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Physiological and social-psychological bases of stress associated with the male mid-life transition

Julian, Teresa Whitehead, Ph.D.

The Ohio State University, 1987

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DEDICATION

To Danielle and David
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CHAPTER 1
INTRODUCTION

BACKGROUND OF THE PROBLEM

The average life expectancy at the turn of the century was approximately 47 years of age. Presently, the average life expectancy is 74.3 years; for women it is 78.1 years compared to 71.1 years for men (Perlmutter & Hall, 1985). Much of this increase in longevity has been the result of a sharp decline in infant and child mortality; but even among adults, a significant reduction in mortality has occurred (Treas & Bengston, 1982).

The United States is witnessing an aging of society with resulting growth of the number of individuals at mid-life. Between the year 1982 and the year 2000, the population 35 years of age and over is expected to increase by 37 million (U.S. Bureau of the Census, 1983). There has been a shift in the median age of American population from 22 years in 1890 to 30 years in 1980 (U.S. Bureau of the Census, 1980). These demographic changes are a result of increased longevity, a large cohort of individuals reaching middle age, and a younger-age cohort with a lower birth rate. The middle years or mid-life as a distinct stage in the lifecycle is a rather recent phenomena that has evolved from this increasing life expectancy. Until the twentieth century, individuals continued to have children into their middle years, and child care and the launching of children were extended into old age (Brayshaw, 1962); males often died before their last child left home (Deutscher, 1964). Today, the mid-
Middle years represent a time when family income approaches its peak and also represents one of the longest periods of the marital life cycle covering a span of twenty to twenty-five years (Eshleman, 1981). Presently, there is mixed evidence as to whether this period of life for men and women is inherently difficult. However, many Americans can expect to pass through stages that include the empty nest period, universal retirement, grandparenthood and an extended term of widowhood (Berardo, 1982).

American society has been influenced by growing affluence, changing work and family patterns, increased education, greater emphasis on self-realization, and increased support for the women's and men's liberation movements. Greater affluence has allowed many individuals freedom to explore experiences once reserved for the very wealthy. No longer do many individuals feel that fulfillment in life can come only through hard work, sacrifice, child-rearing and a few community activities. In the past, the greatest personal fulfillment was to raise and provide children with the hope of achieving more. Today's middle-aged men and women are obtaining these expectations and are wondering what else there is (Kimmel, 1980). Generally, middle-aged adults are operating at their optimum level as they interact with others and execute projects at the greatest level of efficiency. Many researchers believe that the peak of life often stimulates a period of self-assessment; i.e., one cannot remain at a peak forever, so they must prepare to face a "downhill journey, or perhaps a walk along a plateau" (Tamir, 1982). This self-assessment involves a process of examining one's individual life and one's place in the wider social environment. Middle-aged individuals compare and contrast polarities and contradictory activities. It is a period where individuals may "sway from labor to love, from macho to maternal, from youthful to aged, and vice versa" (Tamir, 1982). During the middle years, individu-
als become aware of their own mortality. Whether this contemplation is stimulated by physical decline, the death of a friend, and/or aging parents, a struggle occurs that allows the middle-aged adult to make peace with him or herself in order to comfortably survive the remaining future (Tamir, 1982). The middle-aged adult may go through a period of transition realizing the importance of taking on the responsibility of future generations. The successful resolution of the tasks during the middle years results in freedom to contribute to others. If individuals do not successfully resolve the developmental tasks of the middle years, stagnation (self-absorption) and regret may occur (Erikson, 1956).

The middle-aged are a special population in that they are no longer young, yet not truly old. Presently, the chronological definition of this age group lacks a well-defined boundary (Borland, 1978; Kerchoff, 1976; Tamir, 1982). It can range from 30 to 60 years of age (Tamir, 1982). Most researchers agree that to define the middle years, biological, psychological, and social measurements as well as chronological age need to be considered (Neugarten & Datan, 1974; Perlmutter & Hall, 1985; Tamir, 1982). The middle years are considered to be a period of power and wealth, involving the responsibility to maintain the structure of the society (Tamir, 1982).

As societal changes impact the middle years, the middle-aged are not only growing in numbers and are extending in age, they are also transforming qualitatively. Kimmel (1980) states that to understand the themes and variations in middle age, it is important to be aware of the interaction between historical forces, psychosocial age-related influences, and maturational effects.
MEN AT MID-LIFE

There has been a growing public awareness of a developmental transition or what is often referred to as a "mid-life crisis" that may accompany the transition to the middle years; however, research on this phenomena is only beginning. In fact, much of the research dealing with adult male development continues to be in an exploratory stage, and empirical validation remains sketchy (Rosenberg & Farrell, 1981).

Some researchers have concluded that men at mid-life are at the peak of their psycho-social development. They have mastered their internal and external world, have highly positive self-concepts, and are at the height of their authority (Deutscher, 1964; Estes & Wilensky, 1978; Neugarten, 1968). Thus, these researchers contend that an overt crisis will not occur if individuals are experiencing changes that are expected (i.e., normative transitions) (Lowenthal, Thurnher & Chiriboga, 1975; Neugarten, 1968). These researchers contend that a crisis occurs only if changes in life patterns occur with no social expectation (i.e., non-normative transitions).

Other researchers assert that the mid-life period is inherently stressful if not crisis producing (Jaques, 1965; Levinson, 1976). Men at mid-life have been viewed as experiencing tumultuous struggles within themselves and with the external world (Levinson, 1976).

Some researchers limit the phenomenon of mid-life crisis to white, middle-class males. From this perspective a mid-life crisis occurs probably as a result of increased leisure and the acceptance of the value of self-fulfillment. Similarly, these white, middle-class males are viewed as being freed from toil and can engage in introspection and self expression (Cytrybaum, 1980).
Until more systematic research evidence is obtained, academic debate will continue to exist over the issue of whether the mid-life developmental crisis is a universal event. However, evidence is accumulating to suggest that many men at mid-life exhibit a striking incidence and prevalence of personal disorganization (Rosenberg & Farrell, 1981; Tamir, 1982). Tamir (1982), for example, notes that clearly something unique seems to occur to men as they become middle-aged, for studies that cover the lifespan have identified an atypical qualitative decline among middle-aged male subjects.

This period of transition is characterized by asynchrony on many levels of activity and development: biological, psychological, sociological, and outer-physical (Riegel, 1972; Tamir, 1982). Levinson (1976, 1986) states that the primary tasks of the transitional period are to reappraise the existing structure of one's life and to explore possibilities for change in the self and the world, and to move toward commitment to the crucial choices that form the basis for a new life structure in the ensuing period. Tamir (1982) notes that issues in conflict are brought to light and solutions are attempted.

Stress during the middle years has been linked to marital dissatisfaction, ineffective parenting types, minor to severe emotional disturbances, aggressive behaviors, and to illness and disease (Rosenberg & Farrell, 1981). Stevens-Long (1984) contends that this transitional period may be second only to the adolescent years in degree of biological, psychological, and social change experienced by most individuals. It is during this period that adults take stock, assess their careers, launch their children, deal with a decline in physical prowess, and come to terms with their own mortality (Tamir, 1982).
An upsurge of unique mental health problems has also been reported by various researchers. Soddy (1967) noted that at about the age of 40 many men displayed various forms of anxiety symptoms. Lowenthal and Chiriboga's (1973) research suggests that mid-life is a period of a higher incidence of nervous breakdowns, physical illness, financial crises, and marital problems. Campbell, Converse, and Rogers (1976) found a decrease in happiness and satisfaction at this stage. Hunt (1974) and Levin (1975) found significant increases in male extramarital sexual activity in this age group. Increases in alcohol related problems and financial crisis were also evident in research related to men at mid-life (Lowenthal & Chiriboga, 1972; Rosenberg & Farrell, 1981).

Chiriboga and Cutler (1980) suggest that the middle-aged population shows the largest increase in number of positive stresses as well as the highest number of negative family stresses. It is thus a time of both negative and positive change.

CRITIQUE OF EXISTING STUDIES OF MEN AT MID-LIFE

Because of a larger portion of the American population living to middle age and older age, there is an increasing need for research from a life-span perspective (Borland, 1978). Prior to the 1970's, research concerning the psychology of the middle years was described as minimal (Stevens-Long, 1984). Existing research has focused on the physiological changes occurring with this age group. Aronsen (1966) speculates that the general research disinterest in the middle-age group is reflective of a cultural stereotype concerning mid-life, i.e., Americans traditionally regard middle age as a stable, comfortable, and predictable state of life, a time of little excitement or change. Only in recent years had mid-life been considered unique and of research interest (Stevens-Long, 1984).
There is a lack of research in general about the middle years, and particularly on men's adult roles (Pleck, 1976). In terms of men's family and interpersonal roles even less is known. According to Streib and Beck (1980), the knowledge of men's roles, relationships, and mental status at mid-life is negligible. Mid-life transitions have been studied, but almost exclusively in terms of women. The primary reason for this is that it was assumed that women's roles changed more dramatically at this time as a result of menopause and a decline of traditional childrearing functions (Kimmel, 1980). Men, on the other hand, were assumed to be very little affected by physiological changes and by the departure of their grown children (Brim, 1976). Men were viewed as emotionally stable and stalwart pillars of society who were undaunted by changes associated with progression through the lifecycle (Cohen, 1979).

Studies of men's work roles have offered little insight into the male mid-life transitions. The majority of these studies have ignored the relationship between work and family roles and have assumed that all men are sole providers with a non-working wife and dependent children at home (Osherson & Dill, 1983). These studies of men's work roles have ignored interpersonal factors. Studies related to men's work roles have focused on such quantifiable factors as career advancement, productivity, financial security, and job satisfaction (Kanter, 1977; Portner, 1979).

Research is indicating that the family role is a very salient one for middle-aged men today. Tamir (1982) found that the satisfaction of males at mid-life is more closely related to interpersonal satisfaction, especially with family members, than occupational success or other traditional predictors of male life satisfaction (i.e., health and financial status). McKenry and Arnold (1986) provided support of Tamir's findings. Life satisfaction was positively related to closeness to children, satisfaction with the father's role, satisfaction with co-workers, the number of friends, and androgynous
behaviors in the home. McKenry and Arnold (1986) suggest that perhaps the findings in their study reflect a move by males toward a broader range of relationships for emotional satisfaction as wives are increasingly involved in career pursuits at this stage of the lifecycle, as the importance of the husband's career declines, and children are in the process of individuating and severing family ties.

Knowledge of salient aspects of job and family roles and physiological states related to such stress should facilitate intervention by educators and practitioners. Hamburg (1982) notes there has been a low level of commitment by researchers to studying stress and health (mental and physical). Hamburg contends that an interdisciplinary approach is necessary whereby scientists must combine the biological and behavioral sciences if they are to truly determine the relationship between stress and health.

The contradictory findings pertaining to crisis or stress associated with mid-life transition have been attributed to crude instruments and methods (Rosenberg & Farrell, 1981), inaccurate and inconsistent definitions of major constructs (McKenry & Price, 1984), utilization of clinical populations (Hahn, 1981), and the taking of self-descriptions of the participant at face value (Hahn, 1981; Rosenberg & Farrell, 1981). Other researchers support these views and add that the evidence for stress associated with the male mid-life transition has been primarily derived from theoretical speculation, clinical impression, secondary analyses, and unsystematic examinations of a few theoretically unrelated variables. Generalizations made from these works have been further compounded by the failure to clearly delineate independent and dependent variables, the lack of causal models, and the failure to utilize physiological measures of stress (Kimmel, 1980; McCubbin et al., 1980; Tamir, 1982).
Whether stress is a positive or negative event, the body undergoes a wide variety of physiological changes (Selye, 1976). The totality of these changes has been called the General Adaptation Syndrome. Selye states that stress plays a role in every disease, no matter what the cause and that an individual's response to stress will depend upon the quality and the quantity of the individual’s coping mechanisms and the individual’s perception of the stressor (Luckmann & Sorenson, 1980).

No one theory has provided a direct connection between psychophysiological stress, individual differences and pathology, but it is commonly accepted that chronic stressors may lead to disease (Asterita, 1985). Current theories do suggest that the individual’s biological and behavioral response to stress greatly affects the endocrine system of the body. Several studies have determined that testosterone levels are suppressed after chronic psychological and/or physiological stress (Asterita, 1985). Further research is needed to identify and confirm correlates of stress associated with the male mid-life transitions.

THEORETICAL PERSPECTIVE ON MEN AT MID-LIFE

Historical changes and the influence of social age norms and the social clock influence developmental changes during mid-life. Research also indicates that maturational effects influence the middle years (Erikson, 1968; Gutmann, 1968; Jung, 1933; Levinson, 1976). At middle age there is an internal process of change that results in increased introspection and a shift in values and orientation of life (Kimmel, 1980).

Erikson's (1963, 1968) theory suggests that individuals at mid-life have the developmental task of resolution of the conflict between stagnation and generativity. Generativity is considered as an expansion of ego interest and a sense of having contributed to the establishment and nurturance of the next generation. The central
achievement of the generativity stage is the direction of one's creativity and energy in a way that produces lasting accomplishment.

Peck (1968), in his expansion of Erikson's theory, suggested that the middle aged have four sets of developmental challenges. These challenges are: (1) to value wisdom over physical strength and attractiveness; (2) to replace sexualization with socializing as the major focus for male-female relationships; (3) to demonstrate cathected flexibility (i.e., the capacity to shift one's emotional investment to new people, activities and roles as old ones lose their potential for satisfaction); and (4) mental flexibility (i.e., personal experiences as a provisional guideline must emerge and replace the tendency to rely on experience as a rigid, automatic basis for rule of thought and behavior).

Jung (1933) noted a gradual change as some characteristics of the personality remerge after being dormant for several years while other characteristics become less important and may be replaced by different or opposite personality traits. He noted that there was an inner exploration and a search for meaning and wholeness in life. Jung (1933) noted that men at mid-life acknowledge their tender feelings while their wife's behaviors took on a more masculine trait. Other researchers support this sex-role convergence theory as they note that men at mid-life begin to move toward passivity, sensuality, nurturance, affiliation, and expressiveness and women at mid-life take on more masculine characteristics (Gutmann, 1977; Hyde & Phillis, 1979; Moreland, 1980). It is assumed that these feminine traits were previously repressed as men played the instrumental "good provider" role necessary for survival of the family.

Developmental theorists contend that the incorporation of feminine characteristics is considered adaptive as men cope with bodily decline, career stagnation, and family
changes at mid-life. During the mid-life transitional period men must reappraise and relinquish, or at least modify, many of the goals and values that no longer serve them well, e.g. dominance, independence, competition, and inexpressiveness. This is not to say that men must relinquish all past behaviors. Men at mid-life are still invested in being competent, successful, respected, and sexually attractive, yet they must now more realistically assess their strengths and accept their weaknesses (Moreland, 1980).

These personality changes associated with sex-role convergence are thought to be reflected in men's family and work roles. Some men may switch careers, change the focus of their work, increase leisure activity, or get involved with philanthropic or political causes, activities that bring more interpersonal contact.

STATEMENT OF THE PROBLEM

Several major issues have been identified as confronting men at mid-life. These issues revolve around physiological changes, the reexamination of career aspirations and achievements, and family system changes (Cohen, 1979). How men resolve these transitions will depend in part on their reconstruction of the male role, either during mid-life or before.

Sex-role convergence at mid-life is seen by many as a highly adaptive coping mechanism and/or a developmental task (Cohen, 1979; Levinson, 1976; Neugarten, 1968; Vaillant, 1977). Androgynous role behaviors generally have been found to be related to higher levels of self-esteem and functioning (Bem, 1976; Spence, Helmreich, & Strapp, 1975). Sinnott (1977) in her review of various studies contends that successful aging, in general, is related to androgynous role behaviors. Several authors argue that men who continue to maintain traditional, rigid male-role behaviors (i.e.,
domineering, aggressive, logical, competitive, unsentimental, confident, unemotional, stoic, and tough) experience the most stress and poorest health at mid-life (Cohen, 1979; Goldberg, 1976; Harrison, 1978; Lowenthal & Chiriboga, 1972; Pleck, 1976).

During the middle years, men may begin to question masculine traits that support behaviors that did not allow for self-disclosure. At mid-life, these men may realize that prolonged control and repression of feelings interfered with interpersonal relationships and may have caused decreased physiological and emotional well-being (Balswick, 1979; Harrison, 1978; Pleck, 1981). The acceptance of emotional expressiveness of themselves and of others is a task many researchers consider as adaptive and necessary for men at mid-life (Balswick, 1979; Berger, 1979; Pleck, 1979).

At mid-life, clarification of values regarding physical powers and wisdom may be stimulated by signs of decline of the body (Levinson, 1976), the realization of the finitude of one's life (Jaques, 1965), and the realization of perceiving time as time left to live versus time since birth (Neugarten, 1968). Mancini's (1978) findings suggest that health is an important predictor of life satisfaction for men. Men's adaptation to physical changes will depend on their flexible adjustments to changing circumstances (Levinson, 1977) and the inclusion of more androgynous attitudes and behaviors (Cohen, 1979).

Men at mid-life are confronted with shrinking career options, the shortening of time left before retirement and perhaps, the feeling that they have not been a success (Cohen, 1979). To increase life satisfaction men may need to reevaluate their occupational values and reach out to co-workers to enhance interpersonal relationships. Relatedly, recent studies concerning men at mid-life support the notion that life satisfaction is more closely related to interpersonal satisfaction than external success (Mayer, 1978; McKenry & Arnold, 1986; Tamir, 1982).
McKenry and Arnold's (1986) research indicates that the role of father is highly related to satisfaction at mid-life. Past research, however, has indicated that feelings toward children did not influence the middle-aged male's psychological well-being as it did that of women (Thurnher, 1976). Other researchers have characterized the relationship between middle-aged men and their children as strained or tense (Borland, 1978; Brim, 1976; Levinson, 1978). Levinson (1976) contends that differences between the father's expectations for his children and the realities of his limited power and influence may be troublesome. Further research will need to determine the importance of the father-adolescent relationship in predicting life satisfaction or stress.

Kerchoff (1976) asserts that there are just as many studies reporting marital dissatisfaction as there are research indicating marital happiness. Whether the couple is having difficulty or not, research indicates that the marital relationship is very important to men during the middle years. In fact, Tamir (1982) and others found that the marriage and the relationship with the wife were the primary predictors of satisfaction for men at mid-life (Levinson, 1977; Rosenberg & Farrell, 1981). Many researchers speculate as to what influences the marital relationship dissatisfaction. Cohen (1979) contends that a major marital difficulty for men at mid-life is related to sex-role convergence. Men take on more feminine characteristics but at the same time their wives exhibit more masculine behaviors. During middle age, many women enter the work force as child care responsibilities lessen. The wives' excitement and involvement in the work force may be at a time when husbands are ambivalent about their own careers and are more interested in interpersonal relationships (McKenry, Arnold, & Hock, 1984). Peterson and Payne (1975) speculate that any decline in marital happiness at this time is primarily due to adjusting to new roles. During the middle years it is important for spouses to renegotiate the marital relationship if well-being is to be maintained (Brim, 1976).
In conclusion scattered research and theory suggest that men at mid-life experience a transitional period of development. There are researchers who argue that, in general, the mid-life period is an extremely stressful time for men. Whereas, other researchers state that the middle years are stressful "only" when non-normative events occur. There is also speculation that the chronicity and accumulation of changes during the male mid-life transition results in physiological alterations.

The purpose of this study was to utilize specific psychosocial variables that have, theoretically and to some extent empirically, been related to stress experienced by men during the mid-life transition. The psychosocial variables selected were: (a) the quality of the parent-adolescent relationship, (b) marital satisfaction, (c) interpersonal job satisfaction, (d) emotional expressiveness, and (e) androgyny. The psychosocial measures of stress were: (a) the mid-life crises scale, and (b) the state of anxiety scale. The physiological measure of stress was represented by serum testosterone levels.

The personality trait of anxiety and the total amount of life change (within the year) were controlled for throughout the analyses. Sarason (1978) warns that a major consideration in the assessment of life stress concerns the nature of the relationship obtained between life changes scores and the stress related dependent variables. Researchers need to question whether the relationship between the variables chosen reflects the effects of life stress or if the variables reflect the effects of life change variables. Thus, in this study the totality of both negative and positive life experiences, occurring within the year, were statistically partialed out.

Sarason (1978) also recommends that researchers need to determine whether the person experiencing high levels of life stress is actually more susceptible to the development of physical and/or psychological problems or whether persons who already manifest such difficulties are more prone to experience life change. To aid in the
controlling for this phenomenon, the personality trait of anxiety was treated as a confounding variable. According to Costa and McCrae (1984) traits are characteristics ascribed to individuals to account for certain consistencies in behavior. Traits are dispositions and are expected to show up in behavior, speech, and internal states of thoughts and feelings. Costa and McCrae (1984) state that the more of a trait individuals have the more likely they are to exhibit the behavior. Concurrently, the more the trait characterized them, the more intensely individuals act and react in relevant situations. Thus, it appears very important to control for the trait of anxiety.

The overriding purpose of this study was to gain greater understanding of the developmental transition of men at mid-life, so as to determine what psychosocial variables influence the mental and physical health states of men during the middle years. Knowledge of salient variables influencing the physiological and psychological health of individuals will aid practitioners in assisting men and their families.

**HYPOTHESES**

The research hypotheses tested in this study are as follows:

1. The quality of the parent-child relationship is negatively related to anxiety, mid-life crisis, and physiological stress.

2. Marital satisfaction is negatively related to anxiety, mid-life crisis, and physiological stress.

3. Emotional expressiveness is negatively related to anxiety, mid-life crisis, and physiological stress.

4. Interpersonal satisfaction with job is negatively related to anxiety, mid-life crisis, and physiological stress.
5. Androgynous characteristics are negatively related to anxiety, mid-life crisis, and physiological stress.

6. There is a significant interrelationship between and among the three dependent measures of stress, i.e., anxiety, mid-life crisis, and physiological stress.

7. There is a combination of variables that will be predictive of the state of anxiety, mid-life crisis, and physiological stress.

DEFINITION OF TERMS

Androgyny: An individual high on both dimensions of femininity and masculinity as measured by the Bem Sex Role Inventory (Bem, 1976).

Emotional Expressiveness: An individual's response to love, sadness, happiness, and anger as measured by the Expression of Emotion Scale (Balswick, 1975).

Interpersonal Satisfaction with Job: An individual's response to how important interpersonal satisfaction with his work role is, as measured by the self-expression oriented subscale and people-oriented subscale included within the Occupational Values Scale (Rosenberg, 1957).

Marital Satisfaction: An individual's evaluation of the outcomes (or satisfaction) derived from his marital relationship as measured by the Marital Comparison Level Index (Sabatelli & Cecil-Pigo, 1985).

Middle Age Transition: Is defined for the purpose of this study as occurring between ages 40 and 49 (Tamir, 1982).

Mid-Life Crisis: Refers to a state of physical and psychological distress that is characteristic of intense unhappiness, alienation, or crisis as measured by the Mid-Life Crisis Scale (Rosenberg and Farrell, 1981).
Nonnormative Events: Are those changes in life patterns that are unique to a particular individual. There is no social expectation and individuals are not expected to experience them. Examples of nonnormative events would be death of a young child, an automobile accident, or winning the lottery (Perlmutter & Hall, 1985).

Normative Events: Are those changes that are expected according to the social norms for individuals at a particular time of their lives (Lowenthal, Thurnher & Chiriboga, 1975). Examples of normative events are graduation from high school, college, marriage, birth of a child (Perlmutter & Hall, 1985). There are clear expectations about the age at which these events should occur based on an internalized sense of the social clock (Neugarten, 1968; Neugarten & Hagstead, 1978).

Parent-Adolescent Relationship: The quality of the father-adolescent relationship as measured by the fathers' responses on the Parent-Adolescent Communication Scale (Olson, 1982).

Physiological Response to Stress: An alteration of the endocrine hormonal balance as measured by testosterone levels.

State Anxiety: Is characterized by subjective feelings of tension, apprehension, nervousness, and worry, and by activation or arousal of the autonomic nervous system. It refers to an individual's emotional state that exists at a given moment in time and at a particular level of intensity as measured by the State-Anxiety Inventory (Speilberger, 1983).

Stress: A state which arises from an actual or perceived demand-capability imbalance in the individual/family's functioning and which is characterized by a non-specific demand for adaptive behavior. Stress is not stereotypic, but varies according to the nature of the situation, the characteristics of the individuals, and the psychological and physical well-being of its members (McCubbin, 1981).
Stressor: A life event or occurrence in or impacting upon the individual/family which produces change in the social system. This change may involve such areas as boundaries, goals, patterns of interaction, roles or values. Such systemic change is of a magnitude greater than day-to-day "routine" family change (McCubbin, 1981).

Total Change: The total amount of life change (desirable and undesirable) experienced by the individual during the past year as measured by the Life Experiences Survey (Sarason, Johnson, & Siegel, 1978).

Trait Anxiety: Refers to a relatively stable individual differences in anxiety proneness (i.e., to differences between people in the tendency to perceive stressful situations as dangerous or threatening) and to respond to such situations with elevations in the intensity of their state anxiety reactions as measured by the Trait-Anxiety Inventory (Speilberger, 1983).

ASSUMPTIONS

Plasma testosterone levels are suppressed after chronic psychogenic or somatic stress (Aono, Kurachi, Miyata, Naskashima, & Koshiyama, 1976; Davidson, Smith, & Levine, 1978; Kreutz, Rose, & Jennings, 1972).

Plasma testosterone levels do not decrease with age. A drop in testosterone, especially after age of 60 may be the result of secondary aging (Marks & Stevens, 1980).

LIMITATIONS

The use of subjective reports to measure stress, emotion, and coping leads to problems with method variance. Specifically, how one measures a phenomenon affects the content of the observed variance and the findings of research. One consequence is that the inferences drawn from them about relationships and processes do not extend
to others methods of measuring the same concepts or relationships (Lazarus, 1982). This may result in a tight system of deduction and induction that works only as long as one uses that one method.

Other limitations and disadvantages of self-report data are the result of the problems of memory, the desire of subjects to present themselves in a positive light, language ambiguity, and the use of verbal reports as an ego defense (Lazarus, 1982).

The study also has limitations because of the self selection of the subjects. Findings will be limited to the population studied in this research project. Generalizations can only be made to men who have similar characteristics and family situations.
CHAPTER 2
REVIEW OF THE LITERATURE

Until relatively recently, most studies of adults were not conducted from a developmental perspective; in fact previous information about adults has came from cross-sectional studies (Brim, 1974). Adulthood was seen as a period of "marking time" and not as a progression of stages (Gould, 1972). Adults were conceived of as being in dynamic conflict, but without direction (Gould, 1972). This impression of sameness and constancy has been overcome by an emerging literature which relates aging, personality and theories of development (Schlossberg & Entine, 1974).

Allman and Jaffe (1982) state that individuals are not static systems—living harmoniously except when threatened by an external crisis—and that individuals experience more than the maintenance of homeostasis and reproduction. For example, at the biological level, the body attempts to maintain such biochemical activities as temperature regulation and blood pressure control. At the psychosocial level, individuals attempt to adapt to various societal expectations and demands. In addition, the awareness of time provides directionality in the lives of individuals. Thus, individuals plan their lives, set goals, and are aware of a progressional movement through a series of stages and life tasks. Some life plans and goals are unique to individuals whereas others are shared by many. The process of life is dynamic—individuals are constantly changing and developing, making adjustments to new internal and external situations (Allman & Jaffe, 1982).
The study of adult male behavior is emerging along with the increasing research focus on adult development. In the past, male adulthood was also viewed as a period of stability. Today, research supports the view that men experience many conflicts and major changes as they progress through the lifecycle (Levinson, 1976; Tamir, 1982).

The following review of literature includes (1) developmental theories of adulthood; (2) theories of male mid-life transitions; and (3) theories of stress and coping.

DEVELOPMENTAL THEORIES OF ADULTHOOD

Sigmund Freud theorized that personality is developed within the early years of life (Kimmel, 1980). Supporters of this view contend that an individual's sense of identity is established by adolescence, and consistency characterizes his/her behavior thereafter. The character structure of the individual thus becomes fixed in early adulthood and the essential nature or personality remains unchanged (Neugarten, 1973).

Erik Erikson expanded Freud's theory to include the post-adolescent years. Erikson's theory which extended the Freudian theory to the life span, suggests that adulthood is a series of phases (Gould, 1972). Erikson's (1978) life-span theory consists of eight stages and involves conflicts that individuals must resolve for growth to continue. The eight stages have been labelled: (1) trust versus mistrust; (2) autonomy versus shame and doubt; (3) initiative versus guilt; (4) industry versus inferiority; (5) group identity versus alienation and individual identity versus role diffusion; (6) intimacy versus isolation; (7) generativity versus stagnation; and (8) integrity versus despair. The last three stages cover adulthood (Erikson, 1978). In the first stage of adulthood, intimacy versus isolation, the central achievement to be obtained is love. In young adulthood, individuals must be able to tolerate the threat
of ego loss. This toleration will permit the establishment of mature relationships, which involves the fusion and counterpointing of identity. The emerging value of the next stage of development, generativity versus stagnation, is care. The conflict for the adult at this stage is the need to have contributed to the establishment and nurturance of the next generation. The central conflict of the last stage, integrity versus despair, concerns the attainment of wisdom. The task in this period of "old age" is to define one's meaning in life. The adult must defend his or her own life cycle as a contribution to the maintenance of the human world (Stevens-Long, 1984). The major stages of the life cycle also assist in the understanding of the role which the person, family, and society play in the formation of an individual personality (Elkin, 1970).

Buhler's (1935, 1968) research, which consists of more than four hundred individual biographies, suggests that developmental phases occur during the life span. The proposed five phases of the life cycle are:

<table>
<thead>
<tr>
<th>Age</th>
<th>Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-15</td>
<td>Child at home; prior to self-determination of goals</td>
</tr>
<tr>
<td>15-25</td>
<td>Preparatory expansion and experimental</td>
</tr>
<tr>
<td></td>
<td>self-determination of goals</td>
</tr>
<tr>
<td>25-45</td>
<td>Culmination: definite and specific</td>
</tr>
<tr>
<td></td>
<td>self-determination of goals</td>
</tr>
<tr>
<td>45-65</td>
<td>Self-assessment of the results of striving for these goals</td>
</tr>
<tr>
<td>65 up</td>
<td>Experience of fulfillment or failure, with the remaining years spent in either continuance of previous activities or a return to the need-satisfying orientations of childhood (Horner, 1968, p.65)</td>
</tr>
</tbody>
</table>

The third phase through the fifth phase represents adulthood. During the third phase, vitality remains high, and direction and specification are present. Frequently, this is a culmination period for subjective experiences. The fourth phase is often
introduced by a crisis. It is at this point that bodily decline becomes evident and individual power lessens. The final phase reflects a period in which individuals experience concerns with their past lives and upcoming deaths (Frenkel, 1936).

Kimmel (1980) states that Buhler's theory suggests a developmental sequence which reflects different perspectives in individual goal setting at different phases in the life cycle. He also states that this view emphasizes the parallel between the biological process of growth, stability, and decline and the psychosocial process of expansion, culmination, and contraction in activities and accomplishments. In other words, this theory of adult development suggests that the life cycle may be seen in terms of two general trends—growth-expansion and contraction. Buhler sees a major turning point between these two contradictory tendencies during the middle years (about age 40-45) (Kimmel, 1974).

Furthermore, Buhler contends that self-fulfillment is the most important feature of healthy, happy development. Self-fulfillment involves the continual actualization of a lifelong orientation toward a goal or a set of goals (Schiamber & Smith, 1982).

Another theorist of development was Hans Werner (1957). Werner (1957) believed that as a person develops from infancy there is increasing differentiation of interests and of mental and physical structure as well as increasing hierarchization of direction and ordering in the conscious self. More and more activities reach awareness and are brought under conscious control and direction. Allman and Jaffe (1982) state that this differentiation occurs within oneself and within one's family and community. Thus, despite common biological and psychological processes, the stages of human development are variously expressed in different environments and historical periods. Biological maturation is usually reached by age 20 and general physical decline may begin during the middle years. Although physical development ends at maturity,
psychic, emotional, personality, and social development continues as long as the individual is able to interact with the environment (Allman & Jaffe, 1982). Allman and Jaffe (1982) contend that during the last few decades, the rate and magnitude of change has significantly increased. The increase in changes contributes to a period of psychic stasis that is less typical. For example, the impact of increased life expectancy is great. Change and development take on a different meaning than what it did at the turn of the century. Today, many adults search for second careers or they may reenter the educational system. Recognition of emotional development as a need for all people has also increased as adults face various transitions (Allman & Jaffe, 1982).

The researcher Bernice Neugarten and her associates provided further knowledge to the area of adult development. In the mid-1950's, Neugarten and associates interviewed and conducted projective tests on 710 people in a large field study in Kansas City. It was concluded that chronological age provided order in the data when the focus was on the intrapsyche. Intrapsyche was defined as the processes of the personality not readily available to awareness or conscious control (e.g., the direct expression in overt patterns of social behavior). Whereas, the thought processes which attempt to control self and life situations were independent of age.

Other conclusions of Neugarten's study were: (1) increased interiority occurs as an individual ages, which is clearly demonstrable by the mid forties; (2) there is a decrease in personality complexity with an increasing dedication to a central core of values and to a set of habit patterns; and (3) a sloughing off of earlier cathexes which lose saliency for the individual. Another important finding of Neugarten's study suggested that during the middle years, life is perceived in terms of time left to live rather than time since birth (i.e., a reversal in directionality). There is
awareness that time is finite. In this period of adult development, the realization that the individual has a limited number of years left to live is more acute than in previous stages of the life span.

Neugarten states that researchers must consider the internalization of age norms and age-group identification that influence individual development. These social and cultural dimensions provide a time clock that can be superimposed over the biological clock. Neugarten (1977) refers to this time clock as the "social clock." Specifically, the social clock is a reference to the achievement of certain cultural expectations and tasks (e.g., graduation, marriage, reproduction) within prescribed periods of development. Knowledge of these dimensions will enable researchers to comprehend the life cycle. Neugarten notes that the demarcations in the adult life line tend (those that are orderly and sequential) to be more social than biological, or if biologically based, they are often biological events that occur to significant others rather than to oneself (e.g., grandparenthood, widowhood).

Changes that are anticipated according to societal norms for individuals at particular times of their lives are considered to be normative transitions (Lowenthal, Thurnher, & Chiriboga, 1975). Neugarten (1968) states that because normative transitions are part of the social timetable for human development and are internalized by individuals through the social clock, they serve as one of the primary timing mechanisms of adult development. Neugarten (1977) states that normally expected life events do not constitute crises. Normative events, however, may induce changes in self-concept and in sense of identity. Normative events may also contribute to new social roles and to new adaptations.

Neugarten's view of adult development emphasizes the individual's internalization of social norms and the adaptation to external social processes (Neugarten & Hagestad,
1976). She does not support theories in which the individual is viewed as a passive responder to external events or theories supportive of any inner developmental scheme that has regulated human development for thousands of years (Eshleman, 1981).

In 1968, Gould implemented a six-month observational study of seven groups of age-homogenous psychiatric outpatients. This study was descriptive in manner. Gould (1972) stated that differences among the age groups were substantial but he was not confident about the specificity of the age groupings nor the generalizability to a non-help seeking population. Thus, at the end of six months, a second group of 524 white, middle-class persons, not in psychotherapy, were studied. Based on these studies the author found that during the middle years there is an existential questioning of self, values, and life. Gould noted that the sense of time becomes finite and the limitations of mortality involve work choice, the sense of well-being, finances, resources, and physical deterioration.

Gould (1972) also found that men, between the ages of 40 and 43, suffered a great deal of personal discomfort. It is a period of time that is acutely unstable as well as a time when the family is a source of identity. During this period of conflict the person relies on the spouse for support. Yet the spouse is often in a similar life position and is looking for the same support. The father role is also in transformation. Men at mid-life come to the realization that there is little time and control left to shape the behavior of their adolescent children. These men also experience stress over the dependency needs and arising conflicts with their parents. In fact, these men suppress direct criticism of their aging parents because confrontation would be too guilt-provoking.

During the mid-forties, according to Gould (1972), marital happiness and contentment increases and the concern with one's children continues at a high level. A
renewed interest in friends also occurs and social activities increase. Gould feels that these new relationships remain competitive in nature. Work is often seen as offering the hope of providing the one last chance to make it big (Allman & Jaffe, 1982).

As individuals enter their 50's, it appears as though the person begins to feel less responsible for his or her children and begins to look for the children's approval. Recognition from their children is ranked as important as spousal approval and one's own approval. Health and the fear of time running out are increasing concerns (Gould, 1972).

Gould (1972) concludes that these results should be thought of as sequential process fluctuations. The fluctuations are time-dominated versus age specific. In addition, the fluctuations take place within the context of a total personality, life style, and subculture; individuals can be compared only with their own self at a former time.

Another theory of adult development is that of Levinson (1977). Levinson's theory of adult development originated in his initial study of men's lives (Allman & Jaffe, 1982). At that time, a biographical study of 40 men aged 35 to 45 was implemented. The interviews covered the topic areas of education, work, peer relationships, family of origin, marriage, leisure, religion, and politics. Levinson (1977) noted that individuals experienced transitional periods that entailed distinctive developmental tasks. The primary task of the transitional period is to terminate the existing structure and to develop a new structure. Thus, individuals begin to reappraise their existing life structure and to explore various possibilities for change in the environment and within self. Levinson (1986) states that his theory has changed over the last few years, particularly through his research on women's lives. His adult development theory consists of the following components: (1) life course and life cycle; (2)
Life structure, which refers to the way in which the individual fits in society (i.e., roles, goals, interests, fantasies, values, etc.), is central to the theory (Allman & Jaffe, 1982). The life course that is described consists of relatively stable periods interrupted by transitions that can be either calm or chaotic. The transitions involve (1) a crisis of reassessment of one's life and (2) new commitments to the current life structure or to a new structure. If a new life structure is chosen, dramatic shifts in occupation, life style, and/or marital status may occur (Liebert & Wicks-Nelson, 1981). The following are the developmental periods and transitions Levinson and his colleagues have noted (Levinson et al., 1977):

<table>
<thead>
<tr>
<th>Ages</th>
<th>Periods of Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-18 to 20-24</td>
<td>Leaving the family transition, effort to establish oneself independent of the family.</td>
</tr>
<tr>
<td>28 to 30</td>
<td>Getting into the adult world, a new home base; exploration and commitment to adult roles; fashioning an initial life structure.</td>
</tr>
<tr>
<td>early 30's to 38</td>
<td>Settling down, establishing a stable niche; making it; upward striving; becoming one's own man; giving up mentors; emphasizing parts of the self and repressing others.</td>
</tr>
<tr>
<td>38 to early 40's</td>
<td>Mid-Life Transition, reassessment of life structure.</td>
</tr>
<tr>
<td>Middle 40's</td>
<td>Reestablishment to middle adulthood.</td>
</tr>
</tbody>
</table>

Levinson (1974, 1977) noted that during the transition period of mid-life, approximately 80% of the subjects experienced tumultuous struggles within the self and with the external world. These individuals questioned virtually every aspect of their lives and were horrified by what they found. Levinson (1977) concluded that during this time period, a man is more able to look at himself and to deal with the
illusions about himself. By the end of the middle 40's, a man has to make new choices or he must recommit himself on different terms to the old choices.

As noted earlier, transitions may occur as a result of normative and/or non-normative events. Levinson's theory adds another dimension concerning transitions, that is, internal forces such as puberty, menopause, and increased introspection may lead to transitions (Eshleman, 1980). Thus, Levinson's theory of adult development is representative of transitions that are internally caused versus transitions caused by external events (i.e., birth of a grandchild, promotion on the job) (Eshleman, 1980).

Still another theory is that of Vaillant (1977) who reported an empirically supported view of adult development. Vaillant and McArthur (1972) and Vaillant (1977) outlined the data from a forty-year longitudinal follow-up study of 268 men from the Harvard University classes of 1939-1941 and 1942-1944. These subjects were selected with the expectation of collecting data on individuals who entered the male adult life cycle under highly favorable circumstances. The results indicated a transitional period of adult life that occurs around the age of forty (Stevens-Long, 1984). Vaillant (1977) noted the following observation in their sample:

around forty a change occurred in the men. They appeared to leave the compulsive calm of their occupational experience once more the sturm und drang (storm and stress) of adolescence. In fact, most subjects consciously perceived their forties as more tumultuous than they had their adolescence... Just as adolescence is a time for acknowledging parental flaws and discovering truths about childhood, the forties are a time for reassessing and reordering the past

In Vaillant's study, the men at mid-life experienced more overt depression, were disenchanted with life, and agonized over their self-assessment (Stevens-Long, 1984). In general the results of this study supported Levinson's and Gould's findings (Vaillant, 1977).
Vaillant (1977) also explored the basic types of adaptation that these men utilized to effectively assist them through the life cycle and life structure. He noted the following hierarchy of adaptive ego mechanisms:

**Level 1—Psychotic Mechanisms** (common in psychosis, dreams, and childhood); Denial (of external reality); Distortion; Delusional Projection.

**Level 2—Immature Mechanisms** (common in severe depression, personality disorders, and adolescence); Fantasy (schizoid withdrawal, denial through fantasy); Projection; Hypochondriasis; Passive-Aggressive Behavior (masochism, turning against self); Acting Out (compulsive delinquency, perversion).

**Level 3—Neurotic Mechanisms** (common in everyone); Intellectualization (isolation, obsessive behavior undoing, rationalization); Repression; Reaction Formation; Displacement (conversion, phobias, wit); Dissociation (neurotic denial).

**Level 4—Mature Mechanisms** (common in "healthy adults"); Altruism; Sublimation; Suppression; Anticipation; Humor.

At Level 1, the most primitive mechanisms are grouped. At Level 2, the immature mechanisms that are common in childhood and adolescence are grouped. These mechanisms are also common in adults with depressive illnesses, addiction, and character disorders. The Level 3 mechanisms suggest and underlying symptomology of neuroses but they represent symptoms common in normal individuals from childhood to senility. The Level 4 mechanisms are common among "healthy" individuals from adolescence to old age, and they can be conceptualized as well-orchestrated composites of less mature mechanisms.

A theory of adult development has also been provided by Livson (1976a, 1976b, 1981) whose research is based on longitudinal data from one hundred and forty-six persons who had been followed from childhood through middle age. The total number of subjects were the result of the combination of two studies. One group of subjects was born in the early 1920's. The other cohort was born in 1929. Data
were collected by such techniques as attitude questionnaires, intelligence test records, teacher's ratings, Rorschach responses, and interviews. Livson's analysis of the Oakland Growth Studies offers insights into transitions from adolescence through middle age, for white, middle class men and women. Specifically, personality change and the overall psychological health was examined. Data were analyzed when the subjects were 12 to 18 years of age and at the age of fifty.

Livson categorized the men and women as unhealthy personality types and healthy personality types. In this study two types of healthy women (by the age of 50) emerged (Livson, 1976a). One healthy type of woman was labeled the stable group. This group displayed traditionally feminine characteristics throughout the life span; their life satisfaction remained stable. The other healthy type of women did not display traditionally feminine characteristics during early adolescence. By age forty many of these women experienced depression, irritability, conflict, day dreaming, and fantasy. At age fifty this latter group of women had improved on their psychological health score. In fact, they were seen as ambitious, skeptical, unconventional, intellectual, and autonomous, and their life satisfaction came from developing self (Huyck & Hoyer, 1982).

Livson (1981) also researched psychologically healthy men. These men tended to be highly successful in their careers, and all but one were husbands and fathers. Livson labeled one of the two types of men in this group as stable because they had traditional masculine personalities since adolescence. During the middle years, the stable individual's personality became more balanced; they continued to value thinking rather than feeling, self-control, and achievement, and they also became more nurturant (Huyck & Hoyer, 1982).
The other group of men considered as healthy did not follow the traditional male role during adolescence. As time progressed, these men accepted the traditional male role as their own. In fact, their behavior was labeled as "hypermasculine." By the age of fifty, these men gave up their defensive behaviors that resulted in hypermasculine behaviors and integrated feminine characteristics.

Livson (1976b) states that by age 50, the psychologically healthy men and the healthy nontraditional women reclaim aspects of cross-sex qualities repressed during young adulthood. Psychologically healthy men and women were less different from each other at age 50 than they had been at age 18.

Livson (1976b) also assessed the developmental patterns of people who were psychologically unhealthy at age fifty. Livson labeled unhealthy men and women as those individuals who have remained set in stereotyped sex-role personality patterns. These individuals had failed to incorporate the socially desirable aspects of the male and female roles. These unhealthy men and women were viewed as vulnerable. For example, Livson noted that the unhealthy men tended to move toward androgynous characteristics by becoming more dependent (e.g., expressive of feelings) versus developing "healthy" behaviors characteristic of nurturance.

Livson also found that men at mid-life become increasingly aware of the finiteness of their time and of their own mortality. He found that men at mid-life consciously question their values.

THEORIES OF THE MALE MID-LIFE TRANSITION

Carl Jung (1933) felt that the period of youth extended from puberty to mid-life and that during the middle years there is a gradual change in the characteristics of personality. Jung noted that certain personality characteristics emerged after being
dormant for several years whereas other characteristics became less important and could be replaced by different or opposite personality traits (Kimmel, 1980). Eshleman (1981) states that Jung believed that this period of change ushers in the second half of life. It "ideally" reflects different psychic characteristics that were repressed in the first half of life. These differences include a greater emphasis on inner exploration and a search for meaning and wholeness in life. Jung felt that this change assists individuals in the eventual acceptance of death.

Jung (1933) claimed a convergence wherein men move toward passivity, sensuality, and expressiveness previously repressed in their instrumental role. Men at mid-life become more interested in meaningful relationships and less preoccupied with success and achievement. Values become more humanistic and men become more emotionally expressive. Men at mid-life attempt to develop a deeper rapport with their family and friends. Some individuals may switch careers to change the focus of their work if the end results in a close working relationship with others.

Sex-role convergence is increasingly being seen as an important developmental task or at least a highly adaptive coping mechanism (Cohen, 1979; Levinson, 1978; Lowenthal, 1975; Neugarten, 1965; Vaillant, 1977). In fact, adherence to the traditional male role is viewed by some researchers as detrimental to adjustment in middle age and deleterious to the emotional and physical health of the individual (Cohen, 1979; Harrison, 1978). Lowenthal and Weiss (1976) state that adherence to the male role may be harmful in interpersonal and familial relationships since intimacy is a critical intervening resource between life stress and successful adaptation. The traditional male role is one that stresses achievement, power, and lack of emotional involvement (Cohen, 1979). Brannon (1976) describes four phases that he feels are instrumental in the formation of the major characteristics of the traditional male role. These include
the need to be different from women ("no sissy stuff"), the need to be superior ("big wheel"), the need to be independent and self-reliant ("sturdy oak"), and the need to be more powerful ("give 'em hell"). Other researchers have indicated that the two most important factors shaping the male role may be the stress on achievement and the suppression of affect (Cohen, 1979; Pleck, 1976; Sawyer, 1970). Jourard (1971) emphasizes that an important factor in the development of the male role is the ban on self-disclosure. This ban encourages men to be independent, unemotional, and self-reliant. Harrison (1979) contends that suppression of expressiveness affects the physical health of males. Cohen (1979) speculates that one of the difficulties inherent in relationships between spouses may be in the conflict between the behaviors necessary to fulfill the requirements of the traditional male role and the needs of the wife in fulfilling her role. For example during the young adult years, the male is focused on goals related to success and achievement in the work force. Eventually those behaviors necessary to fulfill the requirements of the traditional male role result in alienation from the family. Thus, during mid-life, as the male shifts his focus from work to the family and he may encounter an isolation similar to what he notices at work (Cohen, 1979; Steiner, 1972).

As a result of the decreasing demands of motherhood, the wife may decide to pursue interests outside of the home (i.e., a career). The woman's excitement and involvement in her career is an additional source of isolation for the husband as he becomes more ambivalent about his work role. Thus, conflict may occur within the marital relationship. Cohen (1979) speculates that the mid-life male may attempt to resolve this isolation by turning to an extramarital affair or by divorcing his middle-aged wife for a younger woman.
Men's role as father and son at mid-life may also be troublesome (Cohen, 1979). Cohen (1979) states that conflict may occur with the growing jealousy that the mid-life males develop as their children begin to pursue new lives and careers. Men at mid-life begin to realize that their power and influence over their children is diminished (Cohen, 1979; Levinson, 1976).

The work of several researchers confirm the occurrence of a sex-role conversion (Gutmann, 1969; Lowenthal & Chiriboga, 1972; Neugarten, 1968; Tamir, 1982). Neugarten and Gutmann's (1958) Kansas City study of adult life indicates that men at mid-life become receptive to affiliation, nurturing, sensitivity, and dependency. Men at this stage cope with situations more cognitively and abstractly. At middle age, men tend to become less aggressive and are more interested in love (Neugarten & Gutmann, 1958).

Lowenthal et al.'s (1975) study of upper-working-class men indicated that the middle-aged male reveals a strong dependency and nurturance need at the same time that there is a decrease in instrumental and material values. Also, life satisfaction was found to be highly and positively related to interpersonal and expressive values. Livson's (1975) research similarly indicates that psychological well-being is greater for men in their fifties when opposite-sex characteristics of emotional awareness and expressiveness are incorporated in their behavior.

Gutmann's (1969) cross-cultural work is supportive of the sex-role convergence theory. Gutmann's field work involved different cultural settings; the highland and lowland Mayan Indians of Mexico (Gutmann, 1966, 1967), the Navajo Indians in Arizona (Gutmann, 1971a, 1971b, 1972), and the Galilean and Syrian Druze (Gutmann, 1974; Gutmann & Kassem, 1975). Gutmann researched inner developmental realities ("nature") by such research methods as thematic appreception test and interviews and
noted that older men are more sensitive and loving and less aggressive interested in power. At the same time, women are aging in the reverse direction, becoming more aggressive, less sentimental, and more domineering.

On the basis of these findings, Gutmann (1975, 1977) proposed that a gradual shift in personality organization normally occurs with the phasing out of the "parental emergency." As children take over the responsibility of their own security, both parents can afford to shift from the strategies exercised on behalf of parenting. Men can now get in touch with the more sensual, nurturing aspects of themselves.

Gutmann provides a dynamic explanation of why particular patterns of change are observed over adulthood. He feels that during childhood, individuals develop personality dispositions. These dispositions in part determine whether an individual is willing and is able to become parental. Those who do become parental enter into a developmental process linked to the requirements of parenting (e.g., man's repression of dependency needs). The spousal support of the various parenting behaviors is to maintain the survival of the family (Huyck & Hoyer, 1982).

Brim (1976) states that the mid-life male is likely to be undergoing some profound personality changes. These changes will likely have more than one cause. Levinson (1978) felt that the growing primacy of the self involved the integration of the "polar" concept—masculine/feminine. Other polar concepts that he believed were necessary to integrate were young/old, attachment/separateness, and destruction/creation. When the concepts become the accepted features of the self the middle-age transition will be complete (Tamir, 1982).

In a related study, Jaques' (1965) analysis of the life histories of 310 artists suggests that a "mid-life crisis" occurs around the specific age of 37. Jaques (1965) states that in the course of development there are critical phases which have the
character of change points, or periods of rapid transition. He feels that a change point or a period of rapid transition occurs around the age of 35. Jaques states that an individual's realization of his or her own mortality greatly affects their transition to the middle years. An individual's response to mortality during this time is dependent upon working through a depressive state with mature insight into death and destructive impulses. He notes that the incidence of death for the artists studied was higher than expected between the ages of 35 and 39 and lower than expected between the ages of 40 and 44.

Jaques further observed that, after age 40, there is often a major change in the person's artistic works. There appears to be less "hot-from-the-fire creativity" and more "sculpted" works. He also detected a progression of "lyrical and descriptive" work in young adulthood, to a period of "tragic and philosophical content" during the mid-life period, to greater "serenity content" later in life (Eshleman, 1980).

The data from Lowenthal, Fiske, and Chiriboga's (1972) in-depth interviews of 54 middle aged and lower-middle class men and women indicate that the lowest point for men is likely to be young adulthood. These authors stated that only 25 percent of the men report current job satisfaction. These men tended to speak positively of their wives and report that their sex lives were about the same or better as in the past. The women tended to view their husbands in negative terms and reported a decline in frequency or quality of sexual activity.

Lowenthal et al. (1972) concluded that the implications for men are somewhat more speculative because the men in their study seemed either to have a conscious reluctance to report negative circumstances or affect, or to repress them altogether. These authors felt that perhaps the cost of the effort to live up to a strong male image is too great, because men are believed to have serious difficulties in mid-life—as
reflected by sex differences in alcoholism rates, suicide rates, and serious physical illness. Lowenthal and associates (1972) concluded that the pending empty nest is in itself problematic for these men. The authors suggest that the empty nest may be triggered by deep-seated anxieties about their next transition—retirement.

Lowenthal, Fiske, Thurnher, and Chiriboga (1975) undertook a study of 216 upper-working-class men and women at four different age groups. The age groups delineated in the Lowenthal study represented an age span of approximately forty years. These authors were concerned with the individual's goals (past, present, and future); values; psychological functioning (e.g., morale, anxiety); behavior trait changes; and modes of adaptation.

In general, they found that middle-aged men seem to move into a constricted mode of living. These men report the least complex round of roles and activities, the least involvement in friendship, and the fewest life events in the recent past. The expansiveness of young adulthood is replaced by orderliness and caution in middle age. Self-concept at middle age becomes less diffuse, and men at mid-life are less likely to report psychological problems. Their main stresses appear to center around work.

The results of this study also indicate that couples in the launching stage (i.e., have children ready to leave home) were the most negative about marriage. Women were especially critical. They gave twice as many negative descriptors of their husbands than positive. The women were confident about their own roles as wives and mothers, but were unhappy about their husband's limited interpersonal skills and companionship. The wives also felt that communication was inadequate and that frequently they gave in to their husbands to avoid arguments.
The husbands at mid-life described their wives positively and characterized themselves as good providers, reliable, steady, and faithful. Several of these men recognized the fact that they were not meeting their wives needs for companionship and emotional needs and admitted that they had a very limited relationship. However, many of these men felt that the relationship would improve after the last child had left home (Lowenthal et al., 1975).

Along with greater amounts of marital dissatisfaction, women also tend to be more aggressive and gain greater power (Rosenberg & Farrell, 1981). Brim (1976) states that at mid-life the female personality changes away from dependency on the husband and away from providing nurturance and support for him. Thus, the source of his recognition, affection, and sense of value becomes precarious, and threatens to disappear.

In sum, Lowenthal et al. (1975) do not believe that certain life changes (i.e., role changes) leads to crises. Instead these researchers contend that changes bring about new growth and development.

Levinson (1977, 1986) suggests that the mid-life transition lasts from age 40 to age 45. It is this time period which bridges early adulthood and middle adulthood. There is a set of new developmental tasks and a set of new questions such as "What have I done with my life?"

Some men do very little questioning and searching. They appear to be untroubled by difficult questions. Other men realize that the character of their lives is changing but the process is not painful. Levinson states that the majority of men experience a great deal of struggle within themselves and with the external world. These men tend to question nearly every aspect of their lives and feel that they cannot go on as before. Years may be needed to form a new path or to modify the old one and commit oneself to a new life structure.
The goal of men during the mid-life transition is to realize life’s potential, to bear the responsibilities, and to tolerate the costs they entail. Levinson (1976) contends that the neglected parts of the self seek expression and stimulate the modification of the existing structure. The end results mark a series of changes.

The life structure emerges in the mid-forties and individual satisfaction varies. For example, middle age tends to be constricted for individuals who suffered defeat early in life. These individuals have little to work on and with. Other men form a life structure that is viable in the external world but poorly connected to "self". The most successful group of men develop a life structure that is deeply attached to others but yet more centered in the self. These men report high levels of satisfaction (Allman & Jaffe, 1982).

Tamir (1982) initiated a comparative analysis of men between the years of 25 and 69 who were currently married and were parents. The analysis involved the grouping of the data into various age groups: men aged 40 to 49 were defined as "men most likely to be experiencing a mid-life transition." Approximately 559 subjects were included in the analyses, 133 of which were within the 40 to 49 age group.

Tamir concluded that the quality of life experience, work, family, and social relationship in the lives of middle-aged men attest to the uniqueness of this period of time in adulthood. Middle-aged men feel, act, and react in a manner different from men at other ages. Men in their forties are men in transition. They are shedding the final vestiges of young adulthood and are coming to accept a stage in life with responsibilities to significant others, to society, but ultimately to themselves (Tamir, 1982).
Tamir (1982) states that, at worst, some of these men at middle age will experience future growth from within. At best, these men will share their well-learned knowledge and wisdom with others as they fulfill their human need to affiliate with others.

Overall the results of Tamir's findings indicate that well-being continues to remain the same across the life span. Men are no less happy or satisfied then men at other ages. However men of all backgrounds experience changes during middle age. These changes include an inner exploration of self, a sense of sameness that prevades the time perspective, a shift in values, the reevaluation of life's priorities, and the personal need for affiliation of work, family, social relations.

In addition, the more educated men appear to lack zest, are more immobilized, and tend to turn more readily to alcohol and drugs. They appear to have a more positive attitude concerning work, and they may love their job, yet remain unhappy with life. Tamir speculates that these men are disengaged from their job as a means of personal escape. However, the more educated individual has higher levels of satisfaction in the mentorship role.

Tamir (1982) contends that the marital and social relationships become more integrally related to personal well-being during the middle years. She found that general happiness, life satisfaction, self-esteem, and the presence or absence of depression and alcoholism were more strongly related to marital happiness during the 40's than at any other age. Tamir emphasizes that many couples first become aware of the marital relationship during this time period. In the past the parental role diverted much of the emotional energies of the spouses away from the marital relationship. Therefore, the marriage can be realistically assessed by both partners. Clausen (1972) states that poor relationships may tend to dissolve while healthy relationships thrive.
Tamir (1982) also found that unlike men of other ages, middle-aged men felt a psychological split between the two roles of husband and father. In Tamir's study, parenthood appears to be unrelated to life satisfaction, whereas marriage is very important to the life satisfaction of men in their forties.

During the 1970s, Rosenberg and Farrell (1981) began a study comparing men in their late twenties to men in their late thirties and early forties. Their design consisted of 300 men entering middle age and 150 men in their late twenties. They used a wide array of scales to measure attitudes, behavior, defenses, and the current state of their physical and psychological health. In the preliminary analysis of the data, four different types of men appeared to be evident and a typology was designed.

The typology was based on two dimensions. One dimension, labeled alienation (crisis), ranged from those who are finding a progressive sense of satisfaction with their lives to those who are experiencing intense unhappiness. The other dimension was labeled denial. The men's responses to mid-life stresses ranged from open confrontation through attempts to deceive others to exclusion from conscious awareness.

The four types of men in Rosenberg and Farrell's (1981) study were labeled as the following: (1) Anti-Hero: High on distress and low on authoritarian denial (12 percent of the sample); (2) Transcendent-Generative: High on integration and low on authoritarian denial (32 percent of the sample); (3) Pseudo-Developed: High on integration and high on denial (26 percent of the sample); (4) Punitive-Disenchanted: High on both disintegration and authoritarian denial (30 percent of the sample). Guided by these data, the researchers selected 20 middle-aged men for in-depth interviews (i.e., five of each type). The families of these men were also interviewed.
These authors state that they did not find evidence for a universal mid-life crisis. Instead the men at mid-life seemed to accumulate the burdens of middle age at approximately the same pace and variation occurred in how they responded to the stressors. Some men reached a state of crisis, while others thrived. More typical than either of these responses was the tendency for men to deny and avoid all of the pressures closing in on them.

Rosenberg and Farrell (1981) found that shifting role expectations, self-concepts, individual psychological issues developed earlier, and social class (i.e., education, income and occupational attainment) influenced a men's experiences during mid-life. They also found that family dynamics significantly influenced the middle-years of men at mid-life. In fact, the changing relationships to wife and children acted as precipitants for development in men; at the same time, both wife and children are drawn into a man's defensive strategies, supporting his denial and avoidance of mid-life issues (Rosenberg & Farrell, 1981).

Rosenberg and Farrell (1981) also noted four main shifts that characterize marriages at mid-life and that were associated with alterations in the marital relationship: (1) the general increase in the wife's power and autonomy; (2) the wives' collusion in protecting their husbands' defensive mythologies about themselves; (3) the habitual utilization of each other in a psychological and attitudinal division of labor, each requiring the other to provide the emotional qualities that they feel they lack of choose not to exercise; and (4) the loss of control over adolescent children. The authors concluded that increased autonomy for the wife and the loss of children may contribute to an emotional imbalance of the family group. Rosenberg and Farrell (1981) contend that this could lead to overt disenchantment and/or reality-based acceptance of each one another.
These researchers suggested that the turmoil of men at mid-life is partially attributed to the father role. For example, some men tend to recruit their sons into a reworking of earlier issues, either to compensate for the father's disappointments and/or to relive earlier phases of the father's history. The authors also feel that the father's relationship with their daughters is even more complex and that the emotional and symbolic utilization of older daughters is dramatic. The middle-aged father tends to view his daughter as the reincarnated wife which leads to an emotional involvement which is very intense. This usually results in controlling parental behaviors.

The pre-launching phase was characterized by controlled conflicts between the parents and adolescent children as well as between husband and wife. The authors attributed these conflicts to changes resulting from the wife's growing autonomy and investment in the outside world, and to the father's loss of control over their children. In fact, some men may experience resentment and alarm as their children "abandon them". Rosenberg and Farrell note that the working class and lower-middle class men often engage in a battle to negate the outside world. The authors speculate that this negation represents a denial of their own aging and/or an attempt to delay their children's independence. In general, mid-life parents show a variety of responses to their children's developmental tasks. Responses vary from avoidance to demanding behaviors, to entanglement in old conflicts, to the encouragement of growth and development (Rosenberg & Farrell, 1981).

In contrast to other studies (Campbell, Converse, & Rogers, 1976; Mancini, 1978; Robinson, 1974), the results of Rosenberg and Farrell's study did not support the importance of work in male development. The authors believe that it is a well-developed myth in our culture that men's emotional lives revolve around work and are independent of their families (Rosenberg & Farrell, 1981).
Rosenberg and Farrell (1981) feel that it is probably a mistake to tie the stage of adult development too closely to a timetable because middle age does not have predictable chronological events. For example entry into pubescense is closely tied to the chronological age marking that transition. In middle age, it is a gradual accumulation of life problems, role transitions, and physiological changes that ultimately lead a man to experience himself as having become middle-age. Men at mid-life are experiencing common problems such as: (1) dealing with aging parents; (2) relating to adolescent children who are dealing with issues of sexuality, disengagement from the parental home, and finding a place for themselves in the adult world; (3) coming to terms with the contrasts between the youthful dreams of success and the reality of what is possible; and (4) his awareness of his physical vulnerability and mortality.

According to Rosenberg and Farrell's study, only a minority of men acknowledged an identity crisis. More than half of the respondents evidenced denied or displaced feelings of personal disorganization. Less than one-third of the men appeared to manifest a true sense of positive development or self-acceptance. The authors noted that the "overt" self-report responses for sense of positive development were far greater than one-third.

A man's style of response to the mid-life transition reflects his personality, history, life circumstance, social class, residence, style of life, education, and the influence of his culture. Many men are caught up in the subcultural ideals of strength, power, control and competitive success. Rosenberg and Farrell (1981) contend that it requires a rare individual to transcend these issues in order to experience intimacy and selfhood. The investment of the relatively impersonal world of work and consumption relieves these men from dealing with painful personal conflicts. These authors believe that the capacity for intimacy is essential for a successful mid-life transition.
LIFE SATISFACTION

Emotional health may be indicative of adaptation. The adaptation measures most frequently used are those assessing the personal sense of well-being (i.e., happiness, life satisfaction, or morale) (Huyck & Hoyer, 1982). In 1957, Gurin, Veroff and Feld (1960) initiated the first national survey to determine the quality of life experiences. This study was requested by the National Commission on Mental Illness and Health in the interest of determining the mental health of the nation. The questions asked were related to the individual's fears, anxieties, strengths, resources, and coping mechanisms. The authors found that self-esteem seemed to increase from young adulthood to middle-age, then stabilize and gradually decrease, especially from age 50 to age 80. Significantly higher levels of happiness were reported from subjects who lived in small towns and rural areas then from individuals who lived in large metropolitan areas, even when controlling for status differences. There was also a strong positive relationship between educational level and the degree of happiness. Campbell, Converse, and Rogers (1976) argue that the measurement of happiness should be considered as a relatively strong component of immediate feelings, while satisfaction depends more heavily on a judgement of the relationship of one's circumstances to some standard. Gurin, Veroff, and Feld's (1960) study did not include a rating to assess satisfaction.

Norman Bradburn (1969) at the National Opinion Research Center instituted a program to periodically assess mental health related behaviors. Bradburn measured the balance between positive and negative feelings; such as "I've gotten pretty much what I expected out of life." Bradburn noted that negative moods show little systematic variation by age. However, older individuals reported significantly fewer euphoric moments than younger people. Bradburn concluded that "affect balance" did decline
with age—in the same way as the global reports of happiness do (Campbell, Converse, & Rogers, 1976).

Campbell, Converse, and Rogers' (1976) study "Monitoring the Quality of American Life," used data representative of the national population of adults (n=2164). The researchers assessed such social characteristics as class, age, education, and income in relationship to satisfaction. The authors also explored such areas as the residential environments, work experience, marriage and family life, personal resources, and competition. Campbell et al. (1976) found that with age life satisfaction increased and happiness decreased. The authors concluded that satisfaction occurs when the individual becomes better accommodated to the environment. Thus, the young are happy, but also can afford to be dissatisfied, since they are hopeful about the improvement that the future offers. Whereas, the elderly must become more satisfied with the present. The authors also noted that the middle-aged group reported less happiness and satisfaction of any other age group.

In Larson's (1978) review of the literature pertaining to life satisfaction, age appeared to have little influence on feelings of well-being. The author contends that health seems to be the most important determinant of life satisfaction. Larson also states that money, social class, social interaction, marital status, housing, and transportation influence persons satisfaction with life.

Costa and McCrae (1983) studied the effects of personality on well-being and happiness. The researchers used data collected as part of two longitudinal studies: the Normative Aging Study and the Baltimore Longitudinal Study of Aging. Costa and McCrae (1983) found that the personality dimensions of neuroticism and extraversion were related to happiness. Men high in neuroticism tended to be dissatisfied and/or unhappy. The happy and/or satisfied men were high in extraversion. These personality dimensions seemed to remain stable over the life span.
The quality of life adults report at different ages appears to be inconsistent. Some studies indicate minimal age differences in life satisfaction (Andrews & Withy, 1976; Neugarten, 1973). Others indicate increased life satisfaction with age or a peak immediately prior to old age (Clausen, 1976). Tamir (1982) states that the interpretation of data is difficult. For example some researchers suspect that the results of questionnaires are positively biased (Campbell, Converse, & Rogers, 1976). Few individuals confess to a general lack of happiness and dissatisfaction with life. Lowenthal and Chiriboga (1972) argue that the men in their study were reluctant to admit to personal doubts and anxiety. Rosenberg and Farrell (1981) noted that in their study of men at mid-life approximately 50 percent of the sample used denial in order to dismiss the poor quality of life experienced. In general the researchers of men at mid-life felt that the middle-aged tended to give socially desirable responses as well as rationalize problematic areas of their lives. Rosenberg and Farrell (1981) stated that they "did not find crises in the sense of conscious disruption of identity to be a common pattern as men confront middle-age, we do find a range of responses of which may be just as problematic as crises."

Rosenberg and Farrell speculate that disappointments in middle-age may be related to class. For example the male vocation is an important cultural measure of success. If most men do not attain this criteria for success, psychological inadequacy prevails.

Researchers conclude that the measuring of the quality of life can be difficult. Some problematic areas for individuals are concrete (children leaving the home, death of parents, multiple options for the future diminish); other problematic areas may be more subtle (the stress associated with maintaining the strong male image). In addition, the quality of life may be difficult to assess because only certain groups are affected (i.e., certain personality characteristics; Costa & McCrae, 1976), specific past
experiences (Lowenthal & Chiriboga, 1973), or educational backgrounds (Harrock & Massner, 1970; Tamir, 1982), and the reluctance of men to admit to personal doubts and anxiety (Lowenthal & Chiriboga, 1972; Rosenberg & Farrell, 1981).

THEORIES OF STRESS AND COPING

There is increasing evidence for stress associated with the male mid-life transition (Levinson, 1976; Rosenberg & Farrell, 1981; Tamir, 1982). It is during this period that adults take stock, assess their careers, launch their children, deal with a decline in physical prowess, and come to terms with their own mortality (Rosenberg & Farrell, 1981; Tamir, 1982). The research that has attempted to identify correlates of stress associated with the mid-life transition has generally focused on changes in family and occupational roles. Much of this research is tied to sex-role convergence theory (Morland, 1980; Neugarten & Guttman, 1958).

Hamburg (1982) notes there has been a low level of commitment by researchers to studying stress and health (mental and physical). He states that an interdisciplinary approach is necessary whereby scientists must combine the biological and behavioral sciences if they are to truly determine the relationship between stress and health.

The understanding of stress and individual adaptation has evolved from the efforts of several researchers. Bernard, a nineteenth century scientist, professed that man has an internal milieu that must be kept constant and that man is an integral part of the external environment. When sickness results, man makes adaptive attempts to restore balance to the internal milieu and the environment (Luckmann & Sorenson, 1980). During the early 1900's Walter Cannon investigated the physiology of the organism from several different points of view. Although his focus was pri-
arily on the physiological basis of homeostasis, he also studied the control of the
sympathetic nervous system on internal secretions, that is, the influence of emotional
disturbances on various physiological processes. Cannon demonstrated that when an
organism confronts a situation, whether physical, mental, or emotional, which poses as
a threat or danger, then the choice would be either to face the threat or danger or
to flee from it. This "fight or flight" response involves the activation of the sym-
pathetic portion of the autonomic nervous system and the activation of the adrenal
medullary axis (Asterita, 1985).

Selye (1976) expanded on Cannon's theory as he studied physiology from a psy-
chosomatic point of view. He focused much of his attention on stress-related disor-
ders and the resulting disease states. Selye discovered that both mental and emotional
mechanisms appear to play a role in the regulation of the pituitary adrenal cortical
axis and that the endocrine system is influenced by mental and emotional states.
Selye defined stress as a non-specific response of the body to any demands made upon
it. A non-specific response is defined as a response which affects all or most parts
of a system without selectivity (Claus, Bailey & Selye, 1980). Stressors may be
characterized as any agent or condition producing stress. Selye believed that stress
plays a role in every disease, no matter what the cause and that an individual's
response to stress will depend upon the quality and the quantity of the individual
and the individual's perception of the stressor (Luckmann & Sorenson, 1980).

Selye (1956) maintained that the body reacts with a specific syndrome, the Gen-
eral Adaptation Syndrome (GAS) to stressful conditions. This theory provides for a
biochemical mechanism of adaptation to stress and a set of stages: alarm, adaptation,
and exhaustion. Mikhail (1981) states that this theory is not designed to account for
the role of situational and organismic variables involved in the activation of a stress
state. Lacey (1967) states that stress is not manifested by a single specific syndrome (GAS) but by a multiplicity of patterns whose composition and form is determined by situational and organismic variables.

Mikhail (1981) states that the psychological theorizing related to psychological stress has been slow and overshadowed by Selye’s biological theory of stress. One of the first psychological models of the stress response was presented by Haggard (1949), who stated that:

An individual experiences emotional stress when his overall adjustment is threatened, when his adaptive mechanisms are severely taxed and tend to collapse. Some of the factors which influence an individual’s ability to tolerate and master stress include: the nature of his early identifications and his present character structure, and their relation to the demands and gratifications of the present stress-producing situation; the nature of his reactions to the situation; his ability to master strong and disturbing emotional tensions; the extent to which he knows about all aspects of the situation, so that he is not helplessly unaware of the nature and source of threat; his available skills and other means of dealing effectively with it; and the strength and pattern of his motivation to do so.

In the fifties and early sixties, three important aspects of stress were identified (Mikhail, 1981). These aspects of stress were: (1) Individuals differ in their reactivity to stress (Lazarus, Deese, & Osler, 1952); (2) Stress is determined by the perception of the stressful situation rather than by the situation itself (Basowitz et al., 1955); and (3) The extent of stress depends partly on the capability of the individual to cope (Cofer & Appley, 1964). Sells (1970) proposed that a state of stress arises when the individual has no adequate response available to meet a demand and when the consequences of failure to respond effectively are important to the individual. According to Sells, stress intensity depends on the importance of individual involvement and the individual’s assessment of the consequences of his inability to respond effectively to the situation.
This view suggests that there is a cognitive appraisal of a demand-capacity imbalance. This conception of psychological stress represents the position of many researchers (Cox, 1978; Lazarus, 1976; McGrath 1970; Sells, 1970). In contrast to Selye's biologic stress, the emphasis of psychological stress is on the input side, in particular, on the kind of situation and individual interaction that evokes a stress state (Mikhail, 1981).

Lazarus' development of the cognitive appraisal theory in the stress emotions area has provided a larger base for the psychological stress research. Lazarus (1985) states that:

we must view all emotion as the product of complex adaptive transactions between an individual and a particular environment. ...humans are not passive. Instead they are active, searching, manipulating, and evaluating beings. People continually choose environment whenever they can, seek to control events in the interest of some larger ground plan, and evaluate the outcomes of their transactions with respect to such plans. He states it is true that often individuals cannot control events to their own liking (in fact this lack of control is the basis of the stress emotions) but they are committed to try and to evaluate the fate or potential of such efforts.

all emotions, including the stress emotions depend on cognitive appraisals and reappraisal of the immediate and potential significance of a person's adaptive transactions with the environment for her or his well-being. Appraisal takes five key forms, representing evaluative judgments or decisions about whether a transaction with the environment (a) is relevant or irrelevant to one's well-being; (b) has already produced harm requiring undoing, ameliorating, or tolerating; (c) threatens future harm; (d) presents a challenge; or (e) forecasts a positive outcome.

cognitive appraisal is adaptive transactions that always involves constant changing events requiring new evaluations based both on how one has just reacted and on the anticipated or actual response of the environment.

No one theory has been able to provide a direct connection between psychophysiological stress, individual differences and pathology (Asterita, 1985). Mikhail (1981) states that there appears to be hardly any logical link between the stress literature in
psychology and in physiology. The theoretical interests appear to be unrelated. The adaptive reactions of the stress state are the domain of physiological stress, whereas conditions essential for stress activation are the domain of psychological stress. Mikhail argues that there is no logical incompatibility that stands in the way of integrating psychological stress theory with Selye's theory. Further both are independent of each other but yet complementary. The psychological stress theory outlines the conditions which determine the evocation of stress while Selye's theory describes its form (Kaplan, 1964; Mason, 1971; Mikhail, 1981).

Upon activation of the body's stress mechanism, the endocrine system is highly aroused and represents the most chronic and prolonged physiological response to stress (Asterita, 1985). The endocrine system of the body functions along with the nervous system in governing bodily processes in order to maintain homeostatic control. In particular, the endocrine system, with its array of many hormones, is primarily concerned with general processes such as growth, metabolism, and sexual differentiation.

The glands of the endocrine system secrete hormones into the blood. They are then transmitted to specific target tissues and organs by means of the circulatory system. It must be noted that the blood has easy access to body cells and reaches all tissues and organs of the body. The main effect here of the activity of the endocrine system is to cause metabolic changes in specific organs and tissues. The endocrine system may require minutes, hours, or days for end-organ response. Hormonal activity may then persist for a considerable period of time (Asterita, 1985).

There are two basic types of hormones: 1) proteins or protein derivatives such as amino acids, and 2) steroids. For example the hormones of the anterior pituitary, pancreas, and parathyroid glands are proteins. On the other hand, steroid hormones include those hormones secreted by the adrenal cortex, the ovary, and the testis.
Most endocrine glands continuously secrete hormones in amounts determined by bodily requirements. However, most are generally present in the blood and/or tissues in extremely minute amounts. To measure these minute hormonal concentrations, two specific methods used are bioassay and radioactive competitive binding (Asterita, 1985).

Hormone secretion may occur because of stimuli that are either nervous or chemical in origin. For example, the autonomic nervous system activation may result in rapid hormonal secretion (e.g., sympathetic innervation of the adrenal medulla, and hypothalamic control of hormonal release from the posterior pituitary). An example of hormonal release because of chemical stimuli would be the hypothalamic secretion of releasing factors (hormones) which in turn influence the anterior pituitary to secrete its hormones into circulation (Asterita, 1985).

Other factors that may influence hormonal secretions would be certain blood levels of metabolites or organic substances (e.g., glucose, blood calcium levels, osmolarity or osmotic pressure of the blood). To summarize, hormonal secretion is governed by many factors, all of which produce normal physiological functioning (Asterita, 1985).

The physiological response to stress involves a neural axis and a neuroendocrine axis. The peripheral and central nervous system are components of the neural axis. The neuroendocrine axis includes the sympathetic-adrenal-medullary axis, the hypothalamic posterior axis, the renin-angiotension-aldosterone system, glucagon and insulin, the anterior pituitary-adrenal-cortical axis, the somatotropin axis, the pineal gland, the endogenous opiates, prolactin, the thyroid axis, and the gonadotropin axis (Asterita, 1985). The gonadotropin axis appears to be generally suppressed as a result of the stress response. In males, testosterone production by the testes appears to be suppressed under the influence of chronic stress (Asterita, 1985; Ellis, 1972; Tigranean, 1980).
For example, Tigranean (1980) studied 15 male students aged 28 to 55 years under conditions of emotional stress. Lowered testosterone levels were reported. In another study using human subjects, fear-evoking situations produced decreased testosterone levels. Decreased testosterone levels were noted in stress related situations such as major surgery, intensive exercise, and combat training (Aono et al., 1975; Asterita, 1985; Ellis, 1972; Kreuz et al., 1972).

In rhesus monkeys, lowered testosterone levels were found with the stress of chronic immobility (Goncharov, 1983). Lower testosterone levels were also noted in rhesus monkeys subjected to sexual deprivation (Rose, Gordon, & Berstein, 1972). Other studies of animals indicated that decreased plasma testosterone levels were seen with the stress of overcrowding and surgery (Asterita, 1985).

**SUMMARY**

Research on adulthood indicates that generally individuals are in a dynamic state of flux during this stage of development. Individuals are constantly changing, developing and making adjustments to their inner needs and the external environment. For example, individuals at mid-life become more introspective and experience a sex-role convergence. Men at mid-life experience an altered physical image and a change in the perception of time (i.e., time left to live). These changes reinforce the growing awareness of mortality. Changing family dynamics also impact upon men during the middle years, as wives and children seek their own developmental needs. In addition men may also question their work role and reevaluate the institutional demands and generativity needs. During the middle years adults are undergoing changes that impact upon many facets of life (e.g., perceptions, esteem, values, expectations, family interaction and transactions, cultural beliefs, and biology).
The limited research on men at mid-life suggests that in addition to physiological decline, profound psychological and social changes occur during the middle years. Life satisfaction may be disrupted as the totality of these changes leads to altered expectation levels, anxiety, and stress. Activation of a physiological response to stress may follow.
CHAPTER 3
METHODOLOGY

INTRODUCTION

The study "Physiological and Social-Psychological Bases of Stress Associated with the Male Mid-Life Transition" was undertaken because data are increasingly indicating that the transition to the middle years is an extremely difficult period for men. This study was directed by Dr. Patrick C. McKenry of The Ohio State University and funded by the Ohio Agricultural Research and Development Center (H-828). The project was approved by The Ohio State University Behavioral and Social Sciences Human Subjects Review Committee (Appendix A).

SAMPLE SELECTION

The sample utilized in this study consisted of thirty-seven middle-aged (aged 39-50) professional men. These men were purposively selected from three Columbus, Ohio work settings (Battelle Memorial Institute, Nationwide Insurance Company and The Ohio State University). Inclusion in this purposive sample required that the men: (1) have at least one child that is an adolescent (age 12-19); (2) are married; (3) are characterized by the Hollingshead Index (Hollingshead & Redlich, 1958) as a professional; (4) are free of medications that alter testosterone levels; (5) are not obese; and (6) have not vigorously exercised 24 hours prior to the blood sampling procedure. Data were collected on forty-one subjects, however three subjects were excluded from
the analysis, because they were not within the age range. Another subject was not included in the analysis because of initial flu symptoms.

Table 1 describes salient demographic descriptors of the sample. The mean age of the men was 44.9 years. Approximately 84 percent of the men were college graduates. The majority of the respondents were white, Protestants with incomes between $25,000 and $74,999 (89.1 percent). The mean number of years married was 17.86 years, and 78.4 percent (n=29) of the men were in their first marriage. In general the population reported good to excellent health status (91.9 percent); in fact, no individuals reported poor to fair health statuses. Table 2 profiles the health status of the respondents.
Table 1

Demographic information (n=37)

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean = 44.9 (SD = 3.13)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Some college</td>
<td>16.2% (n = 6)</td>
</tr>
<tr>
<td>College graduate</td>
<td>16.2% (n = 6)</td>
</tr>
<tr>
<td>Some graduate school</td>
<td>16.2% (n = 6)</td>
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<td>Master degree</td>
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<tr>
<td>Other</td>
<td>5.6% (n = 2)</td>
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<tr>
<td>Atheist/Agnostic</td>
<td>5.6% (n = 2)</td>
</tr>
<tr>
<td>Individual Income</td>
<td></td>
</tr>
<tr>
<td>$10,000 - $24,999</td>
<td>2.7 (n = 1)</td>
</tr>
<tr>
<td>$25,000 - $49,999</td>
<td>48.6 (n = 6)</td>
</tr>
<tr>
<td>$50,000 - $74,999</td>
<td>40.5 (n = 15)</td>
</tr>
<tr>
<td>$75,000 - $100,000</td>
<td>2.7 (n = 1)</td>
</tr>
<tr>
<td>Over $100,000</td>
<td>5.4 (n = 2)</td>
</tr>
<tr>
<td>Number of years married</td>
<td>X = 17.86 (SD = 6.75)</td>
</tr>
<tr>
<td>Number of children</td>
<td>X = 2.7 (SD = 1.12)</td>
</tr>
<tr>
<td>Occupation (Duncan Scale)</td>
<td>X = 67.03 (SD = 14.73)</td>
</tr>
<tr>
<td>range</td>
<td>23.2 to 87.4</td>
</tr>
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Table 2

*Health Profile of Male Respondents*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sleeplessness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td>11</td>
<td>29.7</td>
</tr>
<tr>
<td>decreased</td>
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<td>2.7</td>
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<tr>
<td><strong>Nervousness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td>7</td>
<td>18.9</td>
</tr>
<tr>
<td>decreased</td>
<td>2</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Tiredness</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td>19</td>
<td>51.4</td>
</tr>
<tr>
<td>decreased</td>
<td>1</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>Headaches</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td>7</td>
<td>18.9</td>
</tr>
<tr>
<td>decreased</td>
<td>2</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Indigestion</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td>8</td>
<td>21.6</td>
</tr>
<tr>
<td>decreased</td>
<td>4</td>
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</tr>
<tr>
<td><strong>Allergies</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td>3</td>
<td>8.1</td>
</tr>
<tr>
<td>decreased</td>
<td>2</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Cold Symptoms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td>2</td>
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</tr>
<tr>
<td>decreased</td>
<td>6</td>
<td>16.4</td>
</tr>
<tr>
<td><strong>Irregularity</strong></td>
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</tr>
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<td>increased</td>
<td>3</td>
<td>8.1</td>
</tr>
<tr>
<td>decreased</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Moodiness</strong></td>
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<td></td>
</tr>
<tr>
<td>increased</td>
<td>13</td>
<td>35.1</td>
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<tr>
<td>decreased</td>
<td>2</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Depression</strong></td>
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<td></td>
</tr>
<tr>
<td>increased</td>
<td>10</td>
<td>27.0</td>
</tr>
<tr>
<td>decreased</td>
<td>2</td>
<td>5.4</td>
</tr>
<tr>
<td><strong>Drink Socially</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>increased</td>
<td>1</td>
<td>2.7</td>
</tr>
<tr>
<td>decreased</td>
<td>11</td>
<td>29.7</td>
</tr>
<tr>
<td><strong>Drink Alone</strong></td>
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<td></td>
</tr>
<tr>
<td>increased</td>
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<td>5.4</td>
</tr>
<tr>
<td>decreased</td>
<td>5</td>
<td>13.5</td>
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</table>
Table 2: (continued)

Health Profile of Male Respondents

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
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<tbody>
<tr>
<td><strong>Medications</strong></td>
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</tr>
<tr>
<td>Increased</td>
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<td>Decreased</td>
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<td>2.7</td>
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<tr>
<td><strong>Recreational Drugs</strong></td>
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<td>Increased</td>
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<td>2.7</td>
</tr>
<tr>
<td>Decreased</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Smoking</strong></td>
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<td></td>
</tr>
<tr>
<td>Increased</td>
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<td>0.0</td>
</tr>
<tr>
<td>Decreased</td>
<td>9</td>
<td>24.3</td>
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<tr>
<td><strong>Health Status (self report)</strong></td>
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<td>Poor</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Fair</td>
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<td>0.0</td>
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<tr>
<td>Average</td>
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<td>8.1</td>
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<tr>
<td>Good</td>
<td>21</td>
<td>56.8</td>
</tr>
<tr>
<td>Excellent</td>
<td>13</td>
<td>35.1</td>
</tr>
</tbody>
</table>

COLLECTION OF THE DATA

The participants responded to intra-office notices and formal communication asking for participants in a study of men's job and family roles at mid-life (Appendix B). More specifically, the study was explained to the participants as having the purpose of helping the investigator gain a better understanding of the way men respond psychologically, socially, and physiologically to mid-life transitions. In addition, a $10 participation fee was offered. The subjects returned the contact letter with their signature, phone number, and address if they chose to participate.

The Consent to Special Treatment or Procedure, informing them of their rights as subjects, were given to each participant (Appendix C).
Each participant was scheduled to have a sample of blood drawn between 9:00 a.m. and 10:00 a.m. The scheduling of the data collection was necessary to control for circadian influences on plasma testosterone levels. Following the completion of the venipuncture each participant was given a questionnaire. The subjects were given the option to complete the questionnaire immediately after the blood draw or to complete it at their own scheduled time. The questionnaire was designed to be answered within 30-45 minutes.

The blood was collected by venipuncture (antecubital space of the arm) into plain tubes. The investigator, a registered nurse, followed the venipuncture protocol procedures developed by University Hospital at The Ohio State University (Appendix D). The serum was separated from the cells by centrifugation, within one hour of the venipuncture. The samples were frozen at -20 C. Prior to assay, the samples were allowed to come to room temperature and were mixed by gently swirling or inversion. The blood samples were taken to the University Hospital Laboratory which is under the supervision of a senior medical technologist, at The Ohio State University. Trained laboratory technologists evaluated the testosterone blood tests.

Equipment for obtaining the venous blood specimen included sterile syringes, sterile needles (#21 guage, needle length 2.5 cm), plain test tubes (10 ml in size), and alcohol swabs to clean the site of the needle insertion. A tourniquet was also needed to tie around the limb in order to trap the venous blood and distend the veins.

**INSTRUMENTATION**

The participants were asked to respond to a paper and pencil questionnaire composed of various standardized instruments: Marital Comparison Level Index (Sabatelli, 1984); Parent-Adolescent Communication Scale (Olson, 1982); Expression of Emotion
Scale (Balswick, 1975); Bem Sex-Role Inventory (Bem, 1975); State-Trait Anxiety Inventory (Spielberger, Gorsuch & Lushene, 1969); Life Experiences Survey (Sarason, Johnson & Siegel, 1978); and the Occupational Values Scale (Rosenberg, 1957). In addition the Mid-Life Crisis Scale (Rosenberg & Farrell, 1981); various forced choice measures of health; and a demographic background questionnaire, were administered (see Appendix).

**Marital Comparison Level Index**

The Marital Comparison Level Index (Sabatelli, 1984) was designed to assess an individual's evaluation of the outcomes derived from his or her relationship in comparison with what is expected (i.e., the comparison level). The primary assumption of the scale is that the less the outcomes derived from a relationship meet a person's expectations, the greater the complaints a person has about the relationship. The scale consists of 32 items reflective of specific areas of concern in marital relationships which were derived from reviews of past marital research (Sabatelli & Cecil-Pigo, 1985). Respondents are asked to indicate on a 7-point scale, with -3 representing "Worse That I Expected," +3 representing "Better Than I Expected," and the mid-point (0) representing the current experience equaling the expectation level. The range of scores is 32 to 224, with a score of 128 representing that point on the continuum where outcomes are judged to be at the expectation level.

The scale was administered to 301 married individuals, average length of marriage was 10.8 years for women and 11.2 years for men. Coefficient alpha was used to estimate reliability (Cronbach, 1951). For males, females, and the entire sample, alpha was .93. Construct validity was examined by studying the relationship between the scores on the MCLI and scores reported by the respondents on measures of relational equity and commitment.
Based on the social exchange literature, Sabatelli (1982) proposed the existence of a positive relationship between the favorableness of the assessments one makes of rewards relative to expectations within a relationship and the fairness or equity with which the relationship is viewed. He proposed that the assessment of outcomes relative to expectations and the equity experienced in the relationship should function as a mediator of the commitment to the relationship, operationally defined as the degree to which relationship alternatives are monitored.

The data suggest a strong positive relationship between MCLI scores and the perception that husbands and wives have of fairness of their relationships ($r = .62$ and .65 for husbands and wives, respectively) and their commitment to the relationship ($r$ of .58 and .59 for husbands and wives, respectively). The correlates between these scales were significant at a $p < .001$ level (Sabatelli, 1984).

*Bern Sex-Role Inventory*

The Bern Sex-Role Inventory (Bem, 1975) is designed to determine the level of femininity and masculinity exhibited by an individual. The BSRI contains sixty personality characteristics. Twenty of the characteristics are stereotypically feminine and twenty are stereotypically masculine. The BSRI also contains twenty characteristics that serve as filler items (Bem, 1981).

The respondent is asked to indicate on a 6-point scale how well each of the 60 characteristics describes herself or himself. The scale ranges from 1 ("Never or Almost True") to 6 ("Always or Almost Always True") and is labeled at each point (Bem, 1981). The average of the ratings for the Femininity scale and the Masculinity scale is compared with a standardized score (SS). Next, a difference score is obtained by subtracting the Masculinity score ("b" SS) from the Femininity score ("a" SS). The Femininity-minus-Masculinity Difference scores are compared with stan-
standardized T-scores and percentile ranks. The Femininity Standardized Scores range from -15 to 87. The Masculinity Standardized Scores range from -8 to 80. The T-Scores for the Femininity minus Masculinity Difference range from 17 to 84. The Femininity minus Masculinity Difference scores (a-b) range from -50 to +50.

The BSRI treats femininity and masculinity as independent measures rather than polar ends. For example, if an individual is high on both dimensions he or she is considered androgynous. If the individual is low on both dimensions he or she is considered undifferentiated.

The BSRI also has a Social Desirability measure. This score indicates the extent to which a person describes him or herself in a socially desirable direction on items that are neutral with respect to sex. The Social Desirability score can range from 1 to 7, with 1 indicating a strong tendency to describe oneself in a socially undesirable direction and 7 indicating a strong tendency to describe oneself in a socially desirable direction (Bem, 1981).

Psychometric analyses were performed on two samples of subjects, both consisting of undergraduate students in an introductory psychology class at Stanford University. The first sample included 279 females and 444 males, who took the BSRI in 1978. To estimate internal consistency of the BSRI, coefficient alpha (Cronbach, 1951) was computed separately for females and males in both samples. The coefficient alpha for the Femininity score ranged from .75 to .78 for females and maintained a measurement of .78 for males. The coefficient alpha for the Masculinity score ranged from .87 to .86 for females and ranged from .86 to .87 for males. The coefficient alpha for the Femininity-minus-Masculinity Difference score ranged from .78 to .82 for females and .84 to .82 for males. The correlation between the Femininity score and the Masculinity score for the two samples of undergraduates are as follows: females -.14 (in 1973) and .00 (1978); and males .11 (1973) and -.05 (1978).
Test-retest reliability was performed four weeks after the first administration of the BSRI in 1973. The twenty-eight females and the twenty-eight males were explicitly instructed not to try to remember how they had responded previously. The product-moment correlations computed between the first and second administrations of the Femininity score were .82 for females and .89 for males. The correlations for the Masculinity scores were .94 for females and .76 for males. The Femininity-minus-Masculinity Difference score was .88 for females and .86 for males.

Expression of Emotion Scale

The Expression of Emotion Scale (Balswick, 1975) is designed to measure the degree and type of emotion an individual expresses. Balswick (1975) states that the scale is useful in measuring "situational" emotionality and expressiveness and thus further enhances the understanding of the sociology of emotions.

This scale consists of 16 statements which the participants are asked to respond to via four forced categories (1="Never"; 2="Seldom"; 3="Often"; 4="Very Often"). Each of the 16-item scales was constructed to include four subscales consisting of four items each. The four subscales are: (1) the Expression of Love Scale (Factor 1); (2) the Expression of Happiness Scale (Factor 2); (3) the Expression of Sadness Scale (Factor 3); and (4) the Expression of Hate Scale (Factor 4). The range of scores is 16 to 64. The scale scores for all of the subscales are from 4 to 16.

To determine the nature of the scale items, a factor analysis procedure was done. On Factor 1, love, tenderness, affection, and warmth loadings were .839, .791, .814, and .706 respectively, with all other items loading at .253 or below. On Factor 2, anger, hate, resentment, and rage all loaded high at .636, .780, .667, and .670 respectively, with all other items loading at .241 and below. On Factor 3, happy, delight, joy and elation all loaded high at .728, .754, .774, and .644 respectively, with all
other items loading at .324 or lower. On Factor 4, sorrow, grief, sad and blue loaded at .754, .659, .705, and .576 respectively, while other items loaded at .204 or less. The Love Factor accounted for 17% of the variance, the Hate Factor accounted for 13% of the variance, the Happiness Factor accounted for 16.2% of the variance, The Sadness Factor accounted for 12.9% of the variance. Total variance of all four factors accounted for 59.6% of the variance in the scale (Balswick, 1975).

*Life Experiences Survey*

The Life Experiences Survey (Sarason, Johnson & Siegel, 1978), is a 57-item self-report measure that allows respondents to indicate events that they have experienced during the past year. The scale has two portions: Section 1, designed for all respondents, contains a list of 47 specific events plus three blank spaces in which subjects can indicate other events that they may have experienced. The events listed in Section 1 refer to life changes that are common to individuals in a wide variety of situations. The ten events in Section 2 are designed primarily for use with students and deal specifically with changes experienced in the academic environment (Sarason, Johnson & Siegel, 1978). Section 2 was not used in this study.

The subjects are asked to indicate those events experienced during the past year (0-6 months or 7 months to 1 year) as well as (1) whether they viewed the event as being positive or negative and (2) the perceived impact of the particular event on their life at the time of occurrence. Ratings are on a 7-point scale ranging from extremely negative (-3) to extremely positive (+3). Summing the ratings of those events designated as positive provides a positive change score. A negative change score is derived by summing the ratings of those events experienced as negative. Adding the negative and positive change values provides a total changes score, representing the total amount of rated change (desirable and undesirable) experienced by the subject during the past year (Sarason, Johnson & Siegel, 1978).
Two test-retest reliability studies of the LES were conducted. Subjects were drawn from undergraduate psychology courses with a 5 to 6 week time interval between test and retest. Thirty-four subjects were in the first study and 58 subjects were in the second study. Pearson product-moment correlations were used to determine the relationship between scores obtained in the two sessions. Test-retest scores for the positive change score were .19 and .53 (p <.001). The reliability coefficients for the negative scores were .56 (p <.001) and .88 (p <.001). The coefficients for the total change score were .63 (p <.001) and .64 (p <.001) (Sarason, Johnson, & Siegel, 1978).

In addition to the two reliability studies, reliability data were collected on a small sample of 12 subjects who took the LES on two different occasions (time interval was 8 weeks). The reliability coefficients for positive change score were .61 (p <.05); negative change score .72 (p <.01); and total change score .82 (p <.001) (Sarason, Johnson, & Siegel, 1978).

State-Trait Anxiety Inventory

State-Trait Anxiety Inventory (Spielberger, Gorsuch & Lushene, 1969) was designed to distinguish between situationally perceived feelings of apprehension and tension (A-State), and a general behavioral disposition for anxiety proneness (A-Trait). Subjects are required to indicate the extent to which they were momentarily experiencing a particular, anxiety-feeling (A-State), or the extent to which they generally experience anxiety-related feelings (A-Trait) (O'Neil, Spielberger & Hansen, 1969).

Research indicates that A-State scores increase significantly in relationship to stressful situations compared to benign controlled situations, whereas A-Trait scores are unaffected by transitory situational stressors (Taylor, Wheeler, & Altman, 1968).
The scale consists of 40 responses in which the participant is directed to respond to twenty questions related to how they feel right now and to twenty questions related to how they generally feel. The 40 items are in a Likert format that have scores ranging from 1 ("Not at All") to 4 ("Very Much So"). The range of scores for the A-State scale is 20 to 80. The range of scores for the A-Trait scale is 20 to 80 (Speilberger et al., 1969).

The test-retest correlations for the T-Anxiety scale ranged from .73 to .86 for college students and .65 to .75 for high school students. For the S-Anxiety scale, the stability coefficient for college and high schools students ranged from .16 to .62. The alpha coefficient (Cronbach 1951) was .93 for the S-Anxiety scale and .91 for the T-Anxiety scale (Speilberger et al., 1969).

**Occupational Values Scale**

The Occupational Values Scale (Rosenberg, 1957) was designed to categorize individuals into occupational value complexes, described as "self-expression-oriented," "people-oriented," and "extrinsic-reward-oriented." The scale consists of ten occupational values in which the participant is directed to respond to "consider to what extent a job or career would have to satisfy each of these requirements before he could consider it ideal." Values are ranked low, medium or high in importance. The scores are obtained by weighted averages after the response weights were summarized (first choice=4, second=3, high=2, medium=1, low=0). The range of scores on each subscale is 0 to 7.

Estimates of test-retest reliability were not reported. The clusters were obtained by noting the highest intercorrelations among the matrix of all ten items. A clear ordering of self-expressive, people-oriented, and extrinsic-reward values were found (Robinson, 1969).
No direct test of validity was performed. However, the value choices were in line with occupational choices. Each respondent's occupational choice was ranked by a weighted average according to emphasis placed on the three value complexes. Highest scores in the self-expression complex were students opting for architecture, art, journalism, and drama (average 5.6). The people-oriented complex was stressed by students planning to enter social work, medicine, teaching, social science, and personnel work (average 4.2). Students planning to enter real estate or finance, sales promotion, hotel management, law, advertising and business, placed greatest stress on the extrinsic-reward complex (average 3.4) (Robinson, 1969).

Note: An additional question will be added to compare the participant's "ideal" job or career values with what the individual perceives as actually occurring with his present job or career.

Parent-Adolescent Communication Scale

The Parent-Adolescent Communication Scale (Olson, 1982) was designed to assess a parent's perception and experience of communication with their adolescent. This 2-item self-report scale is comprised of 20 items in a Likert format ranging from 1="Strongly Disagree" to 5="Strongly Agree" (Olson, 1985). The range of scores is 20 to 100.

The Parent-Adolescent Communication Scale has two subscales, Open Family Communication and Problems in Family Communication. These subscales were designed to measure the degree of openness in family communication, and to assess the extent of family communication problems. Each scale is comprised of 10 items (Olson, 1985).

Cronbach Alpha reliability was .87 and .78 for the Open Family Communication scale and for the Problems in Family Communication (respectively). Test-retest reliability was .78 and .77 for the openness scale and the problems scale (Barnes & Olson, 1985).
The factor loading of the Open Family Communication scale ranged from .71 to .48. The factor loadings of the Problems in Family Communication Scale ranged from .60 to .26 (Barnes & Olson, 1985).

**Midlife Crisis Scale**

The Midlife Crisis Scale (Rosenberg & Farrell, 1981) was designed to measure various aspects of alienation. The Midlife Crisis Scale consists of twelve items that have face validity as measures of the degree to which a person is experiencing difficulty in coping with the stresses of middle age. The authors did not report test-retest reliability and validity data.

Ten of the questions are answered with a six-point Likert scale: 1="Strongly Agree," 2="Agree," 3="Slightly Agree," 4="Slightly Disagree," 5="Disagree," and 6="Strongly Agree." The remaining two questions are answered with a five-point Likert scale. The scale for one question ranges from 1="Very Much So" to 5="Not at All." The scale for the other question ranges from 1="Very Close" to 5="Far Apart." The range of scores is 12 to 70. Estimates of test-retest reliability and validity were not reported.

**Testosterone**

In the male, testosterone is mainly synthesized in the interstitial Leydig cells and the testis, and is regulated by the interstitial cell stimulating hormone (ICSH), or luteinizing hormone (LH) of the anterior pituitary. The normal range for serum testosterone is 3.6 ng/ml to 9.9 ng/ml.

The Diagnostic Products Corporation (1985) noted that in a preliminary study of 49 "normal" males the median value for serum testosterone levels was 5.36 ng/ml. The 95 percent range for the testosterone levels was 3.6 to 9.9 ng/ml. The serum samples were assayed by the Coat-A-Count No Extraction Testosterone procedure. In
another normal range study of serum testosterone levels the Diagnostic Products Corporation stated that the serum testosterone levels of men (n=39) aged 40 to 49 ranged from 4.1 ng/ml to 8.2 ng/ml. The serum testosterone levels for men (n=29) aged 30 to 39 ranged from 4.0 ng/ml to 10.8 ng/ml. Men (n=28) aged 50 to 59 testosterone levels ranged from 3.5 ng/ml to 8.9 ng/ml.

In this study, all of the serum samples were assayed together by the Coat-A-Count No Extraction Testosterone procedure. The 95 percent range of normal testosterone levels was 3.6 to 9.9 ng/ml.

**DATA ANALYSES**

Correlational analyses, Pearson's $r$, was the primary means of data analysis to determine whether and to what degree a relationship exists between the five independent variables and the dependent variables of anxiety, mid-life crisis, and physiological stress. Measures of central tendency and frequency were also obtained. In addition, throughout the analyses the trait of anxiety and total amount of life changes within the last year were controlled and thus partialed out of the correlation.

Multiple regression was used to test for the relationship and degree of relationship of the independent variables and the dependent variables. Multiple regression was performed in order to determine the best model of predictors of stress during the mid-life transitional period. The probability level for statistical significance in this study was .05. The Statistical Analyses System (SAS, 1979), BMPD Statistic Software (Dixon, 1985), and SPSSX (SPSS, 1986) were used to analyze all data.
CHAPTER 4
RESULTS

INTRODUCTION

The purpose of this investigation was to determine what major social-psychological factors based on sex-role convergence theory were significantly related to physiological and psychological stress during the mid-life developmental transition. The following independent or predictor variables were examined as possible influences upon physiological and psychological stress: (a) marital satisfaction; (b) the quality of the parent-adolescent relationship; (c) emotional expressiveness; (d) interpersonal satisfaction with job; and (e) androgynous characteristics. Correlational analysis and multiple regression were used to determine significant predictors of mid-life crisis, state of anxiety, and physiological response to stress. The total amount of life changes within the last year and the psychological trait of anxiety were treated as control variables and thus partialled out of the correlation.

DATA ANALYSES

Correlational Analyses

Univariate correlational analysis was one method used to determine the nature of relationship between the variables. The correlation coefficient Pearson's $r$ expresses the degree of relationship and strength between the predictor variables and stress. Partial correlations were also implemented to control for the possible confounding
effects of two variables (i.e., the psychological trait of anxiety and the total amount of life change). A partial correlation describes the relationship between two variables while adjusting for the effects of one or more additional variables (SAS, 1982). The partialing of variables is a valid application when there is theoretical support for eliminating the impact of confounding variables. The total number of changes in an individual's life and the personality trait of anxiety may produce psychological and physiological stress unrelated to stress associated with the mid-life transition. Yet unless these sources of stress are removed there is greater difficulty in linking stress to the mid-life transition. Therefore, the partial correlation statistical procedure was used to eliminate these influences.

Pearson's $r$ unadjusted correlational analyses between the five predictor variables and the two covariates ranged from .03 to .59. (See Table 3 for the correlation matrix of the study variables.) There was a statistically significant relationship between the parent-adolescent relationship ($r = -.59$, $p < .001$) and the dependent measure of mid-life crisis. Interpersonal job satisfaction was also significantly related to mid-life crisis ($r = -.32$, $p < .05$). The relationship between androgynous characteristics and the state of anxiety was significant ($r = .34$, $p < .05$). The independent measure of marital satisfaction approached significance with the dependent measure of mid-life crisis ($r = -.24$, $p < .08$).

There were statistically significant relationships between the confounding variable, personality trait of anxiety, and the dependent measure state of anxiety ($r = .52$, $p < .001$) and mid-life crisis ($r = .32$, $p < .05$). The control variable personality trait of anxiety was significantly related to the independent variable parent-adolescent relationship ($r = -.30$, $p < .05$) and the independent measure of androgynous characteristics ($r = .40$, $p < .01$). The personality trait of anxiety approached significance with
Table 3

Correlation Matrix of the Study Variables (unadjusted)

<table>
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<th>Variable</th>
<th>1</th>
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<td>Expressiveness</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital Satisfaction</td>
<td>.287*</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent-Adolescent</td>
<td>.200</td>
<td>-.101</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Androgyny</td>
<td>-.095</td>
<td>-.271*</td>
<td>.061</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>.209</td>
<td>-.002</td>
<td>.269*</td>
<td>.014</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life Changes</td>
<td>.281*</td>
<td>.346*</td>
<td>-.020</td>
<td>-.272</td>
<td>.085</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety Trait</td>
<td>-.046</td>
<td>-.260</td>
<td>-.299*</td>
<td>.397**</td>
<td>-.200</td>
<td>-.295*</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midlife Crisis</td>
<td>-.154</td>
<td>-.238</td>
<td>-.589***</td>
<td>.137</td>
<td>-.321*</td>
<td>-.081</td>
<td>.328*</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety State</td>
<td>-.174</td>
<td>-.206</td>
<td>.026</td>
<td>.317*</td>
<td>.039</td>
<td>-.290*</td>
<td>.523***</td>
<td>.089</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Physical Stress</td>
<td>-.130</td>
<td>.239</td>
<td>.181</td>
<td>.224</td>
<td>.194</td>
<td>.245</td>
<td>.064</td>
<td>-.064</td>
<td>.157</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* p < .05 (one tail)
** p < .01
*** p < .001 (one tail)
the independent measure of marital satisfaction ($r = -0.26, p < 0.06$). The other confounding variable, total life change, was significantly related to the dependent variable state of anxiety ($r = -0.29, p < 0.05$) and approached significance with the dependent measure of the physiological response to stress ($r = 0.25, p < 0.08$). The control variable measuring the amount of life changes was significantly related to the independent measures of marital satisfaction ($r = -0.35, p < 0.05$), expressiveness ($r = 0.28, p < 0.05$) and androgyny ($r = -0.27, p < 0.05$). The two confounding variables total amount of life change and the trait of anxiety approached significance ($r = -0.29, p < 0.08$).

The Pearson's $r$ correlational analyses were also used to determine the interrelationship between and among the three dependent measures of stress. The relationship between mid-life crisis and the physiological response ($r = -0.06, p > 0.20$) was not significant. The relationship between mid-life crisis and the state of anxiety was not significant ($r = 0.09, p > 0.20$) and the relationship between the state of anxiety and the physiological response to stress was not significant ($r = 0.16, p < 0.18$).

The adjusted correlations between the predictor variables and the dependent measures ranged from .00 to .55. (See Table 4 for the adjusted correlational matrix of the investigational variables.) The total amount of life change (within the past year) and the personality trait of anxiety were considered as confounding variables throughout the analyses. Total life change and the personality trait of anxiety explained 11 percent of the variation in mid-life crises; 29 percent of the variation in state of anxiety; and eight percent of the variation in the physiological response to stress.

Partiallying out the linear effects due to total life change and the personality trait of anxiety, mid-life crisis and self-expression were not significantly correlated ($r = -0.16, p < 0.19$). Two percent of the variation in the dependent variable, mid-life
Table 4

*Adjusted Correlation Matrix of the Investigational Variables*

<table>
<thead>
<tr>
<th></th>
<th>Expressiveness</th>
<th>Marital Satisfaction</th>
<th>Parent-Adolescent Relationship</th>
<th>Interpersonal Job Satisfaction</th>
<th>Androgyny</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-Life Crisis</td>
<td>-.157</td>
<td>-.184</td>
<td>-.551**</td>
<td>-.280*</td>
<td>.00</td>
</tr>
<tr>
<td>Physiological Response to Stress</td>
<td>-.229</td>
<td>.206</td>
<td>.260</td>
<td>.200</td>
<td>.30</td>
</tr>
<tr>
<td>State of Anxiety</td>
<td>-.137</td>
<td>-.039</td>
<td>.210</td>
<td>-.144</td>
<td>.12</td>
</tr>
</tbody>
</table>

* * p < .05 (one tail)
** * p < .001 (one tail)
crisis, was explained when the variable self-expression was added. Total amount of life change and the personality trait of anxiety explained eight percent of the variation in the physiological response to stress. Five percent of the variation in the dependent variable, physiological response to stress was explained when self-expression was added. Partialing out the linear effects due to total life change and the personality trait of anxiety, self-expression and the physiological response to stress were not significantly correlated (r_{PS/T} = -.23, p < .10). The two confounders, total life change and personality trait of anxiety, explained 29 percent of the variation in state of anxiety. Two percent of the variation in the dependent variable, personality trait of anxiety was explained when self-expression was added. Partialing out the linear effects due to total life change and personality trait of anxiety, self-expression and state of anxiety were not significantly correlated (r_{SA/T} = -.14, p > .20).

When total amount of life change and the personality trait of anxiety were considered as confounding variables only three percent of the variance in the dependent variable, mid-life crisis was explained when marital satisfaction was added. Partialing out the linear effects of total life change and the personality trait of anxiety, mid-life crisis and marital satisfaction were not significantly correlated (r_{ML/T} = -.18, p < .15). Four percent of the variation in the dependent variable physiological response to stress was explained when marital satisfaction was added. Partialing out the linear effects due to total life change and the personality trait of anxiety, the physiological response to stress and marital satisfaction were not significantly correlated (r_{PS/T} = .21, p < .12).

Partialing out the linear effects of the two confounding variables, state of anxiety and marital satisfaction are not significantly correlated (r_{SA/T} = -.04, p > .20). Less than one percent of the variation in the dependent variable, state of anxiety, was explained by marital satisfaction.
Partialing out the linear effects of total life change and the personality trait of anxiety, mid-life crisis and the parent adolescent relationship were significantly correlated \( r_{ML/TT} = -0.55, p < .001 \). Twenty-seven percent of the variation of the dependent variable, mid-life crisis, was explained by the parent-adolescent relationship.

Six percent of the variation of the dependent measure, physiological response to stress was explained by the quality of the parent-adolescent relationship. Partialing out the linear effects due to total life change and the personality trait of anxiety, the physiological response to stress and parent-adolescent relationship approached statistical significance \( r_{PS/TT} = .26, p < .07 \).

Only 3 percent of the variation of the dependent variable, state of anxiety, was explained by the quality of the parent-adolescent relationship. Partialing out the linear effects of total life change and personality trait of anxiety, the state of anxiety and parent-adolescent relationship were not significantly correlated \( r_{SA/TT} = .21, p < .12 \).

The two confounding variables were considered with the relationship between mid-life crisis and androgynous characteristics. Partialing out the linear effects of total life change and the personality trait of anxiety, androgynous characteristics and the dependent variable, mid-life crisis were not significantly correlated \( r_{ML/TT} = .00, p > .20 \). No variation was explained by androgynous characteristics.

Partialing out the linear effects of the two confounding variables, androgyny was not significantly related to the state of anxiety \( r_{SA/TT} = .12, p > .20 \) Only one percent of the variation in the dependent measure, state of anxiety was explained by the addition of androgyny.

Twice as much variation in the dependent variable, the physiological response to stress was explained by the variable androgyny. Partialing out the linear effects of
the two confounding variables, androgynous characteristics and the physiological response to stress were significantly related \((r_{PS/TT} = .30, p < .05)\).

The total amount of life changes and the personality trait of anxiety were also treated as confounding variables when determining the relationship between interpersonal job satisfaction and mid-life crisis. Partialing out the linear effects of these two variables, only five percent of the variation in the dependent variable, mid-life crisis, was explained by interpersonal job satisfaction. The relationship between interpersonal job satisfaction and mid-life crisis was significantly correlated \((r_{ML/TT} = -.28, p < .05)\).

Partialing out the linear effects of total life changes and personality trait of anxiety the relationship between interpersonal job satisfaction and the state of anxiety was not significantly correlated \((r_{ST/TT} = -.14, p < .14)\). Partialing out the linear effects of the confounding variables, the relationship between interpersonal job satisfaction and the physiological response to stress was not significantly related \((r_{PS/TT} = .20, p < .13)\). Only three percent of the variation in the dependent measure, the physiological response to stress, was explained by interpersonal job satisfaction. Only one percent of the variation in the dependent variable, state of anxiety, was explained by interpersonal job satisfaction.

**Multiple Regression Analysis**

Multiple regression analysis was the statistical method used to assess the predictive ability of the independent variables parent-adolescent relationship, marital satisfaction, and interpersonal job satisfaction as a group, in regard to the dependent variable mid-life crisis (See Table 5). These independent and dependent variables were included in the analysis, based on the adjusted correlational findings. Thus the indiscriminant use of variables in various analyses helps to minimize the risk of commit-
ting a Type I error (i.e., rejecting the null hypothesis when it is true.

The multiple regression procedure provides predictive equations for various groups of variables as well as for the total group. The coefficient of multiple correlation $R^2$ is the index of the accuracy of the prediction equation. In a multiple regression prediction equation, the numbers that precede each of the predictor variables are called the regression coefficients. These numbers are typically converted to a scale that is equal for all predictor variables, i.e., beta weights or the regression coefficients that would have been obtained if the predictor variables were equal to each other in terms of means and standard deviations (Huck, Cormier, & Bounds, 1974).

The multiple regression equation was manipulated to control for the confounding variables, total life change and personality trait of anxiety. Controlling for the linear effects of the confounding variables, the quality of the relationship of the parent-adolescent, marital satisfaction, and interpersonal job explained 34 percent of the variation of in mid-life crises. The parent-adolescent relationship explained 27 percent of the variation in mid-life crisis, followed by marital satisfaction (7 percent) and interpersonal job satisfaction (6 percent). The parent-adolescent relationship ($F = 17.60, p < .001$) and marital satisfaction ($F = 4.05, p < .05$) were both significant predictors in the multiple regression equation. In the multiple regression equation, interpersonal job satisfaction ($F = .92, p < .18$) was not a significant predictor of mid-life crisis.
Table 5

Regression of Mid-Life Crisis on Parent-Adolescent Relationship, Marital Satisfaction, and Interpersonal Job Satisfaction—Partialing out the effects of Total Life Change and Trait of Anxiety.

<table>
<thead>
<tr>
<th>Variables</th>
<th>b</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Life Change</td>
<td>.01893</td>
<td>.01</td>
</tr>
<tr>
<td>Trait of Anxiety</td>
<td>.30563</td>
<td>3.70*</td>
</tr>
<tr>
<td>(constant)</td>
<td>26.07901</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{R}^2 = .107 \]
\[ \text{F} = 1.97 \]
\[ p < .16 \]
\[ *p < .05 \text{ (one tail)} \]

<table>
<thead>
<tr>
<th>Variables</th>
<th>b</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Life Change</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>Trait of Anxiety</td>
<td>-----</td>
<td>----</td>
</tr>
<tr>
<td>Interpersonal Job Satisfaction</td>
<td>-.50609</td>
<td>.92</td>
</tr>
<tr>
<td>Marital Satisfaction</td>
<td>-.07565</td>
<td>4.03*</td>
</tr>
<tr>
<td>Parent-Adolescent Relationship</td>
<td>-.33813</td>
<td>14.28**</td>
</tr>
<tr>
<td>(constant)</td>
<td>74.68238</td>
<td></td>
</tr>
</tbody>
</table>

\[ \text{R}^2 = .466 \]
\[ \text{F} = 5.23 \]
\[ p < .001 \]
\[ *p < .05 \text{ (one tail)} \]
\[ **p < .001 \text{ (one tail)} \]
TESTING OF HYPOTHESES

The aforementioned correlational analyses provide findings related to the following hypotheses:

_Hypothesis One:_ The quality of the parent-child relationship is not related to (a) the state of anxiety, (b) mid-life crisis, and (c) physiological response to stress.

The adjusted correlation between the quality of the parent-adolescent relationship and the state of anxiety was \( r = .21 \) \((p < .12)\) thus the null hypothesis was accepted. The quality of the parent-adolescent relationship was not related to state of anxiety at mid-life.

The adjusted correlation between the quality of the parent-adolescent relationship and mid-life crisis was \( r = -.55 \) \((p < .001)\) thus the null hypothesis was rejected. The quality of the parent-child relationship was negatively related to mid-life crisis.

The adjusted correlation between the quality of the parent-adolescent relationship and the physiological response to stress was \( r = .26 \) \((p < .07)\) thus the null hypothesis was accepted. The quality of the parent adolescent relationship was not related to the physiological response to stress at mid-life.

_Hypothesis Two:_ Marital satisfaction is not related to (a) anxiety, (b) mid-life crisis, and (c) physiological stress.

The adjusted correlation between marital satisfaction and state of anxiety was \( r = -.04 \) \((p > .20)\) thus the null hypothesis was accepted. Marital satisfaction was not related to state of anxiety at mid-life.

The adjusted correlation between marital satisfaction and mid-life crisis was \( r = -.18 \) \((p < .15)\) thus the null hypothesis was accepted. Marital satisfaction was not related to mid-life crisis.
The adjusted correlation of marital satisfaction and the physiological response to stress was $r = .21$ ($p < .12$) thus the null hypothesis was accepted. Marital satisfaction was not related to a physiological response to stress at mid-life.

**Hypothesis Three:** Emotional expressiveness is not related to (a) anxiety, (b) mid-life crisis, and (c) physiological stress.

The adjusted correlation between emotional expressiveness and state of anxiety was $r = - .14$ ($p > .20$) thus the null hypothesis was accepted. Emotional expressiveness was not related to state of anxiety at mid-life.

The adjusted correlation between emotional expressiveness and mid-life crisis was $r = -.16$ ($p < .19$) thus the null hypothesis was accepted. Emotional expressiveness was not related to mid-life crisis.

The adjusted correlation between emotional expressiveness and the physiological response to stress was $r = -.23$ ($p < .10$) thus the null hypothesis was accepted. Emotional expressiveness was not related to physiological response to stress at mid-life.

**Hypothesis Four:** Interpersonal job satisfaction not related to (a) anxiety, (b) mid-life crisis, and (c) physiological stress.

The adjusted correlation between interpersonal job satisfaction and the state of anxiety was $r = - .14$ ($p < .14$) thus the null hypothesis was accepted. The interpersonal job satisfaction was not related to state of anxiety at mid-life.

The adjusted correlation between interpersonal job satisfaction and mid-life crisis was $r = -.28$ ($p < .05$) thus the null hypothesis was rejected. Interpersonal job satisfaction was negatively related to mid-life crisis.

The adjusted correlation between interpersonal job satisfaction and the physiological response to stress was $r = .20$ ($p < .14$) thus the null hypothesis was accepted. There is no relationship between interpersonal job satisfaction and a physiological response to stress at mid-life.
Hypothosis Five: Androgynous characteristics are not related to (a) anxiety, (b) mid-life crisis, and (c) physiological stress.

The adjusted correlation between androgynous characteristics and the state of anxiety was \( r = .12 \) (\( p > .20 \)) thus the null hypothesis was accepted. There was no relationship between androgynous characteristics and state of anxiety at mid-life.

The adjusted correlation between androgynous characteristics and mid-life crisis was \( r = .00 \) (\( p > .20 \)) thus the null hypothesis was accepted. There was no relationship between androgynous characteristics and mid-life crisis.

The adjusted correlation between androgynous characteristics and the physiological response to stress was \( r = .30 \) (\( p < .05 \)) thus the null hypothesis was accepted. There was a positive relationship between androgynous characteristics and the physiological response to stress at mid-life.

Hypothosis Six: There is no interrelationship between and among the three dependent measures of stress, i.e., anxiety, mid-life crisis, and physiological stress.

The correlation coefficient was \( r = - .06 \) (\( p > .20 \)) for the relationship between physiological response to stress and mid-life crisis. The correlation coefficient was \( r = .09 \) (\( p > .20 \)) for the relationship between mid-life crisis and state of anxiety. The correlation coefficient was \( r = .16 \) (\( p < .18 \)) for the relationship between state of anxiety and the physiological response to stress. Thus the null hypothesis was accepted. There is no interrelationship between and among the three dependent measures of stress.

Hypothosis Seven: There is no combination of variables related to mid-life crisis.

The regression effects of the parent adolescent relationship, marital satisfaction, and interpersonal job satisfaction on the dependent measure mid-life crisis was \( (F = 9.48, p < .001) \) thus the null hypothesis was rejected. The parent-adolescent rela-
tionship, marital satisfaction, and interpersonal job satisfaction are negatively related to mid-life crisis.

**SUMMARY**

Correlational analyses, Pearson's $r$ and multiple regression, were used to determine psychological correlates or predictors of physiological stress during the mid-life transition period. Throughout the analyses, total life change and the psychological trait of anxiety were treated as confounding variables and were statistically partialed out. Pearson's $r$ analyses revealed that the parent-adolescent relationship and interpersonal job satisfaction were significant and negatively related to mid-life crisis. Androgynous characteristics were significant, but positively related to the physiological response to stress, thus the null hypothesis was accepted. In addition, Pearson's $r$ analyses also revealed that the relationship between the independent measure of the parent-adolescent relationship and the physiological response to stress approached significance, but again the relationship was in a positive direction. Using the three variables most predictive of stress associated with the mid-life transition, the multiple regression equation was statistically significant. Thirty-five percent of the variation in mid-life crisis was explained by marital satisfaction, the quality of the parent-adolescent relationship, and interpersonal job satisfaction.

Initially the Pearson's $r$ analyses indicated that two null hypotheses were to be rejected. It was concluded that (a) the parent-adolescent relationship was negatively and significantly related to the mid-life crisis; and (b) interpersonal job satisfaction was negatively and significantly related to mid-life crisis.

The multiple regression analyses indicated that the parent-adolescent relationship and marital satisfaction were the most predictive of mid-life crisis. Interpersonal job
satisfaction was not statistically significant and added little explanation to the variation in mid-life crisis. However, the overall predictive ability of the three variables was significant. Statistical analyses supports the importance of the quality of the father-adolescent relationship and marital satisfaction during the middle years in relationship to psychological stress.
SUMMARY OF FINDINGS

Thirty-seven professional men aged 39 to 50 were surveyed to determine factors related to psychological and physiological stress associated with the male mid-life transition. It was hypothesized that men at mid-life may be experiencing stress that could be measured physiologically and psychologically. In extreme cases, this stress might precipitate a mid-life crisis. It was hypothesized that specific variables (expressiveness, marital satisfaction, androgyny, parent-adolescent relationship, and interpersonal job satisfaction) would be significantly correlated with stress. Information was gathered via questionnaire which included demographic, psychological and sociological questions. In addition, a blood serum sample was drawn.

The Pearson's $r$ correlation indicated that the quality of the parent-adolescent relationship and interpersonal job satisfaction were significant predictors of psychological stress. The multiple regression analysis demonstrated that the parent-adolescent relationship, marital satisfaction, and interpersonal satisfaction explained 34 percent of the variation in mid-life crisis. Marital satisfaction explained 8 percent of the variation in the dependent measure, and interpersonal job satisfaction explained approximately 2 percent of the variation in mid-life crisis. In fact, the parent-adolescent relationship and marital satisfaction were both significant predictors of mid-life crisis whereas interpersonal job satisfaction was not. In the multiple regression analyses,
the effect of marital satisfaction was made more certain, for the possibility of distorting influences from the other independent variables were removed. Thus, in the multiple regression analyses marital satisfaction appears to be a better predictor of mid-life crisis than interpersonal job satisfaction.

It is interesting to note that there is a positive linear relationship between the dependent measure, physiological response to stress and the four independent measures, marital satisfaction, parent-adolescent relationship, interpersonal job satisfaction, and androgyny. This positive linear relationship is in direct opposition to the proposed hypotheses. In addition the three dependent measures of stress: state of anxiety, mid-life crisis, and the physiological response to stress were not significantly related. Throughout all the analyses the total amount of life changes and the personality trait of anxiety were treated as control variables and thus were partialed out.

DISCUSSION AND RECOMMENDATIONS

The multiple regression analyses indicated that the quality of the parent-adolescent relationship and marital satisfaction were the most important variables in predicting mid-life crisis. The parent-adolescent relationship and marital satisfaction explained 32 percent of the variation in mid-life crisis. Thus, these independent measures were only moderate predictors of mid-life crisis.

Many explanations for this moderate predictive relationship can be proposed. The long-held theory of sex-role convergence indicates that family, marital, and interpersonal relationships become very salient for men at mid-life. Marriage and relationships with children are probably the most salient interpersonal relationship for most men and women. Marriage is typically the strongest and most intimate relationship experienced by men (McKenry & Arnold, 1986; Tamir, 1982). Rosenberg and Farrell
(1981) point out that a man's relationship to his children is highly related to personal well-being during middle-age. Much research indicates that marital and family relationships are strongly related to life satisfaction among middle-aged men (Levinson, 1977; Tamir, 1982).

The results of this study support the view that satisfaction of males at mid-life is more closely related to interpersonal factors (including men's relationships with their children) (McKenry & Arnold, 1986) than occupational success or other traditional predictors of male mid-life satisfaction (Campbell et al., 1976). In this study of men at mid-life, the majority of the men (86.5%) reported that they had close to very close relationships with their children. No subject characterized his parent-adolescent relationship as distant or far apart. In general, the men in this study felt that their parent-adolescent relationships were good. Most of the men in this study appeared to be involved in long-term stable and happy marriages and were engaged in stimulating, successful careers. For example, in this study, the marital satisfaction mean score was 147. This value is above that point on the continuum (128) where spousal relationships are at the expected level. Any score above this mid-point value would indicate a happier marriage (Sabatelli, 1984). While there was no direct measure of life satisfaction in this study, these men rated their lives positively on a number of dimensions.

However, research indicates that the parent-adolescent relationship is an important element of the mid-life crisis. Other researchers have come to the same conclusion; i.e., even though the parent-adolescent relationship is viewed as good it may still be trying (Gould, 1972; Levinson, 1976). In fact, Rosenberg and Farrell (1981) argue that the changing relationship between the father and children may act as a precipitant for the transition period in men. In their study of men at mid-life, the father
role contributed to the turmoil men experienced during the middle years. For example, Rosenberg and Farrell noted that men were having difficulty with loss of control over their adolescent children. Some men were jealous of the opportunities that were available to their children, but were lost to them as middle-aged adults. Other individuals tended to live vicariously through their children, giving them wanted and unwanted guidance to ensure that their adolescents were following what they defined at the correct life path. Levinson (1978) notes that the middle-aged father begins to envy his youthful offspring, especially in terms of their strength, their energy, and their multiple options for living.

Adolescence is a time when children begin the developmental task of achieving identity and independence from the family of origin. The problems with which the adolescent must cope, including sexuality and the search for personal identity may raise the very same conflicts within the middle-aged father (Vaillant, 1977). At this time children are preparing to leave home, may challenge authority, and in general are more difficult. This loss of authority and power may be difficult for some men to accept and may negatively effect the parent-adolescent relationship (Brim, 1976). It is likely that these factors impact middle-aged men in a variety of ways. They may contribute to ineffective parent-adolescent communication, signify aging in the male, or in some cases precipitate a mid-life crisis.

Cohort and socioeconomic influences also need to be considered when attempting to understand parent-adolescent relationships. The men in this study may belong to a cohort in which wives are typically the dominant caregivers during their children's youth. The men may truly feel close to their children, but yet may have never had the opportunity and/or the knowledge base to effectively communicate with them. Also, in recent years society has begun to realize the importance of the father's role
in nurturing and providing care for his children. However, many men may lack the experience to effectively carry out the behaviors associated with this role. It is clear that the parent-adolescent relationship has a dramatic impact on mid-life crisis. Indeed, in this study it was the most significant predictor of mid-life crisis.

Similarly, marital satisfaction was a weaker, but statistically significant predictor of mid-life crisis. In general, these men were in stable, long-term marriages. These men belong to a cohort that expect the male to be heavily invested in a career and assume the that their primary family role is that of "good provider" whereas the wife assumes the primary responsibilities for meeting the emotional needs of the family (Cohen, 1976).

Brim (1976) states that the transition to middle age involves a renegotiation between marital partners concerning their roles in the relationship. The outcome of this negotiation appears to be pivotal to the well-being of men at middle-age. Tamir (1982) found that the general happiness and life satisfaction of men in their forties were strongly related to marital happiness. Thurman (1976) claims that positive feelings toward the spouse are directly related to life satisfaction among middle-aged men. Most recent research indicates that mid-life can be a period of increasing marital satisfaction (Cohen, 1979; Skolnick, 1971). It is apparent, based on current research that the marital relationship has a strong bearing on the well-being of men at mid-life. Therefore, it is no surprise that marital satisfaction was significantly related to mid-life crisis among the men in this study.

Often men report marital dissatisfaction during the mid-life transition. This decline in marital satisfaction may be related to the increased introspection of men, changes in the parental role, or sex-role convergence. The increased introspection of men at mid-life has been well documented (Brim, 1976; Clausen, 1972; Neugarten,
1968; Rosenberg & Farrell, 1981). Neugarten coined the term "interiority" to refer to this turning inward for the process of self assessment.

The status of middle-aged marriage has been investigated in recent years. Kerchoff (1976) summarizes previous findings as indicating that middle age marriages are either very good or characterized by increased discontent. However, Kerchoff observes that marriages defined as good may be simply marriages characterized by little overt discord. Lowenthal et al. (1975) have isolated several marital problems that appear to be more acute at middle age. Tamir (1982) hypothesizes that these findings may be accounted for in part because the male subjects were in the midst of the mid-life transition. In fact, it may be that marriage becomes more important for men at mid-life that it is for women (Gutmann, 1975). Theory supports the hypothesized relationship between marital satisfaction and mid-life crisis. The results of this study lend some additional support to this notion.

Changes in the parental role may also impact marital satisfaction. In Rosenberg and Farrell's (1981) study it was noted that one of the major "shifts" that alter the marital relationship is the loss of control over adolescent children. In this study, it was apparent that some men at mid-life were having difficulty with the parent-adolescent relationship. Yet most indicated that they felt close to their children. Tamir (1982) claims that middle-aged spouses must shift their focus from their children to their own relationships. This shift can precipitate tension since children are not available to act as buffers.

In addition, there may be some difficulty between couples as the men take on more androgynous characteristics. One can speculate that this period of increased introspection and the femininization of behaviors diminishes the quality of interpersonal relationships of men with their family. This is consistent with sex-role conver-
gence theory. The men in this study, as well as middle-aged men in general, look toward their families in order to meet their intimacy needs. This move toward the family appears to influence marital satisfaction. It is possible that this change in role behavior may lead to some disruption in the marital relationship. However, among the subjects in this study, marital discord may have been minimized because of marital stability and the availability of other social and financial resources. The move toward the family for intimacy needs may have a more dramatic impact on the parent-adolescent relationship. It is possible that some fathers might attempt to meet generativity needs as well as intimacy needs during middle age. Generativity needs are often associated with the mentor role. The attempt to act as a mentor or guide to an adolescent child is likely to be met with resistance.

Theory predicts that the quality of familial relationships is strongly related to mid-life transition. The results of this study support these hypothesized relationships. Parent-adolescent relationship was the strongest predictor of mid-life crisis. Marital satisfaction was a weaker but still statistically significant predictor of mid-life crisis.

In contrast to marital satisfaction and quality of the parent-adolescent relationship, male sex-role behaviors were not significantly related to mid-life crisis. Using the BEM scale, the men in this study were categorized in the following sex-roles: (a) masculine (40.5 percent); (b) androgynous (35.1 percent); (c) undifferentiated (18.9 percent); and (d) feminine (5.4 percent). The data suggest that it does not matter whether the men were androgynous or not in explaining the variation in the dependent measure, mid-life crisis. The age (X = 44.9) of the men in this sample was relatively young. These men may have been very far along in a sex-role transition; i.e., changing behaviors and attitudes associated with mid-life and may not yet have integrated them into their personality structure. Moreland (1980) likens the mid-life
transition to adolescence, in that both are unstable periods. Perhaps, with age, androgy­
nous behaviors will become a more dominant feature in the personalities of the men in this study. If such is the case, sex-role behaviors may be more likely to be sig­
nificantly related to mid-life crisis.

Similarly, there was no significant relationship between emotional expressiveness and mid-life crisis. Again this was contrary to what was hypothesized. The internal validity of the scale which measured self-expression may have been a contributing factor. Most of the subjects were very inconsistent in their responses to the subs­
ccales. The Cronbach alpha reliability for Balswick's Expression of Emotion scale uti­
lized in this study was .46. The following scores represent the alpha reliability for the individual subscales: (a) Love scale .31; (b) Hate Scale .12; (c) Sad scale -.38; and (d) Happy scale .06. Balswick (1982) states that self disclosure is very complex and difficult to assess. Various factors such as the time frame of the disclosure, the target of the disclosure, race, and sex all influence this behavior. Balswick (1982) has also indicated that more testing of this scale is necessary to determine if there are cohort differences. It is therefore proposed that the emotional expressiveness of men at mid-
life may need to be measured in another manner.

The lack of reliability of this instrument in this study may have been the result of a cohort phenomenon. Many of the men who were tested may have felt limited in the range of emotions they felt they could express. On the other hand, the low reliability of Expression of Emotion scale may have been the result that many of the men in this study were experiencing the transitional period at mid-life. The transitional period is a time when men are acutely aware of their internal feel­
ings and are cautious about reporting those feelings. Thus, these men may have been reluctant to express their true feeling on a paper and pencil test, resulting in the observed low reliability.
Interpersonal job satisfaction was another variable used to measure mid-life crisis. In the multiple regression analyses, interpersonal job satisfaction was not significantly related to mid-life crisis when controlling for marital satisfaction and the parent-adolescent relationship. In this study, the majority of the professional workers valued the importance of using their abilities and having the opportunity to be creative at work. Working with others was the next most valued work related expectation. Extrinsic job related rewards were the least important to these professional men contrary to much life satisfaction literature (Campbell et al., 1979). The vast majority of these men felt that their work place offered the opportunity to meet their valued needs. Overall, these men had a high level of job satisfaction. All were employed in positions that allowed for a relative high level of control over their career paths. With respect to their jobs these men had far more autonomy then men in many other professional positions. These factors may have minimized the impact of interpersonal job satisfaction on mid-life transition.

It becomes very difficult to interpret what is happening to men at mid-life as they reassess their interpersonal needs. In Vaillant's (1977) study, men in their thirties were very focused on their work and climbing the career ladder. However, as men approached their forties, they tended to concentrate more on their intimacy needs versus their careers. Tamir (1982), however, found that men in their forties were highly invested in their careers, although job satisfaction did not increase psychological well-being. In Rosenberg and Farrell's (1981) study, career factors were less important to men than the family. The family becomes the "emotional center of the man's universe." It may be that the subjects in this study were similar to the men in Rosenberg & Farrell's study and to the men in Tamir's study. In both studies the husband and parental role impacted emotional well-being more than the work role.
It must also be noted that more reliable measures of interpersonal job factors may need to be created and employed. The Cronbach alpha reliability for the Rosenberg's Job Value scale was .56, a relatively low correlation. Researchers have only begun to modify job satisfaction instrumentation in light of changes in men's roles.

Among this population, job satisfaction, expressiveness, and sex-role behavior were not predictive of mid-life crisis. As indicated previously, the interpersonal relationship of middle-aged men (i.e., with wives and children) was more critical to well-being. This information would suggest that there may be other intervening variables that might be more predictive of the difficulty that some men experience at mid-life. Stress at mid-life and the mid-life crisis may be related to individual differences, i.e., dreams, aspirations, abilities, and luck. In addition, insight, introspection, adaptation, coping skills, and support systems may influence men during the middle years. The men in this sample were affluent, successful achievers in stable marriages, and in work roles that generally facilitated their abilities and creativity. These men also appeared to be highly motivated to gain insight into their behavior as indicated by their choice to participate in this study. Because of these factors, these men may have been less likely to experience mid-life crisis than a less affluent or less educated sample of men.

In this study of men at mid-life, the independent measures (marital satisfaction, interpersonal job satisfaction, expressiveness, androgyny, and parent-adolescent relationship) were selected based on previous findings and sex-role convergence theory. These variables were selected because it was thought that they might be related to stress during the mid-life transition. It is interesting to note that these independent measures were not significantly related to a second dependent measure of stress, state of anxiety. This may have been a result of male sex-role socialization or the nature of
the subjects. These men may not have expressed or reported anxious behavior, even in bad situations. The subjects in this study may have been taught to handle an anxiety-producing situation in a controlled manner by arriving at a solution in a very logical and orderly way. In Vaillant's (1977) Harvard Grant study, the most "successful" men utilized such coping mechanisms in stressful situations. On the other hand, these men may not have been anxious at all. They may have been dealing with developmental-transitional issues in an effective and efficient manner that did not produce anxiety.

Also, the state of anxiety may not be measurable in a one-time, paper and pencil questionnaire procedure. Determining state of anxiety may best be accomplished by placing an individual in a stressful situation "immediately" before the completion of an anxiety measuring scale. Also, a clinical interview procedure might provide a more valid means of investigating an individual's state of anxiety. Neither of these procedures was employed in this study of men at mid-life.

Some degree of psychological stress, as measured by the mid-life crisis scale, was associated with the mid-life transition among the subjects who participated in this study. However, the amount of psychological stress as measured in this study did appear to be sufficient enough to cause a physiological response as measured by testosterone levels. In the past, the traditional male role and the lack of nurturant and intimate behaviors were viewed as a critical intervening variable between life stress and successful adaptation (Cohen, 1975). The traditional male role is not likely to impart the skills necessary to cope with stress. Therefore, traditional males are felt to be at risk for high levels of stress. Because men are not socialized to be nurturant or accepting of failure, they are thought to be at a disadvantage when dealing with the stressors of mid-life.
Contradictory to this point of view, the men in this study who had more feminine characteristics appeared to be at risk for a physiological response to stress. These men had lower levels of testosterone than their more traditional counterparts. It could be that the more feminine men recently added or were in the process of adding new behaviors to their behavioral repertoire that created a degree of discomfort. The fact that androgynous behaviors and marital satisfaction were negatively correlated, adds credence to this point of view. Perhaps, wives were having difficulty with the sex-role convergence of their husbands as they experience middle age. Further research will need to be done to address this issue.

Based on this study, there is evidence to suggest that the mid-life transition was not related to physiological stress of the male participants. The fact that only two moderately predictive independent variables were related to psychological stress and that no variables were significantly related to physiological stress, may attest to the coping skills and adaptability of these men. For these men, the mid-life transition may be a time of increased introspectiveness and a heightened period of focusing on oneself, but only to the point of facilitating positive growth and development. This is in contrast to those men at mid-life whose lack of appropriate introspection and coping skills may lead to chronic stress. For such men stress could be manifested in the form of denial, alcoholism, drug abuse, psychosomatic illnesses, divorce, and/or suicide.

However, it may be that testosterone was not an appropriate measure of stress for the men in this study. In fact, the testosterone levels of these men appeared to be a marker for something other than stress. It may be that the testosterone levels of the men in this study were more of a measure of aggression. There is some evidence to suggest an association between sex hormones (testosterone) and aggression in
animals (Maccoby & Jacklin, 1974; Money & Ehrhardt, 1972). Also, there is no reason to believe that stress levels were high for the subjects in this study. Thus, the lack of relationship between the independent variables and testosterone is not surprising.

Perhaps, men with fewer coping skills and resources might exhibit more psychological stress during the mid-life transition and testosterone would serve as an appropriate measure. These questions must be examined in further research.

**RECOMMENDATIONS FOR FURTHER RESEARCH**

In general, this study distinguishes itself from previous studies by being more purposive in the selection of the sample and more theoretically based. Another unique element of this study is the use of a physiological measure of stress and an attempt to correlate it with psychological measures. The results of this study suggest the following recommendations with regard to further research in this area.

(1) Because men tend to be more emotionally reserved it would be beneficial to include an interview of the spouse and adolescent child in the study design. An interesting comparison may exist with respect to the father's, mother's, and adolescent's, perception of family relationships. This interview could provide the data for explaining the quality of the parent-adolescent relationship and its impact on male mid-life crisis. It would also provide information related to the quality of the marital relationship and its influence on men's behavior during the middle years. In addition, interaction effects of the marital relationship and the parent-adolescent relationship might be assessed. Adolescent relationships may contribute substantially to marital satisfaction.
(2) The limitations of this study indicate that it should be replicated by collecting data from a diverse group of men (e.g., race, socioeconomical status) who are near the age of the mid-life transition—approaching it, in the midst of it, or recently through it. Kimmel (1980) claims that the mid-life transition describes only white, middle class professionals who live traditional lifestyles. Therefore, it is important to gather data concerning men at mid-life who have delayed child-bearing, remained childless, remained single, and/or remarried. It might also be instructive to isolate and collect data on men who have been identified as suffering from mid-life crisis. This would permit a closer examination of the differences between this group and men who have dealt with this transition more traumatically. Accomplishing this task would increase the generalizability of the findings and lead to further theoretical development.

Another reason to replicate this study is to incorporate other biological measures of stress. This would be one way to test the validity of testosterone as a measure of stress. Replication of the study would provide an opportunity to test a larger, more rigidly control sample. A larger number of subjects would enable separate analyses to be performed for various subgroups within the sample. For example, androgynous men could be compared to more traditional men to determine if different configurations of preselected variables emerge for these two subgroups. Replication of this study might lead to the development of stronger instrumentation. The development of an instrument that more accurately assesses the importance of interpersonal needs of men in the work setting must be explored. In addition, a measurement that reflects both verbal and non-verbal components of expressiveness should be developed to aid in the assessment of emotional expressiveness of men at mid-life.
(3) It is important to utilize more cross-sequential research designs in studying men and the mid-life transition. Because public awareness of mid-life crisis has increase considerably over the last decade, and there are larger numbers of men entering middle-age; more cross-sequential research designs should be implemented. Stress and coping behaviors may differ from one cohort to another. The cross-sequential design will enable information to be collected over a longer span of time and across cohorts. This may help researchers understand the parent-adolescent relationship during the pre-teen years, during the launching phase of the adolescent from the home, as well as during the adolescent years. Such a design would provide information concerning how the parent-adolescent relationship develops and changes over time.

The cross sequential design will also allow for the measurement of testosterone levels at intervals across time. A pattern of testosterone levels might be discernible over time and vary consistantly with the five independent variables (marital satisfaction, interpersonal job satisfaction, androgyny, and expressiveness). This would provide data that would increasingly suggest causal relationships among dependent and independent variables in this research. These data could then be used in model construction to determine interaction relationships among a host of variables.

IMPLICATIONS FOR FAMILY PRACTITIONERS

The following implications may be derived from this study for those who provide medical, social, and psychological services to men and their families.

(1) To the extent that these data support the theory of sex-role convergence at mid-life, it can be hypothesized that males may be negatively affected by the traditional practices associated with the male sex-role. The acceptance of androgynous behaviors early in life may enable males to cope with life's transitions in a more
positive manner. In order to encourage men to enjoy a variety of roles: (a) men need to realize that they may experience various degrees of failure as they assume unfamiliar roles; (b) women might try to understand the complex changes that men experience and help them become less emeshed in the traditional male role; (c) couples might reevaluate their sexual lives to determine if the traditional male sex role is interfering with intimacy; and (d) women might share family tasks and at the same time tolerate their husbands inefficiencies. Society in general needs to accept that fact that taking care of children is not just a woman's function and that creating more symmetrical family roles in order to develop interdependent family systems is a healthy step forward. In addition, professionals must be aware of their own values and not limit the development of the individual based on gender.

(2) Practitioners need to be more politically supportive of these sex-role changes. For example, societal expectations are strongly in favor of traditional sex-role behaviors. Berger (1979) notes that men who invest more of their energies in their families increasingly find themselves meeting resistance or opposition from their colleagues and from work. Nurturant men run the risk of being considered deviant or effeminate by family, friends, acquaintances, and society. Miller (1976) contends that if we as a community value children, then we must promote social and economical changes that are more conducive to effective child rearing. Such changes might include shared childcare responsibility, paternity leaves, and institutional commitment to support working parents.

(3) Practitioners and therapists should continue to promote social skills and competence among clients who are dealing with transitional periods in their lives. The men in this study, even those who exhibited traditional masculine behaviors, appeared to deal effectively with the mid-life transition, perhaps because of their skills and the resources available to them.
(4) Addressing the educational needs of men in preparing for fatherhood and family life must be a priority. Men who communicate more effectively with their adolescent children experience less stress during the mid-life transition.

In general, educating parents about how to communicate effectively with their children is very important. Providing them with information concerning the developmental processes adolescent children are going through would aid in decreasing the barriers that often exist between parents and their children. It is also important to assist couples to communicate effectively with one another. Both men and women experience sex-role convergence during mid-life. Counseling and education might help them accept and adapt to the new behaviors associated with sex-role convergence. Formal classes and the therapeutic relationship are effective means of achieving these goals. As demonstrated in this study, marital and parent-adolescent relationships have a dramatic bearing on the well-being of men at mid-life. The educational activities described above might enable middle-aged men to more effectively cope with mid-life crisis.

SUMMARY

It is undeniable that transitional or crisis periods occur in the lives of all individuals. Some evidence suggests that these transitional periods are more acute at mid-life. Much of the popular and scientific literature has focused on the mid-life transitions of affluent, white males. Among this population mid-life is sometimes associated with loss of physical prowess, virility, and/or self-esteem; stagnation in the employment arena; and a host of other unpleasant facts of life.

With the realization of mortality associated with mid-life comes the recognition that all one's dreams might not become reality. Faced with such information, the
inclination to make dramatic changes in one's life is understandable. Thus divorce, job change, and dramatic life style adjustments may accompany the transition to mid-life. While many of these changes are potentially healthy, some may be precipitated by stress.

The personal and societal costs of emotional illness, alcoholism, drug abuse, suicide, and other manifestations of stress are astronomical. An understanding of the dynamics of the mid-life crisis as well as other transitional periods of life may better prepare all individuals to more effectively deal with crisis and to be stronger as a result of the experience. The relationship of stress to the mid-life crisis is critical to understanding behaviors that occur in such transitional periods of life. Within the next ten to twenty years the "baby boom" generation will reach middle age. It is essential that we try to understand the factors that might enhance the quality of life for them and for future generations. Understanding and intervening in the dynamics of a male mid-life crisis is a critical beginning to enhancing the aging process for all of us.
Appendix A

HUMAN SUBJECTS COMMITTEE APPROVAL
Research Involving Human Subjects

ACTION OF THE REVIEW COMMITTEE

With regard to the employment of human subjects in the proposed research protocol:

86B0068  PHYSIOLOGICAL AND SOCIAL-PSYCHOLOGICAL BASES OF STRESS
ASSOCIATED WITH THE MALE MID-LIFE TRANSITION,
Patrick C. McKenry, Teresa W. Julian, Family Relations and Human Development

THE BEHAVIORAL AND SOCIAL SCIENCES REVIEW COMMITTEE HAS TAKEN THE FOLLOWING ACTION:

X  APPROVED

APPROVED WITH CONDITIONS*

DISAPPROVED

WAIVER OF WRITTEN CONSENT GRANTED

* Conditions stated by the Committee have been met by the Investigator and, therefore, the protocol is APPROVED.

It is the responsibility of the principal investigator to retain a copy of each signed consent form for at least four (4) years beyond the termination of the subject's participation in the proposed activity. Should the principal investigator leave the University, signed consent forms are to be transferred to the Human Subject Review Committee for the required retention period. This application has been approved for the period of one year. You are reminded that you must promptly report any problems to the Review Committee, and that no procedural changes may be made without prior review and approval. You are also reminded that the identity of the research participants must be kept confidential.

Date: April 18, 1986  Signed: Theodore J. Kaul
(Chairperson)

HS-023B (Rev. 3/85)
Appendix B

LETTER SENT TO SUBJECTS
Dear Sir:

The Ohio Agricultural Research and Development Center is conducting a study of men's job and family roles at midlife. Our purpose is to learn about current concerns and attitudes since many social and economic changes have affected men's work and family roles in recent years.

We would very much appreciate your participation in this study if you are married and the father of an adolescent child. The findings from the study will help fill many information gaps and serve as a basis for program development in the area of family life and human development.

If you choose to participate in this study, you will be responding to paper and pencil questionnaire items pertaining to your job and family activities and your overall well-being at this stage in the life cycle. To provide a physiological measure of how your body is responding to changes at midlife, a standard sample of blood will be drawn for analysis.

If you choose to participate in this study, you are free to not answer specific questions or to cease participation at any time. It is, however, important that we obtain as complete a response from you as possible in order to accurately analyze the data.

The information obtained from this study is completely confidential. Your name will not be associated with any of the information you submit. Your answers will be computer analyzed with data obtained from other people in the study.

If you choose to participate, please sign where indicated at the bottom of this letter. Provide your address and phone number and return the letter to either of us at the address above. You will then be sent a questionnaire to complete and scheduled for a blood test and interview. A check for $10 will be forwarded to you upon completion of all phases of the testing.

If you meet the criteria of this study and choose to participate, please sign this letter and return it in the enclosed envelope.

Sincerely yours,

Patrick C. McKenry, Ph.D.
Professor and Project Director

Teresa Whitehead Julian, R.N. MSN.

Signature

(Name)

(Telephone)

(Street Address)

(City, State, Zip Code)

College of Home Economics
Appendix C

CONSENT TO SPECIAL TREATMENT OR PROCEDURES
CONSENT TO TREATMENT OR PROCEDURE

1. Dr. Patrick McKeny hereby authorizes or directs, and hereby authorizes or directs his or her agents or agents of his or her choosing, to perform the following treatment or procedure and such additional services as they may deem reasonably necessary: |
   - Administer a paper and pencil questionnaire;  
   - Conduct an interview; and draw a sample of blood and provide blood for any test or procedure specified.  

The experimental (research) portion of the treatment or procedure is: **Drawing a sample of blood for stress analysis and providing information via questionnaire and interview pertaining to job and family life and general well being.** This is done as part of an investigation entitled: "Physiological and Social-Psychological Bases of Stress Associated with the Male Mid-life Transition."

1. Purpose of the procedure or treatment: To identify factors related to stress and coping at mid-life and to develop a multidimensional measure of stress and coping.

2. Possible appropriate alternative methods of treatment: None, in order to obtain a physiological measure of chronic stress and obtain valid data about the participants' job and family life and general well being.

3. Discomforts and risks reasonably to be expected: There is a slight chance of bruising and infection anytime blood is drawn for analysis. Some questionnaire and interview items may be considered personal or sensitive; the participants have the right to not answer such questions.

4. Possible benefits for subjects/male/female: Greater understanding of factors related to male stress and coping at mid-life should enhance health and educational programs of this age group of males.

5. Anticipated duration of subject's participation: 1-14 hour(s)

I hereby acknowledge that Ms. Teresa Julian, R.N., has provided information about the procedure described above, about my rights as a subject, and he/she answered all questions to my satisfaction. I understand that I may contact his/her should I have additional questions. She/he has explained the risks described above and I understand them; he/she has also offered to explain all possible risks or complications.

I understand that the information obtained from me, or from the person I am authorized to represent, will remain confidential unless I specifically agree otherwise by placing my initials here ______. I understand that, where appropriate, the U.S. Food and Drug Administration any federal government which has been given to me concerning this treatment or procedure.

I understand that I am free to withdraw my consent and participation in this project at any time after notifying the project director without prejudice future care. No guarantee has been given to me concerning this treatment or procedure.

I have read and fully understood the consent form. I sign it freely and voluntarily. A copy has been given to me.

Signed: ____________________________  (Subject)

(Witness(es)

Signed: ____________________________  (Person Authorized to Consent for Subject - if Required)

I certify that I have personally completed all blanks in this form and explained them to the subject or his/her representative before requesting the subject or his/her representative to sign it.

Signed: ____________________________  (Signature of Project Director or his/her Authorized Representative)
Appendix D

SPECIMEN COLLECTION PROCEDURE
SPECIMEN COLLECTION PROCEDURE

REVIEWED BY:  
DATE:  
INSTITUTED:  


2. Ask the patient to close his/her hand:
   a. The veins become more prominent and easier to enter when the patient forms a fist.
   b. Vigorous pumping should be avoided.

3. Selection of the vein site is important:
   a. The larger of the median cubital and cephalic veins are the most often used.
   b. Hand and wrist draws are acceptable.

4. Procedure for vein selection:
   a. Palpate and trace the path of veins several times with the index finger.
   b. Unlike veins, arteries pulsate, are more elastic, and have a thick wall.
   c. If superficial veins are not readily apparent, blood can be forced into the vein by massaging the arm from wrist to elbow.
   d. Tapping sharply at the vein site with the index finger will cause the vein to dilate.
   e. You may also consider the veins in the opposite arm.

5. Apply the tourniquet:
   a. Use a tourniquet to increase the venous filling, which makes the veins more prominent and easier to enter.
   b. PRECAUTIONS when using a tourniquet: never leave a tourniquet on the patient's arm longer than 1 minute. To do so may result in hemoconcentration or a variation in blood values.
   c. Apply the tourniquet around the arm 2-3 inches above the venipuncture site.
6. Inspection of the needle and equipment:
   a. Inspect the tip of the needle you will be using carefully.
   b. Make sure the needle does not have any burrs or hooks at the tip.
   c. Check for any debris that could obstruct the flow of blood.

7. Venipuncture procedure using evacuated tubes:
   a. Thread the needle into the holder until it is secure.
   b. Before use, tap all tubes containing additives to ensure that there is no powder enlodged around the stopper.
   c. Use a sterile collection tube.
   d. Insert the blood collection tube into the holder but not beyond the guideline. DO NOT PUSH THE TUBE ONTO THE NEEDLE END, THIS WILL EXHAUST THE VACUUM.
   e. Make sure the patient's arm or the puncture site is in a downward position while maintaining a needle in the arm. This will prevent a back flow from the tube into the patient's arm.
   f. Grasp the flange of the needle holder and push the tube forward until the butt end of the needle punctures the stopper, exposing the full lumen of the needle.

8. The tourniquet may be removed as soon as the blood flow is established.

9. The tube should be filled until the vacuum is exhausted and the blood flow ceases.

10. Remove the tube from the holder after the blood flow ceases.

11. Any tube containing additives should be mixed immediately.

12. Another tube may be pushed onto the holder to obtain more blood from the patient.

13. Ask the patient to open his/her hand after enough blood has been collected.

14. Remove the needle from the arm.

15. Place the sterile gauze on the puncture site. Apply pressure for 2-3 minutes.

16. Bandage the arm.

17. If bleeding persists, apply pressure for 5 minute and stay with the patient until the bleeding does cease.

18. Dispose of used equipment; needle, gauze, etc.

(11/82-Doc #0568A)
Appendix E

MARITAL COMPARISON LEVEL INDEX
PLEAS NOTE:

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

These consist of pages:

- Appendix E, pages 116-117
- Appendix F, page 119
- Appendix G, page 121
- Appendix H, page 123
- Appendix I, pages 125-126
Appendix F

MID-LIFE CRISIS SCALE
Appendix G

OCCUPATIONAL VALUES SCALE
Appendix H

EXPRESSION OF EMOTION SCALE
Appendix I

LIFE EXPERIENCE SURVEY
Appendix J

MEANS AND STANDARD DEVIATIONS FOR ALL VARIABLES
<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Standard Deviation</th>
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<tbody>
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<td>Interpersonal Job Satisfaction</td>
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<td>Marital Satisfaction</td>
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<td>Androgyny</td>
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<td>State of Anxiety</td>
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