceived age than men. It was not substantiated, although there was a trend in the predicted direction between the variables sex and PAT ( $r = .18$ ;  $p = .06$ ). The second part of Hypothesis 3 was not supported as there was no significant relationship found between any measure of perceived age (PAT, SA, and VC) and socioeconomic status as measured by education level and occupation level.

Hypothesis 4 stated that younger perceived age would be positively related to higher self esteem. This hypothesis was supported in that two of the three measures of perceived age -- VC and SA -- were positively related to self concept (respectively for VC and SA,  $r = .26$ ;  $p \leq .01$ ;  $r = -.20$ ;  $p \leq .05$ ). The third measure, PAT, was not significantly related to overall self esteem, although there was some association between the two variables ( $r = -.16$ ;  $p = .09$ ).

Hypothesis 5 predicted that there would be a positive relationship between perceived age and life stress as measured by the SRRS. Results indicated that perceived age, as measured by VC and SA, was not significantly correlated with life stress and thus contradicts the hypothesis. However, a significant negative relationship was found between perceived age, as measured by PAT, and SRRS ( $r = .20$ ;  $p = .04$ ). This finding implies that people with a younger perceived age tend to have experienced more life stress (i.e. more life events) than those with older perceived age, although the effect of chronological age on these findings is still unclear.

Hypothesis 6, which stated that subjects who had younger perceived ages as measured by PAT would have better overall health, was not substantiated when health was measured in terms of medical conditions ( $r = .08$ ;  $p = .25$ ) and number of visits to the doctor ( $r = -.08$ ;  $p = .24$ ). There was, however, a significant relationship between perceived age (VC) and overall health when health was measured in terms of psychological complaints ( $r = .24$ ;  $p = .02$ ) and self-reported mental disorders ( $r = .25$ ;  $p \leq .01$ ).

Hypothesis 7 stated that subjects with a younger perceived age would be more likely to deny their negative attributes as measured by total net conflict on the TSCS. It was not substantiated on any of the three measures of perceived age.

#### Supplementary Findings

Because of the exploratory nature of the present research, more information was obtained by computing Pearson product moment correlations for all pairs of variables. Table 9 represents a correlation matrix of all the variables. In addition, a correlation matrix of all variables were computed holding CA constant (Table 10). This was done to assure that CA was not influencing other variables. The matrix indicates no significant changes in the interrelationships between all the variables when CA is held constant.

Education level correlated significantly with total conflict -- a subscore on the TSCS ( $p \leq .01$ ). This indicates that subjects with lower education levels tended to show confusion in their responses on the TSCS.

TABLE 9  
PRODUCT MOMENT CORRELATIONS AMONG ALL VARIABLES

|        | SEX  | ED    | OCC  | DTH  | VC    | SA    | PAT   | SRRS | CA   | CON   | VSTS | MI    | PSY   | TSCS   | TNC    | TC    | SC    |
|--------|------|-------|------|------|-------|-------|-------|------|------|-------|------|-------|-------|--------|--------|-------|-------|
|        |      |       |      |      |       |       |       |      |      |       |      |       |       |        |        |       |       |
| SEX    | -.12 | -.10  | -.12 | -.11 | -.07  | -.18  | -.12  | -.12 | -.13 | -.00  | .04  | -.02  | .20*  | -.09   | -.28** | -.12  | -.08  |
| ED     |      | .63** | .02  | .08  | -.00  | .08   | -.04  | -.04 | .12  | .17   | -.03 | .11   | .02   | .18    | .49**  | .42** | .42** |
| OCC    |      |       | .12  | .01  | .00   | .06   | -.05  | -.05 | .05  | .01   | -.04 | .05   | .06   | .05    | .37**  | .16   | .02   |
| DTH    |      |       |      | .07  | .07   | -.16  | .44** | .01  | .09  | .09   | -.10 | -.02  | .25*  | -.27** | -.01   | -.11  | .08   |
| VC     |      |       |      |      | .40** | .16   | .11   | -.06 | .13  | .13   | .08  | .25*  | .24*  | -.26*  | -.03   | -.03  | .09   |
| SA     |      |       |      |      |       | .46** | -.02  | .13  | .15  | .15   | -.01 | .10   | .12   | -.20   | -.10   | -.03  | .09   |
| PAT    |      |       |      |      |       |       | -.20* | .09  | -.08 | -.08  | .08  | .16   | .10   | -.16   | .11    | .16   | -.25* |
| SRRS   |      |       |      |      |       |       |       | .00  | .22* | .07   | .07  | .06   | .32** | .16    | -.07   | -.25* | .24*  |
| CA     |      |       |      |      |       |       |       |      | .00  | -.08  | -.08 | -.06  | -.07  | .09    | .30**  | .32** | -.07  |
| MD CON |      |       |      |      |       |       |       |      |      | .38** | .16  | .45** | -.12  | -.03   | -.03   | -.08  | .15   |
| VSTS   |      |       |      |      |       |       |       |      |      |       | .21* | .29** | -.01  | .01    | .01    | .00   | .00   |
| MI     |      |       |      |      |       |       |       |      |      |       |      | .24*  | -.24* | -.11   | -.02   | -.23  |       |
| PSY    |      |       |      |      |       |       |       |      |      |       |      |       | .33** | -.13   | -.23*  | .01   |       |
| TSCS   |      |       |      |      |       |       |       |      |      |       |      |       |       | .35**  | .20*   | .06   |       |
| TNC    |      |       |      |      |       |       |       |      |      |       |      |       |       |        | .70**  | .15   |       |
| TC     |      |       |      |      |       |       |       |      |      |       |      |       |       |        |        |       | .02   |
| SC     |      |       |      |      |       |       |       |      |      |       |      |       |       |        |        |       |       |

\* p ≤ .05  
\*\* p ≤ .01

NOTE: Code for variable names for the correlation matrix table is on page 50.

TABLE 10

PARTIAL CORRELATIONS AMONG ALL VARIABLES (CONTROLLING FOR CA)

|       | SEX  | ED    | OCC  | DTH  | VC    | SA    | PAT   | SRRS  | CA   | MD    | CON  | VSTS  | MI     | PSY    | TSCS   | TNC   | TC | SC  |
|-------|------|-------|------|------|-------|-------|-------|-------|------|-------|------|-------|--------|--------|--------|-------|----|-----|
| SEX   | -.10 | .08   | -.11 | -.12 | -.05  | -.17  | -.12  | -.12  | -.00 | .03   | .02  | .19   | .11    | -.25** | -.08   | -.10  |    |     |
| ED    |      | .62** | .02  | .09  | -.01  | .07   | .04   | .04   | .17  | -.03  | -.11 | .04   | .16    | .47**  | .40**  | .03   |    |     |
| OCC   |      |       | .12  | .02  | -.00  | .06   | .06   | .06   | .01  | -.05  | .04  | .09   | .03    | .36**  | .15    | .04   |    |     |
| DTH   |      |       |      | .07  | .07   | -.16  | .44** | .44** | .09  | -.10  | -.02 | .26** | .28**  | -.02   | -.12   | .14   |    |     |
| VC    |      |       |      |      | .42** | .17   | .11   | .11   | .13  | .07   | .25* | .24*  | -.26** | -.01   | -.01   | .09   |    |     |
| SA    |      |       |      |      |       | .45** | -.02  | -.02  | .15  | -.00  | .11  | .14   | -.22*  | -.15   | -.08   | -.10  |    |     |
| PAT   |      |       |      |      |       |       | -.20* | -.20* | -.08 | -.07  | .17  | .11   | -.17   | .09    | .14    | -.25* |    |     |
| SRRS  |      |       |      |      |       |       |       |       | .22* | .07   | .06  | .32** | -.16   | -.08   | -.27** | .24*  |    |     |
| CA    |      |       |      |      |       |       |       |       |      |       |      |       |        |        |        |       |    |     |
| MD    |      |       |      |      |       |       |       |       |      | .38** | .16  | .45** | -.12   | -.04   | -.09   | .15   |    |     |
| VSTS  |      |       |      |      |       |       |       |       |      |       | .21* | .30** | -.01   | .03    | .03    | .00   |    |     |
| MI    |      |       |      |      |       |       |       |       |      |       |      | .24*  | -.24*  | -.10   | -.00   | -.24* |    |     |
| PSYCH |      |       |      |      |       |       |       |       |      |       |      |       | -.31** | -.11   | -.21*  | -.00  |    |     |
| TSCS  |      |       |      |      |       |       |       |       |      |       |      |       |        | .33**  | .17    | .08   |    |     |
| TNC   |      |       |      |      |       |       |       |       |      |       |      |       |        |        | .67**  | .19   |    |     |
| TC    |      |       |      |      |       |       |       |       |      |       |      |       |        |        |        |       |    |     |
| SC    |      |       |      |      |       |       |       |       |      |       |      |       |        |        |        |       |    | .00 |

\*  $p \leq .05$ \*\*  $p \leq .01$ 

NOTE: Code for variables names for the correlation matrix table is on page 50.

CODE FOR VARIABLE NAMES FOR THE CORRELATION MATRIX TABLE

SEX = Sex of subject (Male = 1, Female = 2)

ED = Education level of subject

OCC = Occupation level of subject

DTH = Death in the family

VC = Perceived age using the forced choice questionnaire method

SA = Perceived age - actual year estimate - self report

PAT = Perceived age - photograph association technique

SRRS = Social readjustment rating scale

CA = Chronological age

MC CON = Number of medical conditions in the last year

VSTS = Number of visits to the doctor

MI = Mental Disorder - subject self report

PSY = Number of Psychological complaints

TSCS = Tennessee Self Concept Scale

TNC = Total net conflict in TSCS

TC = Total Conflict in TSCS

SC = Self criticism in TSCS

SRRS correlated significantly with medical conditions ( $p = .05$ ) and psychological complaints ( $p = .01$ ). This indicates that subjects who have more stress as measured by SRRS tend to have more medical conditions and more psychological complaints.

Sex correlated significantly with number of reported psychological complaints ( $p \leq .05$ ). This indicates that women expressed more psychological complaints than men. In addition, a negative correlation was established between the variables sex and TNC ( $p \leq .01$ ). This indicates that women tended to deny their negative attributes as measured by the TSCS.

Fourteen of the 71 subjects had experienced a death in the family within the last year. The variable "death in the family" had a significantly negative correlation with overall self esteem ( $p \leq .01$ ), and self identity, a subscore on the TSCS ( $p \leq .01$ ). This indicates that subjects who have recently experienced a death in the family tend to have lowered self esteem and lowered self identity. In addition, death in the family is associated with number of psychological complaints ( $p \leq .05$ ).

PAT correlated significantly with the lowest age estimate on the photo association technique ( $p \leq .01$ ), indicating that subjects with a younger perceived age tended to make their youngest age estimates younger than people with older perceived ages.

A positive relationship was discovered between chronological age and both TNC and TC ( $p \leq .01$ ) on the TSCS. This suggests that older subjects tended to have more difficulty responding to the TSCS, and also that they tended to stress their more positive attributes as measured by the TSCS.

## CHAPTER V

### DISCUSSION

Discrepancy between chronological age and perceived age has been well noted and documented in the literature in terms of forced choice verbal age stage categories (VC). Before this study, no known precise measure of perceived age had been assessed. Two new measures of perceived age were developed for this study, both of which gave an exact age estimate for perceived age. These measures pointed to an approximate age lag of 13 years for people who were between the ages of 65 and 75 years and living independently within the community. The sample in this study were representative of a young-old category (Neugarten, 1974), the members of which were all actively involved users of senior citizen centres in Winnipeg (Age and Opportunity Centres). It was likely, therefore, that these people were less predisposed to deny their aging. Almost all of the subjects (91%) referred to themselves as middle aged or younger, a larger percentage than previous research has found (Bultena and Powers, 1978). These results were particularly surprising in light of the fact that perceived age lag is often referred to in the literature as a form of age denial.

Different methods of measuring perceived age may not be synonymous or interchangeable. The verbal category method (VC), with only three categories of choice, is limiting because it is global and does not discriminate finely. It includes the word "old" as one of the choice categories, forcing the individual to deal with all the negative associations which our culture connects with that word. Most of the

subjects in this sample quite spontaneously gave a subjective definition that feeling old (VC) meant not feeling well enough to carry on the planned activity of their day. They commented further that their age identification fluctuated from day to day. In an overall sense, most subjects did not identify themselves as old because they were feeling well enough and active enough to carry on with their daily functions. The subjective age method (SA) avoids all the problems associated with the word "old" by asking the subject to estimate the precise year in which he feels he belongs. Like the forced choice verbal age stage questionnaire, (VC), the subjective age method (SA) asks the subject to make a self-conscious decision, a problem which the photograph association technique (PAT) avoids. PAT attempts to tap perceived age indirectly, since feelings and ideas about perceived age may not be totally part of one's conscious awareness. The low intercorrelation between PAT and VC strongly suggests that perceived age is a more complex phenomenon than has been postulated in the past when VC was the only measure used. The results of this study suggest that although there is a large overlap between PAT and SA, and between SA and VC, all three measures are different aspects of the same phenomenon, with PAT and VC being almost completely discreet measures.

Past research has indicated that acceptance as old is strongly related to poor health and severe changes in life patterns which were experienced as detrimental and stressful. The six subjects who described themselves as old in this study reflected a somewhat similar pattern. Half of the six reported mental disorders, two had experienced a death in the family within the past year, and two were part of a centre that was shutting down.

The literature review indicated that socioeconomic status (SES) is

a powerful variable affecting differences in age perception. This study did not find any association between SES, as measured by occupation and education levels, and age perception. There may be two reasons for this contradictory finding. Firstly, no subject in the entire sample filled the top two occupation level categories -- lesser professionals/business managers and major professionals/higher executives -- thereby limiting the range and decreasing the likelihood of correlation. People who belong to these two top categories may experience their time after retirement very differently from people in the lower categories. Secondly, many of the subjects reported that they had suffered economic hardships most of their working lives, and that they were presently enjoying comparative comfort and leisure time, which they were filling with pleasant activities in the senior centres. Previous studies which had found such a correlation between SES and younger perceived age had examined subjects who were currently suffering economic deprivation.

This study did not find a significant association between age perception (all three measures) and sex. However, sex becomes one of the significant variables in the multiple regression analysis, indicating that it has to interact with some other independent variable(s) before it can become a significant contributing factor. It could be argued that this tendency for women to have a younger perceived age than men may be due in part to the fact that the male and female subjects each saw a different set of photographs, i.e. female only saw female photos, male only saw male photos. One set of photographs may not be judged comparably to the other set, in which case the different range of age estimates for men and women might reflect stimulus differences rather than psychological

differences in the subjects. Therefore the different range of perceived ages would reflect these stimulus differences. However, it is more likely that this male-female difference is a real phenomenon since several other researchers have found this trend previously when perceived age was measured by the VC method (Ward, 1977; Linn & Hunter, 1979).

This study found no reported relationship between the three measures of perceived age and the number of medical conditions as measured by the Cornell Medical Index. These findings are in contract with previous research, which showed these two variables to be strongly related. This may be partially explained by the fact that the subjects in this study were still actively involved in community life, implying relative health. The literature indicates that declining health must be coupled with diminished activity both in and out of the home in order to produce a change in perceived age. However, this study found a significant relationship between perceived age (VC) and overall health when the latter variable was measured in terms of mental disorders and psychological complaints, both self-reported. A high score on psychological complaints indicates feelings of tiredness, an inability to sleep, and feelings of misery. These symptoms tie in closely with the subjects' own descriptions of feeling "old" (VC), which meant not feeling well enough to carry on the planned activity of the day. Therefore it is not surprising that psychological complaints was a significant predictor variable of PAT in the multiple regression analysis.

The literature had suggested a connection between life events and perceived age and therefore this study measured that relationship by attempting to correlate scores on the Social Readjustment Rating Scale

with the three measures of perceived age. The results were not significant in the expected direction, and surprisingly the data even indicated a significant relationship between more life stress and younger perceived age. The SRRS does not differentiate between perceived positive and perceived negative life events. One could argue that an elevated score could have occurred as a result of more positive events than negative events building up in the subject's scores. Therefore there would be a positive correlation between younger perceived age and positive events. An additional explanation for the unexpected result is that diminished activity has been cited as a contributing factor in older perceived age. The increased stimulation that would be associated with positive life events may have led to a younger perceived age.

If self concept is an overall image individuals have of themselves, then age perception would be expected to be a part of this self image. Linn & Hunter (1979) and Guptill (1969) found a positive association between self esteem and younger age perception. This study found a similar association between all measures of perceived age and overall self concept.

It was hypothesized that this relationship between better overall self concept and younger perceived age implied a denial of aging and the unpleasant events associated with it. This hypothesized denial phenomenon was examined using the total net conflict subscore (TNC) on the Tennessee Self Concept Scale. The underlying assumption was that denial in age perception would also be reflected by denial of negative attribution in descriptions of self concept. This denial phenomenon was not substantiated, putting into question the whole concept of perceived age lag as "age denial".

An alternative explanation for perceived age lag is related to Neugarten's notion that after midlife, perceived time is restructured for the individual in terms of time-left-to-live rather than time-since-birth. Kalish (1975) has noted that death has become associated with the word 'old'; thus, if one calls oneself young or middle aged, one delays the stage of life which is associated with death and lengthens the time-left-to-live span. Therefore, a large perceived age lag was to be expected from independent, active older people.

Butler (1977) states that old age should be defined as a healthy time in which unique developmental tasks of adapting and thriving should be the norm. Part of this adaptation process seems to be a lag in perceived age, at least in a group of elderly independent and actively involved persons. This may be part of a unique developmental task in old persons alone, or it may be a phenomenon which occurs throughout the adult lifespan. Anecdotal evidence indicates that adults of all ages experience some age lag. Further research is needed to investigate this phenomenon throughout the life span.

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## APPENDIX A

ABRIDGED CORNELL MEDICAL INDEX (AMENDED)Section A

1. Have you had trouble with your eyes in the last year?
2. Are you hard of hearing?
3. Have you had trouble with your ears in the last year?

Section B

1. Do you often catch severe colds?
2. Have you had trouble with your nose, throat or chest in the last year?

Section C

1. Has a doctor said that your blood pressure was too high or too low in the last year?
2. Have you had difficulty with your heart in the last year?
3. Have you had difficulty with your breathing in the last year?

Section D

1. Have you had serious trouble with your teeth in the last year?
2. Have you had trouble with your stomach in the last year?
3. Have you had trouble with your bowels in the last year?

Section E

1. Are your joints often painfully swollen?
2. Have you had back trouble in the last year?

Section F

1. Have you had skin trouble in the last year?

Section G

1. Have you been troubled with severe headaches in the last year?

Section H

1. Have you had trouble urinating in the last year?

Section I

1. Have you been feeling more exhausted (tired out) in this last year?

Section J

1. Have you been frequently confined to bed because of illness in this last year?
2. Have you become more unhappy and miserable because of poor health in this last year?

Section L

1. Have you had increasing difficulty falling asleep and/or staying asleep in this last year?

How many times in this last year have you been seen by a doctor?

## APPENDIX B

STATEMENT FOR SUBJECTS

The purpose of this research is to explore the way in which people tend to estimate the ages of other people, as depicted by a series of photographs. It is expected that there may be a relationship between the way in which these age estimates are made, and some personality traits connected with the persons making the estimates.

People volunteering for this project will be asked to look at a set of photographs and estimate the ages of the people photographed. They will then be asked to fill in some pencil and paper tests anonymously which will measure some personality traits.

All persons volunteering for this project will not have to fill in their names on any of the test material. Volunteers will be doing the project in groups with the experimenter.

There will be a discussion period after the testing is completed in which time the research will be fully explained.