The Relationship of Personality Trait Variables to Two Measures of Subjective Age Identity: A Symbolic Interactionist Perspective

by

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ABSTRACT

Subjective age generally refers to the age a person "feels" rather than to his or her chronological age, and is thought to be an aspect of the self-concept. Research in sociology has placed considerable emphasis on the societal influences (e.g., stereotypes, social roles) on subjective age suggested by symbolic interactionism, but the more psychological influences (e.g., habit or trait) virtually have been ignored. As another aspect of the self-concept, personality traits might contribute to people's subjective ages by influencing not only how they interpret the world around them, but how they interpret information about themselves as well. The present research involves an analysis of two large data sets. Sample 1 consisted of 241 community-dwelling adults age 55-75 years. Sample 2 involved 355 community-dwelling adults age 55-85 years. Subjects were asked the age they feel (feel age) and the age they would like to be (ideal age). The primary purpose of the present research was to examine the relationship of personality trait variables to the two different subjective age measures. Sample 1 employed the trait variables of locus of control and social desirability, whereas Sample 2 employed the neuroticism, extraversion and openness trait subscales of the NEO personality inventory (Costa & McCrae, 1985). Subjects in Samples 1 and 2 both felt and would have

liked to have been considerably younger than their chronological ages. The personality traits of internal locus of control and extraversion were (negatively) correlated with the feel age measure, whereas powerful others control, neuroticism, extraversion, and openness were (negatively) correlated with the ideal age measure. Traits were not primarily responsible for the relationships between the feel age measure and (a) physical health variables, or (b) affective state variables. Neuroticism and openness were found to alter the relationship between the ideal age measure and affective state only in Sample 2.

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CHAPTER I

INTRODUCTION

Subjective age refers to the age a person feels rather than to the actual number of years he or she has lived. Subjective age identity has long been hypothesized to be a more accurate reflection of how young or old a person is than chronological age. Marcel Proust stated,

> It is the conception of himself as old, and not the weight of his years as such, that constrains the older person to relinquish the photograph and reluctantly to substitute the mirror. (cited in Blau, 1956, p. 199)

Guptill (1969) describes subjective age as not only a self-perception in terms of age set by the limits of one's own social situation, experience and physiological condition, but a relationship between one's self and an age grouping with which one feels an affinity.

Chronological age is assumed to reflect the biological/physiological, social and psychological changes that occur throughout the lifespan (Butler, 1968, 1975; Fry, 1976). However, several researchers have questioned the utility of chronological age as an accurate measure of the aging process (Atchley & George, 1973; Barak & Schiffman, 1981; Butler, 1968, 1975; Maddox, 1970; Peters, 1971), arguing that it masks considerable variation in the biological functioning and health of individuals, the personal and social resources available to them, and the self-conceptions that exist among people of the same chronological age.

Simone de Beauvoir argued that "so long as the inner feeling of youth remains alive, it is the objective truth of age that seems fallacious" (cited in Underhill & Cadwell, 1983, p. 18).

It is well known that many elderly deny that they are old, and that they tend to identify themselves as younger than suggested by their chronological ages (Blau, 1956; Peters, 1971; Tuckman & Lorge, 1954; Zola, 1962). Studies have found that only 22-43% of adults over the age of 50 feel their chronological age (Barak & Schiffman, 1981; Barnes-Farrell & Piotrowski, 1989; Baum & Boxley, 1983; Terpstra, Terpstra, Plawecki, & Streeter, 1989). Even fewer older adults (0-20%) identify themselves as feeling older than their chronological age (Barak & Schiffman, 1981; Barnes-Farrell & Piotrowski, 1989; Baum & Boxley, 1983; Underhill & Cadwell, 1983). On average, individuals with older subjective ages have been found to feel between four and seven years older than their chronological age (Terpstra et al., 1989; Underhill & Cadwell, 1983). Meanwhile, studies have found that 50-80% of older adults indicate that they feel younger than their chronological age (Barnes-Farrell & Piotrowski, 1989; Terpstra et al., 1989; Underhill & Cadwell, 1983). Individuals, on average, may feel as few as six years younger than their chronological age (Osteen & Best, 1985), although in most studies, older adults, on average, report feeling between twelve and fifteen years

younger than their chronological age (Osteen & Best, 1985; Terpstra et al., 1989; Underhill & Cadwell, 1983; Zola, 1962). Thus, chronological age may be a convenient means of ordering developmental data, but it also may be a poor index of the aging process (Peters, 1971).

This is not to suggest that chronological age is a useless or irrelevant measure. In fact, the concept of subjective age allows for the possibility that for some people, chronological age is a perfectly accurate reflection of the aging process. Importantly though, subjective age may be something entirely different from, or even something in addition to chronological age. It is this flexibility in the concept of subjective age that makes it not only more appealing, but possibly a more accurate reflection of an individual's aging process than chronological age.

CHAPTER II

LITERATURE REVIEW

In this review of the literature, three major areas will be discussed. First, the theoretical perspectives relevant to the study of subjective age will be examined. This review of the theoretical perspectives is unique in that (a) studies of subjective age usually have not been theoretically grounded, and (b) the few studies that have identified the theory employed, rarely elaborate on the meaning or relevance of that theory. It is important to know what is primarily an implicit theoretical grounding of the research in this area, (a) to understand the types of subjective age measures employed, and (b) to understand how trait variables might fit into the picture of subjective age. Next, the types and dimensionality of the various subjective age measures will be examined. There is a considerable number of subjective age measures available in the literature. An examination of these measures will show (a) why so many measures exist, and (b) how they fit into the theoretical rubric of subjective age. In addition, a review of these measures is necessary to understand the sometimes conflicting research findings in the literature. This section also includes a brief discussion of the intercorrelations among existing subjective age measures. The final section of the literature review discusses the main research findings in the subjective age literature.

These findings will be organized in terms of (a) demographic variables, and (b) social psychological variables.

Theoretical Perspectives

George, Mutran and Pennybacker (1980) have pointed out that researchers still fail to apply explicitly a broad theoretical perspective to their studies of subjective age. Well over one-third of the research in this area does not appear to have any recognizable theoretical grounding (e.g., Kastenbaum, Derbin, Sabatini, & Artt, 1972; Plawecki & Plawecki, 1980; Tuckman & Lavell, 1957). However, it is this author's opinion that many researchers are using a "symbolic interactionist, self-concept theory" of subjective age. A review of symbolic interactionism and its related subtheories indicates that this theory reflects the underlying assumptions of much of the subjective age research. For a few researchers, this perspective is seen explicitly in their research goals (e.g., Mutran & Burke, 1979a,b; Phillips, 1957; 1961; Turner, 1979). For others, use of a symbolic interactionist perspective is either implicit or an accident of borrowing terminology from more theoretically-aligned research (e.g., Busse, Jeffers & Orbis, 1970; Milligan, Powell, Harley & Furchtgott, 1985; Puglisi & Jackson, 1978).

This section starts out with a brief review of the intellectual roots of symbolic interactionism as well as the two major schools of symbolic interactionist thought. Next,

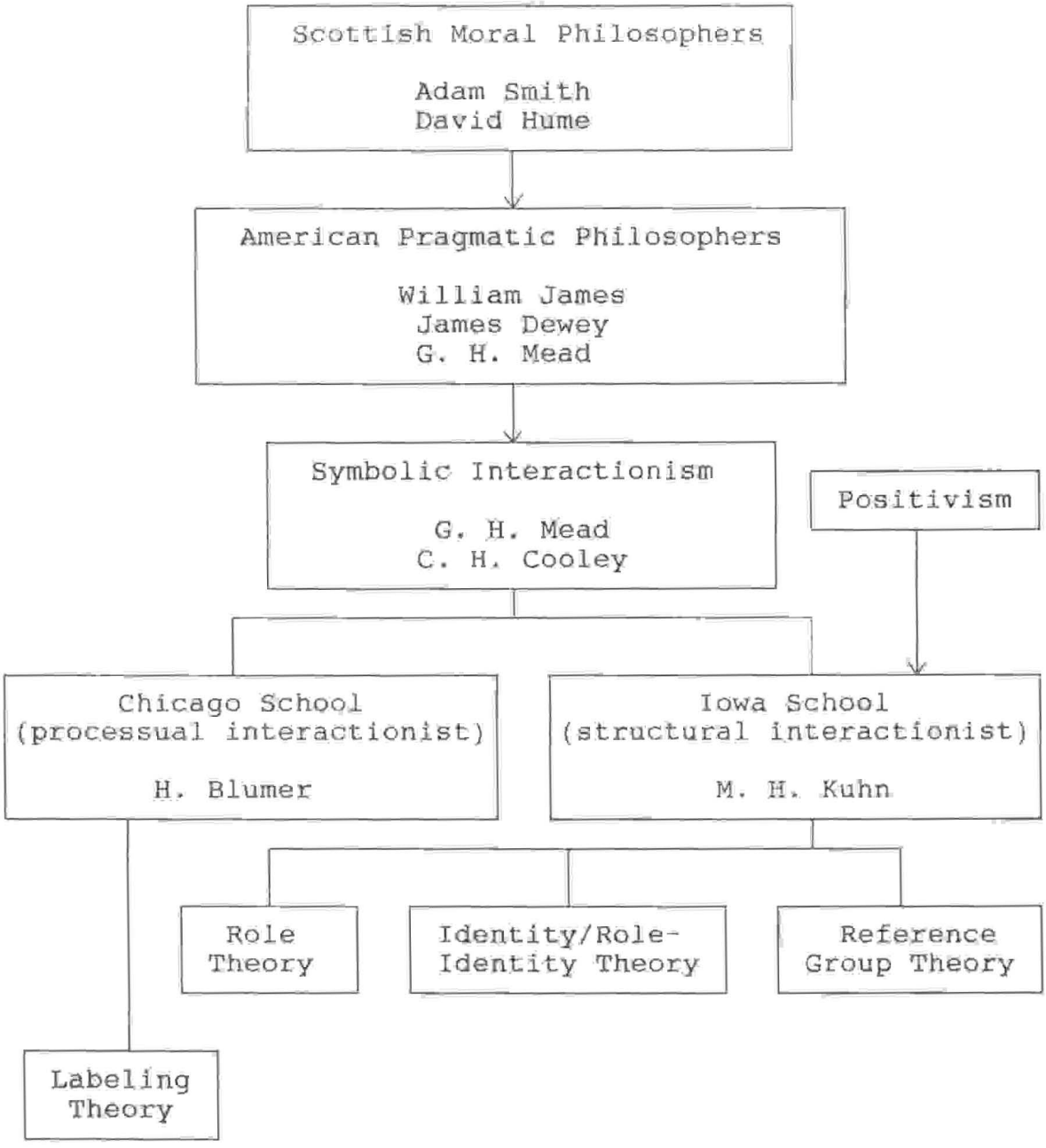
the study of the self-concept, a central concept within symbolic interactionism, is examined. This is followed by the introduction of four subtheories of symbolic interactionism that are employed in the study of the self-concept. Subjective age identity generally is considered to be part of the self-concept. In the last section, connections are made between the self-concept and subjective age, as well as between the four subtheories of symbolic interactionism and research in subjective age identification.

Intellectual Roots of Symbolic Interactionism

Figure 1 traces (a) the historical development of symbolic interactionism from the Scottish moral philosophers and the American pragmatic philosophers, and (b) the expansion of symbolic interactionism into two schools of thought and a variety of subtheories. Although the term "symbolic interactionism" originated with Blumer (1937), many of the thoughts and ideas of this theory can be traced back to the Scottish moral philosophers of the eighteenth century (Stryker, 1981). These Scotsmen, who included Adam Smith and David Hume among others, argued that everyday experience and human association had to be taken into consideration if a true science of man was to be achieved (Stryker & Statham, 1985). In their attempts to develop principles of human behaviour, these men turned to the study of communication, sympathy, imitation, habit and custom.

Figure 1

Symbolic Interactionism: Development and Expansion



These concepts and the recognition of society as the source of the self would later become some of the basic tenets of symbolic interactionism (Stryker, 1981).

The American pragmatic philosophers, who included such people as William James and John Dewey, were the next group whose writings would influence the early development of symbolic interactionism (Stryker, 1981). William James generally has been identified as the earliest "self" psychologist (Wells & Marwell, 1976). He introduced the concept of "I" versus "Me"; that is, "the self as knower" versus "the self that which is known" (Wells & Marwell, 1976). He also posited that the self was multifaceted, and in 1890, listed four separate human selves: (a) material self, (b) social self, (c) spiritual self, and (d) pure ego (Meltzer, Petras, & Reynolds, 1975). A major contribution of James was to view at least some of the aspects of the self as resulting from interaction processes in the social environment (Meltzer et al., 1975).

John Dewey (1940, in Stryker, 1981), who was strongly influenced by James, emphasized even further the intimate relationship between the individual and society. He stressed the importance of "habit" in personality, which he saw as "an acquired predisposition to ways or modes of response" (Dewey, 1922, p. 42). His definition of habit is very close to current conceptions of trait. He defined social organization as primarily a matter of collective

habit or custom (Stryker, 1981; Stryker & Statham, 1985). Since every individual is born into a society, their habits will reflect the existing social order (Stryker, 1981). Likewise, each individual's habits help construct the social order.

Charles Horton Cooley, a student of Dewey, made several important contributions to symbolic interactionist thought. Like Dewey, he emphasized the continuity between the individual and society (Cooley, 1902). He argued that the individual and society were like two sides of the same coin; no individual can exist apart from society and there can be no self apart from others (Stryker, 1981). One of his most important contributions was that of the "looking-glass self", or the conception individuals have of themselves based on their perceptions of others' reactions to them (Cooley, 1902, pp.151-152). Cooley also argued the importance of "primary groups" or those parts of the larger society that influence the individual (Meltzer et al., 1975). These primary groups may be broad groups such as religious affiliations, or very narrow groups such as a peer group.

George Herbert Mead, a student of James, generally is considered to be the single most important figure in the development of symbolic interactionism. Like James, he saw the essence of the self in the "I-Me" distinction (Wallace & Wolf, 1986). He identified "I" as the unorganized,

impulsive response of the person to the attitudes of others, and "Me" as the set of the organized attitudes or expectations of others that the person learns. The self may be seen as consisting of the "acting I" (subject) and the "acted upon Me" (object) (Wallace & Wolf, 1986). Self interactions, or internal conversations (a dialectical process) are the bases for role-taking, which is central to social interaction (Wallace & Wolf, 1986). Before one can communicate effectively, one must be able to take the role of the "other". Mead also saw the self as a symbol-dependent process (Wells & Marwell, 1976). The bases of the relationship between the individual and society are shared, meaningful gestures and symbols among members of that society. Following pragmatic theory (in particular, Dewey), Mead believed that people both control and are controlled by their environment (Meltzer et al., 1975).

The Chicago and Iowa Schools

The early interactionists shared many points in common (Meltzer & Petras, 1970). All saw the individual and society as inseparable, interdependent units. Society develops out of shared symbols; that is, social interaction is dependent on shared meaning among the members of a society. Individuals are reflective, interactive beings who influence and are influenced by their communications and social interaction. Individuals cannot be understood apart from their social situation.

However, symbolic interaction developed in two major directions that became known as the Chicago school and the Iowa school. The Chicago school has been identified with Herbert Blumer and his students at the University of Chicago. Blumer was a student of Mead (Wallace & Wolf, 1986), and so it is not surprising that the Chicago school is viewed as following the teachings of Mead and Cooley quite closely (Meltzer & Petras, 1970). Students of this school conceive of both the self and society in processual terms. The self is seen as a process of interaction between the impulsive "I" and the more organized "Me", which leads to novelty (and a degree of unpredictability) in behaviour. The individual in this conception is an active, as well as a reactive, being (Meltzer & Petras, 1970).

The Iowa school, on the other hand, is identified with Manford H. Kuhn and his students at Iowa State University. Influenced by the more eclectic followers of symbolic interactionism (e.g., K. Young), Kuhn called his version of the theory, "self theory" (Meltzer et al., 1975; Stryker, 1981). Students of the Iowa school see self and society in structural terms. The self consists of a structure of attitudes derived from the individual's internalized status and roles (Meltzer & Petras, 1970). Throughout this work is an assumption of relative stability. Meanings attached to the self ("core" self) are relatively stable. The emphasis on structure and the assumption of relative stability in

self theory is due, in part, to a lack of emphasis on the impulses or the "I-Me" components of the self. The processual nature of the self usually is ignored (Meltzer & Petras, 1970). Without the "I", the behaviour of the self becomes predictable as long as one knows the individual's reference groups (Meltzer & Petras, 1970). Stability in the self results in stability in interaction and behaviour (Stryker & Statham, 1985).

The most obvious difference between the Chicago and Iowa schools is in the methodology used. Blumer argued for a very distinctive methodology. He sought humanistic, idiographic methods, sympathetic introspection and intuitive understanding (Meltzer & Petras, 1970). His focus was on indirect methods of study. He also urged the employment of "sensitizing concepts". These sensitizing concepts suggest directions along which to look - a sensitization to the distinct and unique nature of the topic of study (Meltzer et al., 1975). He contrasted these concepts with the definitive concepts of operational definitions (found in Kuhn's work) that provide prescriptions of what to see (Meltzer et al., 1975).

Kuhn, on the other hand, argued for the commonality of method in all areas of scientific discipline. Influenced by positivistic thought, he argued for nomothetic methods and sought universal predictions of social conduct (Meltzer & Petras, 1970). His emphasis on structure and treating the

self as object, not surprisingly, was associated with his emphasis on the use of objective, overt and behavioural indices of covert aspects of the self. He attempted to convert imprecise Meadian concepts into operationalized research variables (Meltzer & Petras, 1970). Because Kuhn saw the self as stable, it was possible to measure the self reliably, which he attempted to do with the development of the Twenty Statements Test (TST) (Kuhn & McPartland, 1954). Kuhn's interest was in subjecting the basic propositions of Mead and Cooley to direct empirical tests (Wells & Marwell, 1976).

Symbolic Interactionism and the Self-concept

The self-concept has been a central concept within symbolic interactionism since the writings of James (1890), Cooley (1902) and Mead (1934). Broadly speaking, the self-concept refers to an organized set of qualities that the individual uses to describe and evaluate him or herself (Kinch, 1972; Peters, 1971). Gecas (1982) provides an argument that makes the process/structure distinction of the Chicago and Iowa schools more compatible. He contends that the self refers to a process of reflexivity or dialecticism between the "I" and the "Me" that develops through social interaction. Thus, the self provides a philosophical base for empirical study, but is not accessible through empirical investigation (Gecas, 1982). The self-concept, or the concept one has of oneself as a physical, social and

spiritual/moral being, is a structural product of the reflexive activity of the self (Gecas, 1982). This approach can take into account both the Chicago school proponents' view of "self" as a shifting, adjustive process (the situated self-concept) and the view of supporters of the Iowa school who see the "self-concept" as a stable, enduring feature (the biographical self-concept) (Rosenberg, 1981).

A dominant proposition in symbolic interactionism is that our self-concepts reflect the responses and appraisals of others (Gecas, 1982). This is seen in Cooley's (1902) concept of the "looking-glass self" and in Mead's (1934) idea of "role-taking". More recent work suggests that what a person <u>believes</u> others think of him or her is more closely related to his or her self-concept than what others actually think (Miyamoto & Dornbusch, 1956; Rosenberg, 1981). The influence of others' perceptions on a person's self-concept depends upon (a) how much one values the opinions of the "other", (b) whether one sees the other as a credible source of information, (c) what aspect of the self-concept is under consideration, and (d) whether one is motivated (due to a self-favourability bias) to accept those perceptions (Rosenberg, 1981; Schrauger & Schoeneman, 1979). The dialectical nature of symbolic interactionism becomes clear when one recalls that individuals are the active constructors of their own reality. Not only may others influence an individual's self-concept, but one may also

choose who one sees as a valuable and credible source, thereby influencing the feedback received from others.

Relevant Subtheories of Symbolic Interactionism

There are four subtheories or offshoots of symbolic interactionism that are relevant to the study of the self-concept. These four subtheories are: (a) labeling theory, (b) role theory, (c) identity/role-identity theory, and (d) reference group theory.

Labeling theory is an extension of the work on reflected appraisals, or the idea that the self-concept reflects the responses and appraisals of others (Gecas, 1982). Generally, this work is used to discuss the development of deviant identities. Related work focuses on stereotypes and self-fulfilling prophecies. Labeling theory has been criticized for assigning too passive a role to the individual (Gecas, 1982).

Role theory emphasizes overt role-playing and the relationship between role expectations and role performances (Kuhn, 1964). Largely an extension of the work by structural interactionists, the emphasis in role theory is on aspects of role that can be operationalized and empirically investigated (Kuhn, 1964). Role theorists owe much to Goffman's (1959) work on self-presentation. Using the metaphor of the theatre, Goffman describes how the self and others construct identities in the midst of the play (social interaction) through their common definition of the

situation (Gecas, 1982). Role theory expands on this idea by proposing that people go through life playing different roles or presenting different aspects of the self-concept to different people. The self-concept at once becomes both the creator and the product of these roles. The structural interactionists have proposed the idea of "role salience" (Rosenberg, 1981). That is, some elements of the self-concept are at the center of the individual's concerns, whereas others are peripheral (Gordon, 1968; Rosenberg, 1981). As a result, individuals tend to seek out, cultivate and elaborate those roles that are more important to them (Rosenberg, 1981).

Identity or role-identity theory is very closely related to role theory. Identities, as viewed by the structural interactionists are mainly internalized roles (Gecas, 1982). The self-concept then, is viewed as a multidimensional configuration of role-identities (Gecas, 1982). Role-identity theorists also use the idea of role salience or the "salience hierarchy of identities" (Stryker, 1979). Turner (1978) expands on the idea of role salience by arguing that (a) individuals identify with the roles assigned to them by significant others, (b) role and identity are merged where self-efficacy and self-esteem are greatest, and (c) identity is merged with roles that have involved the greatest investment.

Reference group theory (Hyman, 1942) developed from Cooley's work on the primary group and Mead's consideration of "the other" (Kuhn, 1964). This theory emphasizes the content of group identifications for the individual and the function of these identifications as anchors or reference points for self-perception and self-evaluation (Wells & Marwell, 1976). Social comparison is the process by which individuals assess their own attributes and abilities by comparing themselves to the others around them (Gecas, 1982). Social comparison processes generally are studied through the use of reference groups, which serve as both normative groups and as comparison groups for the individual (Gecas, 1982). The normative group acts as an internal standard of comparison, whereas the comparison group provides more of an external standard of comparison for the individual (Gecas, 1982).

These four subtheories are especially relevant to the study of subjective age identity. The following section examines (a) the relationship of subjective age identity to the self-concept, and (b) how the above-mentioned four subtheories have been employed in the study of subjective age.

Subjective Age as an Aspect of the Self-concept

Chronological age generally has been accepted as an aspect of the self-concept (Turner, 1979). In studies where students have been asked to describe themselves, ascribed

characteristics (e.g., gender, age, race) often have been found to be among the most common responses (Gordon, 1968). Work by McCrae and Costa (1988) with adults age 32 to 84 years seems to indicate that age is less important as a self-referent in early adulthood, but becomes more important in later adulthood. However, as Baltes and Schmid (1987) have pointed out, the initial assumption that old age and its concomitant biological, social and psychological changes would result in changes in the self-concept (e.g., Peters, 1971) has not been supported. Instead, research has shown substantial stability in the self-concept across the lifespan (Bengston, Reedy, & Gordon, 1985).

Many researchers consider subjective age to be part of the self-concept as well (Barak, 1987; George, Mutran & Pennybacker, 1980; Mutran & Burke, 1979a; Puglisi & Jackson, 1978; Turner, 1978). It appears to be as a result of this connection with the self-concept that the four above-mentioned subtheories of symbolic interactionism have been applied to research in subjective age identity. The study of subjective age is, however, consistent with the symbolic interactionist focus on the individual's self-perceptions. A basic tenet of role theory is that the self and role are in continuous interaction (Peters, 1971). Thus an individual's self-perception reflects the roles he or she plays, and likewise, the roles played affect one's self-perception. Several role changes typically are associated

with old age. These include retirement, widowhood, and a reduced social network. Although early research in role theory suggests that these role losses would result in poor self-images and older age identifications, it has already been pointed out that many elderly deny that they are old and tend to identify themselves as considerably younger than their chronological age regardless of some of these changes (Peters, 1971). Labeling theory would explain this inconsistency as an attempt to maintain a unified conception of self. If one assumes a negative stereotype about aging whereby old age is associated with being dependent, diseased, senile and unproductive (Goffman, 1963; McTavish, 1971; Peters, 1971), then to identify oneself as old would require an adoption of a negative self-perception. For adults who have held positive self-concepts throughout adulthood, and who continue to think well of themselves as they age, it should not be surprising that these individuals would retain their more positive young or middle-aged age identification, rather than adopt the more negative label of "old" (Puglisi & Jackson, 1978).

Critics of labeling theory (Baum & Boxley, 1983; Brubaker & Powers, 1976; Keith, 1977; Ward, 1977), argue that their research has shown there is little or no relationship between age stereotypes and subjective age. Labeling theory would predict that elderly individuals who report young age identities should be less psychologically

adjusted than older individuals who admit (and accept) that they are old. However, studies consistently have found that individuals who maintain younger subjective ages tend to be better adjusted (Blau, 1956), have higher morale (Kutner, Fanshel, Togo, & Langner, 1956), react more favourably to role changes (Phillips, 1957), and overall are more intact both physically and psychologically (Tuckman & Lavell, 1957). To focus only on the negative aspects of aging ignores the possibility that for some individuals, positive aspects of late life may be the basis for their age identification (Brubaker & Powers, 1976). Older adults may evaluate their agedness so that it agrees with their self-concept by selectively focusing on the more positive elements (Bloom, 1961). However, for many individuals who identify themselves as young or middle-aged, denial of old age may be an affirmation of reality (Puglisi & Jackson, 1978). Northcott (1982), in his study of the best years of one's life, argues that relative to other periods of the lifespan, old age is a period of relatively low pressure and relatively high satisfaction.

Reference group theory has been particularly useful in explaining why older adults may reject an old age identity. Bultena and Powers (1978) found, in their study of adults over the age of 70 years, that those individuals who see themselves as better off (particularly in functional and health status terms) than others in their age group are much

more likely to view themselves as middle-aged. Many elderly are very active, socially-involved, healthy individuals. Rather than a sign of age denial, younger subjective age identities may be a key component to theories of successful aging (Montepare, 1988).

All of these theories, as well as the general symbolic interactionist perspective, have played a major role in the growth and direction of subjective age research. Due to the primarily sociological use of symbolic interactionism, most of the research in subjective age has focused on the influence of societal factors (e.g., primary groups, stereotypes) rather than on psychological factors (e.g., affective state, personality trait). Although some aspects of symbolic interactionism (e.g., the looking-glass self) have proven very useful in understanding how an identity is formed and maintained, other aspects have been either (a) less useful (e.g., the impact of role changes), or (b) rather neglected (e.g., Dewey's concept of habit).

The next section reviews the many different measures of subjective age employed in the literature. A considerable number of these measures appear to have been developed specifically in response to some of the theoretical and methodological issues expressed by the Chicago and Iowa schools, as well as the specific interests of the four subtheories of symbolic interactionism.

Types and Dimensionality of Subjective Age Measures

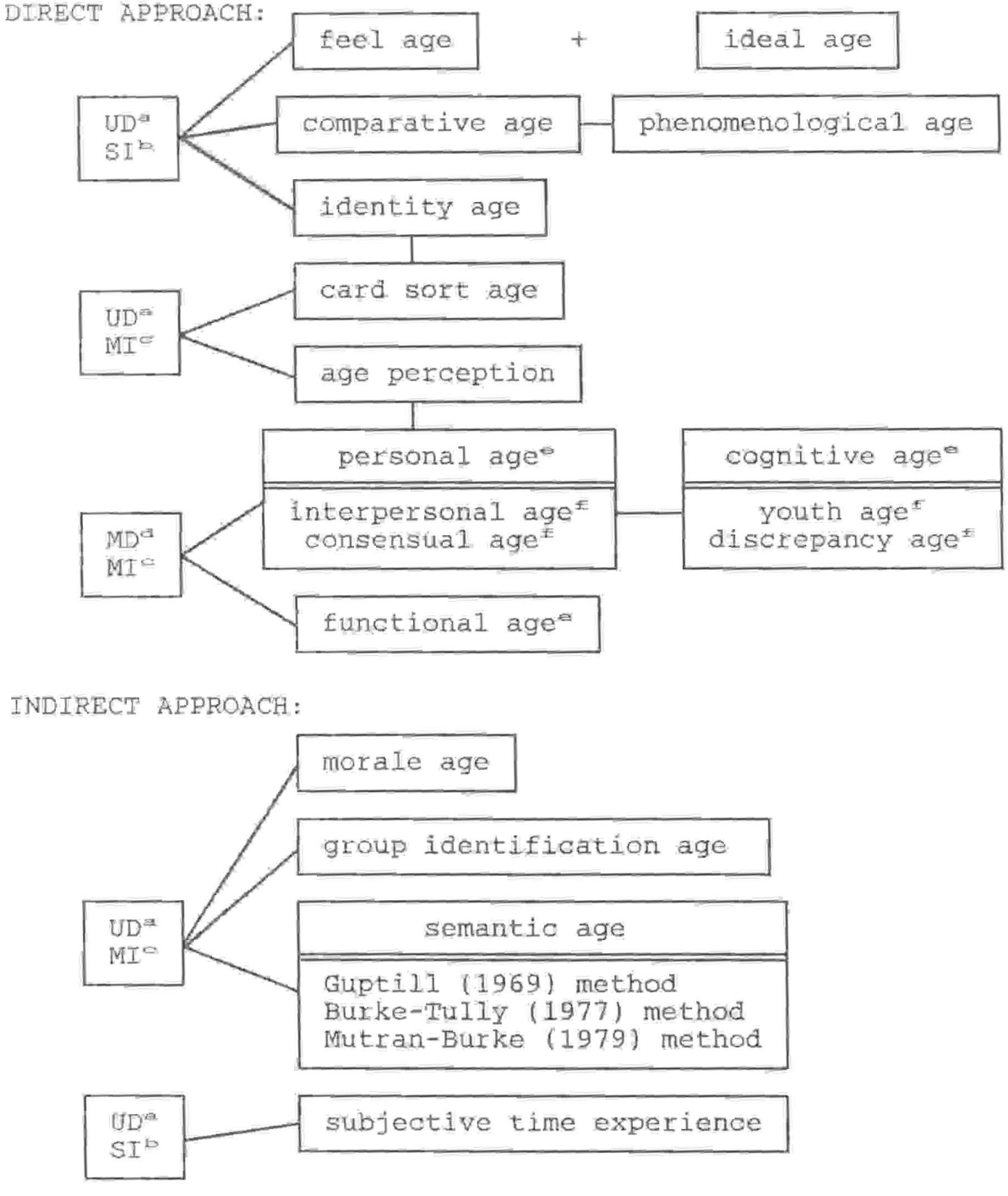
As one reads through the subjective age literature, it appears as though there is a different measure of subjective age for almost every article published. In fact, there are approximately twenty different measures of subjective age (see Figure 2). However, a single measure itself may not always be administered, framed or calculated exactly the same way from one study to the next. An introduction to the wide variety of subjective age measures available is necessary in order to understand the sometimes inconsistent findings in this area. Measures will be organized and discussed under three main headings: (a) unidimensional measures, (b) multidimensional measures, and (c) relational measures (i.e., measures that compare two other subjective age measures). Finally, the trend toward multidimensional measures of subjective age and the issues surrounding dimensionality will be discussed.

Unidimensional Measures of Subjective Age

Generally speaking, the concept of subjective age identity has been measured unidimensionally. That is, it is assumed that there is only one dimension underlying subjective age. There are ten measures which can be classified as unidimensional in nature. These range from very direct measures to more indirect measures of subjective age. "Feel age" is a very direct measure that asks the age a person feels in a single question (e.g., "how old do you feel?"). Feel age has not been employed widely in the

Figure 2

Subjective Age Measures:
Approaches, Dimensionality, Item Types and Linkages



[a] unidimensional, [b] single item, [c] multiple item, [d] multidimensional, [e] assumes multidimensionality, [f] relational measure

literature (Osteen & Best, 1985; Zola, 1962). However, it is important to pay attention to the wording of this question. The addition of key words such as "right now" versus "usually", or "overall" versus "on the inside" can result in very different responses. "Right now" and "usually" imply a state versus trait distinction, whereas "overall" and "on the inside" imply a unidimensional versus multidimensional distinction.

Two other unidimensional measures of subjective age are "comparative" (or relational) age and its close relative "phenomenological age". Comparative age considers an individual's perception of his or her age relative to others in his or her age group (e.g., "would you say you feel older or younger than most people your age?"). This measure has been employed in only a few studies (Linn & Hunter, 1979; Phillips, 1961) and is reminiscent of the concept of the comparison group in reference group theory.
Phenomenological age is an expansion of the comparative age measure and asks more specifically how much younger or older one feels (e.g., "in general, I think of myself as being younger, same, or older than my age" (by 1-5 yrs, 6-10 yrs, over 10 yrs)). This measure has been employed by only a few researchers as well (Baum & Boxley, 1983; Steitz & McClary, 1988).

The most commonly used measure of subjective age is "identity age" (Barak, 1987). Identity age measures an

individual's self-perceived age expressed in terms of age-referent groups such as "young", "middle-aged", or "old" (Burgess, Cavan, & Havighurst, 1948). As with the feel age measure, identity age is easy to administer. However, there has been much confusion over the differences between some response categories, particularly when one must choose an age-referent group from among the categories "old", "aged" and "elderly". Despite its difficulties, this is by far the most popular measure in the literature (Blau, 1956; Jeffers, Eisdorfer, & Busse, 1962; Markides & Boldt, 1983; Osteen & Best, 1985; Underhill & Cadwell, 1983; Ward, 1977). A similar measure simply asks "do you feel old?" (Tuckman & Lavell, 1957). Another variant of identity age is "card sort age". After responding to an identity age question, subjects are asked to do a card sort of five life periods (young, middle-aged, elderly, old and aged), assign chronological ages to each age period and then place themselves in one of these categories. Only one study has used this variant of subjective age measurement (Jeffers et al., 1962). Identity age and card sort age are both reminiscent of the normative group in reference group theory.

The next most commonly used unidimensional measure is that of "semantic age" (George et al., 1980; Guptill, 1969; Milligan, Powell, Harley, & Furchtgott, 1985; Mutran & George, 1982; Burke & Tully, 1977). This measure also has

been referred to as "stereotype age" (Barak & Stern, 1986). This is an indirect measure of age identity that involves rating a series of bipolar adjectives (e.g., useful versus useless) for three referents (middle-aged man/woman, old man/woman, myself). Analysis of the bipolar adjective ratings assigned to each of the age referents by subjects is conducted to determine the characteristics that distinguish different age perceptions. This item analysis also is used to determine the age referent to which "myself" most closely resembles. There have been three different methods proposed to calculate semantic age. The Guptill (1969) method is based entirely upon contrasting self-ratings (myself) with the self-perceptions of the middle and old age referents. Thus, an individual's self-rating is compared with his or her rating for the middle and old age referents. The Burke-Tully (1977) method (also known as stereotypical role/identity) rests on a sample or consensus definition of middle and old age, and compares that definition to the self-ratings. Here, an individual's self-rating is compared to the entire sample's rating of the middle and old age referents. Mutran and Burke (1979 a,b) have introduced a variant of the Burke-Tully (1977) method called "typical role/identity". Instead of using the middle-age man/old man/myself referents, Mutran and Burke divided their sample into three age groups with each age group acting as a "counter-role identity" for the other age groups. Thus an

individual's self-rating is compared to the self-ratings of the younger and older groups in the sample. The development of semantic age, and research using this measure almost invariably involve an explicit use of reference group theory and role/identity theory.

The "group identification" or "feel/close age" measure is another indirect measure of subjective age (Cutler, 1974). Embedded in a 16-item series of feel/close questions, this measure asks whether an individual feels close to old people (yes/no) and/or young people (yes/no), and to which group he or she feels closer. One's subjective age is determined from the group(s) one identifies with and/or the group to which one feels closer. This measure is unique in that it allows for some people to not have a predominant age identification. This measure also reflects the work in reference group theory, but not as clearly or directly as other age measures.

"Morale age" has been proposed as a measure of a person's satisfaction with his or her age status or, his or her perception of his or her age experience (Barak, 1987). This measure consists of a four-item subscale of the LSI-Z life satisfaction scale (e.g., "these are the best years of my life" - agree, uncertain, disagree). As with many of the subjective age measures, this measure only appears to have been used once. This measure does not have a clear relationship to symbolic interactionist theory.

A final unidimensional subjective age measure is that of "ideal age". Surprisingly, ideal age or desired age has not been commonly used throughout the subjective age literature (Barak & Gould, 1985; Zola, 1962). Even then, this single-item age measure has been asked two very different ways. Barak and Gould (1985) consider ideal age to be an individual's ideal age-role self-concept, or the age he or she generally perceives to be a person's ideal age, expressed in years. Zola (1962), on the other hand, conceives of this ideal age-role self-concept as the age an individual would like to be him or herself, expressed in years. Clearly, ideal age stems from self-concept research on the actual self and the ideal self.

Multidimensional Measures of Subjective Age

Recently, there has been a distinct movement toward the development of multidimensional measures of subjective age. If there can be multiple aspects of the self (e.g., I versus Me), then there can be multiple aspects of age identity. Kastenbaum, Derbin, Sabatini, and Artt (1972) were the first researchers to move in this direction. They proposed a 49-item structured interview schedule that assessed subjectively-experienced functional age. Four main age types were suggested: (a) feel/age, or the age one feels, (b) look/age, or the age that one looks, (c) do/age, or the age a person perceives him or herself to act, and (d) interest/age, or the age a person sees as reflective of his

or her interests. Although Kastenbaum et al., (1972) never actually claimed their measure consisted of multiple dimensions, there is an underlying assumption that the concept of subjective age is multidimensional. These age types all involve a self perception of aspects of a person's self-concept, and are reminiscent of the content of role or identity salience hierarchies. Although interesting, this type of subjective age measure does not take into account the idea of central and peripheral roles. This is an important flaw as, in salience hierarchies, not all possible roles or identities are of equal importance to the individual.

Barak and his associates were the first group to take the work of Kastenbaum et al., (1972) a step further, and the only ones actually to claim to have a multidimensional measure of subjective age (Barak, 1987; Barak & Gould, 1985; Barak & Schiffman, 1981). Barak took the four subjective age types proposed by Kastenbaum and his associates (feel/age, look/age, do/age, interest/age) and called them "cognitive age". Respondents choose an age decade (e.g., teens, 20s, 30s, etc) that they perceive as reflective of themselves for each of the four age types (e.g., "I look as though I am in my 50s"). Barak later assigns an exact number for each age type, expressed in years, using the midpoint of the age decade chosen (e.g., 50s = 55 years). The assigned ages for the four age types are summed and

averaged to make a total score. Interestingly, Barak (1987) provides no empirical evidence (e.g., through factor analytic techniques) to support his claim that cognitive age is a multidimensional measure.

Montepare and Lachman (1989) have proposed a similar measure called "age perception" that is based on Kastenbaum et al., (1972) as well. These authors claim only to have a multi-item measure based on four subjective age types: (a) feel/age, or the way one feels, (b) look/age, or the way one looks (c) interest/age, or the age of a person that their interests and activities are most like, and (d) ideal/age, or the age the person would like to be right now. Individuals respond with an age (in years) for each of the four age types. Montepare and Lachman (1989) then calculate an index score, or an average score based on the responses to the four age types.

A final measure, "functional age", also shows the potential to become a multidimensional measure of subjective age (Plawecki & Plawecki, 1980; Terpstra et al., 1989). Functional age is measured by the two subcategories of physical and mental subjective age. For each of the two subcategories, respondents are asked (a) whether they feel younger or older than their chronological age, and (b) how many years younger or older. A very similar measure has been developed (apparently independently) by Osteen and Best (1985). This functional age measure consists of three

subcategories of physical, mental and emotional subjective age or well-being. For each subcategory, the subject is asked the age felt and the percentage of functioning currently held relative to his or her best functioning. Osteen and Best (1985) claim their work is purely exploratory in nature, and so have not proposed this as a new measure of subjective age. Functional age measures do not have a clear relationship to symbolic interactionist theory.

Barak's (1987) measure of cognitive age is the only measure of subjective age which is claimed (by its author) to be multidimensional. However, all but one measure described here make the assumption that subjective age is a multidimensional construct. The exception is Montepare and Lachman's (1989) age perception measure, which they only claim is a multiple-item measure. The age perception measure has been included here because it is an extension of the work by Kastenbaum et al., (1972).

Relative Measures of Subjective Age

Relative measures of subjective age refer to measures that describe relationships between two other subjective age measures. "Consensual age" refers to the relationship between Kastenbaum et al.'s (1972) personal and interpersonal ages, or the degree to which a person's view of his or her age agrees with the age others assign to that person. Barak (1987) and Barak and Gould (1985) have made

ample use of relative measures. "Youth age" refers to the discrepancy between cognitive age and chronological age. "Disparity age" considers the difference between ideal age (Barak & Gould, 1985) and chronological age. And "discrepancy age" measures the difference between ideal age (Barak & Gould, 1985) and cognitive age.

A final relative age measure, which stands on its own as a subjective age measure, is "subjective time experience" (Cooper, Thomas, Stevens, & Suscovich, 1981). This is an exploratory measure that examines the degree of correspondence between subjective time expectancy and objective assessments of time expectancy (based on actuarial predictions appropriate for the individual's age and gender). Time expectancy refers to the amount of time one expects to have left in one's life. Cooper et al., (1981) ask subjects to manipulate the hour and minute hands of an "experiential clock" to represent the amount of their life lived relevant to the amount left. Subjective time expectancy is calculated as STE = CA(LE/12) x CLK (chronological age multiplied by (actuarial life expectancy divided by 12) multiplied by the clock age projection).

As is clear from this review of the subjective age measures, there are numerous measures available in the literature. The next section discusses the issue of unidimensional versus multidimensional subjective age measures.

Issue of Dimensionality

The subjective age literature is characterized by a multitude of subjective age measures. Clearly, many of the different measures have been proposed in order to improve upon the measurement of subjective age. Some measures aim to be more precise. One example is phenomenological age which, unlike its predecessor comparative age, specifically asks how much younger or older a person feels than others who are the same chronological age. Other measures seem to have been designed to replace what may have been perceived to be reactive measures, such as the introduction of indirect measures (e.g., semantic age) to replace more direct measures of subjective age (e.g., identity age). Still other measures have been introduced to probe more deeply the concept of age identity, such as the introduction of multiple-item unidimensional measures (e.g., functional age) and multidimensional measures (e.g., cognitive age).

Unidimensional measures of subjective age may consist of a single question as in feel age or identity age, or they may involve multiple questions as in group identification age or semantic age. When the measure is composed of a single question, the advantages are that it is simple and straightforward, is easily included in any questionnaire or interview, and has been found to correlate in an expected way with a number of other variables (e.g., negatively with level of health, and positively with retirement status)

(George et al., 1980; Mutran & George, 1982; Ward, 1977). The main disadvantage of a unidimensional, single-question approach is that it does not address the issue of how the person chooses an age or age category; that is, the meaning of that age or age category. Without more than one question or dimension, there is no information about the degree of variability within one's age perception (e.g., does one "look" one age and "act" another?) (Baum, 1983/4; George et al., 1980). With measures such as identity age and comparative age, there is the additional problem that no information is given that allows one to distinguish among members of the same group (e.g., do some "young-feeling" adults feel considerably younger than other "young-feeling" adults?). This problem is perhaps the motivation for the more specific response categories in Steitz and McClary's (1988) phenomenological age measure.

Multiple-item, unidimensional measures of subjective age vary widely, and depend upon whether one sees subjective age as measured more accurately by direct or indirect methods. Direct measures of subjective age (e.g., age perception) require individuals to identify specifically the age or age grouping to which they feel they belong. Indirect measures of subjective age (e.g., semantic age, morale age) attempt to discover an individual's age perception without ever directly asking the individual for this information, focusing instead on the meaning of (old)

age. The goal of these measures seems to be to determine which characteristics or self-descriptors best distinguish different age perceptions (e.g., middle-age from old age).

An advantage of the direct multiple-item measures is that they do address the question of the degree of variability in the subjective age chosen by tapping different aspects of subjective age. Montepare and Lachman's (1989) age perception measure is composed of four areas (feel/age, look/age, interest/age and ideal/age) that are summed to create a total score. By asking subjects to respond to each of these areas, it is hoped that a more complete picture of an individual's subjective age is created. However, there are some problems with these measures. For example, Montepare and Lachman (1989) make no distinction between what may be considered more global questions (e.g., feel/age, ideal/age) and more specific questions (e.g., look/age, interest/age). For some individuals, there may be a great deal of redundant information between feel/age and look/age. There is no theoretical explanation or factor analytic evidence given as to why feel/age and ideal/age both should reflect the same underlying dimension. In addition, there has been no demonstration that multiple questions actually measure subjective age more meaningfully than a single global question (e.g., feel age). Although single-item, unidimensional measures make the assumption that

chronological age and/or subjective age is an important and/or relevant aspect of everyone's life, the direct multiple-item measures make the further assumption that each of the items the researcher has chosen is of equal importance and/or relevance to the respondent.

The main advantage of the indirect measures of subjective age is that they supposedly avoid the potential problem of social desirability bias because individuals are not asked to identify directly the age group to which they belong (George et al., 1980). This argument persists despite the fact that the proponents of indirect measures of subjective age provide no empirical evidence to show that direct measures of subjective age are affected by a social desirability bias. Ironically, it would seem that indirect subjective age measures, such as semantic age which consists of rating scales of bipolar adjectives such as "useless" versus "useful" and "ineffective" versus "effective", would be more likely to elicit socially desirable responses. The disadvantages of the indirect measures are (a) that there is little to no evidence of their validity as an accurate measure of an individual's subjective age, and (b) they are more difficult and time-consuming to administer than single-item or even direct multiple item measures.

There has been considerable interest in the development of a multidimensional measure of subjective age. Most researchers seem to accept the argument of age identity as a

multidimensional concept; that is, that there is more than one distinguishable quality or characteristic of subjective age. Unfortunately, many researchers seem to be rushing headlong into the current trend toward more complex, multidimensional measures with little thought given to (a) the appropriate development of such a measure, and (b) to the potential problems of taking a multidimensional approach to subjective age identity.

At present, there seems to be considerable confusion between what comprises dimensions as opposed to items of subjective age. For example, Montepare and Lachman (1989) summed their four subjective age items and called their measure a multiple-item, unidimensional measure because the Cronbach alphas for the age items were quite high (.76 and .72 for males and females, respectively). Barak (1987) on the other hand, claims to have a multidimensional measure, despite the fact that he reports alpha coefficients of between .86 and .91 for his four subjective age items (feel/age, look/age, do/age, and interest/age), and also sums the items to make a total score. Neither Montepare and Lachman (1989) nor Barak (1987) provide any factor analytic evidence to support whether in fact their measures are unidimensional or multidimensional. In addition, little thought has been given to whether and how the everyday attributions of such abstract concepts as subjective age can be best captured within a multidimensional measure. Despite

the bold claims of some (e.g., Barak, 1987) and the interesting exploratory work of others (e.g., Osteen & Best, 1985) a truly multidimensional measure of subjective age has yet to be developed.

The wide variety of subjective age measures employed in the literature immediately brings to question the effect that this will have on the consistency of the research findings in the area. The next section will examine the intercorrelations between some of these subjective age measures.

Relationships Among Subjective Age Measures

A number of studies have examined the intercorrelations among two or more subjective age measures (Barak, 1987; Barak & Gould, 1985; Baum & Boxley, 1983; George et al., 1980; Mutran & George, 1982; Zola, 1962). Usually, a comparison of the subjective age measures has been conducted to show the superiority of a newly proposed measure over some previously used measure. Due to the somewhat wider usage of identity age, it is not surprising that a majority of the subjective age intercorrelations have been done with identity age. Correlations with identity age vary widely from a low negative, but significant correlation with morale age (r = -.10) to a moderately high positive correlation with cognitive age (r = .60) (Barak, 1987). Clearly, there are some significant differences between these subjective age measures that will have a definite impact not only on

the types of findings in the literature, but on the consistency of the findings as well.

An examination of the correlations between chronological age and a variety of subjective age measures shows wide variation. For example, comparative age has been show to have no relationship to chronological age at all (r = -.06) (Baum & Boxley, 1983), whereas cognitive age shows quite a high positive relationship to chronological age (r= .75) (Barak, 1987). Ideal age rather consistently shows a low positive, but significant correlation with other age measures (e.g., chronological age, identity age and cognitive age: r = .21 to r = .27) (Barak, 1987; Zola, 1962). However, there appears to be no relationship between feel age and ideal age (r = -.05 to r = .03) (Zola, 1962).

The Meaning of Subjective Age: To What Is It Related?

Part of understanding what subjective age is involves an examination of the variables with which subjective age is correlated. The correlates of subjective age will be discussed in two parts: (a) demographic variables, and (b) social psychological variables.

Demographic Variables

Subjective age has been correlated with a number of variables, the majority of which are demographic variables. The most commonly examined variables, and the ones which will be discussed here are: chronological age, gender,

health, education, socioeconomic status and income, retirement, and marital status or widowhood.

The most obvious correlate of subjective age is chronological age. The majority of studies report significant positive correlations (ranging from r = .30 to r = .50) between subjective age and chronological age, meaning that the older a person's chronological age, the older the subjective age (Bultena & Powers, 1978; George et al., 1980; Mutran & George, 1982; Phillips, 1961). Thus, an 80 year old is more likely to give an older subjective age than a 60 year old. Importantly however, these moderate correlations all have been found with identity age. Cognitive age has been found to correlate very highly with chronological age (r = .75) (Barak & Gould, 1985). Statistically significant positive correlations also have been reported for several of the relational subjective age measures (range of r = .42 to r = .73) (Barak & Gould, 1985). A significant positive correlation between subjective age and chronological age is not surprising as it would be expected that as one ages, one's subjective age would become somewhat older as well.

However, no significant correlations have been reported between chronological age and comparative age (Baum & Boxley, 1983; Phillips, 1961). Conflicting findings have been reported for semantic age, with at least one study reporting a significant correlation with chronological age

(George et al., 1980) and another reporting no significant correlation (Phillips, 1961). Zola (1962) reported that while a low positive, but significant correlation was found between chronological age and feel age for women, no correlation was found for men. Montepare and Lachman (1989) also indicated that the discrepancy between chronological age and subjective age became more pronounced for women than for men. In summary then, chronological age does tend to be positively correlated with subjective age, particularly if the measure used is identity age. The strength of the correlation is only moderate however, indicating that subjective age is related to chronological age, but is also different from chronological age. Work by Zola (1962) as well as Montepare and Lachman (1989) indicates that there may be gender differences in subjective age or that subjective age may operate differently for men and women.

The idea that men and women might have different subjective ages is an intriguing one. However, the evidence overwhelmingly shows that there is no statistically significant relationship between gender and any type of subjective age (Baum & Boxley, 1983; Bultena & Powers, 1978; Linn & Hunter, 1979; George et al., 1980; Preston, 1968; Underhill & Cadwell, 1983; Zola, 1962). Only Barak and Stern (1986) and Montepare and Lachman (1989) suggest that with cognitive age, women's age perceptions may be younger than men's age perceptions.

Another obvious correlate of subjective age is physical health status. It is consistently found that the better one's health, the younger the subjective age reported (Baum & Boxley, 1983; Bultena & Powers, 1978; George et al., 1980; Markides & Boldt, 1983; Mutran & George, 1982). Most of these correlations are with identity age or comparative age and generally are quite low ($\underline{r}$ = -.13 to $\underline{r}$ = -.22 range). Higher correlations are found with the semantic age variables, including typical and stereotypical age ($\underline{r}$ = -.25 to $\underline{r}$ = -.46) (George et al., 1980; Mutran & George, 1982). Bultena and Powers (1978) reported, in their longitudinal study of subjective age, that individuals whose subjective age showed a significant shift over time attributed that shift, in part, to a decline in health, while individuals whose subjective age did not shift and become older attributed the lack of change to continued good health. Only a few studies have reported no statistically significant correlations between health and subjective (identity) age (George et al., 1980; Tuckman & Lorge, 1954). Using path analysis, Mutran and Burke (1979a) determined that poor health was associated directly with an older age identity for women, but only indirectly, through retirement, for men.

Several studies have examined the relationship between subjective age and level of education. Most studies have found no statistically significant relationship between

one's level of education and any type of subjective age (Baum & Boxley, 1983; George et al., 1980; Mutran & George, 1982). The few studies that have reported statistically significant correlations have not found consistent results (Bultena & Powers, 1978; Underhill & Cadwell, 1983). Mutran and Burke (1979b) however, found that education was related indirectly to subjective age through poor health and loneliness.

Socioeconomic status (SES) and income, although related to each other, display very different relationships with subjective age. SES, as measured by occupational prestige, consistently shows no relationship to subjective age identity (Busse et al., 1970; George et al., 1980; Streib & Schneider, 1971). Income, on the other hand, consistently shows a low negative correlation (r = -.15 to r = -.26) with numerous types of subjective age (Baum & Boxley, 1983; George et al., 1980; Mutran & George, 1982; Underhill & Cadwell, 1983). Thus, the higher one's income bracket, the younger one's subjective age. Interestingly, Mutran and Burke (1979a) found that income was correlated with subjective age for men only.

With this result in mind, it is not surprising then that there is an interest in the relationship between retirement and subjective age. Generally, it is found that retired individuals report older subjective ages than individuals who have not retired (Blau, 1956; George et al.,

1980; Mutran & George, 1982). These correlations typically are moderately low and positive (r = .25 to r = .30). However there are a few studies which have found no relationship between subjective age and retirement (Baum & Boxley, 1983; Preston, 1968; Streib & Schneider, 1971). The study by Streib and Schneider (1971) was a longitudinal (seven year) study of 1,969 men and women, specifically examining the relationship between retirement and subjective age. They concluded that it was chronological age, rather than retirement, that was responsible for shifts toward older subjective ages. They also found that there was no sudden change in subjective age in the first year (or impact year) of retirement and that subjects themselves tended to overestimate the future impact of retirement on their subjective age identity.

The findings concerning the relationship between marital status and subjective age are mixed. Surprisingly few articles have made note of the relationship between marital status and subjective age. Of those which have, two studies found no significant relationship (Baum & Boxley, 1983; Markides & Boldt, 1983) and one study found that married men and women felt younger than single men and women (Underhill & Cadwell, 1983). All three of these studies used a different measure of subjective age, thereby clouding the picture.

A few more studies have examined the effect of widowhood on subjective age, with equally mixed results. Some of the studies found no relationship between subjective age and widowhood whereas others did. However, upon closer examination it becomes clear that it is subjective age as measured by identity age that is not significantly correlated with widowhood (Blau, 1956; George et al., 1980; Mutran & George, 1982). All of the different types of semantic age (e.g., typical and stereotypical age) show low positive correlations with widowhood (r = .14 to r = .17).

In summary then, it appears that a younger subjective age is related to a younger chronological age, better health, and higher income. There appears to be no consistent relationship between subjective age and gender, education level, SES (as measured by occupational status), marital status or widowhood. The findings regarding the relationship between subjective age and retirement are rather mixed. Most studies indicate that individuals who are retired tend to have older subjective ages. However, several other studies (including a longitudinal study) suggest there is no relationship between subjective age and retirement.

Social Psychological Variables

Although less thorough, some research has been done examining the relationship between subjective age and a variety of social psychological variables. The variables

that will be discussed here include: life satisfaction, adjustment, morale, purpose-in-life, self-confidence, affective state, and locus-of-control.

Life satisfaction is consistently found to be negatively correlated with subjective age (r = -.10 to r = -.22), meaning that the more satisfied with life one feels, the younger one perceives oneself (George et al., 1980; Mutran & George, 1982). Linn and Hunter (1979) also found that younger subjective ages were associated with greater life satisfaction at the bivariate level. However, when they covaried disability and impairment variables, the relationship with life satisfaction was no longer significant. Montepare and Lachman (1989) report that there is no relationship between subjective age and present life satisfaction for older men. However, older women with the least discrepancy between their subjective age and chronological age report the most life satisfaction.

Personal adjustment (i.e., need satisfaction) also has been found to show a low positive correlation with several types of subjective age (r = .20 to r = .23) (Phillips, 1957; 1961). In other words, younger age perceptions are associated with better adjustment. In addition, younger subjective ages have been related to higher morale (Barak & Gould, 1985; Kutner et al., 1956), greater purpose-in-life (Baum & Boxley, 1983) and higher self-confidence (Barak &

Gould, 1985). All of these correlations have been quite low (r = -.10 to r = -.25).

Very few affective state variables have been considered in studies examining subjective age identity. The most commonly examined states are from the Affect Balance scale, which examines positive and negative affect. Positive affect usually is found to have a low negative correlation with subjective age (r = -.15 to r = -.20), meaning that younger subjective ages are associated with greater positive affect (George et al., 1980; Mutran & George, 1982). All of the studies examining the affect variables employed either identity age or the semantic age types. Only typical age showed no statistically significant correlation with positive affect (Mutan & George, 1982). For the most part, there is no statistically significant correlation between subjective age and negative affect (George et al., 1980; Mutran & George, 1982). Only typical age showed a very low, but significant positive correlation with negative affect, indicating that younger subjective ages are associated with less negative affect (Mutran & George, 1982).

The only trait variable that has been examined in conjunction with subjective age is locus of control. Younger age perceptions are associated with higher internal locus of control scores (Baum & Boxley, 1983; Linn & Hunter, 1979) at the bivariate level. At the multivariate level however, the findings are less clear. Linn and Hunter

(1979) report that even when the effects of health and SES are partialled out, locus of control remains statistically significant. Baum and Boxley (1983) on the other hand, found that locus of control was no longer significantly related to subjective age when the effects of physical and psychological health, income and interviewer effects were controlled.

The Role of Trait Variables

It is surprising that the relationships between personality traits and subjective age have not been explored more extensively. Personality traits not only provide individuals with labels that can be used to describe themselves, but they also determine how a person experiences, feels and reacts to the stimuli around him or her. It is entirely conceivable that how a person perceives the process of aging within himself or herself is influenced by how he or she interprets the world around him or her. This includes an interpretation of not only the events that occur in life (e.g., gray hairs, and retirement), but how one reacts to these events and how one perceives others' reactions to these events. Put another way, perhaps certain patterns of responding to questions of subjective age (e.g., feeling younger, feeling older) are related in some systematic way to personality traits. Perhaps part of the reason for neglecting the influence of trait factors in subjective age research has to do with the use of labeling

theory, role theory, identity/role theory and reference group theory in this research. These social psychological theories tend to focus on the societal or "other" end of the dialectical self/other process. The self side of the interaction, and the part in which trait would play a greater role, has been rather neglected in these theories. It is as though the "I", or more innate part of the self, has been ignored in favour of the "Me", or more societal part of the self. And yet, it is this side of the self which might be most relevant to subjective age research.

Despite its relative neglect, the study of traits and their role in subjective age is a logical step to take, considering the close links between personality traits and both symbolic interactionism and the self-concept. Dewey spoke of the importance of habit, a concept which is very close to our current conceptions of trait. Later, Kuhn contended that the meanings attached to the core self are relatively stable. Traits could easily represent some of these stable meanings. Cooley's idea of the looking-glass self was extended by the work of Miyamoto and Dornbusch (1956). They suggested that it is what a person believes others think of him or her that is more closely related to his or her self-concept than what others actually think of the person. Clearly personality traits could play a role in one's perception of self and others.

The contention that traits influence one's perceptions is not new. Costa, McCrae and Norris (1981) have argued that the effect of personality dispositions should be controlled in the study of aspects of the self concept. Interestingly, research in subjective well-being has shown that socio-demographic variables have been rather weak predictors of subjective well-being or happiness (Andrews & Withey, 1976). Because research has shown that individuals seem to be predisposed to be happy or unhappy, it has been suggested that personality traits are largely responsible for individual differences in level of happiness (Costa et al., 1981). Costa and McCrae (1980) and Costa et al., (1981) have argued that neuroticism and extraversion are related to psychological well-being. In addition, Costa et al, (1981) note that an extensive literature has demonstrated that perceived health is a function of both objective health status and neuroticism. The authors suggest that the observed correlation between well-being and health may reflect more the influence of neuroticism than of objective health.

The same thing could be happening with subjective age. Certainly socio-demographic variables have been weak predictors of subjective age. Even the fairly well-established relationship between health and subjective age could reflect the influence of personality traits. Thus, it may not be biological, social or psychological stimuli such

as physical health, retirement or age stereotypes that influence one's subjective age. Rather, subjective age may be influenced by the more basic variable of personality trait, with traits influencing how one interprets one's health, retirement or the personal relevance of age stereotypes.

Purpose of the Present Research

The purpose of the present research is to examine the relationship of personality trait variables to two different subjective age measures. Personality refers to the entire psychological nature of the individual, and includes the self-concept (McCrae & Costa, 1988). One of the aspects of the self-concept consists of personality traits (Gordon, 1968; McCrae & Costa, 1988). McCrae and Costa (1988) define personality traits as a "set of characteristic dispositions that determine emotional, interpersonal, experiential, attitudinal and motivational styles" (p. 177). Subjective age identity, which also has been proposed as part of the content of the self-concept may, in fact, be influenced by personality traits.

In the literature, the only personality trait that has been studied in connection with subjective age is locus of control. It has been found that younger age perceptions are related to higher internal locus of control, at least at the bivariate level (Baum & Boxley, 1983; Linn & Hunter, 1979). Locus of control is only one of many different personality

traits, as attested to by the existence of numerous multidimensional personality inventories. These personality inventories presumably reflect the beliefs individuals hold about themselves and their personalities. One currently popular personality inventory is Costa and McCrae's (1985) Neuroticism, Extraversion and Openness Personality Inventory (NEO-PI). Neuroticism and extraversion traditionally have been the two most important personality traits (Conoley & Kramer, 1989).

The present research assesses a number of traits in its examination of the relationship between personality traits and subjective age identity. This research consists of an analysis of two samples of older adults taken from two large data sets. In line with previous research, Sample 1 examines the relationship between subjective age and locus of control. In addition, this sample also employs a measure of social desirability. McCrae and Costa (1983) have argued convincingly that social desirability ought to be regarded as a trait or individual differences measure. This measure fits in nicely with symbolic interactionist theory, which might argue that if subjective age is related to social desirability, then this is evidence for the influence of societal factors and the "Me" aspect of the self in determining subjective age identity. Sample 2 takes the examination of the relationship between trait variables and subjective age more into the mainstream by employing the

neuroticism, extraversion and openness trait variables of the NEO-PI.

The primary purpose of this research is to examine the relationship between personality trait and subjective age by using discrepancy scores calculated from two different measures of subjective age: (a) feel age, and (b) ideal age. These measures are easily compared as they are both single-item, unidimensional measures which are responded to numerically. This research addresses two main questions regarding the relationship of trait variables to the two measures of subjective age identity. The first question asks whether trait variables, as a group or individually, contribute a significant amount to the variance in subjective age. The second question considers the influence of traits on other variables related to subjective age by asking whether trait variables moderate (a) the relationship between health variables and subjective age, and (b) the relationship between affective state variables and subjective age.

Hypotheses

Subjective Age Measures. The first measure of subjective age used in the proposed research is a discrepancy score calculated from feel age. Although feel age is not a commonly used measure of subjective age, it is direct, easy to administer and is easily compared to chronological age. The second measure of subjective age

used is a discrepancy score calculated from ideal age. Ideal age is not a commonly employed measure of subjective age either. Its inclusion is a unique aspect of this research. It is expected that subjects, on average, will both feel and want to be considerably younger than their chronological ages. No gender differences are expected for either measure of subjective age. Based on Zola's (1962) findings, no statistically significant relationship is expected between either feel age and ideal age, or the two discrepancy scores. However, it is expected that there will be a low positive correlation between chronological age and both feel age and ideal age as this is the finding most commonly reported in the literature. No hypotheses are proposed regarding the relationships between chronological age and the discrepancy scores for feel age and ideal age.

Relationship of Subjective Age and Trait Variables. Personality traits as a part of the self-concept might play an important role in explaining subjective age identity. Although personality traits virtually are ignored in the literature, there has been some study of the relationship between subjective age and locus of control. Based on this research, it is expected that there will be a significant negative relationship between the discrepancy score for feel age and internal locus of control. There is no significant relationship expected between this subjective age discrepancy score and the other locus of control measures.

Despite the lack of research employing other personality traits, it is hypothesized that feeling younger than one's chronological age will be related to higher scores on both extraversion and neuroticism. No significant relationship is expected between this subjective age measure and either openness or social desirability.

There does not appear to have been any research conducted examining the relationship between ideal age measures and personality trait variables. However, it is proposed that wanting to be younger than one's chronological age will be unrelated to the locus of control variables and neuroticism, but will be negatively related to social desirability, openness and extraversion. In addition, it is hypothesized that personality trait variables will moderate the relationships between subjective age (i.e., the discrepancy scores for feel age and ideal age) and other variables (i.e., physical health and affective state) by influencing how the person interprets or responds to these variables, and thereby influencing how these variables will be related to subjective age measures.

CHAPTER II

METHOD

Participants

The participants in Sample 1 were 276 community-dwelling Caucasian adults age 55 to 75 years. Complete data on the measures of interest to the analysis were available on 241 of the subjects (112 men, 129 women) and these are the data reported in this research. The participants are a subset of the larger Metamemory in Adulthood (MIA) validation study, a sample which also included 100 younger adults age 18 to 36 years (N = 378). The participants in Sample 2 were 484 community-dwelling Caucasian adults age 55 to 85 years. Complete data on the measures of relevance to the analysis were available on 355 of the subjects (151 men, 204 women) and these are the data reported herein. The participants are a subset of the larger Adult Development and Memory (ADAM) Project, which also included 100 younger adults age 19 to 36 years (N = 584). Participants in both Samples 1 and 2 were recruited through local advertising, and through university and community groups. Subjects were paid a nominal fee of $15 (CDN) for their participation in the original MIA or ADAM studies.

For the purposes of the present research, Sample 1 was divided into two age groups: 55-64 years and 65-75 years, whereas Sample 2 was divided into three age groups: 55-64 years, 65-75 years, and 76-85 years. The demographic and

health characteristics of the participants in Samples 1 and 2 are summarized in Tables 1 and 2, respectively and suggest that the samples are above average compared with the general Canadian population. In Sample 1, 81.7% of subjects had completed at least 12 years of education, and 28.2% of subjects had completed at least 16 years of education. Of the subjects in Sample 2, 75.2% of subjects had completed at least 12 years of education and 24.2% of subjects had completed at least 16 years of education. These figures compare with 35% and 8%, respectively, for the Canadian population over the age of 55 years (Statistics Canada, 1989). Clearly the subjects in Samples 1 and 2 are considerably more educated than the average person over the age of 55 years. However, it is not certain what effect this may have on the generalizability of the reported findings since most previous literature has found no statistically significant relationship between education level and subjective age. Gender differences in education were inconsistent between the two samples. In Sample 1, men had significantly more years of education than women, $t(239) = -3.78$, $p < .001$. However, in Sample 2, there were no gender differences in level of education.

Most of the participants in Samples 1 and 2 were retired from the workforce (71.4% and 79.2%, respectively). In Sample 1, approximately 8.3% held part-time employment and only 5.0% were employed full-time. In Sample 2,

Table 1

Means and Standard Deviations for the Demographic and Health Characteristics of Sample 1

	Age 55-64 years		Age 65-75 years	
Variable	Men (n= 39)	Women (n= 61)	Men (n= 73)	Women (n= 68)
Age				
M	60.44	60.07	69.66	69.50
SD	2.57	2.90	3.01	2.93
Years of Education				
M	14.51	12.93	14.62	13.07
SD	3.15	3.12	3.29	3.31
Overall Health[a]				
M	1.95	1.80	1.95	1.91
SD	.94	.79	.74	.73
Relative Health[b]				
M	1.74	1.69	1.69	1.63
SD	.97	.90	.68	.64
Instrumental Health[c]				
M	6.15	5.20	6.19	5.41
SD	3.04	3.45	3.00	3.29
Chronic Conditions[d]				
M	1.85	2.07	2.00	2.49
SD	1.79	2.11	1.54	1.90

[a] Compared to perfect health on a 5-point Likert scale (from 1= very good to 5= very poor)

[b] Compared to others the same age on a 5-point Likert scale (from 1= very good to 5= very poor)

[c] Extent to which health has required a change in 8 areas, each scored on a 5-point Likert scale (from 1= no change to 5= give up activity); maximum score = 40

[d] Incidence and seriousness of 20 chronic conditions, each scored on a 3-point Likert scale (from 0= no problem to 2= serious problem); maximum score = 40

Table 2

Means and Standard Deviations for the Demographic and Health Characteristics of Sample 2

	Age 55-64 yrs		Age 65-75 yrs		Age 76-85 yrs	
Variable	Men (n=37)	Women (n=61)	Men (n=102)	Women (n=125)	Men (n=12)	Women (n=18)
Age						
M	61.97	61.54	69.62	69.24	78.17	77.83
SD	1.97	1.86	2.85	2.93	3.00	2.88
Years of Education						
M	13.70	13.44	13.56	13.15	13.61	12.67
SD	2.93	2.67	3.63	2.74	3.53	3.00
Overall Health[a]						
M	.76	.69	.88	.79	.78	.88
SD	.72	.77	.79	.75	.81	.74
Relative Health[b]						
M	.62	.64	.74	.56	.33	.63
SD	.76	.78	.71	.63	.59	.58
Instrumental Health[c]						
M	2.69	2.95	2.17	3.21	4.02	3.40
SD	3.93	4.74	4.05	5.02	4.54	3.66
Chronic Conditions[d]						
M	2.84	2.62	2.89	3.22	2.72	2.83
SD	3.05	2.30	2.92	2.95	1.97	1.90

[a] Compared to perfect health on a 5-point Likert scale (from 0= very good to 4= very poor)

[b] Compared to others the same age on a 5-point Likert scale (from 0= very good to 4= very poor)

[c] Extent to which health has required a change in 8 areas, each scored on a 5-point Likert scale (from 0= no change to 4= give up activity); maximum score = 32

[d] Incidence and seriousness of 26 chronic conditions, each scored on a 3-point Likert scale (from 0= no problem to 2= serious problem); maximum score = 52

approximately 8.7% held part-time employment and only 2.3% held full-time employment.

Self-ratings of health indicate the generally healthy nature of the two samples. In both samples, the majority of subjects reported that their health was either good or very good, (a) compared to perfect functioning (Sample 1: 80.5%; Sample 2: 82.9%), and (b) relative to others the same age (Sample 1: 89.2%; Sample 2: 90.1%). There were no gender differences found on either of these health measures in Samples 1 or 2.

Additional details on the characteristics of the participants may be found in Hultsch, Hertzog, and Dixon (1987) for Sample 1, and in Hultsch, Hertzog, and Dixon (1990) for Sample 2.

Measures

Sample 1

All participants completed a battery of paper and pencil tests assessing a variety of demographic, social, and personality variables over two sessions. The variables of interest for the present analysis include: subjective age identity, physical health, social desirability, locus of control (internal, powerful others and chance), anxiety, depression, stress, fatigue, arousal, vigour, well-being, positive and negative affect, and happiness. The measures employed in this analysis are listed below in the order of their administration. All the measures, except the three

locus of control measures, were administered in the first session. Other measures which were administered, but will not be employed in this sample include a variety of metamemory questionnaires (session 1), a number of memory tasks, and an activity questionnaire (session 2).

Self-reported Health. Self-reported health was measured using the three dimensions of (a) subjective rating of health, (b) instrumental health, and (c) chronic conditions, as suggested by Liang (1986). These dimensions represent psychological, social, and medical definitions of physical health. Liang (1986) argues that physical illnesses affect one's role performance and that one's subjective evaluation of one's health is a function of both illness and role performance. Taking a symbolic interactionist approach, Liang (1986) notes that how a person interprets symptoms is influenced (a) through one's social interactions, (b) through one's definition and interpretation of the situation, and (c) through one's selective responses to external stimuli.

Two measures of subjectively-related physical health were obtained. The first measure, overall health, was assessed with the question "Compared to a perfect state of health, I believe my overall health to be ___". The second measure, relative health, was assessed through the question, "Compared to other people my age, I believe my overall health to be ___". Responses ranged from very good to very

poor. Higher scores indicate poorer health. Instrumental health involves rating the extent to which one's health has required one to make changes in one's employment, household chores, mobility (e.g., driving a car), mental activities (e.g., reading), recreational sporting activities, hobbies, socializing, and travel, over the past two years. Change is rated on a 5-point Likert scale ranging from no change to give up activity. Chronic conditions is a measure of the incidence and seriousness of a variety of conditions on a 3-point Likert scale ranging from no problem (0) to serious problem (2). The following types of conditions were represented: respiratory (e.g., bronchitis), circulatory (e.g., stroke), digestive/internal (e.g., ulcer), nervous system (e.g., stammering), glandular (e.g., diabetes), infirmities (e.g., hearing trouble), arthritis/rheumatism, and cancer/tumour.

Positive and Negative Affect. Positive and negative affect were measured using the Bradburn Affect Balance Scale, which measures two independent dimensions of psychological well-being (Bradburn, 1969). This measure consists of ten statements that ask whether a person has felt a certain way during the past month, considering his or her present situation. Five of the statements measure positive affect (e.g., Have you felt: "pleased about having accomplished something?") and five statements measure negative affect (e.g., Have you felt: "upset because

someone criticized you?"). Subjects responded with either yes or no to each of the ten statements. A maximum score of 5 is possible for positive affect and for negative affect.

Internal consistency estimates are good, with Cronbach alphas of .66 for positive affect and .70 for negative affect (Mangen, 1977, cited in Mangen & Peterson, 1982). Test-retest reliabilities range from .80 to .97 for the entire scale when administered over various intervals of one week or less in a sample age 18-60 years (Bradburn, 1969). Both George (1981) and Moriwaki (1974) report the Affect Balance Scale is appropriate for use with an elderly population. The validity of this scale, as assessed through correlations with (a) the Rosow Morale Scale, and (b) a single-item happiness measure, is fair (Bradburn, 1969; Moriwaki, 1974).

Happiness. Happiness also is considered to be a measure of psychological well-being (Bradburn, 1969), and was assessed with the following question: "Taking all things together, would you say you are" not too happy (1), pretty happy (2), or very happy (3) (Gurin, Veroff, & Feld, 1960). Gurin et al. (1960) reported that 89% of their national sample felt pretty happy or very happy. Test-retest reliabilities (Kendall's tau) range from .59 over a 4-6 month interval (Robinson, 1973) to .43 over an 8 month interval (Bradburn & Caplovitz, 1965). The validity of this

scale, as assessed through correlations with the Affect Balance Scale, is fair (Bradburn, 1969; Moriwaki, 1974).

Subjective Age Identity. Subjective age identity was measured with two questions representing: (a) feel age, "Most of the time, I feel as though I were about age _____", and (b) ideal age, "If I could be any age I wanted right now, I would like to be _____". Responses to these questions were used to calculate two subjective age discrepancy scores.

The first score, subjective age perception (SAP), is defined as the age one feels minus chronological age (FA-CA). SAP is essentially a measure of how inaccurate a person perceives chronological age to be as a measure of the age he or she feels. It is a measure of how old a person feels according to broad socially-defined chronological age markers, and relative to that person's own chronological age. For example, a person who feels 70, but chronologically is 85, has a SAP of -15; that is, he or she feels 15 years younger than his or her chronological age. A person who feels 69, but is chronologically 63, has a SAP of +6. In other words, this person feels 6 years older than his or her chronological age. A negative score denotes a younger SAP, whereas a positive score indicates an older SAP.

The second age identity score, chronological age satisfaction (CAS), is defined as the age you would like to

be minus chronological age (LA-CA). It is essentially a measure of how satisfied an individual is with being the age he or she is chronologically. For example, a person who is 65, but would like to be 45, has a CAS of -20; that is, they would like to be 20 years younger than their chronological age. A positive score indicates a person would like to be older than his or her chronological age. Theoretically, chronological age satisfaction only occurs when LA=CA.

State-Trait Anxiety Inventory (STAI form X-1). This state form of the STAI contains 20 items, each consisting of a statement describing present feelings or states (e.g., "I feel calm") (Spielberger, Gorsuch & Luschene, 1970). Subjects indicate the presence of these states using a 4-point Likert scale, ranging from not at all (1) to very much so (4). Higher scores represent greater anxiety, with a maximum score of 80. According to Buros (1978), this scale has shown high internal consistency in a student sample, with alpha coefficients ranging from .83 to .92. Test-retest reliabilities range from .33 (males) and .16 (females) after a one-hour interval, to .33 (males) and .31 (females) after an interval of 104 days. The validity of the STAI-X1, as assessed through comparisons with other established state measures (e.g., Affect Adjective Check List, Manifest Anxiety Scale) is good, with coefficients ranging from .52 to .80 (Buros, 1978).

Mood Adjective Rating Scale. This questionnaire consists of 65 adjectives (e.g., jittery, happy, drowsy) measuring the five subscales of anxiety, fatigue, depression, vigour, and well-being (Usala & Hertzog, 1989). Thirty-eight of the items had been employed in the Profile of Mood States (POMS) (McNair, Larr & Droppleman, 1971) and twenty-seven adjectives had been employed by Lebo and Nesselroade (1978) in their Pregnancy Mood Checklist (PMCL). Subjects rated the extent to which each adjective reflected their current mood on a 5-point Likert scale, ranging from not at all (1) to extremely (5). Higher scores represent greater presence of that state.

Marlowe-Crowne Social Desirability Scale (M-CSDS). This 20-item short form of the original 33-item social desirability scale was designed to measure the degree to which subjects bias their responses to items in a socially favourable direction in order to achieve the approval of others (Strahan & Gerbasi, 1972). However, in line with the arguments of McCrae and Costa (1983) regarding this measure, the M-CSDS will be employed as an individual differences or trait variable rather than as a validity or bias measure. Subjects answer true or false to questions such as "There have been occasions when I took advantage of someone". There are equal numbers of positively-keyed and negatively-keyed items in this measure. Higher scores (maximum score of 20) reflect greater social desirability. For the

purposes of administration, this questionnaire was labelled the Personal Reaction Inventory.

Center for Epidemiologic Studies Depression Scale (CES-D). The CES-D, which is composed of 20 symptoms, was designed to measure a subject's current depressive symptoms with an emphasis on depressed mood (Radloff, 1977). Respondents rate the frequency with which they have experienced particular depressive symptoms during the past week (e.g., "During the past week I had a crying spell"). Responses range from less than one day (0) to 5-7 days (3), with a maximum score of 60. Using coefficient alpha and the split-halves method (Spearman-Brown), the CES-D displays high internal consistency (an average of .85) in the general population. Test-retest reliability is adequate and the scale shows good construct validity (Radloff, 1977).

Levenson Locus of Control Scale. This 24-item scale consists of three subscales (internal control, powerful others, and chance) that assess different aspects (i.e., sources) of locus of control (Levenson, 1974). Internal control refers to an individual's belief that he or she exercises control over his or her life. Powerful others refers to an individual's belief that the world is ordered and that powerful others are in control. Finally, chance refers to an individual's belief that the world is unordered and that fate rules. Subjects respond to statements such as, "How many friends I have depends on how nice a person I

am". A 6-point Likert scale ranging from strongly disagree (1) to strongly agree (6) was employed. Higher scores (maximum score of 48) on each subscale represent a greater belief in that type of locus of control. Internal consistency estimates are moderately high, with coefficient alphas (Kuder-Richardson) of .64 for internal control, .77 for powerful others, and .78 for chance. Split-half reliabilities (Spearman-Brown) were .62 for internal control, .66 for powerful others, and .64 for chance. One-week test-retest reliabilities were .64, .74, and .78, respectively.

Spheres of Control Scale (SOC). Unlike the Levenson measure which focuses on spheres of control source, the SOC scale focuses on spheres of behaviour (i.e., personal efficacy, interpersonal control, and socio-political control) (Paulhus & Christie, 1981). Only the 10-item personal efficacy subscale, which focuses on personal achievement, was administered in the MIA study. Responses to statements such as "I can learn almost anything if I set my mind to it" are made using a 6-point Likert scale ranging from strongly disagree (1) to strongly agree (6). Higher scores (maximum score of 60) represent greater internal control. Paulhus and Christie (1981) report an alpha reliability of .75 for the personal efficacy subscale.

Sample 2

All participants completed a battery of paper and pencil tests assessing a variety of demographic, social, and personality variables over three sessions. The variables of interest in this analysis include: subjective age identity, physical health, neuroticism, extraversion, openness, positive and negative affect, and happiness. These measures are listed below in order of their administration. All of these measures were administered in the first two sessions. Other measures which were administered, but which will not be used in the present analysis include: a vocabulary survey, a metamemory questionnaire (session 1), several memory tasks (e.g., text memory) (sessions 1 and 2), word exercises (e.g., word opposites), an activity questionnaire (session 2), and tests of reading comprehension, comprehension speed, number tracking, word and sentence verification, and sentence construction (session 3).

Personal Data Sheet. The demographic, health and lifestyle, positive and negative affect, and happiness items within the personal data sheet are identical to those employed in Sample 1, with the exception of the measure of chronic conditions. In Sample 2, 26 conditions were assessed rather than 20 conditions as in Sample 1. In addition, the condition category of anemia was employed rather than that of arthritis/rheumatism.

Subjective Age Identity. The measures of SAP and CAS employed here are identical to those described in Sample 1.

NEO Personality Inventory (NEO-PI) - Form S. The NEO-PI measures five domains of normal adult personality traits: Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C) (Costa & McCrae, 1985). Only the major personality traits of N, E, and O were used in the present sample as they are the most fully developed and commonly employed of the NEO-PI trait domains (Conoley & Kramer, 1989). Neuroticism assesses the level of adjustment and emotional stability in an individual (e.g., hypochondriacal and emotional versus self-satisfied and secure). Extraversion assesses the quantity and intensity of interpersonal interaction, activity level, and emotional capacity (e.g., sociable and affectionate versus aloof and retiring). Openness assesses experience-seeking and appreciation (e.g., untraditional and imaginative versus conventional and down-to-earth). Form S of the NEO-PI consists of 181 items to which subjects respond using a five-point scale, ranging from strongly disagree (1) to strongly agree (5). It is a self-administered instrument appropriate for men and women of all ages. Higher scores on each subscale (maximum score of 192) represent greater presence of that trait. Internal consistency for the NEO-PI is very high, with alpha coefficients ranging from .85 to .93 for the N, E, and O domains (Costa & McCrae, 1985). Test-retest reliabilities for the domain scales range from .86 to .91 based on a small sample retested after 6 months

(Costa & McCrae, 1985). The validity of the NEO-PI, as assessed (a) through correlations with other established measures (e.g., Eysenck Personality Questionnaire), and (b) through spouse and peer ratings, is good (Costa & McCrae, 1985).

Data Analysis

The data analysis consisted of four parts. The first task was to determine if subjects in Samples 1 and 2 were significantly different from elderly subjects in the MIA and ADAM studies who were not included in the samples due to incomplete data on the variables of interest ("nonresponders"). If differences exist between subjects in the samples employed and the nonresponders, this could limit the generalizability of the results found even further. To investigate this question, the subjects in Samples 1 and 2 were compared to two different nonresponder groups on the variables of age, gender, level of education, overall health and level of happiness using a oneway analysis of variance (ANOVA). If a significant difference was found between the groups for any of the variables, Tukey's honestly significant difference (HSD) procedure was employed to determine between which groups a difference exists.

Next, a means level analysis was conducted to describe the ages men and women both feel and would like to be in Samples 1 and 2. Two age by gender univariate analyses of variance (ANOVAs) were conducted for each sample to

determine if there were main or interaction effects of age and gender for each subjective age measure (SAP and CAS). ANOVAs rather than MANOVAs were conducted for the following reasons (Huberty & Morris, 1989). First, SAP and CAS are assumed to be conceptually independent measures of subjective age identity, much like N, E, and O are conceptually independent measures of personality. The purpose of this research was not to look for an underlying construct of subjective age identity; therefore, there was no interest in seeking a linear composite of SAP and CAS. Second, the questions being asked here are exploratory in nature because many of the personality trait variables employed have not been studied previously in relation to subjective age. However, when multiple univariate analyses are conducted, unacceptably high experimentwise or Type I error rates may result. To correct for this, an additive Bonferroni inequality was employed (i.e., in this case, $p < .025$) (Huberty & Morris, 1989).

The third part of the analysis consisted of correlations among the variables of interest in each of Samples 1 and 2. This was followed by a series of hierarchical regressions to examine, in a more sophisticated manner, the relationships between personality trait variables and the subjective age measures. This approach was selected because of the interest in the descriptive aspect of regression rather than the predictive aspect.

Hierarchical regressions involve incremental partitioning of variance (IPV) which allows for the examination of the effect of some variable(s) on the dependent variable while controlling for (a) the effects of other variable(s), and (b) any intercorrelations among variables (Pedhauzur, 1982).

The logic of the analysis called for two series of regression analyses: (a) examining the relationship of the personality trait variables with subjective age, and (b) examining whether personality traits moderate the relationships between other variables and subjective age. These analyses were conducted in both samples and for both SAP and CAS. Each series of regressions consisted of several models designed to examine systematically the relationships among the variables of interest. In each model, the personal variables of chronological age, gender, and years of education were entered first as a block to control for any effects they might have.

The first series of regression analyses specifically examined the relationship of personality trait variables to subjective age (SAP and CAS). In the first model, personal variables were entered as a block first, followed by the personality trait variables, which were entered together as a block. In subsequent models, trait variables were entered individually following the personal variables (e.g., Model 2: block 1 = personal variables; block 2 = neuroticism).

The second series of regressions were designed to examine whether personality traits moderate the relationships between other variables and subjective age. The other variables chosen consisted of (a) several measures of physical health, and (b) a variety of affective state variables. The first model examined the contribution of the health variables to subjective age when the effects of personal variables were controlled. If the contribution of the health variables to subjective age was statistically significant, then subsequent models employed the trait variable(s) that had shown a statistically significant relationship to subjective age (in the first series of regressions) as control variables. The trait variable(s) were entered individually in separate models after the personal variables and before the health variables (e.g., Model 2: block 1 = personal variables; block 2 = extraversion; block 3 = physical health variables). A similar series of regressions were conducted employing the affective state measures.

CHAPTER IV

RESULTS

Comparison of Samples 1 and 2 with Nonresponder Groups

Two subsamples of "nonresponders" were identified in the original elderly MIA and ADAM study samples, and were not included in the subsequent analyses: (a) Ss who were missing data only on one or both of the subjective age questions (MIA: N = 19; ADAM: N = 54), and (b) Ss who had missing data on other variables of interest and who may or may not have had missing data on the subjective age questions (MIA: N = 16; ADAM: N = 75). The two groups of nonresponders were compared with the present study samples (Sample 1: N = 241; Sample 2: N = 355) on the following variables: chronological age, gender, years of education, overall level of health, and level of happiness, using a oneway analysis of variance (ANOVA). There were no statistically significant differences found between Sample 1 and the nonresponder groups on any of these variables. However, in Sample 2, the three groups differed on (a) chronological age, and (b) years of education. A Tukey's honestly significant difference (HSD) procedure shows that both groups of nonresponders (71.1 yrs and 72.1 yrs of age) were significantly older ($p < .05$) than subjects in Sample 2 (68.3 yrs of age), and that Sample 2 subjects (13.4 yrs of education) were significantly more educated ($p < .05$) than the second group of nonresponders (12.3 yrs of education).

Means Level and Age by Gender Analyses

Tables 3 and 4 present the means and standard deviations for all of the variables employed in Samples 1 and 2, respectively, by age group and by gender. Table 5 shows the distribution of subjects according to whether they felt younger, the same as, or older than their chronological ages for both samples. The vast majority of subjects (both men and women) in Samples 1 and 2 felt younger than their chronological ages (Sample 1: 83.4%; Sample 2: 85.1%).

Table 6 summarizes the means level findings for SAP in both samples by age group and by gender. Overall, subjects in Sample 1 felt 13.5 years younger than their chronological ages. Men, on average, felt 12.6 years younger whereas women, on average, felt 14.2 years younger. Subjects in Sample 2 generally felt 12.9 years younger than their chronological age. Men, on average, felt 11.2 years younger, whereas women, on average, felt 14.1 years younger.

The 2 x 2 age by gender univariate analysis of variance (ANOVA) conducted on SAP for Sample 1 was inconsistent with the 3 x 2 age by gender ANOVA conducted on Sample 2. A significant main effect of age was found for Sample 1, $F(1,237) = 6.11$, $p < .025$, but not for Sample 2. An examination of the means in Table 6 for Sample 1 indicates that subjects in the older age group (age 65-75 years) felt significantly younger than their chronological ages relative to subjects in the younger age group (age 55-64 years).

Table 3

Means and Standard Deviations for Variables by Age Group and by Gender for Sample 1

Variable	Age 55-64 years		Age 65-75 years	
	Men (n= 39)	Women (n= 61)	Men (n= 73)	Women (n= 68)
SAP[a]				
M	-10.31	-12.21	-13.88	-15.91
SD	12.18	11.72	9.73	11.53
CAS[a]				
M	-22.59	-16.72	-25.51	-24.65
SD	14.91	12.72	17.96	15.79
Social Desirability[b]				
M	29.10	30.10	31.00	30.88
SD	4.33	5.67	3.66	3.89
Levenson Internal Control[c]				
M	36.18	35.46	36.30	36.12
SD	4.43	4.25	4.03	4.35
SOC Personal Efficacy[d]				
M	45.13	43.47	44.02	44.25
SD	4.62	4.77	4.68	4.04
Levenson Powerful Others[c]				
M	22.07	22.02	24.27	22.18
SD	4.87	5.66	5.70	4.96
Levenson Chance Control[c]				
M	21.39	23.26	23.52	23.21
SD	4.35	6.02	5.69	5.28
Positive Affect[e]				
M	4.00	3.80	3.92	3.90
SD	1.38	1.24	1.31	1.43
Negative Affect[e]				
M	1.23	1.56	.67	1.19
SD	1.53	1.50	1.00	1.40

Table 3 cont'd

Variable	Age 55-64 years		Age 65-75 years	
	Men (n= 39)	Women (n= 61)	Men (n= 73)	Women (n= 68)
Happiness[f]				
M	2.28	2.18	2.30	2.25
SD	.56	.65	.62	.53
CESD Depression[g]				
M	26.23	27.68	26.43	28.86
SD	9.52	8.08	7.61	8.99
Mood Adjective Depression[h]				
M	24.13	23.03	22.72	22.40
SD	12.04	6.46	5.76	6.37
STAI Anxiety[i]				
M	28.21	29.89	27.94	29.88
SD	6.95	8.69	6.79	8.49
Mood Adjective Anxiety[j]				
M	17.85	17.38	17.04	17.46
SD	5.46	4.50	4.53	5.23
Mood Adjective Fatigue[k]				
M	14.01	14.95	12.88	14.76
SD	5.42	5.12	4.10	4.92
Mood Adjective Vigour[l]				
M	36.21	33.24	36.12	31.84
SD	10.73	8.24	9.34	7.90
Mood Adjective Well-being[m]				
M	32.26	30.97	31.72	30.33
SD	8.74	7.63	8.58	6.52

[a] in years, [b] maximum score = 40, [c] maximum score = 48, [d] maximum score = 60, [e] maximum score = 5, [f] maximum score = 3, [g] maximum score = 80, [h] maximum score = 95, [i] maximum score = 80, [j] maximum score = 65, [k] maximum score = 55, [l] maximum score = 60, [m] maximum score = 50

Table 4

Means and Standard Deviations for Variables by Age Group and by Gender for Sample 2

	Age 55-64 yrs		Age 65-75 yrs		Age 75-85 yrs	
Variable	Men (n=37)	Women (n=61)	Men (n=102)	Women (n=125)	Men (n=12)	Women (n=18)
SAP[a]						
M	-10.43	-11.90	-10.78	-15.26	-15.22	-13.50
SD	8.92	12.48	9.72	13.39	12.96	11.22
CAS[a]						
M	-22.73	-17.44	-23.83	-19.87	-19.61	-24.58
SD	15.42	12.63	18.19	14.18	18.64	19.84
Neuroticism[b]						
M	143.61	144.02	144.96	145.84	146.07	147.96
SD	7.10	8.58	9.01	8.64	9.80	9.99
Extraversion[b]						
M	155.69	155.05	152.87	153.64	156.25	156.29
SD	9.12	7.39	7.30	7.57	8.59	9.85
Openness[b]						
M	150.84	149.33	153.46	150.07	156.97	153.89
SD	9.48	8.88	8.57	9.24	11.14	8.59
Positive Affect[c]						
M	3.87	4.16	3.77	3.89	3.50	3.79
SD	1.44	1.13	1.31	1.21	1.79	1.44
Negative Affect[c]						
M	.65	1.13	.65	.67	.28	.46
SD	1.01	1.31	1.03	1.11	.75	.72
Happiness[d]						
M	1.38	1.34	1.39	1.35	1.50	1.21
SD	.55	.60	.55	.53	.51	.51

[a] in years, [b] maximum score = 240, [c] maximum score = 5, [d] maximum score = 3

Table 5

Distribution of Subjects in Samples 1 and 2 Who Feel Younger, Same As, or Older Than Chronological Age

	Sample 1			Sample 2		
Category	Men (n=112)	Women (n=129)	Total (n=241)	Men (n=151)	Women (n=204)	Total (n=355)
Feels Younger	83.0% (n=93)	83.7% (n=108)	83.4% (n=201)	83.4% (n=126)	86.3% (n=176)	85.1% (n=302)
Feels Same	13.4% (n=15)	12.4% (n=16)	12.9% (n=31)	14.6% (n=22)	9.8% (n=20)	11.8% (n=42)
Feels Older	3.6% (n=4)	3.9% (n=5)	3.7% (n=9)	2.0% (n=3)	3.9% (n=8)	3.1% (n=11)

Table 6

Summary of Means for SAP in Samples 1 and 2 by Age Group and Gender

	Sample 1			Sample 2		
Age Group	Men	Women	Total	Men	Women	Total
55-64 years	-10.31	-12.21	-11.47	-10.43	-11.90	-11.35
(n)	(39)	(61)	(100)	(37)	(61)	(98)
65-75 years	-13.88	-15.91	-14.86	-10.98	-15.34	-13.38
(n)	(73)	(68)	(141)	(102)	(125)	(227)
76-85 years	---	---	---	-15.75	-12.39	-13.73
(n)				(12)	(18)	(30)
Total	-12.63	-14.16	-13.45	-11.23	-14.05	-12.85
(n)	(112)	(129)	(241)	(151)	(204)	(355)

That a similar finding was not evident in Sample 2 is surprising considering this sample contains not only the same two age groupings as Sample 1, but an additional older age group (age 76-85 years) as well.

Samples 1 and 2 also differed in the findings related to gender. There was no significant main effect of gender in Sample 1, but there was in Sample 2, $F(1,349) = 5.433$, $p < .025$. An examination of the means in Table 6 for Sample 2 shows that women felt significantly younger than their chronological ages relative to men. There were no significant age by gender interactions in either study.

Table 7 shows the distribution of subjects according to whether they would like to be younger, the same as, or older than their chronological ages for both samples. The vast majority of subjects (both men and women) would have liked to have been younger than their chronological ages (Sample 1: 84.2%; Sample 2: 80.8%).

Table 8 summarizes the means level findings for CAS in both samples by age group and by gender. Overall, subjects would have liked to have been 22.6 years younger than their chronological ages. Men, on average, would have liked to have been 24.5 years younger whereas women, on average, would have liked to have been 20.9 years younger. Subjects in Sample 2 generally would have liked to have been 21.1 years younger than their chronological age. Men, on average, would have liked to have been 23.1 years younger,

Table 7

Distribution of Subjects in Samples 1 and 2 Who Would Like to Be Younger, Same As, or Older Than Chronological Age

	Sample 1			Sample 2		
Category	Men (n=112)	Women (n=129)	Total (n=241)	Men (n=151)	Women (n=204)	Total (n=355)
Would Like To Be Younger	84.8% (n=95)	83.7% (n=108)	84.2% (n=203)	81.5% (n=123)	80.4% (n=164)	80.8% (n=287)
Would Like To Be Same	14.3% (n=16)	13.2% (n=17)	13.7% (n=33)	17.9% (n=27)	19.6% (n=40)	18.9% (n=67)
Would Like To Be Older	0.9% (n=1)	3.1% (n=4)	2.1% (n=5)	0.7% (n=1)	0.0% (n=0)	0.3% (n= 1)

Table 8

Summary of Means for CAS in Samples 1 and 2 by Age Group and Gender

	Sample 1			Sample 2		
Age Group	Men	Women	Total	Men	Women	Total
55-64 years	-22.59	-16.72	-19.01	-22.73	-17.44	-19.44
(n)	(39)	(61)	(100)	(37)	(61)	(98)
65-75 years	-25.51	-24.65	-25.09	-23.62	-19.80	-21.52
(n)	(73)	(68)	(141)	(102)	(125)	(227)
76-85 years	---	---	---	-19.33	-26.61	-23.70
(n)				(12)	(18)	(30)
Total	-24.49	-20.90	-22.57	-23.06	-19.70	-21.13
(n)	(112)	(129)	(241)	(151)	(204)	(355)

whereas women, on average, would have liked to have been 19.7 years younger.

Age by gender ANOVAs conducted on CAS for Sample 1 (2 x 2) and Sample 2 (3 x 2) revealed somewhat inconsistent results. Once again, a significant main effect for age was found for Sample 1, $F(1,237) = 7.67$, $p < .01$, but not for Sample 2. An examination of the means in Table 8 for Sample 1 shows that subjects in the older age group would have liked to have been significantly younger than their chronological ages relative to subjects in the younger age group. Again, it is surprising that such a finding was not found in Sample 2 even though it contains an additional older age group. There was neither a significant main effect of gender, nor a significant age by gender interaction in Sample 1 or Sample 2.

Correlational Findings

The zero-order correlations among the personality trait, physical health, and affective state variables for Samples 1 and 2 are shown in Appendix A. Tables 9 and 10 present the zero-order correlations between the subjective age measures and the variables employed in Sample 1. Table 11 presents the zero-order correlations between the subjective age measures and the variables employed in Sample 2. Of particular interest are three sets of correlational findings. The first set involves the correlations (a) between feel age and ideal age, and (b) between SAP and CAS.

Table 9

Zero-order Correlations of Demographic, Health and Trait Variables with Subjective Age Measures in Sample 1

Variable	Feel Age	SAP	Ideal Age	CAS
SAP	.89**			
Ideal Age	.22***	.17**		
CAS	.09	.21***	.94***	
Chronological Age	.35***	-.12	.12	-.22***
Level of Education	-.01	-.02	-.10	-.10
Overall Health	-.32***	-.30***	-.02	.01
Relative Health	-.25***	-.28***	-.02	-.04
Instrumental Health	.17**	.18**	.00	.00
Chronic Conditions	.21***	.17**	.04	.01
Social Desirability	.05	-.05	.03	-.04
Levenson Internal Control	-.10	-.13	-.05	-.07
SOC Personal Efficacy	-.18**	-.17**	-.01	.00
Levenson Powerful Others	.09	.02	-.13	-.18**
Levenson Chance Control	.11	.05	-.02	-.06

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 10

Zero-order Correlations of Affective State Variables with Subjective Age Measures in Sample 1

Variables	Feel Age	SAP	Ideal Age	CAS
Positive Affect	-.25***	-.26***	.10	.11
Negative Affect	-.03	.06	-.14*	-.08
Happiness	-.18**	-.21***	.17**	.15*
CESD Depression	.18**	.17**	-.10	-.12
Mood Adjective Depression	.10	.13*	-.12	-.10
STAI Anxiety	.10	.12	-.11	-.09
Mood Adjective Anxiety	.10	.14*	-.06	-.03
Mood Adjective Fatigue	.23***	.25***	.03	.03
Mood Adjective Vigour	-.26***	-.26***	.07	.08
Mood Adjective Well-being	-.20**	-.21***	.09	.09

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 11

Zero-order Correlations of All Variables with Subjective Age Measures in Sample 2

Variables	Feel Age	SAP	Ideal Age	CAS
SAP	.90***			
Ideal Age	.15**	.05		
CAS	.02	.08	.94***	
Chronological Age	.38***	-.06	.23***	-.11*
Level of Education	-.01	.01	.05	.07
Overall Health	-.24***	-.23***	-.01	.01
Relative Health	-.24***	-.26***	.00	.00
Instrumental Health	.24***	.22***	.02	-.01
Chronic Conditions	.16**	.14**	.01	-.01
Neuroticism	.05	.02	-.11*	-.14**
Extraversion	-.16**	-.17***	-.11*	-.12*
Openness	.08	.00	-.08	-.15**
Positive Affect	.07	.13*	-.02	.01
Negative Affect	-.26***	-.23***	-.03	.01
Happiness	-.18***	-.18***	.12*	.13*

* $p < .05$, ** $p < .01$, *** $p < .001$

The correlation between feel age and ideal age was low and positive for both samples (Sample 1: $r = .22$, $p < .001$; Sample 2: $r = .15$, $p < .01$). Thus, feeling young is associated with wanting to be young. The correlation between SAP and CAS was statistically significant in Sample 1 ($r = .21$, $p < .001$), but not in Sample 2. Thus feeling younger than one's chronological age may be, but is not necessarily, associated with wanting to be younger than one's chronological age.

The second set of correlations examines the relationships between (a) chronological age and the feel age/SAP measures, and (b) chronological age and the ideal age/CAS measures. The correlation between chronological age and feel age in both samples was low and positive (Sample 1: $r = .35$, $p < .001$; Sample 2: $r = .38$, $p < .001$) as expected, indicating that the older the individual is chronologically, the older the age he or she reports feeling. No statistically significant correlation was found between chronological age and SAP for either sample, meaning that there was no association found between one's chronological age and the age one feels relative to one's chronological age. The correlational findings between chronological age and ideal age for the two samples were inconsistent. In Sample 1, there was no significant relationship found between chronological age and ideal age. However, in Sample 2 the correlation between chronological

age and ideal age was low and positive (r = .23, p < .001), indicating that the older the individual is chronologically, the older the age the individual states he or she would like to be. A significant negative correlation was found between chronological age and CAS in both samples (Sample 1: r = -.22, p < .001; Sample 2: r = -.11, p < .05), indicating that the older the individual is chronologically, the younger the individual would like to be relative to his or her chronological age.

The third set of correlations of particular interest are the correlations between (a) the personality trait variables and SAP, and (b) the personality trait variables and CAS. In Sample 1, the only trait variable that was significantly correlated with SAP was the SOC Personal Efficacy (internal locus of control) measure (r = -.17, p < .01). This indicates that feeling younger than one's chronological age is associated with higher internal locus of control scores on this measure. In Sample 2, the only trait that was significantly correlated with SAP was extraversion (r = -.17, p < .001), indicating that feeling younger than one's chronological age is associated with being more extraverted.

An examination of the correlations with CAS shows that the only personality trait variable that CAS was significantly correlated with in Sample 1, was the powerful others control measure (r = -.18, p < .01). This suggests

that wanting to be younger than one's chronological age is associated with a belief that powerful others are in control of events. In Sample 2, CAS was significantly correlated with all three trait variables of neuroticism (r = -.14, p < .01), extraversion (r = -.12, p < .05), and openness (r = -.15, p < .01). This indicates that wanting to be younger than one's chronological age is associated with being more neurotic, extraverted and open to new experiences.

Hierarchical Regression Findings

The main analysis consisted of two series of hierarchical regression analyses to examine, in a more sophisticated manner, the relationships among personality trait variables and the subjective age measures. As noted earlier, each series of regression analyses was conducted (a) for each sample, and (b) for SAP and for CAS.

Relationship of Trait Variables to SAP

The first series of hierarchical regressions in Samples 1 and 2 addressed the question of whether personality trait variables, as a whole or in part, were related to SAP or the age people feel relative to their chronological age (Question 1). In the first model, personal variables (chronological age, gender, and years of education) were entered first, followed by the trait variables as a block. Subsequent models each entered only one trait variable as a block by itself, following the personal variables.

The second series of regressions addressed the role of trait variables as moderating variables in the relationship between other variables (i.e., health variables and affective state variables) and SAP (Question 2). In the first model, the strength of the relationship between physical health and SAP was established by entering the personal variables first, followed by the health variables. In the second model, only the trait(s) found to be significantly related to SAP (in Question 1) were entered after the personal variables and before the health variables. The same procedure was followed employing the affective state variables rather than the physical health variables.

Sample 1. Two different sets of personality traits were employed in this sample: (a) locus of control, and (b) social desirability. Three dimensions of locus of control were measured employing two measures of internal control, one powerful others measure and one chance control measure. There were four different health variables employed, all representing aspects of self-reported physical health. Ten different measures of affective state were employed, representing the five different states of depression, anxiety, fatigue, vigour, and well-being.

Table 12 shows the results of the first series of five hierarchical regression models designed to answer Question 1. As seen in Model 1, neither the personal variables

Table 12

Summary of Hierarchical Regressions for SAP: Sample 1

Independent Variable	R^2	R^2(ch)	F(ch)	df(ch)	p(ch)
		Model 1			
Personal Variables	.0217	.0127	1.749	3,237	n.s.
All Trait Variables	.0554	.0337	1.656	5,232	n.s.
		Model 2			
Personal Variables	.0217	.0127	1.749	3,237	n.s.
Internal Control Variables	.0550	.0334	4.147	2,235	.017
		Model 3			
Personal Variables	.0217	.0127	1.749	3,237	n.s.
Powerful Others	.0224	.0007	0.180	1,236	n.s.
		Model 4			
Personal Variables	.0217	.0127	1.749	3,237	n.s.
Chance Control	.0253	.0036	0.884	1,236	n.s.
		Model 5			
Personal Variables	.0217	.0127	1.749	3,237	n.s.
Social Desirability	.0222	.0005	0.126	1,236	n.s.

Note. Personal variables = chronological age, gender and years of education. All trait variables = two measures of internal control, and one measure each of powerful others control, chance control and social desirability.

nor the trait variables explained a significant amount of the variance in SAP. However, because previous literature has shown a significant relationship between internal locus of control and subjective age, it was decided to examine separately the relationship of each individual trait variable with SAP. An examination of Models 2 to 5 shows that only internal control made a significant independent contribution to SAP, explaining 5.5% of the variance in SAP together with the personal variables (Model 2).

Table 13 shows the results of the second series of four hierarchical regression models designed to answer Question 2. Health made a significant independent contribution to SAP after the effects of personal variables were controlled (Model 1). Together with the personal variables, health explained 12.9% of the variance in SAP. Because internal control was the only trait to contribute significantly to SAP, it was the only personality trait employed as a moderator variable in this analysis. Model 2 demonstrates that when the internal control variables were employed as control or moderator variables, the overall model was still significant and health was still a significant contributor to SAP. The employment of the internal control variables as moderating variables reduced the contribution of health by only 1.2%.

Affective state variables were found to make a significant independent contribution to SAP as well, and

Table 13

Summary of Hierarchical Regressions for SAP in Sample 1: Trait as a Moderator Variable

Independent Variable	R^1	R^2(ch)	F(ch)	df(ch)	p(ch)
		Model 1			
Personal Variables	.0217	.0217	1.749	3,237	n.s.
Health Variables	.1286	.1070	7.152	4,233	.000
		Model 2			
Personal Variables	.0217	.0217	1.749	3,237	n.s.
Internal Control Variables	.0550	.0334	4.147	2,235	.017
Health Variables	.1498	.0948	6.441	4,231	.000
		Model 3			
Personal Variables	.0217	.0217	1.749	3,237	n.s.
Affective State Variables	.1695	.1478	4.041	10,227	.000
		Model 4			
Personal Variables	.0217	.0217	1.749	3,237	n.s.
Internal Control Variables	.0550	.0334	4.147	2,235	.017
Affective State Variables	.1719	.1169	3.175	10,225	.001

Note. Personal variables = chronological age, gender and years of education. Health variables = one measure each of overall health, relative health, instrumental health and chronic conditions. Affective state variables = two measures each of depression and anxiety, four measures of well-being and one measure each of fatigue and vigour.

together with the personal variables, explained 17.0% of the variance in SAP (Model 3). Model 4 shows that affective state still explained a significant amount of the variance in SAP even after the effects of personal variables and internal control variables were controlled. Controlling for the internal control variables reduced the contribution of affective state variables by 3.1%.

Sample 2. The personality traits employed in this sample consisted of neuroticism, extraversion, and openness. As with Sample 1, there were four health variables employed, all representing aspects of self-reported physical health. Only the affective state of well-being was employed. This was assessed using measures of positive affect, negative affect, and happiness.

Table 14 shows the results of the first series of four hierarchical regression models designed to answer Question 1. Trait variables as a whole made a significant independent contribution to SAP, but only explained 5.9% of the variance in SAP together with the personal variables. When the trait variables were examined separately, only extraversion made a statistically significant independent contribution to SAP and explained 4.7% of the variance in SAP together with the personal variables (Model 3). Table 15 shows the results of the second series of four hierarchical regression models designed to answer Question 2. Health variables made a significant contribution to

Table 14

Summary of Hierarchical Regressions for SAP: Sample 2

Independent Variable	R^2	R^2(ch)	F(ch)	df(ch)	p(ch)
		Model 1			
Personal Variables	.0193	.0193	2.304	3,351	n.s.
All Trait Variables	.0586	.0393	4.837	3,348	.003
		Model 2			
Personal Variables	.0193	.0193	2.304	3,351	n.s.
Neuroticism	.0201	.0008	0.276	1,350	n.s.
		Model 3			
Personal Variables	.0193	.0193	2.304	3,351	n.s.
Extraversion	.0474	.0281	10.329	1,350	.001
		Model 4			
Personal Variables	.0193	.0193	2.304	3,351	n.s.
Openness	.0194	.0001	0.037	1,350	n.s.

Note. Personal variables = chronological age, gender and years of education. All trait variables = one measure each of neuroticism, extraversion and openness.

Table 15

Summary of Hierarchical Regressions for SAP in Sample 2: Trait as a Moderator Variable

Independent Variable	R^2	R^2(ch)	F(ch)	df(ch)	p(ch)
		Model 1			
Personal Variables	.0193	.0193	2.304	3,351	n.s.
Health Variables	.1035	.0842	8.151	4,347	.000
		Model 2			
Personal Variables	.0193	.0193	2.304	3,351	n.s.
Extraversion	.0474	.0281	10.329	1,350	.001
Health Variables	.1233	.0759	7.490	4,346	.000
		Model 3			
Personal Variables	.0193	.0193	2.304	3,351	n.s.
Affective State Variables	.0894	.0701	8.926	3,348	.000
		Model 4			
Personal Variables	.0193	.0193	2.304	3,351	n.s.
Extraversion	.0474	.0281	10.329	1,350	.001
Affective State Variables	.1065	.0591	7.650	3,347	.000

Note. Personal variables = chronological age, gender and years of education. Health variables = one measure each of overall health, relative health, instrumental health and chronic conditions. Affective state variables = three measures of well-being.

SAP after the effects of the personal variables were controlled (Model 1). Together with the personal variables, health explained 10.4% of the variance in SAP. Only extraversion was employed as a moderator variable in this analysis as it was the only trait to explain a significant amount of the variance in SAP (in Question 1). Model 2 demonstrates that when extraversion is added as control or moderator variable, the overall model is still significant and health is still a significant contributor to SAP. Employing extraversion as a control variable reduced the contribution of the health variables by less than 1%.

Affective state variables also made a significant contribution to SAP after the personal variables were controlled (Model 3). Together with the personal variables, affective state variables explained 8.9% of the variance in SAP. This finding was not altered by the addition of extraversion as a control variable, which only reduced the contribution of the affective state variables by 1.1.% (Model 4).

Summary. In Sample 1, only the internal locus of control variables were found to make a significant independent contribution to SAP, explaining 5.5% of the variance together with the personal variables. In Sample 2, both the trait variables as a whole, and the extraversion variable on its own made significant independent contributions to SAP. Together with the personal variables,

traits as a whole explained 5.9% of the variance in SAP, whereas extraversion explained 4.7% of the variance. In Samples 1 and 2, both the health and affective state variables independently made a significant contribution to SAP over and above the personal variables. The inclusion of trait variables as control variables had little impact on these relationships.

Relationship of Trait Variables to CAS

The same two series of hierarchical regression analyses conducted with SAP were repeated here with CAS as the dependent variable.

Sample 1. As in the analyses conducted with SAP, these analyses employed the personality traits of internal control, powerful others, chance control, and social desirability. There were four different health variables employed as well as ten different measures of affective state.

Table 16 shows the results of the first series of five hierarchical regression models designed to answer Question 1. An examination of Model 1 shows that although personal variables contributed significantly to CAS, the trait variables as a whole did not (Model 1). As was done with SAP, it was decided to examine individually, the relationship of each individual trait variable with CAS. Only the powerful others variable made a statistically significant independent contribution to CAS, explaining 8.5%

Table 16

Summary of Hierarchical Regressions for CAS: Sample 1

Independent Variable	R^2	R^2(ch)	F(ch)	df(ch)	p(ch)
		Model 1			
Personal Variables	.0631	.0631	5.319	3,237	.001
All Trait Variables	.0912	.0281	1.434	5,232	n.s.
		Model 2			
Personal Variables	.0631	.0631	5.319	3,237	.001
Internal Control Variables	.0660	.0029	0.367	2,235	n.s.
		Model 3			
Personal Variables	.0631	.0631	5.319	3,237	.001
Powerful Others Control	.0854	.0223	5.762	1,236	.017
		Model 4			
Personal Variables	.0631	.0631	5.319	3,237	.001
Chance Control	.0663	.0032	0.811	1,236	n.s.
		Model 5			
Personal Variables	.0631	.0631	5.319	3,237	.001
Social Desirability	.0631	.0000	0.001	1,236	n.s.

Note. Personal variables = chronological age, gender and years of education. All trait variables = two measures of internal control, and one measure each of powerful others control, chance control and social desirability.

of the variance in CAS together with the personal variables (Model 3).

An examination of the two models shown in Table 17 indicates that neither health variables nor the affective state variables made a significant independent contribution to CAS after the effects of the personal variables were controlled. Since these results were not significant, no further analyses were conducted to examine the moderating effects of the powerful others trait variable.

Sample 2. As with the analyses conducted with SAP, the personality traits employed here consisted of neuroticism, extraversion and openness. In addition, four physical health variables and three affective state variables were employed. Table 18 shows the results of the first series of four hierarchical regression models designed to answer Question 1. An examination of Model 1 shows that trait variables as a whole made a significant independent contribution to CAS after the personal variables were controlled, but explained only 5.2% of the variance in CAS together with the personal variables. Significant independent contributions to CAS were made individually by all three trait variables of neuroticism, extraversion and openness as well (Models 2 to 4). Together with the personal variables, neuroticism, extraversion and openness explained 4.5%, 3.9% and 3.9%, respectively, of the variance in CAS.

Table 17

Summary of Hierarchical Regressions for CAS in Sample 1: Trait as a Moderator Variable

Independent Variable	R^2	R^2(ch)	F(ch)	df(ch)	p(ch)
		Model 1			
Personal Variables	.0631	.0631	5.319	3,237	.001
Health Variables	.0646	.0015	0.096	4,233	n.s.
		Model 2			
Personal Variables	.0631	.0631	5.319	3,237	.001
Affective State Variables	.1106	.0475	1.213	10,227	n.s.

Note. Personal variables = chronological age, gender and years of education. Health variables = one measure each of overall health, relative health, instrumental health and chronic conditions. Affective state variables = two measures each of depression and anxiety, four measures of well-being, and one measure each of fatigue and vigour.

Table 18

Summary of Hierarchical Regressions for CAS: Sample 2

Independent Variable	R^2	R^2(ch)	F(ch)	df(ch)	p(ch)
		Model 1			
Personal Variables	.0263	.0263	3.160	3,351	.025
All Trait Variables	.0520	.0257	3.146	3,348	.025
		Model 2			
Personal Variables	.0263	.0263	3.160	3,351	.025
Neuroticism	.0452	.0189	6.939	1,350	.009
		Model 3			
Personal Variables	.0263	.0263	3.160	3,351	.025
Extraversion	.0386	.0123	4.490	1,350	.035
		Model 4			
Personal Variables	.0263	.0263	3.160	3,351	.025
Openness	.0392	.0129	4.684	1,350	.031

Note. Personal variables = chronological age, gender and years of education. All trait variables = one measure each of neuroticism, extraversion and openness.

The findings for the second series of hierarchical regression analyses are shown in Table 19. An examination of Model 1 shows that health variables did not make a significant contribution to CAS once the effects of the personal variables were controlled. As a result, no further analyses were conducted to examine the moderating effects of personality traits.

Model 2 shows that the affective state variables contributed a statistically significant amount to the variance in CAS once the personal variables were controlled, explaining 4.9% of the variance in CAS together with the personal variables. However, when the trait variables as a whole were employed as control variables, the statistically significant relationship between affective state and CAS disappeared (Model 3). Models 4 and 6 show that when neuroticism and openness were employed individually as control variables, the relationship between affective state variables and CAS also disappeared. However, when extraversion (Model 5) was employed as a control variable, the statistically significant relationship between affective state and CAS remained.

Summary. In Sample 1, only the powerful others variable made a significant contribution to CAS, explaining 8.5% of the variance together with the personal variables. In Sample 2, trait variables as a whole, together with the personal variables, explained only 5.2% of the variance in

Table 19

Summary of Hierarchical Regressions for CAS in Sample 2: Trait as a Moderator Variable

Independent Variable	R^2	R^2(ch)	F(ch)	df(ch)	p(ch)
		Model 1			
Personal Variables	.0263	.0263	3.160	3,351	.025
Health Variables	.0266	.0003	0.027	4,347	n.s.
		Model 2			
Personal Variables	.0263	.0263	3.160	3,351	.025
Affective State Variables	.0492	.0229	2.794	3,348	.040
		Model 3			
Personal Variables	.0263	.0263	3.160	3,351	.025
All Trait Variables	.0520	.0257	3.146	3,348	.025
Affective State Variables	.0717	.0197	2.436	3,345	n.s.
		Model 4			
Personal Variables	.0263	.0263	3.160	3,351	.025
Neuroticism	.0452	.0189	6.939	1,350	.009
Affective State Variables	.0643	.0191	2.362	3,347	n.s.
		Model 5			
Personal Variables	.0263	.0263	3.160	3,351	.025
Extraversion	.0386	.0123	4.490	1,350	.035
Affective State Variables	.0625	.0239	2.943	3,347	.033
		Model 6			
Personal Variables	.0263	.0263	3.160	3,351	.025
Openness	.0392	.0129	4.684	1,350	.031
Affective State Variables	.0600	.0209	2.566	3,347	n.s.

Note. Personal variables = chronological age, gender and years of education. All trait variables = one measure each of neuroticism, extraversion and openness. Affective state variables = three measures of well-being.

CAS. Individually, neuroticism, extraversion, and openness each made a significant contribution to CAS, explaining (together with the personal variables) 4.5%, 3.9% and 3.9%, respectively, of the variance in CAS. In neither sample did the health variables make a significant contribution to CAS, so the moderating effects of traits were not examined for this variable. Affective state variables did not make a significant contribution to CAS in Sample 1, but they did in Sample 2. Here, they explained 4.9% of the variance in CAS. The relationship between affective state and CAS disappeared when the trait variables as a whole, neuroticism, or openness were employed as controls, but remained when extraversion was employed as a control variable.

CHAPTER V

GENERAL DISCUSSION

The purpose of the present study was to examine the relationship of personality trait variables to two different measures of subjective age. The conceptual basis for this investigation rests on the connections between (a) symbolic interactionism and the self-concept, and (b) the self-concept and both personality traits and subjective age. The self-concept, a central concept within symbolic interactionist thought, is regarded as a structural product of the dialecticism that exists between the impulsive "I" and the socialized "Me". Symbolic interactionism is primarily employed in sociological research. As a result, most work using this perspective focuses on the societally-influenced aspects of the self, or the "Me". The rawer, less-formed aspect of the self, the "I", has been less well-studied. In this study, it has been argued that both personality trait and subjective age identity form part of the self-concept (George et al., 1980; Gordon, 1968; McCrae & Costa, 1988; Turner, 1978). The present research proposes that personality traits represent part of the "I" aspect of the self and as such, influence an individual's subjective age identity. Theoretically, personality traits would not only influence subjective age directly, but would influence how the individual interprets the messages received from society which may affect his or her age as well.

Two main questions were asked concerning the relationship between personality trait measures and the subjective age measures of SAP and CAS. The first question asks whether trait variables, as a whole or in part, make a significant contribution to SAP and/or CAS; in essence, whether personality traits might influence subjective age. The second question examines the role of personality trait variables as moderators of the relationship between other variables (i.e., physical health and affective state) and subjective age. For example, if (a) personality trait variables, as modes of responding, influence the reporting of both physical health and subjective age, and (b) physical health influences one's reported subjective age, then the relationship between physical health and subjective age may be spurious, and instead due to the influence of personality trait.

The personality traits employed in this research included locus of control variables and social desirability in Sample 1, and neuroticism, extraversion, and openness in Sample 2. The present section discusses the results and implications of (a) the general findings regarding SAP and CAS, (b) the relationship of personality trait variables to SAP and to CAS, and (c) the role of trait variables as moderators of the relationships between subjective age and both physical health variables and affective state variables. The limitations of the present research, and

suggested directions for future research are presented as well.

Summary of the Results and their Implications

General Findings for SAP and CAS

Over 80% of the subjects in both samples felt younger than their chronological ages. This figure is in keeping with other research in the literature that reports between 50-80% of individuals feel younger than their chronological ages (Plawecki & Plawecki, 1980; Terpstra et al., 1989; Underhill & Cadwell, 1983). Subjects in Samples 1 and 2, on average, felt 13.5 years and 12.9 years (respectively) younger than their chronological ages. These numbers are consistent with the general findings in the literature that older individuals, on average, feel between twelve and fifteen years younger than their chronological ages (Osteen & Best, 1985; Zola, 1962).

Age and gender main effects were inconsistent between the two samples. Several factors suggest that these inconsistencies are a result of the age groups selected for the analysis. First, given the age groups employed in this study, it is possible that the lack of (a) an age main effect in Sample 2, and (b) a gender main effect in Sample 1, are due to sampling biases. An examination of the means for subjects in the 65-75 year age group for Samples 1 and 2 shows that the mean for men in Sample 2 is much lower than the means for (a) men in Sample 1, and (b) women in Samples

1 and 2. Thus, this one mean appears to have had a considerable impact on the age and gender findings. Had different age groups been used, these findings may have been quite different. Second, an examination of the correlations between chronological age and SAP in the two samples (Tables 9-11) shows that these two variables are not significantly correlated. Thus, the age effect found in Sample 1 may be restricted to the age groups selected in this study.

The study of CAS, a measure of ideal age, is an important part of this thesis since very little work has been done with this concept. Over 80% of subjects in the two samples reported that they would like to be younger than their chronological ages. Subjects in Samples 1 and 2, on average, reported ideal ages that were 22.6 years and 21.1 years (respectively) younger than their chronological ages. These numbers clearly are consistent with Zola (1962), who reported in his study of adults over the age of 40 years, that his subjects desired to be, on average, 22 years younger than their chronological ages. As with SAP, the age main effects for CAS were inconsistent between Samples 1 and 2. Again, these inconsistencies likely are a result of the age groups selected for the analysis. An examination of the means for women age 65-75 years in Samples 1 and 2 shows that these means differ considerably. This suggests that a sampling bias might have affected the results. Moreover, an examination of the correlational tables for the two samples

(Tables 9-11) indicates that chronological age is negatively correlated with CAS, and the lack of an age main effect in Sample 2 was likely a result of the age groupings employed.

In Samples 1 and 2, feel age and ideal age were found to be positively correlated, indicating that wanting to be younger was associated with feeling younger. This does not support the findings of Zola (1962), who found no relationship between feel age and ideal age, even though he used the same type of feel age and ideal age questions as employed in this study. The findings for the relationship between SAP and CAS, in the present samples, were inconsistent. Thus, wanting to be younger than one's chronological age is not necessarily related to feeling younger than one's chronological age.

In summary then, the results confirm the hypothesis that older subjects, on average, will both feel and want to be considerably younger than their chronological ages. Age and gender effects were inconsistent between the two samples. The results of this research did not confirm Zola's (1962) finding that feel age and ideal age were unrelated, although no consistent relationship was reported between SAP and CAS.

Relationship of Personality Traits to SAP

The personality trait variables employed in Sample 1 included social desirability, as well as internal, powerful others and chance locus of control. In the correlational

table for Sample 1, the only trait variable that was significantly (negatively) correlated with SAP was the SOC personal efficacy measure of internal locus of control (Table 10). It is surprising that the Levenson measure of internal control did not correlate significantly with SAP. Previous literature had reported a relationship between subjective age and Rotter's locus of control measure (Baum & Boxley, 1983; Linn & Hunter, 1979), which measures internal locus of control in much the same way as the Levenson measure. The SOC locus of control measure is concerned with the area over which one has control. The personal efficacy subscale assesses one's control over his or her personal achievement, rather than a control over life in general. Thus, individuals who feel younger than their chronological age are more likely to feel as though they have control over what happens to them personally. The relationship between internal locus of control and SAP was confirmed using a hierarchical regression. Although trait variables as a whole did not make a significant contribution to SAP, the internal locus of control variables did. Based on the results of the correlations, this relationship probably was due primarily to the influence of the SOC personal efficacy measure. These findings suggest that the relationship between SAP and internal locus of control needs to be examined further employing several different measures of both these constructs.

Locus of control variables appear to be the only personality trait variables that have been examined in the subjective age research. Sample 2 expands this research by including the more mainstream personality variables of neuroticism, extraversion, and openness. The only trait variable that was significantly (negatively) correlated with SAP was extraversion. Thus, feeling younger than one's chronological age is related to being more extraverted (e.g., more sociable and active). Controlling for the effects of the personal variables in a hierarchical regression analysis, trait variables, as a whole, did make a significant contribution to SAP. However, an examination of the contribution of each trait variable to SAP separately, showed that this relationship was due primarily to the influence of the extraversion variable. It would be interesting to see how other variables, presumed to be related to extraversion (e.g., social participation, friendship patterns, activity levels and types), would relate to SAP.

In sum, the present research found that SAP was correlated only with the SOC personal efficacy measure of locus of control. Although it was expected that SAP would not be related to the powerful others and chance control variables, the finding that SAP was not related to the Levenson measure of internal control was surprising. Of the

NEO-PI trait variables, only extraversion was significantly correlated to SAP.

Relationship of Trait Variables to CAS

In the correlational tables for Sample 1, the only trait found to be significantly (negatively) correlated with CAS was the powerful others locus of control variable. This suggests that wanting to be younger than one's chronological age is associated with a belief that powerful others are in control of events. The strength of this relationship was tested and confirmed using a hierarchical regression. Controlling for the effects of personal variables, the powerful others trait variable still made a significant contribution to CAS. One possible explanation is that individuals who believe powerful others are in control want to be younger than their chronological age in the hopes of regaining personal (or internal) control. Another possibility is that society and the media have an important influence on the ages people would like to be, whether or not they feel those ages. Given the latter explanation however, it is surprising that social desirability showed no significant correlation to CAS. If social desirability is interpreted as a need for approval, evidently individuals who display such a need do not, as a whole, necessarily want to be younger than their chronological age. This is interesting from a symbolic interactionist perspective since

it was expected that such individuals would be highly influenced by society's emphasis on being younger.

In the second sample, all three traits of neuroticism, extraversion, and openness were correlated significantly (negatively) with CAS. Thus, wanting to be younger than one's chronological age is associated with being more neurotic, extraverted and open to new experiences. These relationships were examined further using hierarchical regression analysis. When the personal variables were controlled, trait variables, as a whole, and neuroticism, extraversion and openness made a significant contribution to CAS as might have been expected from the correlational findings. Although it was hypothesized that more out-going, adventurous, and experience-seeking individuals would want to be younger than their chronological ages, the relationship between CAS and neuroticism was unexpected. Clearly, trait variables, as measured by the NEO-PI, are strongly related to wanting to be younger than one's chronological age.

It would be interesting to examine the correlation between powerful others control and neuroticism to see if perhaps individuals who are more neurotic are more likely to believe in this type of locus of control, or vice-versa. If so, this would tie in with the connection between CAS and powerful others, suggesting that perhaps some people want to be younger than their chronological ages because they feel

powerless and as a result are insecure about themselves. Another possible explanation concerns the influence of the media on both society and the individual with regards to the ages people want to be. Given the general message in the media that life is all about being young, active, and fun (e.g., more open and extraverted), it would not be surprising if people start wanting to be like the images portrayed in the media. It is possible that individuals who are insecure about themselves and/or believe that powerful others can change things for them want to be younger than their chronological ages because they are more susceptible to the messages projected by society and the media.

In summary, wanting to be younger than one's chronological age is associated with (a) a belief that powerful others are in control of events, and (b) being more extraverted, neurotic, and open to new experiences. Although only the relationships between CAS and extraversion and openness were hypothesized, the relationships between CAS and both powerful others control and neuroticism do make sense.

The Role of Traits as Moderating Variables: SAP and CAS

It is proposed that personality trait variables influence how individuals interpret the information around them and thus how this information will relate to subjective age identity. The relationships between SAP and both physical health variables and affective state variables were

employed to test the effects of trait as a moderating variable. Previous research has shown that better physical health is related to younger subjective ages (Baum & Boxley, 1983; Bultena & Powers, 1978; George et al., 1980). There is also some suggestion that affective states (e.g., positive affect) also may play a role in subjective age identification (George et al., 1980; Mutran & George, 1982).

Other research has indicated (a) that neuroticism, along with objective health status, influences self-reported physical health (Costa & McCrae, 1985; Costa, McCrae & Norris, 1981), and (b) that extraversion and neuroticism influence well-being, as measured by positive and negative affect (Costa & McCrae, 1980; Costa, McCrae & Norris, 1981). As such, trait variables may be responsible for the relationships between subjective age measures and (a) physical health variables, and (b) affective state variables. However, in both samples, trait variables (i.e., internal locus of control and extraversion) had little to no impact on the relationships between SAP and either (a) physical health, or (b) affective state. This is a highly surprising finding and suggests that the influence of objective health status on self-reported physical health has a greater impact on SAP than do trait variables. The finding that trait variables did not moderate the relationship between SAP and affective state could have been due to the use of many different affective state variables

to which a relationship with trait variables has never been established. Evidently, physical health and affective state variables explain a significant amount of variance in SAP independent of trait variables.

The effects of trait as a moderating variable also was tested on the relationships between CAS and both health variables and affective state variables. In both samples, health variables did not make a significant contribution to CAS, so the moderating effects of trait could not be examined in this case. Although affective states did not make a significant contribution to CAS in Sample 1, they did in Sample 2. Recall that Sample 2 only measures the affective state of well-being (through positive and negative affect and happiness). Interestingly, the relationship between these affective state variables and CAS disappeared when trait variables, as a whole, neuroticism, or openness were employed as control variables. This finding supports the findings of Costa and McCrae (1980) and Costa, McCrae, and Norris (1981) that neuroticism influences reports of well-being. However, when extraversion was employed as a control variable, this relationship remained. Evidently, well-being makes a significant contribution to CAS independent of extraversion, but not independent of neuroticism and openness.

In summary, it appears that trait variables do not influence strongly the parts of physical health variables or

affective state variables that relate to SAP. Whether trait variables, physical health, or affective state variables contribute to SAP entirely independently from one another needs to be examined further. The moderating effects of trait variables could be examined only with the relationship between CAS and affective state variables, and only in Sample 2. Here, it was found that neuroticism and openness significantly altered the relationship between CAS and affective state.

Conclusions

It is evident from this research that for many people, chronological age is not representative of how most people feel, or perceive the aging process within themselves. Clearly, individuals in these two samples felt and would like to be considerably younger than their chronological ages. The general hypothesis that personality trait variables would play a role in the ages people feel and would like to be was confirmed. Feeling younger than one's chronological age was associated with (a) an internal locus of control, or the belief that the individual is in control, at least over his or her personal affairs, and (b) higher scores on extraversion, or the tendency to be active, sociable, and affectionate. Wanting to be younger than one's chronological age was associated with (a) the belief that powerful others are in control of events, (b) higher scores on neuroticism, or the tendency to be less self-

satisfied and more insecure, (c) higher scores on extraversion, and (d) higher scores on openness, or the tendency to be more open to new experiences.

Less support was found for the hypothesis that trait variables, as relatively stable patterns of responding, are responsible for the relationships between subjective age measures and (a) physical health variables and (b) affective state variables. It appears that physical health variables and affective state variables make a significant contribution to SAP independently of the influence of trait variables. In the case of CAS, physical health variables made no significant contribution to CAS in either sample. Affective state variables contributed to CAS only in Sample 2. Here, it was found that of neuroticism, extraversion and openness, only neuroticism and openness were able to explain the relationship between CAS and affective state variables.

Limitations of the Research

The results of this research should be evaluated in light of several limitations. The first limitation concerns the characteristics of the two samples. Participants in both samples were better educated and healthier than the average Canadian over the age of 55 years, thus limiting the generalizability of the results. As a result, the percentage of subjects feeling younger than their chronological ages, and the numbers of years younger that they felt, were probably inflated relative to what would be

found in a more representative, and particularly, less healthy sample. The problem of generalizability of findings due to nonrepresentative samples needs to be addressed in future research.

Another limitation concerns the way in which the feel age and ideal age questions were asked. The feel age question was couched in a trait-like manner, or in terms of the age felt "most of the time". Ideal age, on the other hand, was asked in a state-like manner, or in terms of the age a person would like to be "right now". As a result, it is uncertain what effect the differential wording might have had on the trait and state relationships with these variables. Interestingly though, more of the personality traits were associated with the CAS or ideal age measure, which was written in a more state-like manner.

Finally, an important limitation is that subjects were not asked how important or relevant their chronological age or subjective age is to them. Such a question does not appear to have been broached to subjects before, but might be an important step in subjective age research. For some people, age is an important issue, guiding when they do things and how they plan their lives. For others, age is hardly ever a consideration in how they behave or plan their lives. In the literature, the amount of variance explained in subjective age measures by any combination of variables is notoriously low (usually less than 15%) and may be a

result of the quality of the responses to subjective age questions. If, according to role and role-identity theorists, individuals have salience hierarchies and age is not a central or even peripheral role or identity on that hierarchy, then it would not be surprising if for those people, the concept of subjective age has little or no meaning or relevance. It is entirely possible that the inability to explain much of subjective age is due, in part, to random responding by certain subjects that has no relationship to the variables being studied. This is an issue that needs to be examined further.

Suggestions for Future Research

Considerable research is needed in the area of subjective age identity. On a broad basis, more theoretical work and critical review are needed to guide the definition and measurement of subjective age identity. The current multitude of measures available and employed in the literature only serves to complicate the research findings and confuse the reader. More groundwork is required to discover (a) whether chronological age is important to every individual, and (b) the influences that subjects report have an effect on their subjective age choices. Research in symbolic interactionism has shown that individuals differ in the content and extent of their role-identity salience hierarchies. It would not be surprising to discover that for some individuals, chronological age and/or subjective

age is an important part of their self-concept, whereas for others, age plays either less of a role or no role at all in their lives. It would be interesting to see (a) if the amount of explained variance in subjective age increases when only individuals for whom age is important are employed, and (b) what variables (e.g., traits) might distinguish among individuals for whom age is, and is not, important.

More work also needs to be conducted examining the role of trait variables in subjective age identity, particularly from a symbolic interactionist perspective. Symbolic interactionism provides a theoretical basis for considering the interplay between those variables relevant to the self (e.g., the "I") and those variables more relevant to society (e.g., the "Me"). The relative importance of trait and state variables to subjective age identity also needs to be examined further. Part of this could include examining subjective age longitudinally to determine not only its stability over time, but the relationship of trait and state variables at one time period to subjective age reported at other time periods.

Finally, more work needs to be done (a) with different age groups across the lifespan ranging from adolescence to the elderly, and (b) with samples that are more representative of the average Canadian in terms of educational level, socio-economic status and physical health

status. Considerable research has been done in subjective age with subjects over the age of 60 years. More work is needed examining subjective age from adolescence through middle age. Recently some subjective age research has started to appear in the area of adolescence with the work of Joann Montepare and her colleagues (Montepare, 1991; Montepare & Lachman, 1989). Considerably less work has been conducted with samples between the ages of 20 and 55 years (Steitz & McClary, 1988). Very little is known about the differential influences on subjective age at various points in the lifespan, or exactly when developmental shifts in subjective age identity might occur, or what might be responsible for these shifts.

Finally, the samples employed in subjective age research are almost invariably healthy, well-educated individuals of higher than average socio-economic status. More work needs to be conducted away from large, university-based cities. Not only do more individuals of different socio-economic or income levels need to be considered, but also individuals who vary more widely in (a) their level of functional capacity (e.g., community-dwelling versus institutionalized), and (b) their immediate health status. Too often, we test not just individuals who generally are very healthy, but we also test healthy individuals when they are at their healthiest (e.g., when they do not have a cold, or when their sore back is not "acting up"). More creative

methods of recruiting subjects are necessary if more representative samples are to be obtained.

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Table A-1

Correlations Between Personality Trait Variables and Other Variables of Interest in Sample 1

Variable	1	2	3	4	5
1. LEVIC					
2. SOCPE	.45***				
3. LEVPO	-.07	-.23***			
4. LEVCC	-.15*	-.34***	.68***		
5. SODES	.10	.12*	.05	.12*	
6. OHEAL	.08	.19**	-.16*	-.14*	.00
7. RHEAL	.04	.21***	-.14*	-.13*	-.04
8. IHEAL	.08	.07	.05	.02	.11
9. CCOND	.04	-.13*	.12*	.08	-.04
10. PAFFT	.22***	.34***	-.13*	-.17**	.08
11. NAFFT	-.17**	-.09	.01	-.05	-.28***
12. HAPPY	.33***	.24***	-.22***	-.22***	.15*
13. CESDD	-.18**	-.26***	.17**	.11	-.13*
14. MADEP	-.09	-.11	.11	.00	-.17**
15. STAIA	-.28***	-.25***	.10	.11	-.09
16. MAANX	-.12	-.07	.06	-.04	-.19**
17. MAFAT	-.11	-.15*	.07	.07	-.04
18. MAVIG	.37***	.34***	-.14*	-.22***	.04
19. MAWBG	.36***	.31***	-.21***	-.20**	.11

* < .05 ** p < .01 *** p < .001

Note. LEVIC= Levenson Internal Control; SOCPE= Spheres of Control Personal Efficacy; LEVPO= Levenson Powerful Others; LEVCC= Levenson Chance Control; SODES= Social Desirability; OHEAL= Overall Health; RHEAL= Relative Health; IHEAL= Instrumental Health; CCOND= Chronic Conditions; PAFFT= Positive Affect; NAFFT= Negative Affect; HAPPY= Happiness; CESDD= CESD Depression; MADEP= Mood Adjective Depression; STAIA= STAI Anxiety; MAANX= Mood Adjective Anxiety; MAFAT= Mood Adjective Fatigue; MAVIG= Mood Adjective Vigour; MAWBG= Mood Adjective Wellbeing.

Table A-2

Correlations Among Physical Health and Affective State Variables in Sample 1

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. OHEAL	---													
2. RHEAL	.78***	---												
3. IHEAL	-.31***	-.23***	---											
4. CCOND	-.60***	-.54***	.33***	---										
5. PAFFT	.16*	.18**	.09	-.06	---									
6. NAFFT	-.12*	-.13*	.10	.17**	-.18**	---								
7. HAPPY	.18**	.15*	-.12	-.17**	.45***	-.37***	---							
8. CESDD	.29***	-.24***	.13*	.29***	-.43***	.48***	-.45***	---						
9. MADEP	-.10	.13*	.13*	.16*	-.25***	.47***	-.37***	.56***	---					
10. STAIA	.21**	-.26***	.12	.22***	-.31***	.40***	-.41***	.62***	.41***	---				
11. MAANX	-.15*	-.22***	.16*	.25***	-.22***	.39***	-.28***	.55***	.66***	.61***	---			
12. MAFAT	-.20**	-.18**	.21***	.24***	-.20**	.23***	-.24***	.43***	.46***	.33***	.41***	---		
13. MAVIG	.38***	.34***	-.06	-.21***	.32***	-.23***	.41***	-.40***	-.21**	-.45***	-.15*	-.44***	---	
14. MAWBG	.27***	.27***	-.08	-.19**	.35***	-.32***	.47***	-.53***	-.36***	-.60***	-.41***	-.35***	.72***	---

Note. OHEAL= Overall Health; RHEAL= Relative Health; IHEAL= Instrumental Health; CCOND= Chronic Conditions; PAFFT= Positive Affect; NAFFT= Negative Affect; HAPPY= Happiness; CESDD= CESD Depression; MADEP= Mood Adjective Depression; STAIA= STAI Anxiety; MAANX= Mood Adjective Anxiety; MAFAT= Mood Adjective Fatigue; MAVIG= Mood Adjective Vigour; MAWBG= Mood Adjective Wellbeing.

* $p < .05$ ** $p \leq .01$ *** $p < .001$

Table A-3

Correlations Among Personality Trait, Health and Affective State Variables Employed in Sample 2

Variable	1	2	3	4	5	6	7	8	9	10
1. NEURO	---									
2. EXTRA	.36***	---								
3. OPENN	.35***	.42***	---							
4. OHEAL	-.11*	.10***	-.11*	---						
5. RHEAL	-.06	.20***	-.02	.81***	---					
6. IHEAL	.12*	.02	.07	-.41***	-.41***	---				
7. CCOND	.15*	.00	.09	-.46***	-.43***	.38***	---			
8. PAFFT	-.02	.19***	.01	.31***	.34***	-.19***	-.13*	---		
9. NAFFT	.08	.03	-.04	-.07	-.14**	.22***	.18***	-.09***	---	
10. HAPPY	-.12*	.09	-.03	.27***	.24***	-.27***	-.20***	.38***	-.32***	---

Note. NEURO= Neuroticism; EXTRA= Extraversion; OPENN= Openness; OHEAL= Overall Health; RHEAL= Relative Health; IHEAL= Instrumental Health; CCOND= Chronic Conditions; PAFFT= Positive Affect; NAFFT= Negative Affect; HAPPY= Happiness.

* $p < .05$ ** $p < .01$ *** $p < .001$

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Title of Thesis: The Relationship of Personality Trait Variables to Two Measures of Subjective Age Identity: A Symbolic Interactionist Perspective

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