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TIME URGENCY AND SUBJECTIVE WELL-BEING

by

LIRIO S. COVEY

A dissertation submitted to the Graduate Faculty in Social-Personality Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, The City University of New York.

1983

This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

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Abstract

Time Urgency and Subjective Well-being

by

Lirio S. Covey

Adviser: Professor Alden Wessman

This research examined the relationship between time urgency and various indicators of psychological and physical well-being: interpersonal satisfaction, work satisfaction, mental health status, age, marital status, occupation, education, income, smoking, frequency of eating in fast-food restaurants, blood pressure, and serum cholesterol. To measure time urgency, interpersonal satisfaction, and work satisfaction, separate scales were developed using items culled from existing survey instruments and submitted to factor analysis. These procedures resulted in a 12-item urgency measure that was composed of two factors: an overconcern with filling time productively, and speed-impatience; and two five-item measures of interpersonal satisfaction and work satisfaction, respectively. The Psychiatric Symptoms Index was used to assess mental health status.

Data were obtained from 426 women employed in two hospitals in Pennsylvania who completed a self-adminis-

tered questionnaire and underwent a series of biomedical tests.

The hypotheses tested and their results were as follows: Hypotheses 1 and 2, which predicted a negative association between time urgency and interpersonal and work satisfaction, were not confirmed. Hypothesis 3, which stated a positive correlation between time urgency and mental health status, received moderate support that held firm when the effects of other variables were controlled. Hypothesis 4, which posited an association between cigarette smoking status and time urgency, was not supported; but Hypothesis 5, which predicted a positive association between time urgency and frequency of eating in fast-food restaurants, was strongly borne out. Hypothesis 6 predicted that blood pressure levels would increase with time urgency score, while Hypothesis 7 predicted a similar association between time urgency and serum cholesterol. Both hypotheses were not confirmed. Hypothesis 8 stated that time urgency would peak at the ages 45-49; although this was not observed, a peak age of time urgency was seen in the ages 25-29, but only among women reporting children living at home. Hypothesis 9 stated an association between marital status and time

urgency; none was observed. Hypotheses 10 to 12 predicted a positive relationship between time urgency and education, occupational status, and family income. Only the predictions concerning education and occupation received some support, albeit weakly.

These results suggest that an acute sense of time urgency occcurred among persons with multiple commitments, e.g., working women who are also mothers of young children. Time urgency appeared to be accompanied by heightened feelings of psychologic disturbance, but was unrelated to reported feelings of satisfaction or dissatisfaction in life, work, and interpersonal relations.

ACKNOWLEDGEMENTS

This road has been arduous and long. I feel an enormous sense of well-being at having reached the end of it. Particularly near its completion, a surge of time urgency, a response to my own internal pressure, hoisted and propelled me through moments of procrastination and distractibility. And yet, far behind, I recall long periods when time "stood still" and appeared to be of no consequence. I am grateful to all those who stood by me with caring, patience, and faith as I navigated the changing waters of time.

I am deeply grateful to the late Professor Barbara S. Dohrenwend who by her constant yet selective encouragement as my first doctoral-level mentor cemented my belief that this work would be completed; to Professor Stanley Milgram in whose class began my interest in the psychology of time; to Professor Edgar Borgatta who guided me as I began this dissertation; to a large measure, my sponsor, Professor Alden Wessman who quickly discerned the strengths and the critical limitations of my work, then accompanied me to its completion with much thoughtfulness and care; to my committee members Professor Morton Bard and Professor Setsuko Nishi for their encouragement and their useful comments at important stages of this disser-

tation; and my outside readers, Professor Bernard Gorman and Professor Glen Haas.

I am also indebted to my friends Ms. Nancy Vrotsos and Mr. Monte Hewson whose expertise with computers and word processors expedited this work, to Dr. Charles B. Arnold who as Vice President for Research at the American Health Foundation brought me in touch with the Wellness Center, to Dr. Jeffrey Burtaine who made it possible for me to use the Wellness Center data.

I am forever indebted to my parents, Carlos and Hortensia Sobrevinas, who though living miles away in the Philippines, unstintingly gave me their support in every effort in every way. I thank my sons Billy and Mikey, and my husband Michael, for being there and helping me live each day with feeling and with purpose.

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

Western cultures, particularly American society, are said to be permeated by a high degree of time consciousness. Of various ways in which time is conceived, an awareness of time as a tangible commodity with an urgent and compelling quality dominates the American mind (Krech, et al., 1961). However, in many cultures, this concept of time is not salient (Hall, 1959; Kluckholn & Strodtbeck, 1961), and evidence exists that differences in time awareness occur on the individual level as well (Wessman, 1973).

The intimate link between the sense of time and individual and cultural behavior has been noted by philosophers from ages back (Fraser, 1975; Fraisse, 1966), by contemporary social theorists (Lewin, 1951; Frank, 1939; Wirth, 1964), and observed in empirical studies (Wallace & Rabin, 1960; Orme, 1969; Doob, 1971; Gorman & Wessman, 1977b).

Paradoxically, the salient role of the time sense in American culture appears to have a two-edged character. While, on the one hand, time is employed as a basis for social organization (Wirth, 1964; Fraisse, 1966) and the sense of time correlates with another "typically American"

trait, the Achievement motive (McClelland, 1961; Greene & Knapp, 1969), a heightened awareness of time has also been identified as a central component of a risk factor for coronary heart disease, the most prevalent cause of mortality in the U.S. (USDHEW, 1976). As first reported by Friedman & Rosenman (1959), time urgency appears to be a major facet of Type A Behavior. The latter is now well-established in both prospective and retrospective studies, as an independent risk factor for coronary heart disease (Rosenman et al., 1976). It appears, therefore, that a highly salient sense of time, though useful for achieving social and economic gains, may have adverse effects on physical wellbeing. This possibility raises the further problem of the effects of time urgency on subjective or psychological aspects of wellbeing.

Research into the literature reveals that little work has been done on this question. In a national study of the wellbeing of Americans, Campbell, Converse & Rodgers (1976) found a curvilinear relationship between wellbeing and the sense of time. People who felt "always rushed to do even what they had to do" (10% of the sample) and people who "never felt rushed, and often had time on their hands" (20%) scored lower indices of wellbeing than people

in the middle ranges of this time pressure continuum. The relationship between time urgency and wellbeing was not central to their study, however, and the authors did not elaborate on this finding, nor was the question pursued in a later report of that study (Campbell, 1981).

Wessman & Ricks (1966, pp.117-120), in their study of happiness based on in-depth psychological material from 17 Harvard University students, found that compared to unhappy men, happy ones were more likely to view time positively, make long-range commitments, be punctual and efficient, and to overestimate the time they would need to do their work. In agreement with Campbell et al.'s (1976) work, the latter finding implies that while having an awareness of time has an impact on happiness, it does not entail the sense of being rushed or pressured by time.

The importance and desirability of a sense of well-being, whether personally felt as happiness, satisfaction, or lack of stress, is intuitively clear to most of us. Certainly on an individual level, we place a major amount of our energies toward developing, if not maintaining behavioral and living styles that will result in "feeling good". On a wider scale, public programs and policies are continuously mounted, and economic resources allocated, in order to improve the quality of life.

Thus, an underlying rationale of this research, which aims to pursue earlier indications that an acute sense of time may be related to negative states of psychological well-being, is to determine whether, in according such importance in our cultural hierarchy of values to the concept of time, we also rob our lives of that glow of wellbeing. If such is the case, it would be important to know how many of us are so inclined, and to begin to know what characteristics seem to determine or to occur together with this urgent sense of time.

The ideal research material for a test of this question would be a nationwide representative sample. This resource was not available, however, for the present task. Consequently, the scope of the present study was narrowed to a fairly large and predominantly female sample, a group that, as will be seen later, has not been adequately represented in previous approaches to the problem at hand.

In search of guideposts in the formulation of the specific hypotheses for the present study, a review of the writings on the various ways in which time has been conceived and the relevant empirical studies undertaken. Due to the elusive nature of time concept, this task proved to

be a labyrinthine one. Of many forks along the way, this research followed those which most concerned the concept of time urgency. Studies on subjective well-being were reviewed as well, though to a lesser extent. Guided primarily by conclusions of an in-depth psychological study on happiness by Wessman and Ricks (1966), the facets of subjective well-being addressed in this study are interpersonal satisfaction and work satisfaction.

I. The Concept of Time

Time as a subject of inquiry has attracted thinkers over the ages across cultures and across disciplines, from the early philosophers - Aristotle, Socrates and Plato - through the modern thinkers - Locke, Newton, Leibnitz, Kant and Einstein, including a long list of contemporary social scientists in anthropology, sociology and psychology (Fraser, 1966; Gorman & Wessman, 1977).

Among the philosophers, there were those who viewed time as an external reality, and others who saw time as a phenomenological, internal reality. This rough division of notions regarding time in its objective versus subjective features is reflected in the work of contemporary social scientists engaged in time research. Thus, the

mixed bag of empirical studies on time may be categorized into those which deal with time perception (or the estimation of elapsed time) and those which deal with time orientation. Doob (1971) adds a third category - attitudes toward time, but this is included in this review in the category, time orientation. As observed by Wallace & Rabin (1960), time perception studies deal with extra-individual conditions where characteristics of stimuli are defined by the experimenter and involve relatively brief periods of time, while time orientation studies deal with intra-individual phenomena, span longer periods of time, involve past, present, and future time, and depend on projective and other subjective methods of measurement.

A. Time Perception

In an early review, Woodrow (1951) pointed out that previous attempts to measure time as a physical entity have resulted in conflicting results. The search for a physiological "seat" or physiological correlates of time perception also yielded no consensus nor definite findings (Wallace & Rabin, 1960). Although part of the difficulty was due to the fact that several factors affect the perception of time and that different methods had been

used in measuring time perception, the major problem, according to Woodrow, lay in the unmeasurable quality of time itself. "Time is not a thing, that like an apple, may be perceived. Stimuli and patterns of time occupy physical time: and we react to each stimulus by perceptions, judgements, comparison, and estimates, etc. The most significant factors in the estimation of time are external." (Woodrow, 1951, p.1235)

Among the factors noted by Woodrow (1951) to affect the perception of time are: the characteristics of the stimulus itself (duration, intensity, serial position, rhythm, single or paired occurrence); the attitude of the perceiver (attentionality, manner of classifying and organizing stimuli); contextual factors (length of preceding temporal stimulus); and the nature of the experience by which time estimation periods are occupied (i.e., interesting activity seems shorter than one experienced with boredom).

The types of stimuli used in time perception studies were of two general types: 1) empty intervals bounded by the occurrence of stimuli at beginning and at end; or 2) filled time -- sounds or lights lasting continuously over a period of time. The former stimuli involved the

subject's ability to discriminate stimuli, while the latter involved the subject's ability to reproduce stimuli. It was found that accuracy for both types of studies was greater with very short intervals than for those of 4.0 seconds or longer, but that in normal subjects, errors could be reduced by training (Woodrow, 1951).

Regarding the search for a physiological seat, the parietal lobe and parts of the temporal lobe were proposed as possible specific sites of time experience. It was also suggested that the cerebral cortex was organized to have different loci for past and for future orientation. Body metabolism, rhythmical physiological processes, and body temperature were likewise proposed as physiological correlates of time perception. Evidence in support of these physiological hypotheses have not been presented, however (Wallace & Rabin, 1960).

Studies linking time perception with diagnostic states have also been reported, but with inconsistent results. Likewise, these studies have been fraught with methodological problems, both in their lack of controls over the time intervals being judged, and in the assessment of personality dimensions (Doob, 1971; Gorman & Wessman, 1977b). In general, however, general temporal dis-

organization has been linked with depression (Orme, 1965), anxiety (Wallace & Rabin, 1960), schizophrenia (Buchwalk & Blatt, 1974), and psychopathy (Orme, 1965).

Other aspects of personality organization found to be liked with an overestimation of the passage of time (as opposed to underestimation) have been high extraversion (Buchwald & Blatt, 1974), the Achievement motive (Greene & Knapp, 1959), a sense of danger (Langer, Wapner & Werner, 1961), juvenile delinquency (Hindenlang, 1973), and adult perception of parents as dominant figures (Fisher & Fisher, 1953).

B. Time Orientation

Studies in this area may be categorized further into time orientation, time perspective, or attitudes towards time (Doob, 1971). As pointed out earlier, these studies differ from those on time perception or judgement in that they deal with a more phenomenological, personal time sense.

The subjective quality of time orientation has, not unexpectedly, resulted in conceptual and methodological differences in the area. Thus, one finds studies which assess the salience of the time sense (Zern, 1970; Knapp &

Garbutt, 1958), studies involving preferential emphasis on the past, present or future (Le Shan, 1962; Kluckholn & Strodtbeck, 1961), studies that deal with attitudes toward time (Greene & Knapp, 1959), and those concerned only with the future time perspective (Meade, 1971, 1972).

Accordingly, the methods and instruments that have been employed to measure the sense of time are many, difficult to compare, and have been shown to intercorrelate poorly with each other (Lessing, 1968; Gorman & Wessman, 1977b). Projective techniques such as the TAT, Sentence or Story Completion, have been used, as well as questionnaires and interviews.

In the following paragraphs, topics will be organized by concept correlated with time orientation, rather than the dimensions by which the time sense has been studied in the literature. Both theoretical and empirical studies will be reported.

1) Cultural differences

Time imagery. Perhaps the most dramatic expression of the way time is conceived, and the most illustrative in terms of pointing out cultural and individual differences in time orientation lies in expressions of

time imagery. Time may be seen as linear and progressing, or cyclical and static. The former may be seen in the Christian concept of time (Russell, 1966) that is essentially oriented toward the future as seen in the belief that destiny in the next life depends on actions in the present. In contrast, Eastern thought is conceived as static and cyclical (Nakamura, 1966), as seen in the belief in the transmigration of souls, or the continuing succession of lives existing repeatedly in time albeit in different forms.

On the individual level, it is interesting to review Knapp & Garbutt's (1958) study wherein subjects were classed according to their choice of time metaphors. The authors observed three groupings by which time was imagined. To one group (also found to be high in Achievement), time was "a galloping horseman", "a dashing waterfall", "a speeding train", "a fast-moving shuttle", "a whirligig", "a spaceship in flight". To another, time was "a vast expanse of sky", "a quiet motionless ocean", "drifting clouds", "wind-driven sand", while to a third group, time was "a winding spool", "a burning candle", "an old woman spinning", "a tedious song", "a large revolving wheel".

Behavior. The notion that attitudes about time constitute a major influence upon cultural and individual behavior has been supported by a number of empirical studies. Kluckholn & Strodtbeck (1961), studying five cultural communities in the American Southwest in the 1950's, found that time orientation, defined as a preferential emphasis placed either on the past, present or future, was one of a limited number of guiding principles or "value orientations" which people used in solving day-to-day problems. As they predicted, the authors observed differences in the temporal focus expressed in common behaviors of the subgroups they studied. A group of Texan homesteaders, and a Mormon group - who most closely resembled "mainstream Americans", emphasized the future; Spanish-Americans and Navajos showed a preference for the present; while the Zuni Indian group was more oriented toward both the present and past than the future.

That variations in time orientation may be found among different subcultures in the U.S. was also found in younger subjects by Roberts & Greene (1971) who studied school children aged 10-16 from three subcultural communities - Anglo-American, Spanish-American, and American Indian - similar to those studied earlier by

Kluckholn & Strodtbeck. In addition to providing supportive evidence of the latters' work, the study by Roberts & Greene suggested a further complexity of time orientation, i.e., that different time norms were applied to different types of activity, e.g., social, religious, or economic.

A number of cross-cultural studies have been reported confirming cultural differences in time orientation. Robert Meade (1971, 1972) found greater future orientation in male American college students and greater past orientation in male college students in Northern India. This type of difference in time orientation was found as well by Melikian (1969), who compared "urbanized" Saudi Arabian students with those who came from more traditional families.

Social class differences in time attitudes have also been found. Gurvitch (1964) noted a correlation between salience of time awareness and social class; Le Shan (1962) observed more present orientation among lower class children, and more future orientation in middle class children; while Rand & Ellis (1974) found more extensive and coherent future time perspective in middle class than in lower class men.

These empirical evidences of a link between the social environment and time orientation indicate that

unique characteristics of the sample being studied must be considered when interpreting their time-related responses. This caveat was borne in mind in this study, as will be seen in the Discussion section.

2) Time and Human Development

Much theoretical discussion has been devoted to the relationship between the sense of time and human development. There is agreement from both psychoanalytic theory and cognitive development that temporal awareness begins at birth and gradually emerges as the infant and then the child interacts with the natural and social environment in its striving to fulfill its bodily and social needs (Wessman & Gorman, 1977; Buhler, 1968; Piaget, 1966; Meerloo, 1966).

Empirical tests of these notions have been reported. David Zern (1970) in a cross-cultural study, concluded that perception of relationships with parents and the quality of nurturance during the first years of life both exerted an effect on attitude toward time during adult life. Specifically, Zern found that a relatively frustrating first year of life was correlated with a structured and salient sense of time in adulthood. Fisher and Fisher (1953) found that a consciousness of time as limited and controlled was correlated with subjects'

perception of their parents as highly dominating during the early childhood years.

According to Piaget (1966), the development of cognitive functions parallels the development of temporal awareness. In many respects, the child's sense of time begins to conform with that of adult society at about the age of seven. Systematic observations by Ames (1946) indicated that awareness of the present time occurs first, followed by awareness of the future, and then of the past.

The adolescent years are characterized by an ability to achieve a sense of the future. In this period of the lifespan, there are increases in the ability to delay gratification and to view the realm of possibilities rather than only what is directly observable. Erikson (1968) has also suggested that among the cornerstones of adolescent adjustment is the development of a unified time orientation, that is, the ability to integrate the past, present and future in a personally meaningful way. This hypothesis was tested empirically by Klineberg (1967), Davids et al. (1962), and Barndt et al. (1955). Klineberg found that normal adolescents were able to report a sense of the immediate and distant future whereas maladjusted adolescents were limited in their ability to do so. The studies by Barndt et al. and Davids et al. found signifi-

cant differences in temporal orientation, greater present orientation, and shortened time perspective in delinquent versus nondelinquent adolescents.

The work of Charlette Buhler (1968) is a rich and pioneering source of information in the sparse area of the development of the time sense during the adult years. It is during the early adult years, she wrote, shortly before age 25, that a sense of one's lifespan as a time unit with a beginning and an end is first truly grasped. In the next phase, 25 to 45, life goals are set and actions taken to achieve them. The healthy adult is one who lives predominantly in the present but is able to look toward the future as closely intertwined with the present, and who performs realistic action and planning. An empirical demonstration of the relationship between present life assessment and affect regarding the future may be seen in a study by Bortner & Hultsch (1972).

Elizabeth Markson (1973) suggests that typically in their late forties, people become particularly concerned about their own aging. The passage of time appears to accelerate and time appears to have more value. Buhler also noted that during this latter period of the middle years, a time reorientation begins to take place. After age 65, life takes on a different character. Tasks of

role relinquishment, and a greater preoccupation with the past appear. Peculiar to this period are greater retention of past memory and the decreased ability to absorb new information. The ability to delay gratification, a lifelong habit for the normal self-sufficient adult, is subordinated during the later years to a greater engrossment in the present and a utilization of the products of the past (Kastenbaum, 1966). Consistently, Gergen & Back (1965) found that, challenged to provide solutions to a number of international as well as national and domestic problems, older persons tended to prefer short-range solutions to those that would have required gradual unfolding of time.

In summary, the studies relating time perspective and maturation point out that throughout the life span the personal experience and structure of time undergo constant change. This would suggest, therefore, an association between age and time sense that finds its peak during the middle adult years, a question that was examined in this study.

3. Time Orientation and Aspects of Personality

Persons diagnosed with mental illness, e.g., schizophrenia (Wallace, 1956) or alcoholism (Smart, 1968) were found to have shortened and disordered perspectives of time. In a study of adolescents in which social class was controlled, limited time orientation was found to relate with a greater tendency to steal that was not influenced by race, sex, I.Q. or academic achievement (Brock & Del Guidice, 1963).

As noted earlier, Knapp and his colleagues (Green & Knapp, 1959), who had found a relationship between n Achievement and the ability to judge duration of elapsed time, also found a relationship between n Ach and a more salient awareness of time (Knapp & Garbutt, 1958). Subjects high in n Ach (as measured by the TAT) were more likely to denote time imagery denoting swift movement, whereas subjects low in n Ach preferred images with static connotations.

The ability to delay gratification, a characteristic also found in groups of adolescents who were high in n Ach, was found to relate with longer conception of future time and accuracy of perception of past events (Mischel & Metzner, 1962). As pointed out earlier, the ability to

delay gratification in older subjects was found to decrease with changes in perception of the availability of future time (Gergen & Back, 1965).

Two studies on time and personality are noteworthy in that they investigated the association between the subjective experience of time with several rather than single personality dimensions in one study. The earlier one by Calabresi & Cohen (1958), based on responses from 589 subjects (male psychiatric patients, and male and female students), identified four time attitude factors (Time Anxiety, Time Submissiveness, Time Possessiveness, and Time Flexibility). These were related to specific psychiatric diagnoses and personality characteristics. A further factor analysis yielded two constellations of time attitude/personality relationships: Time anxiety and possessiveness were the dominant attitudes of persons who also experienced a high degree of emptiness and frustration, lacked self-confidence, and manifested dependence on old habits and directions from others; while time flexibility and time submissiveness was found in individuals who were comfortable with themselves and their environment. This typology is reminiscent of the Type A versus Type B characterization of the time sense put forth by

Friedman & Rosenman (1974), a topic that will be discussed later in this review.

Wessman (1973) analyzed responses to a questionnaire obtained from 110 college students and identified four bi-polar dimensions of temporal experience: Factor I - Immediate Time Pressure, Factor II - Longterm Personal Direction, Factor III - Time Utilization, and Factor IV - Personal Inconsistency. Each dimension was found to correlate with distinct clusters of personality variables. Of particular interest to this study is Factor I, which included items expressing the amount of time pressure characteristically felt by the individual, contrasting harassed lack of control versus relaxed mastery and adaptive flexibility. This factor loaded positively with personality measures indicating high emotionality, apprehensiveness, and nervous tension, and appears to be similar to Calabresi's Factor I, Time Anxiety. Wessman's Factor I loaded negatively with measures indicating low emotionality, self-confidence, calmness, but also with unimaginativeness and conventionality, somewhat reminiscentof Calabresi & Cohen's Factor II, Time Submissiveness. Wessman's Factor II, Longterm Personal Direction, describes a sense of time that has continuity and is

attuned to the effect of future events on current experience, denoting a sense of hope (the positive end) versus a lack of it (the negative end of the scale). This aspect of the time sense is similar to that studied by Bortner & Hultsch (1972).

Both studies by Calabresi & Cohen, and Wessman attest the intimate link between the awareness of time and general aspects of personality. Wessman's study is particularly significant because it captures in one investigation several apparently orthogonal dimensions by which time is experienced, thereby providing empirical support and justification to the panoply of time concepts and, consequently, of ways of measuring time that exist in the literature. This allusion to the complex structure of the time concept raises the question of the interrelationship among the different dimensions of time. For example, how does the tendency to be oriented toward the past, present, or future interrelate with degree of time pressure; or how do these chronological orientations configure with coherence of future time perspective, found by Bortner & Hultsch (1972) to relate with personal adjustment? A consideration of these various findings indicates that itwould require a substantial data base to undertake a systematic study.

4. Time Urgency

The identification of a particular time attitude that was characterized as a "chronic, incessant struggle to achieve more and more in less and less time" surfaced in the clinical practice of two cardiologists who in the 1960s observed a characteristics "action-emotion complex" among patients whom they had seen over a number of years.

Although the initial focus of their research on cardiovascular disease was on the role of cholesterol and metabolic disturbances, they came to recognize a recurrent syndrome of overt "Type A" behaviors manifested by their patients who were predominantly male executives (Friedman & Rosenman, 1959). A central component of this behavioral syndrome was the sense of time urgency. In subsequent papers, the time urgent Type A person was characterized as anxious to fill up time with purposeful, goal-oriented behavior, to accelerate the rate of all activities, and to be excessively punctual and time oriented (Matthews, 1982).

The importance of time urgency in Type A behavior was experimentally investigated in several studies by David Glass and his colleagues (1977) who based their findings mainly on data from male college undergraduates. Krantz, Glass & Snyder (1974) found that the Speed and Impatience

items of a Type A-B scale factored into a measure of time urgency that was more important in determining Type A versus Type B reactions to situations which typically elicited Type A behavior, than was the use of the total A-B scale. Glass, Snyder & Hollis (1974) and Gastorf (1980) also observed behavioral evidence of greater time urgency among persons identified as Type As. These studies provide convincing support for earlier reports by Rosenman & Friedman that time urgency is an important aspect of Type A behavior.

With a few exceptions, notably those by Calabresi and Cohen, Wessman, and Glass, there have been few psychological studies directly concerned with an acute sense of time. Though Campbell et al.'s (1976) work yielded some data on the relationship between a sense of being rushed and subjective well-being, the trend observed was extremely weak, and time itself was not an important concern in their study. Nevertheless, from these few studies, a consensus is apparent that being highly time urgent is associated with negative rather than pleasant emotional states. As seen by Calabresi & Cohen, persons who are anxious and pressured about time tend to lack self-confidence and to express feelings of frustration.

In Wessman's study, time pressured persons are emotional, apprehensive, and nervous. In Glass' studies, time urgent persons are likely to be impatient, and according to the gamut of Type A literature, time urgent persons, though hard-driving and hard-working, do not usually derive enjoyment from what they do (Jenkins, 1971).

The sum of these findings suggests that time urgency may not be a desirable psychological condition. In fact, it may be asked whether being time urgent is symptomatic of a general psychological malaise that is reflected not only in negative emotionality as previously demonstrated but also in dissatisfaction with current life conditions. This proposition was the principal hypothesis of the present work. Later in the Discussion, however, questions are raised indicating ways in which this initial view was modified. Prior to a description of the procedures undertaken to address this and other questions concerning the nature of time urgency, a review of previous work on subjective well-being follows.

II. Subjective Well-being

Large-scale studies of the psychological well-being of Americans, most of which used representative samples of the American population, have been reported by Wessman (1956), Gurin, Veroff & Feld (1960), Bradburn & Caplovitz (1965), Campbell, Converse & Rodgers (1976), and Campbell (1981). Questions that elicited self-assessments of life satisfaction and happiness were conventionally asked to measure subjective well-being in these studies.[1] Taken together, these reports have provided a general picture of the distribution of reported happiness among Americans over the past thirty years, and identified the major correlates of a sense of well-being. One of the remarkable findings from this literature is that the use of the single question, "Taking all things together, how would you say things are going these days?" has shown high regularity of response patterns over time (Campbell, 1981). Allowing for some deviations, the several studies

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[1]While happiness and satisfaction have been found to be moderately well-correlated, with an r of .50 (Campbell et al., 1976), it has also been noted that happiness and satisfaction are different aspects of subjective well-being. Happiness perhaps evokes an affective, emotional feeling, while life satisfaction implies more of a cognitive judgement, a comparison against a perceived standard.

which used this question generally found that as much as a third of the population reported they were "Very happy," about half were "Pretty happy," and little over a tenth (11-15%) were "Not so happy."

Wessman & Ricks (1966), using a different research strategy, obtained a large body of intimate and detailed psychological material (i.e., psychological tests, daily self-reports, clinical ratings) over a three-year period from 17 Harvard undergraduates and from 25 Radcliffe students. Their research and subsequent studies (Wessman, 1979) led them to the conclusion that happy men and women are distinguishable from unhappy ones in terms of better psychological adjustment, ego-integration, and adequent functioning in two critical areas of human living -- interpersonal relations and work.

> "Two major aspects were paramount in our data: the quality and nature of the satisfactions and frustrations derived from interpersonal relations and from work. In both aspects, the happier men were more optimistic and self-confident -- and genuinely successful. Their work had purpose, continuity, and meaning."
>
> (Wessman & Ricks, 1966, p.170)

In partial corroboration of these authors' finding, Wilson (1967) concluded in a comprehensive review of studies on happiness done between 1929 and 1965 that the

single most consistent feature of avowed happiness was successful involvement with people. Shavers & Robinson (1969) also noted that it may be this feature of happiness, i.e., interpersonal relations, that underlies the repeated finding that happiness is related to marital and work satisfaction.

A central role of work in determining overall feelings of happiness has been widely held (Wilensky, 1974). Empirical support of this notion exists in several studies that have consistently found a positive though moderate correlation (about .35) between work and life satisfaction. This was observed in representative samples of the U.S. population by Weaver (1978a), Campbell et al. (1976), and Bamundo (1977); and outside the U.S. by Haavio-Manila (1978) in a sample of 948 Finnish men and women.

A. Correlates of Well-being

In his review of studies on avowed happiness, Wilson (1967, p.294) noted the following characteristics as more typical of the happy person -- "young, healthy, well-educated, well-paid, extroverted, optimistic, worry-free, religious, married, with high self-esteem, high job morale, and modest aspirations, of either sex, and of a

wide range of intelligence." Very similar characteristics were observed in studies that were reported later, as reviewed by Shavers & Robinson (1969), and in the series of studies conducted between 1957 and 1978 at the Institute of Social Research by Angus Campbell and his colleagues (1976, 1981). The results of the latter may be summarized as follows.

The correlation most consistently observed was that between marital status and happiness. Married persons tend to have the highest proportion of Very Happy respondents while those who are divorced or separated, and men who have remained single beyond the common age of marriage, include the largest groups of the Not So Happy. Younger people are generally happier than older ones, although it was found that middle-aged persons, particularly men who are married and with grown children who have left home included unusually high proportions of those who claimed unqualified happiness. Higher socioeconomic status, whether measured by education, occupation or income, was also related to greater rates of Very Happy people, though the association is not as strong as might be expected. With regard to psychological correlates, the sense of personal control was found to be predictive of

happiness. Finally, physically disabled persons were not as likely as healthy people to be Very Happy, nor were rural residents compared to those living in the cities (Campbell, 1981).

B. Work Satisfaction, and Its Correlates

Work is a major domain of life to most adults, and may thus be expected to play a considerable role in the well-being experienced by the present sample of employed men and women. A large literature on the topic and on its correlation with other variables exists of which only major findings relevant to the objectives of the present study will be considered here.

An early finding in this area is that work satisfaction is made up of several components. Among the most important of these are: variety of tasks involved, control over methods and schedules, use of skills and abilities, salary, promotional possibilities, prestige, quality of the physical environment, and characteristics of the work group (Super, 1957). Several studies have also shown that these components correlate together and that there is a general factor of job satisfaction (Argyle, 1977). It was also found by Herzberg et al.

(1959) that satisfaction with intrinsic aspects or "motivators," facets relating to the job itself rather than attendant rewards, incentives, or environmental conditions, contributed to feelings of well-being. It is this aspect of work satisfaction as it relates with time urgency that was studied in the present research.

A number of demographic variables have also been shown to correlate with work satisfaction. Among these are social class, occupational prestige, supervisory position, family income, and age (Weaver, 1978b). Education is thought by some to have a negative correlation (Campbell et al., 1976), whereas sex and race seem to have no effect (Weaver, 1978b).

III. Previous Studies on Time and Well-being

In spite of wide recognition that the sense of time is a feature of individual and societal behavior, scant attention has been given to the relationship between time and happiness. One of few statements on this topic was made by Tatarkiewicz (1966). The feeling of happiness, he wrote, includes not only an agreeable present state, but also a favorable assessment of the past, and good prospects for the future. Furthermore, these three chrono-

logical components of temporal orientation are interrelated and are simultaneous in their effects on happiness. However, because such effects are not equal, considerable differences exist between different persons in the way the past, present, or future bears on the overall feeling of happiness.

In some support of Tatarkiewicz, Bortner & Hultsch (1972), using data from a U.S. sample collected in the 1960s, found that life satisfaction as measured by Hadley Cantril's self-anchoring scale was the strongest predictor of self-assessment in the present compared to one's position five years backwards, and that present life satisfaction also figured as an important predictor, though less so, of present self-assessment compared to future assessment.

Three other studies that touched on the relationship between a sense of time and feelings of well-being may be cited. Wessman & Ricks (1966) and Wessman (1973) found that, based on data from college undergraduates, happy persons felt in control of time and had a sense of continuity in their lives and extended personal time spans. Campbell et al. (1976), in their study based on a national sample, observed a small curvilinear relationship between

an index of well-being and a sense of feeling rushed.

Only a few investigations into the effects of time on work satisfaction were located. In a field experiment involved 64 female clerks randomly assigned into two conditions, Orpen (1981) found that employees who were allowed flexibility in determining their hours of arrival and departure at work reported significantly greater satisfaction after a six-month period than a group who were assigned fixed hours. In a similar though less well-controlled study (no comparison group was used), Golembiewsky et al. (1974) also found that job attitudes of employees improved after given more flexible working hours. These findings may relate to the observation by De Grazia (1962) that anxiety about time occurs when there is a perception that there is not enough free time. Also, they are reminiscent of Wessman's (1973) and Calabresi & Cohen's (1968) findings that a relaxed sense of mastery about time is related to positive emotional states.

Further reference to a relationship between time and work was found in the literature on organizations. Punctuality and the ability to meet deadlines are said to be highly valued worker characteristics (Hellervik, 1974). From this, it may be inferred that a well-developed sense

sense of time that enables the worker to comply with required schedules has enhancing effects on job success, and consequently, job satisfaction.

The variety of studies that have been cited here strongly suggest that the relationship between temporal experience and the sources of personal satisfaction and dissatisfaction merit further investigation.

CHAPTER TWO

RESEARCH HYPOTHESES AND DESIGN

I. Research Hypotheses

Based on the foregoing review of pertinent literature, this study proposes that an acute sense of time urgency is symptomatic of a general psychological malaise. Accordingly, it is expected that an acute sense of time urgency will correlate with negative feelings of psychological well-being, defined in this study as interpersonal satisfaction and work satisfaction.

Furthermore, it is proposed that time urgency will manifest its role as an indicator of negative well-being in the realms of mental and physical health as well. Specifically, it is expected that time urgency will correlate positively with psychopathologic status, with frequency of health risk behaviors, and with biomedical indices of physical health.

This study will also investigate some epidemiological relationships of time urgency, that is, its distribution as a function of age, marital status, and socioeconomic level. Previous studies have noted a heightening of time awareness in the middle adult years, particularly in the

ages between 45-49, an observation that will be tested in this work. Because of the employed status of the subjects in this study and previous contention that time is most precious to those who feel they do not have enough of it (De Grazia, 1962), it is expected that married persons will experience higher levels of time urgency than unmarried persons, since the former are unencumbered by the demands of two important life roles. Finally, time urgency, considered a positive value in this society, is expected to be higher among individuals who have attained the culturally preferred social positions -- higher educational attainment, occupational status, and income level. This relationship of time urgency with measures of social status is expected to hold even though there is strong evidence from other research that social status and satisfaction also show a positive relationship.

The specific hypotheses of this investigation, classed by area of interest as stated above, are the following:

Time Urgency and Subjective Well-being

Hypothesis 1: A negative association will be found between the sense of time urgency and feelings of interpersonal satisfaction.

Hypothesis 2: A negative association will be found between the sense of time urgency and work satisfaction.

Time Urgency and Mental Health Status

Hypothesis 3: The sense of time urgency and the Psychiatric Symptoms Index, a measure of psychopathologic status, will be positively correlated.

Time Urgency and Health Behaviors

Hypothesis 4: Smokers of more than 20 cigarettes daily will have higher levels of time urgency than will smokers of less than 20 cigarettes and day and non-cigarette smokers.

Hypothesis 5: Level of time urgency will correlate positively with frequency of eating in fast-food restaurants.

Time Urgency and Biomedical Indices

Hypothesis 6: Time urgency will be higher in persons with elevated levels of diastolic and systolic blood pressure than in persons with normal or low blood pressure levels.

Hypothesis 7: Time urgency will be positively associated with level of serum cholesterol.

The Epidemiology of Time Urgency

Hypothesis 8: In the adult years, the highest levels of time urgency will be seen in the late forties, i.e., 45-49 years.

Hypothesis 9: Among employed persons, time urgency will be higher in married than unmarried persons.

Hypothesis 10: Time urgency will increase with educational level.

Hypothesis 11: Time urgency will increase with occupational status.

Hypothesis 12: Time urgency will increase with income level.

II. Methods

A. Sample

The data presented in this paper were obtained from 426 women and 72 men who registered in a research project to evaluate the Wellness Center Program of the Allentown Sacred Heart Hospital Center (ASHHC) in Allentown, Pennsylvania. The Wellness Center Program was a six-month

health educational service provided for its employees to assess the effectiveness of the program in improving the morale, health behaviors, and health status of participants.

The parent study employed a pre-post, randomized case:control design. Thus, data were collected from case (treatment) and control subjects at the beginning and upon termination of the intervention period. The data utilized in the present study were those obtained at baseline only and are thus largely unencumbered by influences due to participation in the intervention program. It is further noted that the long-term nature of the subjects' commitment to participate in the study and their perception of personal benefit from being in the study conceivably enhanced their motivation to provide accurate data, thereby adding to the validity of the information collected.

To control for contamination effects that frequently occur in field studies, a second control group of subjects employed in a similar but different institution was obtained for the evaluation study. Consequently, two-thirds of the sample are employees of ASHHC, while one-third are employees of the Allentown General Hospital, also located in Allentown. In the analysis, the sample

was not subdivided by treatment status nor by hospital since treatment effect was not a variable of concern and preliminary work had shown no differences between the hospital samples by the major demographic variables, i.e., age, marital status, race, religion, education, or occupational status.

A breakdown of the demographic characteristics of the sample may be seen in Table 1, separately by sex. About half of the women were 25 to 34 years old, about a quarter were 18 to 24, and above 35 years the proportions declined with increasing age. The mean age among the women was 32.5 years. Approximately half were married, while a sizeable proportion had never married, reflecting the relatively young age of the sample. Educationally, the modal category was "Some College," i.e., attended but did not complete college. By occupational status, more than half of the women were employed as nurses, either on the Professional level as Graduate or Registered Nurses, or on the Service level as Nurse's Aides or Practical Nurses. There were relatively few other Professionals or holders of Administrative/Managerial positions, and one-fifth were in the Clerical ranks. Income levels obtained for this study reflected family rather than personal income. These

Table 1
Demographic characteristics of the study sample, women and men

		Women		Men	
		No.	%	No.	%
Age:	18-24	111	26.4	21	29.6
	25-34	182	43.4	33	46.5
	35-44	60	14.3	9	12.7
	45-54	50	11.9	4	5.6
	55+	17	4.0	4	5.6
		420		71	
Marital Status:					
	Married	205	48.8	35	50.0
	Single	149	35.5	29	41.4
	Formerly Married*	66	15.7	6	8.5
		420		70	
Education:					
	High School	125	29.7	31	43.7
	Some College	203	48.2	11	15.4
	College	93	22.2	29	40.9
		421		71	
Occupational Status:					
	Nurses: Professional**	155	37.3	8	11.3
	Service†	85	20.4	7	9.9
	Clerks	90	21.6	4	5.6
	Other Service Workers	47	11.3	25	35.2
	Other Professionals	27	6.5	15	21.1
	Administrators/Managers	12	2.9	12	16.9
		416		71	
Annual Family Income:					
	<$14,000	170	43.4	27	42.2
	$15,000 to $29,999	150	38.3	26	40.6
	$30,000 and over	72	18.4	11	17.2
		392		64	
Race:	White	418	98.1	68	94.4
	Other	8	1.9	4	5.6
		426		72	
Religion:					
	Protestant	397	93.4	68	97.1
	Other	28	6.6	2	2.9
		425		70	

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* Includes Divorced, Separated and Widowed
**This category includes Graduate (B.S.) and Registered Nurses, and Medical Technologists
† This category includes Nurses Aides and Practical Nurses

data indicated that only one-fifth of the women reported family incomes above $30,000 per year while the rest distributed about evenly into those who earned less than $14,000, and those who earned between $14,000 and $29,999. Furthermore, the female sample was overwhelmingly white and Protestant. These characteristics, while fulfilling the objective of a nonpatient, adult female population, also resulted in a highly select and unique group. This may limit the generalizability of the results obtained and should be taken into account in interpreting the results. Such considerations will be examined later in the Discussion chapter.

A perusal of the male data (Table 1) reveals that the distributions that emerged were similar to those observed among the women for age, marital status, income, race and religion, but not education nor occupational level. It appears this small sample of males is composed of more men in lower ranks (35% in service level) than are found in the general population (17%, U.S. Bureau of Census, 1975), a further indication of the select nature of the present sample. It is useful to observe results obtained from a male sample, nonetheless, to serve as a partial test of the validity of findings obtained from the female sample.

B. Questionnaire

A self-administered form, the Health Assessment Questionnaire (HAQ, Appendix 1), was developed by the present investigator to obtain the data for the parent study. Variables relevant to the hypotheses of the present study were drawn from the information provided by the subjects in this instrument. Permission to use the Wellness Center data for the present work was obtained from the Medical Director and Head of the Program.

Pilot tests. To assure comprehensibility and ease of completion, draft versions of the questionnaire were given to 20 persons who were also residents of the Allentown area though not employees of the hospitals in which the study was conducted, prior to the start of the data collection. On the basis of these pilot tests, changes in the wording and format of some items were made, and a section on the use of illegal drugs was eliminated because the frequency of reported usage was very low or else the questions were not answered.

The content areas covered in the HAQ were: demographic data, medical history, health behaviors, and psychological measures. In addition to questionnaire data, biomedical indices were obtained by medically

trained personnel. The information drawn from this data set for the purposes of the present study are described in the next section.

C. The Study Variables

The variable of principal interest in this study was the sense of time urgency. Secondary variables (those whose relationship with time urgency was assessed) were of three types: psychological, demographic, and health-related. The psychological variables were: interpersonal satisfaction, work satisfaction, and mental health status. These measures are briefly described below, while details on how they were scored are presented in Appendix 2. The demographic variables investigated were: age, marital status, educational attainment, occupational status, and annual family income. The health-related variables studies were: cigarette smoking, frequency of eating in fast-food restaurants, systolic and diastolic blood pressure, serum cholesterol.

Time urgency. At the outset of the study, 11 items from the Behavior Pattern Scale (Section D) of the HAQ were selected to comprise the time urgency measure. This judgement was made on the basis of the items' face

validity as indicators of heightened time urgency (see Table 2). The uniqueness and internal consistency of the proposed 11-item Time Urgency Scale was to be tested by a factor analysis of the Behavior Pattern Scale from which they were drawn. The resuls of this preliminary work are described in the Results section. The a priori judgement regarding the appropriateness of the 11 items as a measure of time urgency, though largely borne out, required some modification. Question 1, "Do you try to do as much as possible in the least amount of time?" was found to cluster into a factor whose items donoted a hard-driving attitude and was consequently eliminated as a time urgency item. Two items not originally considered to reflect time urgency each clustered into two separate factors, both of which appeared to tap important dimensions of time urgency. The eventual time urgency measure used in the data analysis therefore consisted of these latter two items, plus 10 of the originally proposed 11 questions.

Interpersonal Satisfaction and Work Satisfaction. An interpersonal satisfaction index consisting of Questions 1 through 5 in the Satisfaction Scale (Section F) of the HAQ was planned to measure the variable, interpersonal satisfaction (Table 3). A work satisfaction index, consisting

Table 2
Time urgency scale items
selected before, and after, factor analysis

	Never	Some-times	Mostly	Always
* (Do you try to do as much as possible in the least amount of time?) Dropped	____	____	____	____
Do you become impatient with delays and interruptions?	____	____	____	____
Do you find yourself speeding up the car to get through amber lights?	____	____	____	____
Do you have the habit of looking at your watch or clock?	____	____	____	____
Do you spread yourself "too thin" in terms of your time?	____	____	____	____
Do you have the habit of doing more than one thing at a time?	____	____	____	____
** Do you get angry or irritable? (Added)	____	____	____	____
Is it hard to find time for hobbies or time by yourself?	____	____	____	____
Do you have a tendency to talk quickly or hasten conversations?	____	____	____	____
Do you have a tendency to get involved in multiple projects?	____	____	____	____
Do you have a lot of deadlines in your work?	____	____	____	____
Do you feel vaguely guilty if you relax and do nothing during leisure?	____	____	____	____
*** Do you take on too many responsibilities? (Added)	____	____	____	____

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* Selected a priori for the Time Urgency Scale, this item clustered into a factor denoting Hard-driving behaviors and was thus discarded.

** Not selected a priori for the Time Urgency Scale, this item loaded most heavily on Factor 2, denoting Speed and Impatience.

*** Not selected a priori for the Time Urgency Scale, this item loaded most heavily on Factor 1, denoting an internally motivated concern to make the most use of time.

NB Items with no asterisks were those selected a priori for the Time Urgency Measure that clustered into either Factor 1 or 2 after factor analysis, confirming their usefulness as measures of Time Urgency.

Table 3
Interpersonal satisfaction scale items

Taking all things together, how would you say things are these days?

1. Very happy 2. Pretty happy 3. Not too happy

Do you feel satisfied with your present social standing?

1. Completely satisfied 2. Pretty satisfied 3. Not very satisfied

Have you felt lonely and wished for more friends during the last two weeks?

1. All the time 2. Some of the time 3. Almost never

Have you felt shy or uncomfortable with people in the last two weeks?

1. All the time 2. Some of the time 3. Almost never

Do you feel satisfied in your relations with members of the opposite sex?

1. All the time 2. Some of the time 3. Almost never

NB Selected to comprise the Life Satisfaction Measure, the items above were found to cluster into Factor 2 in the factor analysis of the 15-item Satisfaction Scale. No changes were required to the a priori judgement.

consisting of Questions 6 through 10 of the same Satisfaction Scale was intended to measure the variable, work satisfaction (Table 4). These a priori judgements concerning the uniqueness of the dimensions they tapped and the homogeneity of the items held after the data were submitted to factor analysis. These results are also shown in the Results section of this paper.

Mental health status. This variable was measured by the Psychiatric Symptoms Index (Section E of the HAQ). This scale, drawn by Ilfeld (1976) from a larger instrument, the Hopkins Distress Checklist, asks about the presence of psychiatric symptoms. Ilfeld (1978) demonstrated that the items of this scale factor analyze into four clinical syndromes: anxiety, anger, depression, and cognitive disturbance. Evidence of its validity as a measure of psychopathologic status and its feasibily for use in large-scale community surveys has also been reported.

D. Data Collection Procedures

In the summer of 1980, the coming availability of the Wellness Center Program was announced to employees of the sponsoring organization (ASHHC). Registration for the

Table 4
Work satisfaction scale items

How satisfied are you with the work you do?

1. Completely satisfied 2. Pretty satisfied 3. Not very satisfied

Do you feel satisfied with the degree of freedom to exercise judgement in your job?

1. Completely satisfied 2. Pretty satisfied 3. Not very satisfied

Are you satisfied with the amount of variety in your job?

1. Completely satisfied 2. Pretty satisfied 3. Not very satisfied

How satisfied are you with your future in this job?

1. Completely satisfied 2. Pretty satisfied 3. Not very satisfied

In general, how good a job do you think you have?

1. Very good 2. Good 3. Average 4. Poor 5. Very poor

NB Selected a priori to comprise the Work Satisfaction Measure, the items above were found to cluster into Factor 1 in the factor analysis of the 15-item Satisfaction Scale. No changes were made to this a priori judgement.

program was held that September, at which time subjects were randomly assigned to either treatment or internal control status. Concommitantly, employees from the Allentown General Hospital were invited to participate as external controls. Like the internal controls from ASHHC, subjects from the second hospital were promised eligibility to receive treatment services from the Wellness Center in the second year of its operation.

A cutoff sample size of 150 subjects for each study group had been initially determined, but this limit was relaxed to include additional subjects who had enrolled before the close of September, the designated registration period. This modification to the original study design was not seen as a threat to its validity, but was rather regarded as an improvement to the power of the statistical analyses that were to be employed.

Upon a subject's registration, s/he was sent a blank form of the questionnaire with a self-addressed, stamped envelope. It was indicated on the questionnaire that, for the purposes of follow-up, names and addresses were required, but that utmost confidentiality would be adhered to in halding the forms and in the preparation of reports. Two weeks were allowed for participants to return

their questionnaire. After this period, subjects who had not returned their forms were called by telephone and encouraged to fill out and return their questionnaires. Another two-week period was allowed for further follow-up attempts. Of 577 subjects who had volunteered for the study, completed questionnaires were returned by 498 (86%).

Returned questionnaires were received at the Wellness Center office where they were checked for completeness. Inconsistent and missing responses were resolved by direct phone calls to the respective subject. Refusals to answer particular questions (e.g., annual family income), or certain section (e.g., the Psychiatric Symptoms Index) on the part of the subject were respected. Such instances were few, however. The proportion of female respondents who answered the questionnaire completely was 91%; for the men the figure was 89%.

E. Data Processing

After they had been checked, questionnaires were assigned a unique identification number and coded for computer input according to a codebook developed specifically for the study. Coded data were then keypunched to computer tape, further checked for accuracy, and entered into an IBM 4341 computer for data analysis.

F. Analysis of Data

The goals of data analysis were the following:

1) to determine the demographic characteristics of the sample;
2) to test the internal consistency and independence of the proposed time urgency, interpersonal satisfaction, and work satisfaction measures;
3) to determine the distributions in the sample of the derived time urgency, and satisfaction measures;
4) to test the research hypotheses regarding the associations of time urgency with measures of psychological well-being, health-related behaviors, and demographic variables.

Toward these ends, the statistical procedures employed were: factor analysis, histogram, Pearson Product moment correlations, analysis of variance, and logistic regression. Statistical significance was set at the .05 alpha level for all procedures. For multiple comparisons of means, the protected t test, as described in Cohen & Cohen (1975) was used. Procedures for data management and statistical analyses were conducted using programs as described in the SAS User's Guide (1979).

Since the relevance of the research hypotheses to a female sample was the prime concern in this study and the sample was predominantly female, data analyses were conducted separately by sex.

CHAPTER THREE

RESULTS

I. Structure of the Primary Study Variables

A. Time Urgency

1. Construction of the Time Urgency Scale. Principal component factor analysis with varimax rotation of the 20 items in the Behavior Pattern Scale (Section D, Appendix 1), was performed in order to test the a priori judgement that 11 of these items would constitute a homogenous and independent factor denoting a continuum of time urgency. The results of this factor analysis (Table 5) indicated the presence of five underlying factors (eigenvalues <1.0) which together accounted for 52% of the variance among the items. Factors 1-5 accounted for 17%, 11%, 10%, 7%, and 7% of the variance, respectively.

The 11 items initially planned for the Time Urgency measure clustered into the first three factors, rather than into one factor, as had been expected. Factor 1, which summarized the majority of items (8/20), included seven of the 11 Time Urgency "candidate" items; Factor 2, into which four (out of 20) items yielded their highest loadings, included three of the 11 "candidate" Time

Table 5
Factor analysis of the behavior pattern scale

Questionnaire Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Do you take on too many responsibilities?	.75	- .01	.20	.09	.01
Do you have a tendency to get involved in multiple projects?	.71	- .06	.19	.19	.02
Do you have a habit of doing more than one thing at a time?	.69	.26	.08	.03	.03
Do you spread yourself "thin" in terms of your time?	.67	.20	.21	- .01	.18
Do you have a lot of deadlines in your work?	.54	.01	.00	.33	- .09
Do you feel vaguely guilty if you relax and do nothing during leisure?	.50	.13	.09	- .20	.30
Is it hard to find time for hobbies or time by yourself?	.49	.23	.18	- .23	.15
Do you have a tendency to talk quickly or hasten conversation?	.42	.38	.07	- .01	.13
Do you become impatient with delays or interruptions?	.10	.73	.22	.05	- .03
Do you get angry or irritable?	.07	.70	.24	- .20	.05
Do you have the habit of looking at your watch or clock?	.09	.58	- .34	.17	.18
Do you find yourself speeding up the car to get through amber lights?	.17	.47	- .08	.31	.07
Do your friends or relatives consider you hard-driving?	.35	.10	.75	.03	.14
Do you consider yourself hard-driving?	.41	.16	.74	.03	.14
Do you try to do as much as possible in the least amount of time?	.22	.42	.43	.20	.00
Do you seek the admiration and respect of others?	.03	.13	.03	.70	.22
Do you strive to better your position and achievements?	.10	- .01	.51	.57	- .11
Are you unlikely to ask for or indicate you need help with a problem?	.06	- .02	.08	- .10	.78
Do you have to win at games to enjoy yourself?	.15	.07	- .04	.23	.60
Percent of variance explained by factors	17%	11%	10%	7%	7%

Urgency questions; and Factor 3, which was composed of three questions, included one of the 11 Time Urgency "candidate" items.

A consideration of the content of Factors 1 and 2 indicates that both are predominantly composed of items that deal with an acute concern for the passage of time. However, they also appear to differ in that Factor 1 contains items which express a harassed and rushed concern with the maximum accomplishment of productive endeavors during a given amount of time, whereas Factor 2 deals with impatience and the typically angry or annoyed responses when the pressure to gain such contorl over the passabe of time is delayed or interrupted. These results were taken to indicate a possible further distinction within the concept of time urgency. However, regarding the assumptions of the present study, these data largely support, though not with indicating a need for modification, the a priori judgement regarding the appropriateness of the proposed time urgency measure.

Of the three items that clustered into Factor 3, two clearly denoted "Hard-driving" or "Ambitious" patterns of behavior. Although this factor included one of the "candidate" time urgency items, "Do you try to do as much

as possible in the least amount of time?", the set could not be considered as clearly part of a time urgency scale.

The final time urgency scale used in the tests of the hypotheses in the present study consisted of all 12 items which clustered into Factors 1 and 2. Thus, 10 of those originally proposed 11 were retained, and two others, which clustered into either Factor 1 or 2, were included as well. The alternative choice of using only either Factor 1 or 2 items was rejected, since either move would have reduced the disciminatory power of the measure, and would have reduced the sensitivity of the resulting time urgency measure.

2. Distribution of the time urgency variable. The distribution of the time urgency measure among the female subjects is presented in Figure 1. A normal distribution, with very slight negative skewness, is apparent. The modal time urgency score was 23, while the mean time urgency score was 25.0 (SD=4.9), reflecting the fact that slightly more women scored in the upper than lower half of the distribution.

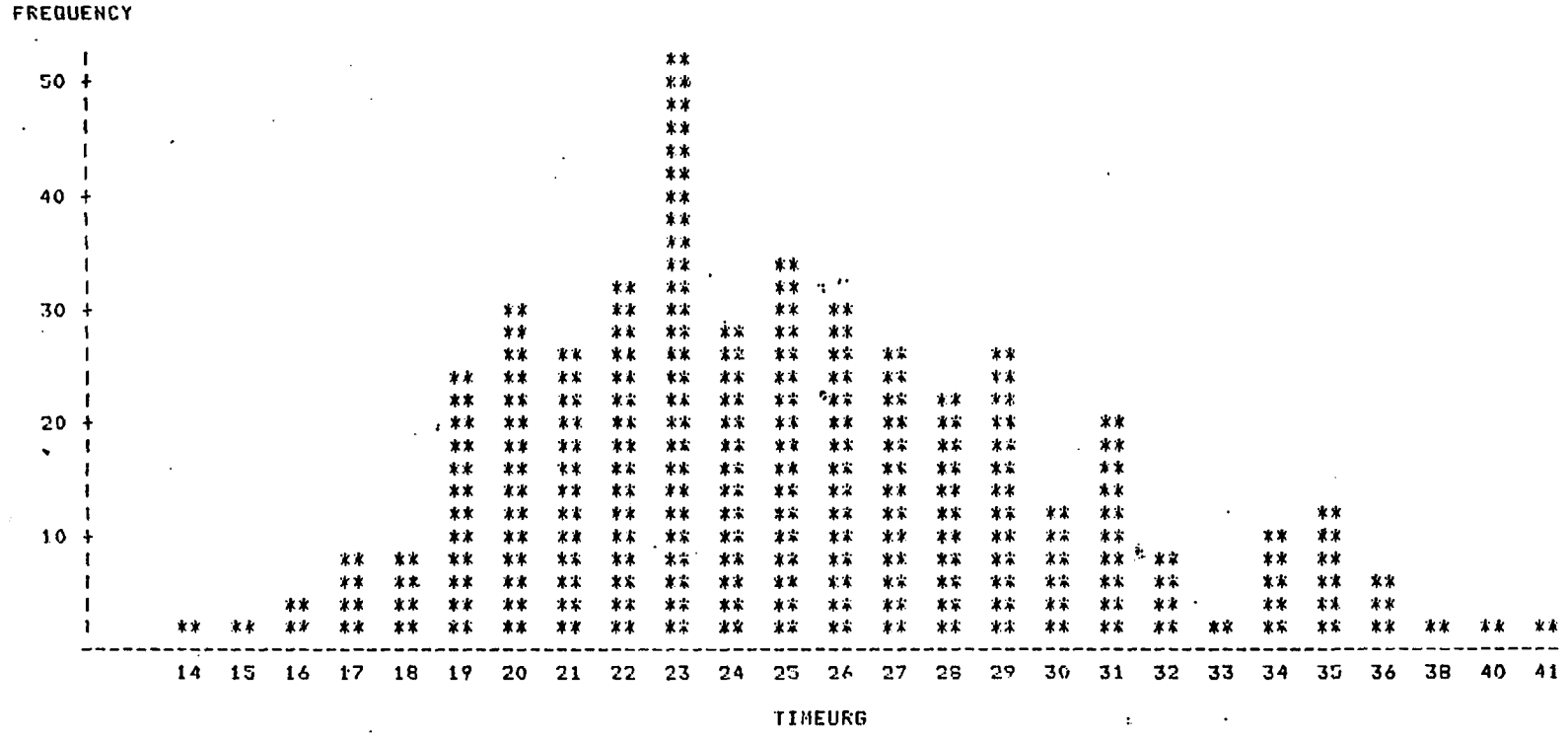

Figure 1. Distribution of the time urgency measure in 426 women. Mode=23, Mean=25.0 (S.D.=4.9)

B. Interpersonal Satisfaction, and Work Satisfaction

1. Construction of the Scales. The factor analysis relating to the two variables, interpersonal and work satisfaction, were based on the same 15-items regarding felt satisfaction or dissatisfaction. For this reasons, the results are presented together in this section (Table 6). As in the work with time urgency, the prediction tested in this factor analysis was the presence of homogenuous and independent factors that would, in this case, constitute measures of interpersonal satisfaction, and work satisfaction.

Principal component factor analysis with varimax rotation was accomplished on the 15-item Satisfaction Scale included in the HAQ (Section D, Appendix 1). The results of the analysis indicated the presence of four distinct clusters (eigenvalues <1.0) which together accounted for 54% of the variance among the items. Factor 1, accounting for 26% of the variance, contained the five items intended to tap work satisfaction. Factor 2, accounting for 13% of the variance, contained the five items initially planned to tap interpersonal satisfaction. These empirical results confirmed the a priori judgement regarding the appropriateness of the variables

Table 6
Factor analysis of the satisfaction scale

Questionnaire Item	Factor 1	Factor 2	Factor 3	Factor 4
Are you satisfied with the amount of variety in your job?	.82	.05	.02	- .01
How satisfied are you with your future in your job?	.76	.13	- .02	.25
In general, how good a job do you think you have?	.72	.08	.24	.19
How satisfied are you with the work you do?	.67	.19	- .13	.24
Do you feel satisfied with the degree of freedom to exercise judgement in your job?	.67	.11	.05	.07
Do you feel satisfied with your present social standing?	.18	.73	.01	.23
Have you felt lonely and wished for more friends during the last two weeks?	- .09	.71	- .05	.02
Do you feel satisfied in your relations with members of the opposite sex?	.07	.71	.02	- .06
Taking all things together, how would you say things are these days?	.06	.64	.06	.15
Have you felt shy or uncomfortable with people in the last two weeks?	- .13	.55	- .30	.17
Do you think it likely that you would be able to get another job were you to quit or lose your current job?	.03	.05	.83	- .13
How often do you worry about the state of the economy and how it will affect your career?	.03	- .12	- .49	- .17
How satisfied are you with your wage and salary level?	.11	.09	.16	.74
How positive do you feel about your chances of increasing your earnings in the next year?	.22	- .00	.32	.64
How interested do you think your company is in the physical and emotional wellbeing of its employees?	.22	- .01	- .21	.59
Percent of variance explained by factors	26%	13%	8%	7%

intended to measure interpersonal satisfaction (Table 2), and work satisfaction (Table 3), thereby providing justification for using the respective sets of questions as planned.

2. Distribution of the interpersonal satisfaction variable. The distribution of the interpersonal satisfaction measure among the female subjects shows a close approximation of a normal curve (Figure 2). The mode and mean scores are nearly the same (Mode=16; Mean=15.7; SD=1.9).

3. Distribution of the work satisfaction variable. The distribution of the work satisfaction measure among the women was also normal (Figure 3), and likewise had nearly identical mode and mean scores (Mode=20; Mean=19.8; SD=2.6).

II. Tests of the Study Hypotheses

As stated in the Introduction, the relationship between time urgency and well-being as it occurs in a female sample was the major interest of this research. Data from a small sample of males (N=72) from the same two hospitals in which the female subjects were employed were also available, and were analyzed for comparison as well.

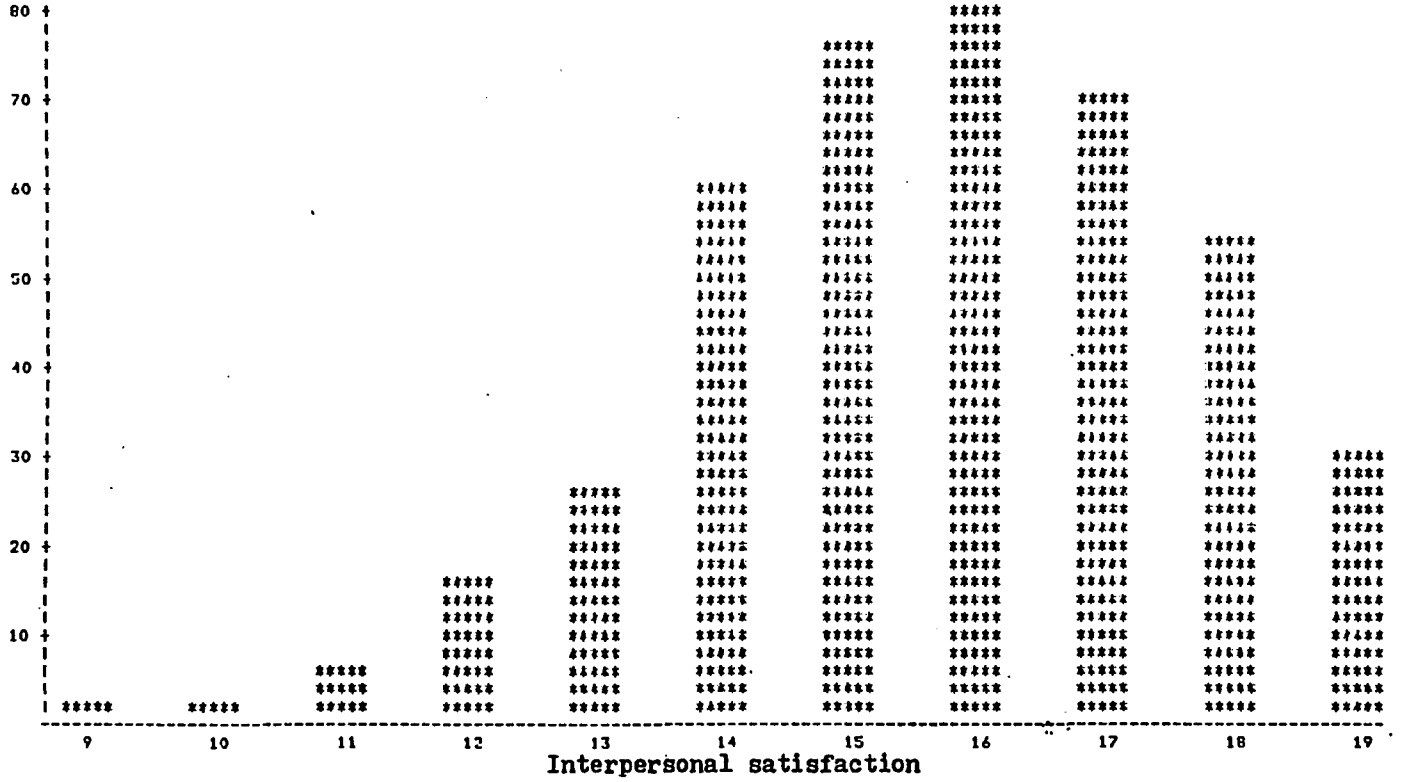

Figure 2. Distribution of interpersonal satisfaction scores among 426 women. Mode=16, Mean=15.7 (S.D.=1.9)

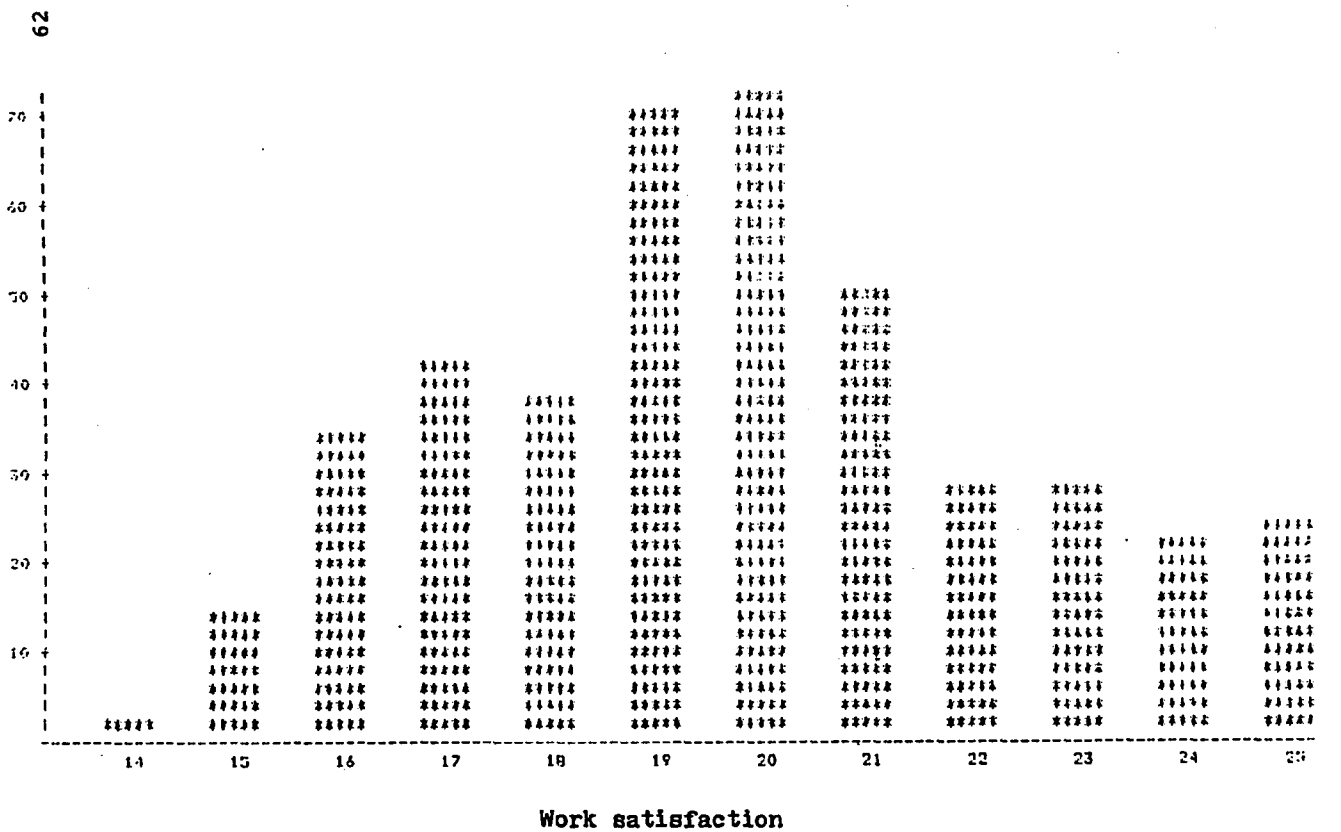

Figure 3. Distribution of work satisfaction scores in 426 women
Mode=20, Mean=19.8 (S.D.=2.6)

In the following pages, results of data analyses among the female subjects will be reported first, followed by those obtained from the males.

A. Women

To test the association between time urgency and the continuous variables in the study, zero-order Pearson Product Moment correlation coefficients were calculated between time urgency and interpersonal satisfaction, work satisfaction, the Psychiatric Symptoms Index, and age. These results are shown in Table 7. The association between time urgency and other study variables that were treated as discontinuous category variables was tested by analysis of variance, and are presented in Table 9. The independent effect of variables that were found to be related with time urgency on the basis of univariate analyses were tested by logistic regression procedure, the results of which are shown in Table 16.

1. Time urgency and subjective well-being. Hypothesis 1 predicted a negative association between time urgency and interpersonal satisfaction; and Hypothesis 2 predicted a similar association between time urgency and work satisfaction. Hypothesis 1 was not confirmed; while

Table 7
Pearson product moment correlations and means (standard deviations) for continuous study variables, 426 women only

	T.U.	I.S.	W.S.	PSI	Age
Time Urgency	1.00	-.08	-.10*	.44**	-.09*
Interpersonal Satisfaction		1.00	.28**	-.55**	.09
Work Satisfaction			1.00	-.23**	.23**
Psychiatric Symptoms Index				1.00	-.15**
Age					1.00
Means	25.0	15.7	19.8	19.6	32.5
S.D.	4.9	1.9	2.6	9.4	11.1

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

Hypothesis 2 received some support, though weakly, from the data. As shown in Table 7, the observed correlation between time urgency and interpersonal satisfaction, although in the negative direction as hypothesized, was extremely small and statistically nonsignificant ($r=-.08$; $p=.10$). For time urgency and work satisfaction, a statistically significant though small correlation ($r=-.10$; $p=.04$) was observed. This disconfirmation of the predicted relationship between time urgency and an important dimension of happiness prompted further evaluation of the question by using another measure of happiness. An analysis of variance on time urgency by varying responses to the well-established question, "Taking things together, how would you say things are these days?" was performed. The results of this procedure, however, confirmed a lack of covariance between time urgency and levels of happiness ($F=.66$; $p>.50$).

2. Time urgency and mental health status. Hypothesis 3, which states that time urgency and mental health status, as measured by the Psychiatric Symptoms Index, would be directly associated, received moderately strong support from the data. Among the female subjects, the correlation obtained between time urgency and psychiatric

symptomology was .44 and highly significant (p=.0001) Although no hypotheses were stated at the outset of the study regarding underlying factors in the Psychiatric Symptoms Index, the latter positive finding prompted further investigation into the relationship between time urgency and those underlying factors. As shown in Table 8, significant correlations (p=.0001) that ranged from .41 to .30 were obtained for time urgency and each of the underlying factors in the PSI. Stronger relationships were evidenced between time urgency and anxiety (r=.41) and time urgency and anger (r=.41) than between time urgency and depression (r=.30) or cognitive disturbance (r=.31).

3. Time urgency and health behavior. No significant association was observed between cigarette smoking status and time urgency (F=.76; p=.47). However, as may be seen in Table 9, and in more detail in Table 10,there were significant differences in time urgency level according to frequency of eating in fast-food restaurants by the female subjects (F=3.50; p=.01). Apart from the implication of poor nutritional habits of time urgent persons, this finding may also be taken to support the validity of the time urgency measure used in these analyses as an

Table 8
Pearson product moment correlations between time urgency and factors in the Psychiatric Symptoms Index
Women Only

	r	P
Anxiety	.41	.0001
Anger	.41	.0001
Depression	.30	.0001
Cognitive Disturbance	.31	.0001

Table 9
One-way analyses of variance on time urgency, by selected health behaviors, biomedical indices, and demographic characteristics among a sample of female hospital employees

Variable	F	df	P
Cigarette smoking status	.76	2	NS
Frequency of eating in fast-food restaurants	3.50	3	$< .05$
Systolic blood pressure	1.30	2	NS
Diastolic blood pressure	.39	2	NS
Serum cholesterol	.57	2	NS
Marital status	2.19	2	NS
Educational level	3.49	2	$< .05$
Occupational status	3.57	2	$< .05$
Annual family income	.08	2	NS

Table 10
Mean time urgency scores by frequency of eating in fast-food restaurants among a sample of female hospital employees

	Time Urgency	
Frequency	Mean	Standard Error
Never	22.5	1.14
Few times a year	24.1	0.54
Once or twice a week	25.3	1.38
3-6 times a week or more	27.6	1.30

$F=3.50$, $p<.05$ ($df=3$, $N=406$)

indicator of persons who characteristically maintain fast-paced and time-pressured schedules.

4. Time urgency and biomedical indices. The hypothesis that time urgency will be higher in persons with elevated blood pressure levels was not supported by the data for either systolic or diastolic blood pressure. Likewise, the hypothesis that time urgency would vary directly with serum cholesterol level did not obtain (Table 9).

Because of the relatively young age of many subjects in this study, the possibility that the predicted relationship of time urgency with biomedical indices had not yet become apparent was considered. After all, it could be argued, hypertension in highly time urgent persons will develop only after repeated and chronic manifestations of time urgent attitudes and behaviors, and consequently would appear only in later years. To test this post hoc hypothesis, time urgency scores and blood pressure levels of the 67 women aged 45 and above were correlated. The results obtained, however, did not support the predicted relationship between blood pressure levels and time urgency among older subjects.

5. Epidemiologic correlates of time urgency. An implicit hypothesis in the present work is that extreme and prolonged time urgency signals the presence of a potential risk factor in both the psychological and physical realms. In this light, the present study sought to determine the relationship between time urgency and major demographic variables that are traditionally considered in the epidemiology of disease: age, marital status, educational attainment, occupational status, and income (MacMahon & Pugh, 1970). It was also hoped that this knowledge would contribute toward some understanding of the nature of time urgency.[2]

Age. A small but significant negative correlation between time urgency and age was observed ($r=-.09$; $p=.05$), as was seen in Table 7. However, the prediction that time urgency would be highest among those in the ages 45-49 was not confirmed (Table 11). Nonetheless, a peak age of time urgency was observed, although unexpectedly in the ages 25-29. It was also noted, however, that a second though lesser peak was seen again in the ages 45-49 (Table 11), the predicted modal ages.

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[2]Race and religion, though important epidemiologic variables, were not considered since, as noted earlier, the subjects were overwhelmingly white and Protestant (Table 1).

Table 11
Mean time urgency scores by age, women only

	Time Urgency	
Age	Mean	Standard Error
18-24 years	24.4	0.95
25-29	26.1	0.60
30-34	25.9	0.62
35-39	24.0	1.18
40-44	23.1	2.48
45-49	23.8	2.48
50+	22.4	1.16

F=2.08, p=.0547 (df=6, N=413)

Marital status. Hypothesis 9 had predicted that married persons would be more time urgent than single or formerly married persons. Although a comparison of time urgency mean scores by marital status showed slightly higher mean scores among married persons, the differences observed were not significant ($p=.11$, Table 12). This latter trend, though small, coupled with the previous finding that time urgency peaked at the ages 25-29, led to the speculation of an effect on time urgency of a variable not hitherto considered in this study. Specifically, the possibility was raised that the presence of young children may be a significant determinant of time urgency level.

Fortunately, the questionnaire from which the data for this study was drawn had included the question, "How many children (living) do you have?" Although the ages of the children were not asked, this information could be inferred from the age of the mother.

Children. Accordingly, the post hoc hypothesis was raised that having children, particularly young children, would result in greater time urgency. This hypothesis was tested by comparing time urgency mean scores adjusted by age (in five-year intervals) and having (or not having) children. These results are shown in Table 13. With the exception of the youngest age level, 24 and

Table 12
Mean time urgency scores by marital status, women only

	Time Urgency	
Marital Status	Mean	Standard Error
Married	25.4	0.35
Formerly married*	24.1	0.55
Never married	25.0	0.41

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* includes Divorced, Separated, Widowed

F=2.19, p=.11 (df=2, N=414)

Table 13
Mean time urgency score by age level and having/not having children

	Time Urgency			
	Women with children		Women without children	
Age	Mean	S.E.	Mean	S.E.
18-24 years	23.7	1.84	25.2	0.48
25-28	27.6	1.09	24.7	0.52
30-34	25.9	0.84	26.0	0.90
35-39	25.6	0.90	22.4	2.18
40-44	24.2	0.94	22.0	4.88
45-49	25.5	0.92	22.0	4.88
50+	23.5	0.81	21.2	2.18

Overall F=1.45, p=0.13 (df=13, N=413)

Age F=2.08, p=.0547, df=6

Children F=2.32, p=.13, df=1

Age x Children F=1.01, p=.42, df=6

below, the mean time urgency scores of women with children were higher at each age than those of women with no children. A general trend that did not reach statistical significance, however, was observed toward higher time urgency scores among women with children than among those without. This trend was seen in all but two age levels (18-24 and 30-34). Furthermore, the highest time urgency mean score was seen in women aged 25-29 who had children. Among women without children, the highest time urgency score was reported at a later age, 30-34. Although this figure was still lower than the time urgency score reported by women aged 25-29 who had children (26.0 versus 27.6), this heightening of time urgency at the ages 30-34 suggests that there may be causes of time urgency other than the situationally determined ones that operated among the women with children. Among the mothers, time urgency scores decreased with age after 30 years, although as noted earlier, they increased slightly again in the ages 45-49. The decline quite possibly reflects the easing of the stresses brought on not only by caring for young children (although the ages of the children were not available, it may be inferred from the mother's age that the children of those with the highest time urgency

scores, i.e., mothers aged 25-29, were mostly 1-5 years old), but also the added role of working woman. It is interesting that the slight increase in time urgency in later years occurred only among women with children, since this suggests that this heightening is related, not to an increased consciousness of aging at this time as suggested by Markson (1973), but to a circumstance related to having children and being of the age as well. Beyond this, we must refrain from further speculation since the changes observed and the data at hand are small and none of the differences in time urgency scores between women with and without children at each age level reached the .05 level of significance. Nevertheless, the data suggest that having children, particularly young children, among women who are also fully employed outside the home, contributes to greater time urgency. This implication is in accord with De Grazia's (1962) observation that anxiety about time is most likely to occur among those who feel they have the least amount of free time.

Educational level. A significant association was found between level of education and time urgency ($p=.03$, Table 9). A comparison of mean time urgency scores by educational level (Table 14) showed very slight

Table 14
Mean time urgency scores by educational level, women only

	Time Urgency	
Educational Level	Mean	Standard Error
High school or less	24.1	0.44
Some college	25.2	0.35
College or more	25.8	0.51

F=3.49, p=0.03 (df=2, N=412)

increases in time urgency with higher educational attainment.

Occupational status. As with education, a significant association between occupational status and time urgency was observed (p=.03, Table 9), and very slight increases in time urgency were seen with increased occupational rank. The highest mean time urgency score by occupation (Table 15) was reported by women in the Professional level (Graduate and Registered Nurses, Medical Technologists, and other professional and technical workers) (25.5). This figure was significantly higher (p=.05) than the mean time urgency score of service workers (24.0), but was not significantly different from the time urgency score of women in administrative and clerical posts (25.3).

Income. No relationship between income level and time urgency was found (F=.08; p=.91). This finding, which disagrees with that obtained for education and income, may be due to the fact that the income reported in this study was family rather than personal income. Thus, the income reported by the women (84% of whom were either married or formerly married) may be more reflective of their family's standard of living than personal earnings.

Table 15
Mean time urgency scores by occupational status, women only

	Time Urgency	
Occupational Status	Mean	Standard Error
Service	24.0	0.43
Administrative/Clerical	25.3	1.40
Professional/Technical	25.5	0.36

F=3.57, p=0.03 (df=2, N=319)

Consequently, these data may indicate that for women, family standard of living (which may not be commensurate with personal income) is not related to time urgency. However, where income level is a more personally relevant demographic characteristic, as frequently occurs with men, a direct association between time urgency and income may be found.

6. High Versus Low Time Urgency Scores. To increase the ability to detect a relationship between time urgency and its hypothesized correlates, a further comparison was performed, limiting the analysis to the highest scoring persons on the time urgency scale (highest quartile) with the lowest scorers (lowest quartile). It was also deemed important to control for the possibility that some of the relationships that had been observed earlier as a result of univariate analysis are sometimes due to the effect of a third variable that covaries with both or either one of the variables being studied. Toward these ends, a logistic regression[3] (Cox, 1970) was

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[3]The linear logistic regression procedure measures any dependence of a binary variable on explanatory variables representing groupings of the individuals or quantitative regressor variables. The linear logistic models and the questions they were intended to answer are analogous to the normal theory modesl which underlie the techniques of ANOVA and ANOCOVA and simple and multiple regression (Cox, 1970).

performed, which permits the evaluation of the unique relationship of selected predictor variables on a dichotomous dependent variable (high vs. low scorers on the time urgency measure), while simultaneously controlling for the effects of all other variables in the model.

The variables whose independent effects on time urgency status were measured were those that had been found to be significantly associated with time urgency in the preceding univariate analyses. They were: Psychiatric Symptoms Index, work satisfaction, age, occupation, and having/not having children. To prevent multicollinearity, education was not included since this variable is a known correlate of occupational status and its relationship with time urgency paralleled that seen for occupational status in this study. Because of the earlier suggestion that having children may have an important effect on time urgency, this variable was included in the logistic regression model even though the differences observed for this variable had not reached statistical significance. The results of the logistic regression procedure following the model described above are presented in Table 16.

Table 16
Logistic regression, high vs. low time urgency* scorers

Variables	Beta	S.E.	p
Intercept	1.09	1.99	.58
Psychiatric Symptoms Index	.17	.03	.00
Work Satisfaction	- .03	.09	.69
Occupational Status*	.72	.44	.10
Age	- .07	.03	.03
Children*	1.10	.59	.06

Model chi-square = 55.93, df=5, p=.0001

* Definitions of categorical variables:
Occupation: Professional/Technical = 1
All others = 0
Children: With children = 1
No children = 0
Time Urgency: High = 1
Low = 0

The small but significant correlation seen earlier between time urgency and work satisfaction disappeared ($p=.69$), and the association between occupational status and time urgency diminished in importance ($p=.10$). However, the Psychiatric Symptoms Index remained as a significant correlate of time urgency status ($p=.0001$). As well, the negative association seen earlier between age and time urgency held up ($p=.03$), and the post hoc hypothesis of an effect of having children on level of time urgency received some support, as shown by a probability level that very nearly reached statistical significance ($p=.056$). In sum, the logistic regression procedure indicated that of the variables that showed some association with time urgency, independent effects on the latter were attributable to being young, having children, and experiencing higher levels of psychologic disturbance. Partial support of the hypothesis that time urgency is negatively associated with well-being as measured by work satisfaction seen in univariate analysis was disconfirmed, and the indication that time urgency is positively related with social status weakened in importance. It is possible that the relationships of work satisfaction and the socioeconomic indices, education and occupational status, with time

urgency were largely a function of the covariance of these variables with the Psychiatric Symptoms Index.

B. Men

The mean values of the continuous study variables obtained from the male sample compared with those obtained from the women are shown in Table 17, and the intercorrelation coefficients obtained among the same variables are presented in Table 18. In the former, similarity between the sexes was observed for interpersonal satisfaction, work satisfaction, and age. However, the mean values for time urgency and for the Psychiatric Symptoms Index showed markedly lower values for both variables among men. The finding with respect to the PSI is similar to that observed by Ilfeld (1976), who found significantly higher psychiatric symptomology in women, a result that remained even when the data were controlled for major demographic variables. The finding with respect to time urgency was unexpected in view of previous studies which indicate higher levels of Type A behavior in men, and somewhat similar levels when the comparison is made between men and women who are both employed (Waldron, 1978).

Table 17
Comparison of means and standard deviation scores on selected study variables between the female and male samples

	Women		Men	
Variables	Mean	S.D.	Mean	S.D.
Time urgency	25.0	4.9	23.6	4.4
Interpersonal satisfaction	15.7	1.9	16.0	1.9
Work satisfaction	19.8	2.6	20.1	2.5
Psychiatric Symptoms Index	19.6	9.4	14.6	17.1
Age	32.5	11.1	31.4	11.9

Table 18
Product moment intercorrelations among selected study variables

Men	T.U.	I.S.	W.S.	PSI	Age
Time Urgency	1.00	-.03	-.01	.41	-.12
Interpersonal Satisfaction		1.00	.49*	-.47*	.00
Work Satisfaction			1.00	-.33*	.21
Psychiatric Symptoms Index				1.00	-.15
Age					1.00
Means	23.6	16.0	20.1	14.6	31.4
S.D.	4.4	1.9	2.5	17.1	11.9

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* $p<.01$

No correlation was observed among the men between time urgency and interpersonal satisfaction, time urgency and work satisfaction, nor between time urgency and age (Table 18). Unlike the case of the female sample, however, the possibility that this result is due to inadequate statistical power because of the small sample size cannot be discounted. Still, the fact that the findings with respect to the satisfaction variables agree with those obtained from the women does not argue toward a positive result given a larger sample. As also seen among the women, time urgency correlated significantly to a modest degree with the PSI ($r=.41$; $p=.01$, Table 18). Further analyses also showed that time urgency was positively correlated with two of the underlying psychiatric syndromes in the PSI, Anxiety ($r=.34$; $p<.01$), and Anger ($r=.54$; $p<.01$), but not with Depression ($r=.14$; $p=.24$) nor with Cognitive Disturbance ($r=.23$; $p=.06$). This latter finding differs somewhat with that observed in the women among whom time urgency showed a significant moderate correlation with all four factors in the PSI.

Analysis of variance as employed with the female data was performed to determine the association for the men between time urgency and blood pressure levels, cigarette

smoking status, and serum cholesterol level, frequency of eating in fast-food restaurants, and the demographic variables. No significant findings were observed except for the socioeconomic indices, i.e., education, occupational status, and annual family income (Table 19). Logistic regression using the male data was not employed because of the small numbers that would have emerged when, as was done with the women, the analysis is limited to those who fell in the highest and lowest quartiles of the time urgency measure. In summary, the significant findings obtained from the male data, a positive association between time urgency and the PSI, as well as with social status, and the lack of association between time urgency and interpersonal, and work satisfaction, are in accord with the results observed among the women. This correspondence of results is useful in that it provides some measure of confirmation of the findings obtained from the main sample of women.

Table 19
One-way analyses of variance on time urgency, by selected health behaviors, biomedical indices, and demographic characteristics, men only

Variable	F	df	P
Cigarette smoking status	.42	2	NS
Frequency of eating in fast-food restaurants	.87	3	NS
Systolic blood pressure	.01	2	NS
Diastolic blood pressure	2.21	2	NS
Serum cholesterol	.26	2	NS
Marital status	2.05	2	NS
Educational level	4.07	2	<.05
Occupational status	4.97	2	<.01
Annual family income	3.66	2	<.05

CHAPTER 4

DISCUSSION

A striking observation from the literature on time is that an extreme form of temporal awareness -- a sense of time urgency, is characteristic of Western cultures, particularly of American society. The research literature on time urgency is rather scant, however, and although the sense of time has been empirically demonstrated to be intimately linked with human behavior, little is known about how a sense of time urgency affects another central concern of human living -- the sense of well-being.

The present study, an attempt to address this question as well as to enlarge current knowledge about the nature of time urgency, found no clear relationship between time urgency and feelings of satisfaction in interpersonal relations, work, nor with general life satisfaction. It did observe, however, as predicted and as observed in previous studies, that time urgency is positively correlated with psychopathologic status. Furthermore, the study produced the unpredicted finding of heightened levels of time urgency in mothers of young children among the present sample of hospital-employed women.

In evaluating these results, it is necessary to consider the characteristics of the sample as well as the setting in which the study was conducted. As noted earlier, the subjects were predominantly young, female, and employed in health services. The modal occupational role -- nursing, and the occupational setting -- a hospital, are well known to be characterized by constant and high work pressures, and by the need for rigid adherence to schedule and attention to the demands of time. Organizational theorists have noted the powerful effect of the total work environment on the value systems of individuals (Schein, 1968). It is likely, therefore, that the time-oriented qualities of the subjects' work roles and environment produced a higher level of time urgency than would be seen in many other populations. Conversely, it is unlikely that the present sample included that type of person seen in Campbell et al.'s (1976) studies who felt that they "often had time on their hands." While this unique set of circumstances may have served to increase the salience of time urgency in this study and permitted a meaningful evaluation of its relationships with other variables, it also probably limits the generalizability of the results observed to the wider population.

Before going still further, it is likewise necessary to recognize the exploratory nature of the instruments used, particularly the measure of time urgency. For instance, the results of the factor analysis identified two clusters of questions that although commonly suggestive of a time-urgent quality, also pointed toward the presence of two separate dimensions underlying a general time urgency variable. One denoted a possibly internally motivated personality style that predisposed the individual to become overcommitted to a variety of tasks and obligations. The other suggested an externally stimulated emotional response to environmentally produced delays and interruptions. This duality of underlying factors possibly reflects internal and external loci of time urgency, a matter that deserves further research.

Of the associations observed in ths study, the strongest was that seen between time urgency and psychopathologic status as measured by the Psychiatric Symptoms Index (PSI). This held firm even when the effects of age, occupational status, and other observed modifiers of time urgency were controlled. While this relationship had been predicted on the basis of previous findings, it also becomes understandable when one considers the content of

the time urgency measure and that of the PSI. As stated earlier, there were two factors seen to comprise the time urgency variable. The first factor showed high concern with filling up time with productive activity and a pressured sense of time due to multiple commitments. Besides demonstrating an extraordinary valuation of time, such overconcerns may be reflecting a fear of losing control, or anxiety. The second factor denoted an irritable and impatient reaction when the striving to get things done on time was impeded; clearly, anger is a major component. On the other hand, Anxiety and Anger are two of four underlying syndromes in the PSI (Ilfeld, 1976). Thus, it is possible that the presence of highly similar constructs in the two scales largely accounts for the high degree of correlation observed between them. This question should be clarified in further work such as may be accomplished through discriminant function analysis, or a factor analysis involving all items in the time urgency measure and the PSI. Still, for the purposes of the present work, it is noted that time urgency also correlated significantly with the two other syndromes in the PSI, i.e., Cognitive Disturbance and Depression, indicating that the observed association between time urgency and the PSI

emanated from sources other than the possible correlation of the same two constructs with themselves. On a more substantive note, it should be pointed out that the finding concerning an association between time urgency and the Anxiety and Anger factors of the PSI corroborates recent work which found that Anger (Diamond, 1982) and Anxiety (Haynes et al., 1978) are more characteristics of Type A than Type B individuals. Recall that time urgency has been shown to be an important facet of Type A behavior. In other words, there are reasons beyond the possibility of methodological artifact that account for the association between time urgency and psychopathologic status.

Contrary to expectations, the present study found no relationship between time urgency and either indices of subjective well-being, i.e., satisfaction in interpersonal relations, and work. Because this result runs counter to predictions made after an assessment of the literature, it is important to speculate on some possible explanations. Perhaps the situation reflects a Type II error, i.e., the failure to detect a true relationship. A plausible source of this type of error is suggested by findings about Type A behavior. Highly time urgent persons were found in this study to resemble Type As in being preoccupied with many

onerous commitments and to lead fast-paced schedules as exemplified by their tendency to eat frequently in fast-food restaurants. It is possible that they also share with Type As the tendency to suppress subjective states that might interfere with task performance (Glass, 1977). Feelings of harrassment from being so overcommitted and the consequent lack of satisfaction experienced in important aspects of their lives may be some of these subjective states that they ignore. This denial may then have led them to underreport feelings of dissatisfaction in interpersonal and work domains in the nonprobing context of a survey instrument. This type of response bias due to the inaccessibility of the desired information to the consciousness of the respondent was noted by Cannell & Kahn (1968) as a potential source of error in interview studies. In contrast, when asked to respond to a less obvious measure of well-being such as the PSI where the items appear to be more concerned with disturbances in bodily functions, time urgent persons may be less prone to suppress the experience of pathological conditions. Therefore, this study found a highly significant relationship between the PSI and time urgency but failed to detect one between time urgency and the measures of satisfaction.

It is possible as well that other forms of information bias compromised the validity of the data obtained. For instance, it may be asked whether the subjects attempted to cast their evaluations in a rosier light than was veridical and whether they attempted to appear more or less time urgency depending on what direction of time urgency they deemed more social desirable. Although Shavers & Robinson (1969) reported that studies which correlated various forms of happiness and satisfaction measures with the Marlowe-Crowne Social Desirability Scale have not indicated a tendency toward an association, both studies on happiness by Bradburn & Caplovitz (1965) and Campbell et al. (1976) admit to the possibility of a positive gilding in responses to questions on happiness. If this does occur, however, it probably would tend to be a general phenomenon influencing most respondents, and consequently should not seriously affect the results of correlational studies involving happiness and other variables.

It is not known where the tendency toward social desirability would direct the time urgency continuum since no previous work had been down on this question. It is conceivable that some persons would value the appearance

of heightened time urgency, but it is equally conceivable that others would prefer to appear among those who are cool and unpressured by the demands of time. Given this condition, the influence of social desirability on the time urgency measure remains an empirical question.

A further consideration with regard to the time urgency measure is the problem of response set bias. Because the same set of four responses were presented for all 12 items, and for that matter, all 20 items in the Behavior Pattern Scale from which the time urgency measure was drawn, it is possible that some tendency to report the same response level throughout the 20-item scale might have operated. As with the problem of social desirability, the occurrence of a response set bias with regard to the time urgency measure is not known, nor is the direction that it might have taken. In considering the potential impact of these types of biases on the validity of the time urgency measure, it is useful to recall that some indication of its concurrent validity was provided by the finding that time urgency scores varied significantly with reported frequency of eating in fast-food restaurants.

The impact of these methodological considerations on the true relationship between time urgency and well-being remains to be demonstrated empirically. Meanwhile, on the basis of other qualities of the data, i.e., the large sample size which gave the analysis adequate statistical power, and the general correspondence of results between the female and the smaller male sample, it may be argued that the internal validity of the observed null association in this sample may be assumed. As stated earlier, however, its generalizability to other populations remains to be determined.

An alternative explanation for the finding of no relationship between time urgency and well-being lies in the possible need to further dissect the time urgency variable in terms of its underlying causes. One form of time urgency may emanate from a desire to speed up the passage of present time that is related to feelings of emptiness, frustration, and anxiety. This neurotic quality that has been linked in the past with time urgency (Calabresi & Cohen, 1968; Wessman, 1973) may, in fact, be related negatively with psychological well-being. However, another form of time urgency, one impelled by a desire to avail of the promises that lie ahead, may co-

exist with an expansive and coherent view of the future. As shown by Wessman (1973) and Wessman & Ricks (1966), this type of time orientation is related to feelings of happiness. It may be expected, therefore, that this other type of time urgency would be positively related with psychological well-being. Thus, the opposing directions of the relationships of these two forms of time urgency with well-being may have resulted in an overall though misleading appearance of a lack of association. These speculations, founded on the complex and multi-dimensional character of the experiences of time, provide another direction for future research that is clearly amenable to empirical testing.

This study also yielded an unexpected finding that has important implications regarding the nature of time urgency. Among the present sample of employed women, heightened levels of time urgency were reported by young women, i.e., 25-29 years old, with children. Presumably, these children are in their very early and most dependent years. Considering the life situations of this group of subjects -- working, probably married (although marital status was not found to correlate with time urgency), and caring for young children, it becomes apparent that an

acute sense of time urgency occurs in conditions of multiple life roles and obligations. It may be asked as well whether the intense demands imposed by the particular work setting of the subjects exacerbated the time urgency they experienced. A related and also meaningful finding was that among women with children, time urgency decreased after the ages 25-29, presumably in relation to decreasing burdens of parenting as the children's dependence needs abated. From these results, several principls regarding time urgency may be derived: 1) time urgency is mutable, 2) time urgency varies with the intensity of environmental demands, 3) time urgency, rather than being merely a symptom of psychological malaise as initially presumed in this study, may also represent a highly appropriate and realistic response to environmental pressure.

These principles are compatible with another finding of the study -- a positive though moderate correlation between occupational status and time urgency. As occupational rank increases, the amount of responsibilities on the job does so accordingly, and,perhaps, the need to become more efficient and organized in one's use of time as well.

The recognition that time urgency though seemingly having strong associations with neuroticism may also be a realistic response of busy and productive people, enables us to reconcile an apparent contradiction raised in the beginning of this report regarding the simultaneously positive and negative character of time urgency. To achieve important social and economic ends, it may be imperative for the individual living in a technologically advanced society to execute many different tasks in different arenas of life in a highly coordinated and organized fashion. At those particular moments when the convergence of competing obligations becomes unusually intense, one form of adaptive response may consist of heightened arousal, the need for action, and increased value on the efficient use of time. This line of argument may explain as well the observation that time urgency and psychological distress are highly correlated. Perhaps the truth is that time urgency and psychologic distress are covarying but independent consequences of experiencing multiple sources of stress. The reverse order of causality may also be considered -- does time urgency, or psychologic disorder, lead to conditions of experiencing greater stress? In other words, do highly time urgency

persons, anxious to fill up time with productive activity, gravitate toward a life situation characterized by a multiplicity of commitments and obligations? If the latter were true, however, one would expect time urgency to remain relatively constant regardless of age as highly time urgent persons endeavor to create, continuously, scenarios that would fulfill this pathological need. Evidence may be cited in this study, however, that contradicts this speculation. Among women with children (whose level of time urgency was higher than that of women without, $p=.06$), time urgency decreased with age, presumably as the burdens of parenthood decreased. However, appropriate longitudinal studies would be necessary to adequately determine this. In any case, it seems plausible to speculate that endeavoring to meet multiple obligations when accompanied by time urgent attitudes and behavior can result in feelings of fatigue, apprehensions about the possibility of failure, irritability and other psychopathologic states. In this context, a further question may be asked about the nature of these multiple obligations. Is it merely their quantity in terms of number and magnitude, or is it their conflicting quality, e.g., mother vs. career woman, that accounts for the negative

feeling states they produce? In future studies, these questions should be addressed not only by including variables not considered in the present study, but also by the use of different types of samples exposed to different types of life stresses.

The lack of association observed between time urgency and the physical indices -- cigarette smoking, blood pressure, and serum cholesterol, all of which are standard risk factors for coronary heart disease, does not point toward a role of time urgency as a risk factor for physical well-being. The results concerning cigarette smoking and blood pressure differ from Shekelle et al.'s (1976) finding of a small but significant association between Type A behavior and coronary heart disease among women. This lack of agreement may indicate real distinctions between Type A behavior and time urgency, or may reflect the unique nature of the present sample. Some measurement problems may also account for the null association observed. Blood pressure and serum cholesterol determinations are subject to large deviations within the same individual; and it is possible that some denial or underreporting of cigarette smoking occurred. Another explanation may lie in the need for a finer grained measure of

time urgency than was used in this study in order to effectively assess time urgency as an indicator of well-being.

Concluding Comments

Because little was previously known about the nature of time urgency, this study employed a correlational approach and offered some potential covariates of time urgency. Results were obtained that yielded new information about the nature of time urgency and gave rise to conceptual and methodological leads that need to be taken toward a better understanding of this elusive psychological concept, as well as toward further clarification of its relationship with psychological well-being.

It was speculated that time urgent behaviors may partly reflect an appropriate and adaptive coping response, belying the limited notion of time urgency as merely an indicator of some psychological disorder. Nevertheless, time urgency was found to correlate with psychopathologic status, and it was argued that this may reflect a noncausal relationship due in some part to methodological artifact, but more likely to their covariance as consequences of a third variable. The experience

of multiple and conflicting obligations was offered as a plausible cause. The suggestion that time urgency changes with level of environmental press indicates that it may be susceptible to intervention, and happily, to clinical management if such was required.

Although the initial hypothesis -- that time urgency is an indicator of psychological and physical risk factors, was not unequivocally confirmed in this exploratory effort, several directions for a finer articulation of this hypothesis and other questions regarding the nature of time urgency have been illuminated. The study results also suggest further analytic procedures that should be taken toward more definitive findings, such as confirmatory factor analysis to arrive at a stronger time urgency measure, and path analysis to evaluate the direct and indirect determinants of time urgency. Finally, the generalizability of the results observed in this study and those seen when using an expanded conceptual design should be determined with other types of samples.

Indeed, it appears that in today's complex and achievement-oriented societies, "life in the fast lane" may have some important benefits while also involving some psychological costs. The key to the dilemma posed by time urgency may ultimately lie in the nature and locus of its source.

Appendix 1

WELLNESS CENTER

HEALTH ASSESSMENT QUESTIONNAIRE

DO NOT WRITE IN THIS SPACE

WELLNESS ASSESSMENT QUESTIONNAIRE

Study status: 1. Pilot 2. Control A 3. Control B _1_

Organization: 1. ASHHC 2. Allentown _2_

Intervention Attended: (see Appendix 1) _3_ _4_

Serial Number: (starts with 001 for each study group) _5_ _6_ _7_

1. Age at last birthday: ____ _8_ _9_

2. Sex: 1. Male
2. Female _10_

3. Ethnicity: _11_

1. White
2. Black
3. Hispanic
4. American Indian
5. Asian/Oriental
6. Other: _____

4. Religious background: _12_

1. Protestant
2. Catholic
3. Presbyterian
4. Episcopalian
5. Jewish
6. Baptist
7. Other: _____ _____

5. Highest level of school attended: _13_

1. Kindergarten to 6th grade
2. 7th to 9th grade
3. 10th to 12th grade
4. Trade/vocational school
5. Diploma-Nursing
6. 2 year college
7. 4 year college
8. More than 4 years
9. Other

_____

6. What is your job title? _____
(Use Tobacco Study Occupational Code, Appendix 2) _14_ _15_ _16_ _17_

7. What hours do you work?

Start at _____ a.m. _____ p.m. _18_ _19_ _20_ _21_

End at _____ a.m. _____ p.m. _22_ _23_ _24_ _25_

8. What was your approximate family income before taxes last year? 26

1. $6,999 or below
2. 7,000 to 9,999
3. 10,000 to 14,999
4. 15,000 to 19,999
5. 20,000 to 29,999
6. 30,000 and above

9. How many organizations/companies have you worked for in the past three years? 27

1. None
2. One
3. Two
4. Three
5. More than 3

10. Present marital status: 28

1. Never married (single)
2. Married
3. Widowed
4. Divorced
5. Separated
6. Divorced and Remarried
7. Other _____

11. How many children (living) do you have? 29

1. None
2. One
3. Two
4. Three
5. Four
6. More than four

B. Personal Health Status

1. Has a doctor ever said that you had the following conditions?

YES	NO		Code: 1=Yes 2=No	
___	___	a. Heart trouble		30
___	___	b. Stroke		31
___	___	c. Diabetes		32
___	___	d. High blood pressure		33
___	___	e. Cirrhosis of the liver		34
___	___	f. Emphysema		35
___	___	g. Bronchitis lasting more than 3 months		36
___	___	h. Gallstones or gall bladder disease		37

YES	NO		
___	___	i. Ulcerative colitis	38
___	___	j. Multiple large bowel polyps	39
___	___	k. Jaundice	40
___	___	l. Anemia	41
___	___	m. Kidney disease	42
___	___	n. Peptic ulcer	43
___	___	o. Cancer (please specify type _____	44
___	___	p. Low blood sugar	45
___	___	q. Other: _____	46

C. Personal Habits

Directions: Write your answers on the line provided for questions requiring a written response. Where several choices are presented, check the response which applies to you.

Tobacco

1. Have you ever been a regular smoker of: 47

Cigarettes
Cigars
Pipes

1. Cigarettes only
2. Cigarettes & Cigars
3. Cigarettes & Pipes
4. Cigars only
5. Cigars & Pipes
6. Pipes only
7. All three
8. Never smoked

If no to all of the above, go on to question _____

2. How many years have you been smoking?

Cigarettes	_____ Years	48 49
Cigars	_____ Years	50 51
Pipes	_____ Years	52 53

3. Do you currently smoke cigarettes: 1. Yes 2. No 54

If no, go on to question 5.

4. How many cigarettes do you smoke on an average day? 55

1. Less than 10
2. Between 11 and 20 a day
3. Between 21 and 30 a day
4. 31 or more cigarettes per day

5. If you do not smoke anymore, how long ago did you stop? 56

1. One month or less
2. 2-6 months
3. 7-12 months
4. 1-5 years
5. 6-10 years
6. 11+ years

6. During the last year that you smoked, how many cigarettes a day did you smoke? 57

1. Less than 10 cigarettes per day
2. Between 11 and 20
3. Between 21 and 30
4. 31 + or more cigarettes per day

7. If you have stopped for a year or more, how did you stop? 58

1. Smoke enders
2. Seventh Day Adventist
3. American Cancer Society
4. Other Program
5. Hypnosis
6. No program, on my own
7. Other _____ _____

Alcohol

8. Do you currently drink any of the following alcohol beverages? 59

a. Wine 1. Yes 2. No
b. Beer 1. Yes 2. No
c. Hard liquor 1. Yes 2. No

Code:
1. Wine only
2. Beer only
3. Hard Liquor only
4. Wine & Beer
5. Wine & Hard liquor
6. Beer & Hard liquor
7. All three
8. Non-drinker

9. How would you describe your intake of BEERS (1 can/glass = 8-10 ozs.): 60

1. None at all
2. Infrequent - only on holidays or important occasions
3. Occasional - weekends, holidays and parties
4. Light - 2-3 glasses per week
5. Moderate - 1-2 glasses per day
6. Regular - 3-6 glasses per day
7. Heavy - 7+ glasses per day

10. How would you describe your intake of WINE (1 glass = 4 ozs): 61

1. None at all
2. Infrequent - only on holidays or important occasions
3. Occasional - Weekends, holidays and parties
4. Light - 2-3 glasses per week
5. Moderate - 1-2 glasses per day
6. Regular - 3-6 glasses per day
7. Heavy - 7+ glasses per day.

11. How would you describe your intake of HARD LIQUOR (1 shot = 1 oz) 62

1. None at all
2. Infrequent - only on holidays or important occasions
3. Occasional - weekends, holidays and parties
4. Light - 2-3 shots per week
5. Moderate - 1-2 shots per day
6. Regular - 3-6 shots per day
7. Heavy - 7+ shots per day

12. Has anyone who cares about you criticized your drinking? 63

1. Yes 2. No

13. Have you ever taken a drink first thing in the morning? 64

1. Yes 2. No

14. Have you had to lie to others about your drinking? 65

1. Yes 2. No

15. Have you ever been drunk at work? 66

1. Yes 2. No

16. Have you ever driven when feeling drunk or very intoxicated? 67

1. Yes 2. No

Nutrition

17. Are you presently following any of these diets?

a. weight loss 1. Yes 2. No 68

b. low cholesterol 1. Yes 2. No 69

c. low salt 1. Yes 2. No 70

d. diabetic (no sugar) 1. Yes 2. No 71

e. other (specify) 1. Yes 2. No 72

End of card 1 1 80

In columns 1-7, enter same Identification #'s as in 1-7, Card 1. Card 2: 1 2 3 4 5 6 7

18. Estimate your intake of the following categories of food.

FOOD	SERVING Code:	Frequency 5+/wk 1	3-4/wk 2	1-2/wk 3	about once/ month 4	hardly ever 5	
Eggs	1 egg						8
Butter	1 tbsp (1 pat)						9
Cheese	1 slice						10
Margarine	1 tbsp						11
Ice cream	1 scoop						12
Beef (about one serving)	4-6 ozs.						13
Lamb (about one serving)	4-6 ozs.						14
Pork (about one serving)	4-6 ozs.						15
Chicken/turkey	4-6 ozs.						16
Salami/bologna/ ham	2 ozs.						17
Pies/cakes	1 slice						18
Whole milk	1 8 oz. glass						19
Skim milk	1 8 oz. glass						20
Fruit	1 piece						21
Vegetables	4 ozs.						22

19. How many days a week do you have breakfast containing a protein food such as peanut butter or hard or soft cheese, or meat, or eggs, or yogurt? 23

_____ days a week

20. How frequently do you eat in fast food restaurants? 24

1. Never
2. Few times a year
3. About once or twice a month
4. About once or twice a week
5. Three to six times a week
6. Every day

Exercise and Recreation

21. How would you describe the physical labor required in your job? 25

1. Requires no physical labor
2. Requires some physical labor
3. Requires substantial physical labor

22. Within the past year, did you participate on a regular basis in some of the sports or activities listed below? If yes, mark the one(s) plus the number of hours each week that you participated.

Coding Instructions:

In the first two columns, code in exact number of hours in the summer.

In the 3rd and 4th columns, code in exact number of hours in the winter.

ACTIVITY	Yes	Hours/week week in the Summer	Hours/week week in the Winter		
Brisk walking (15 minutes or more)	___	___	___	26 27	28 29
Running/Jogging	___	___	___	30 31	32 33
Bicycling	___	___	___	34 35	36 37
Tennis	___	___	___	38 39	40 41
Racquetball/Handball	___	___	___	42 43	44 45
Volleyball, basketball, football	___	___	___	46 47	48 49

Baseball	___	___	___	50	51	52	53
Swimming	___	___	___	54	55	56	57
Golf	___	___	___	58	59	60	61
Social or other dancing	___	___	___	62	63	64	65
Exercise class, acrobatics, yoga	___	___	___	66	67	68	69
Skiing, skating	___	___	___	70	71	72	73
Other _____	___	___	___	74	75	76	77
_____							
_____							

End of card 2 — 2 / 80

In columns 1-7, enter ID # as in 1-7, Card 1. — 1 2 3 4 5 6 7

23. Below is a list of social and leisure activities. Please check how often you have participated in each within the past months.

Code: 1. Not at all 3. 2-3/month
2. Once/month 4. Weekly

		(1)	(2)	(3)	(4)	
1.	Visited family or friends	___	___	___	___	8
2.	Entertained family or friends in your home	___	___	___	___	9
3.	Attended a ballgame	___	___	___	___	10
4.	Participated in team athletics (e.g. bowling, league, baseball club, basketball team)	___	___	___	___	11
5.	Attended a PTA (Parent/Teacher's) activity	___	___	___	___	12
6.	Joined a church social (e.g. Bingo, Breakfast)	___	___	___	___	13
7.	Watched a movie alone	___	___	___	___	14
8.	Watched a movie with others	___	___	___	___	15
9.	Watched a play, opera, or concert	___	___	___	___	16
10.	Met a friend or family member for dinner/ lunch/cocktails	___	___	___	___	17
11.	Visited a park	___	___	___	___	18

12. Spent at least a day at the shore or mountains ___ ___ ___ ___ 19

13. Other_____ ___ ___ ___ ___ 20

_____ ___ ___ ___ ___

_____ ___ ___ ___ ___

24. During the past two weeks, when feeling tense or under stress, how often did you:

Code:	Not at all 1	Less than once /day 2	Once /day 3	Several times /day 4	
Take aspirin	___	___	___	___	21
Use tranquilizers or other sedatives	___	___	___	___	22
Increase intake of coffee, coke, tea	___	___	___	___	23
Do yoga or meditation	___	___	___	___	24
Do deep breathing	___	___	___	___	25
Engage in imagining pleasant scenes	___	___	___	___	26
Exercise	___	___	___	___	27
Talk to someone about a matter of concern to you	___	___	___	___	28
Use Humor	___	___	___	___	29
Have a drink of two after work	___	___	___	___	30
Watch TV	___	___	___	___	31
Listen to music	___	___	___	___	32
Other _____	___	___	___	___	33

D. Behavior Patterns

	Never 1	Some-times 2	Mostly 3	Always 4	
1. Do you try to do as much as possible in the least amount of time?	____	____	____	____	34
2. Do you become impatient with delays or interruptions?	____	____	____	____	35
3. Do you have to win at games to enjoy yourself?	____	____	____	____	36
4. Do you find yourself speeding up the car to get through amber lights?	____	____	____	____	37
5. Are you unlikely to ask for or indicate you need help with a problem?	____	____	____	____	38
6. Do you seek the respect and admiration of others?	____	____	____	____	39
7. Are you overly critical of the way others do their work?	____	____	____	____	40
8. Do you have the habit of looking at your watch or clock?	____	____	____	____	41
9. Do you strive to better your position and achievements?	____	____	____	____	42
10. Do you spread yourself "too thin" in terms of your time?	____	____	____	____	43
11. Do you have the habit of doing more than one thing at a time?	____	____	____	____	44
12. Do you get angry or irritable?	____	____	____	____	45
13. Is it hard to find time for hobbies or time by yourself?	____	____	____	____	46
14. Do you have a tendency to talk quickly or hasten conversations?	____	____	____	____	47
15. Do you consider yourself hard-driving?	____	____	____	____	48
16. Do your friends or relatives consider you hard-driving?	____	____	____	____	49

	Never 1	Some-times 2	Mostly 3	Always 4	
17. Do you have a tendency to get involved in multiple projects?	____	____	____	____	50
18. Do you have a lot of deadlines in your work?	____	____	____	____	51
19. Do you feel vaguely guilty if you relax and do nothing during leisure?	____	____	____	____	52
20. Do you take on too many responsibilities?	____	____	____	____	53

TOTAL SCORE: ADD ALL SCORES ABOVE

E. Symptoms Index

During the past two weeks, how often did you:

Code:	Never 1	Once in a while 2	Fairly often 3	Very Often 4	
1. Have an upset or sour stomach	____	____	____	____	54
2. Have a tightness or tension in your neck, back or other muscles	____	____	____	____	55
3. Feel faint or dizzy	____	____	____	____	56
4. Sweat when not working hard or overheated	____	____	____	____	57
5. Notice your hands trembling	____	____	____	____	58
6. Have to avoid certain things, place, activities because they frightened you	____	____	____	____	59
7. Feel your heart pound or race when not physically active	____	____	____	____	60
8. Feel nervous or shaky inside	____	____	____	____	61
9. Have trouble getting your breath	____	____	____	____	62
10. Feel tense or keyed up	____	____	____	____	63
11. Feel fearful or afraid	____	____	____	____	64
12. Lose your temper	____	____	____	____	65

	Never 1	Once in a while 2	Fairly often 3	Very Often 4	
13. Feel easily annoyed or irritated	____	____	____	____	66
14. Feel critical of others	____	____	____	____	67
15. Get angry over things that are not too important	____	____	____	____	68
16. Have a poor appetite	____	____	____	____	69
17. Feel lonely	____	____	____	____	70
18. Feel bored or have little interest in things	____	____	____	____	71
19. Lose sexual interest or pleasure	____	____	____	____	72
20. Have trouble getting to sleep or staying awake	____	____	____	____	73
21. Cry easily or feel like crying	____	____	____	____	74
22. Feel downhearted or blue	____	____	____	____	75
23. Feel low in energy or slowed down	____	____	____	____	76
24. Feel hopeless about the future	____	____	____	____	77
25. Have any thought about possibly ending your life	____	____	____	____	78
26. Have trouble remembering things	____	____	____	____	79
End of card 3.					3 80
In columns 1-7, enter ID # as in card 1.					1 2 3 4 5 6 7
27. Have difficulty making decisions	____	____	____	____	8
28. Have your mind go blank	____	____	____	____	9

G. Satisfaction Scale

1. Taking all things together, how would you say things are these days? 10

   1. Very happy 2. Pretty happy 3. Not too happy

2. Do you feel satisfied with your present social standing? 11

   1. Completely satisfied 3. Not very satisfied
   2. Pretty satisfied

3. Have you felt lonely and wished for more friends during the last two weeks? 12

   1. All the time 2. Some of the time 3. Almost never

4. Have you felt shy or uncomfortable with people in the last two weeks? 13

   1. All the time 2. Some of the time 3. Almost never

5. Do you feel satisfied in your relations with members of the opposite sex? 14

   1. All the time 2. Some of the time 3. Almost never

6. How satisfied are you with the work you do? 15

   1. Completely satisfied 3. Not very satisfied
   2. Pretty satisfied

7. Do you feel satisfied with the degree of freedom to exercise judgement in your job? 16

   1. Completely satisfied 3. Not very satisfied
   2. Pretty satisfied

8. Are you satisfied with the amount of variety in your job? 17

   1. Completely satisfied 3. Not very satisfied
   2. Pretty satisfied

9. How satisfied are you with your future in this job? 18

   1. Completed satisfied 3. Not very satisfied
   2. Pretty satisfied

10. In general, how good a job do you think you have? 19

    1. Very good 2. Good 3. Average 4. Poor 5. Very poor

11. How satisfied are you with your wage and salary level? 20

    1. Completely satisfied
    2. Pretty satisfied
    3. Not very satisfied

12. How positive do you feel about your chances of increasing your earnings in the next year? 21

    1. Positive 2. Somewhat positive 3. Not positive at all

13. Do you think it likely that you would be able to get another job were you to quit or lose your current job? 22

    1. Very likely 2. Fairly likely 3. Not at all likely

14. How often do you worry about the state of the economy and how it will affect your career? 23

    1. Frequently 2. Occasionally 3. Almost never

15. How interested do you think your company is in the physical and emotional well-being of its employees? 24

    1. Very actively concerned
    2. Concerned, but needs to do something about it
    3. Not concerned

H. Life Events

Have you experienced any of these events in the past 12 months? If so, please indicate with a check mark. On the right hand line, write how many months ago it occurred.

Code: 1st Col. = 1. No 2. Yes
2nd and 3rd Col. = # of months

	No	Yes	Months since event occurred	
1. A physical illness or injury which kept you in bed for a week or more (53)	—	—	____	25 26 27
2. Started a new job (36)	—	—	____	28 29 30
3. A promotion (29)	—	—	____	31 32 33
4. A demotion (29)	—	—	____	34 35 36
5. Separation from your spouse (65)	—	—	____	37 38 39
6. Divorce (73)	—	—	____	40 41 42
7. Moved to a new residence (20)	—	—	____	43 44 45
8. Bought a house (31)	—	—	____	46 47 48
9. Sold a house (31)	—	—	____	49 50 51

	No	Yes	Months since event occurred	
10. Illness of a close family member (44)	—	—	——	52 53 54
11. Death of a spouse (100)	—	—	——	55 56 57
12. Death of another family member or loved one (63)	—	—	——	58 59 60
13. Broken love relationship other than marriage (60)	—	—	——	61 62 63
14. Marriage (50)	—	—	——	64 65 66
15. Birth of a child (40)	—	—	——	67 68 69
16. Started a new love relationship (40)	—	—	——	70 71 72
17. Suffered a business loss (30)	—	—	——	73 74 75
18. Experienced a miscarriage or stillbirth (30)	—	—	——	76 77 78

For other major events, use Card 5, columns 8-16. 4 80

Columns 1-7 for ID#. Card 5: — — — — — — — 1 2 3 4 5 6 7

19. Other major event not listed above: (See Appendix 5, Life Changes, for other scores)	—	—	——	8 9 10
_____	—	—	——	11 12 13
_____	—	—	——	14 15 16

I. Health Attitudes

Code: 1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

1. If I become sick, I have the power to make myself well again.	—	—	—	—	(I)	17
2. Often I feel that no matter what I do, if I am going to get sick, I will get sick.	—	—	—	—	(C)	18
3. If I see an excellent doctor regularly, I am less likely to have health problems.	—	—	—	—	(E)	19

4.	It seems that my health is greatly influenced by accidental happenings.	___	___	___	___	(C)	20
5.	I can only maintain my health by consulting health professionals.	___	___	___	___	(E)	21
6.	I am directly responsible for my health.	___	___	___	___	(I)	22
7.	Other people play a big part in whether I stay healthy or become sick.	___	___	___	___	(E)	23
8.	Whatever goes wrong with my health is my own fault.	___	___	___	___	(I)	24
9.	When I am sick, I just have to let nature run its course.	___	___	___	___	(C)	25
10.	Health professionnals keep me healthy.	___	___	___	___	(E)	26
11.	When I stay healthy, I'm just plain lucky.	___	___	___	___	(C)	27
12.	My physical well-being depends on how well I take care of myself.	___	___	___	___	(I)	28
13.	When I feel ill, I know it is because I have not been taking care of myself properly.	___	___	___	___	(I)	29
14.	The type of care I receive from other people is what is responsible for how well I recover fromm an illness.	___	___	___	___	(E)	30
15.	Even when I take care of myself, it's easy to get sick.	___	___	___	___	(C)	31
16.	When I become ill, it's a matter of fate.	___	___	___	___	(C)	32
17.	I can pretty much stay healthy by taking good care of myself.	___	___	___	___	(I)	33
18.	Following doctor's orders to the letter is the best way for me to stay healthy.	___	___	___	___	(E)	34

J. Laboratory Physical Data

Serum Cholesterol	35 36 37
HDL Cholesterol	38 39 40
Fasting blood sugar	41 42 43
Systolic blood pressure	44 45 46
Diastolic blood pressure	47 48 49
Height (cm.)	50 51 52
Weight (kg.)	53 54 55

Physical Fitness

Heart rate	56 57 58
% Body fat	59 60
Flexibility	
Tensor fascia latae: 1. Left	61 62
2. Right	63 64
Adductors: 1. Left	65 66
2. Right	67 68
Trunk flexibility (in inches)	69 70 71
Muscular strength	
Abdominal (# sit-ups/minute)	72 73
Lower body strength (lbs)	74 75
Upper body strength (# of push-ups)	76 77

End of Card 5 5/80

Appendix 2

Scoring Procedures for the Psychological Measures

Time Urgency. There were four possible responses to each of the 12 items which comprised the Time Urgency measure. Each response received the following weight:

Never=1 Sometimes=2 Mostly=3 Always=4

Weighted responses were summed for each subject to produce a total Time Urgency score. This variable was that used for the analyses involving Time Urgency. The possible range of scores for this variable was 12 to 48.

Interpersonal Satisfaction. Of the five questions that made up the Interpersonal Satisfaction Index, three loaded positively on the factor, while two loaded negatively. There were three possible responses to each question. The scoring scheme followed to obtain the summed Life Satisfaction score was:

	Negatively Loading Items			Positively Loading Items		
Assigned Weight	1	2	3	4	5	6
Response	All the time	Some of the time	Almost never	Not too happy	Pretty happy	Very happy

Weighted responses were summed for each subject to obtain a total Interpersonal Satisfaction score, and this

value was used for the analyses involving the concept, Interpersonal Satisfaction. The possible range of scores for this variable was 14 to 24.

Work Satisfaction. Four of the five items that made up the Work Satisfaction Index had three possible responses, while one had five responses possibilities. Weighting was designed to accommodate this difference in the numbers of response possibilities. Thus, the five responses to the question, "In general, how good a job do you think you have?" were weighted thus:

Very poor=1 Poor=2 Average=3 Good=4 Very good=5

The four other Work Satisfaction questions each had three response possibilities and were assigned the following weights:

Not very satisfied=1	Pretty satisfied=2	Completely satisfied=3

Weighted scores for each of the five items were summed to yield a total Work Satisfaction score for each subject. The resulting range of Work Satisfaction scores was 5 to 17.

Psychiatric Symptoms Index. Following the weighting scheme used by Ilfeld (1976), the responses to the PSI items were given the following weights:

Never=0	Once in a while=1	Fairly often=2	Very often=3

Weighted responses were then summed for each subject to produce a total PSI score. The possible range of scores obtainable for the PSI was 0 to 84.

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