A META-ANALYSIS OF QUALITY OF LIFE IN OLDER ADULTS

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BY

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To the Associate Vice President for Research and Dean of the Graduate School:

I am submitting herewith a dissertation written by Elaine Hapshe entitled "A Meta-Analysis of Quality of Life in Older Adults." I have examined this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Nursing.

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We have read this dissertation
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ABSTRACT

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The purpose of the study was to identify physical, psychological, social, spiritual, and economic variables predictive of Quality of Life (QOL) among community-residing healthy and chronically ill adults aged 55^{+} years. In this study, QOL was specifically defined as the older adult's subjective evaluation and perceived importance of life domains over a particular period of time. QOL is an elusive, multidimensional, and dynamic concept that reflects ongoing responses to events affecting a person's life.

The conceptual framework developed for the study was adapted from Zhan's (1992) Conceptual Model of Quality of Life. The framework included: (a) antecedents - personal background, health-related, environmental, and cultural factors; (b) intervening variables - personal meaning in life, adaptation, and coping behaviors; and (c) consequences - QOL and domains such as physical/psychological/social well-being, spiritual integrity, and economic security.

The research design of the study was based upon the methodological framework of meta-analysis. Nonprobability sampling was used to select subject-studies from the disciplines of: nursing, psychology, sociology, medicine, allied/public health, and education. Of the 249 studies reviewed, 83 subject-studies comprised the final sample which consisted of published studies and unpublished dissertations/theses conducted between the years 1970-1993. Subjects in the meta-analytic studies were predominantly caucasian and Afro-American females.

Prior to data collection, the subject-studies were rated for methodological quality. The methodological and substantive data of the studies were collected using a two-part Coding Instrument developed by this investigator. Data obtained were analyzed using Pearson's product moment and *eta* coefficients, t-test, oneway analysis of variance, test of homogeneity, Fail Safe N, and multiple regression.

Of the five QOL domains, social well-being demonstrated the largest effect size and strongest domain predictive of QOL. Although economic security was not a predictor of QOL, it did reveal a small to medium effect size. In terms of the indicator variables, religiosity was strongly predictive of QOL followed by: subjective health, mental health, social activity/support, socioeconomic status, and adequacy of social resources. Findings of the

meta-analytic study have implications for nursing theory, research, and practice.

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CHAPTER I

INTRODUCTION

QOL was first described as "happiness" by the ancient Western philosopher Aristotle. According to Aristotle, happiness is a God-given blessing; a certain kind of virtuous activity of the soul (McKeon, 1947). Through the centuries, other philosophers have also sought to characterize QOL as personal happiness.

In 1947, the World Health Organization addressed QOL when health was defined as "not only the absence of disease and infirmity but also a state of physical, mental, and social well-being" (p.29). Presently, health is considered QOL and remains the prime focus of many research studies being conducted (Bergner, 1989).

The actual term "quality of life" first appeared in the American vocabulary between World War II and Lyndon Johnson's enactment of the Great Society Program in 1960, which marked the beginning for QOL as a research field (Schuessler & Fisher, 1985). Nationwide QOL studies conducted during the 1960s, focused primarily on assessing social progress to provide a basis for developing national goals and program evaluations.

From 1960 to mid-1970, QOL assessments have evolved from a number of diverse disciplines, notably the social sciences and public

administration. Since the late 1970s, interest in studying QOL has expanded into other disciplines, such as: (a) nursing, (b) ethics, (c) medicine, (d) gerontology, and (e) psychology. Nonetheless, the term "quality of life" did not appear in the medical literature/Index Medicus until 1975 and subsequently, the Sociological Abstracts in 1979. To date, QOL has been studied by several researchers under the auspices of: (a) performance status (Karnofsky & Burchenal, 1949), (b) the "good life" (Frankena, 1973), (c) happiness (Bradburn, 1969), (d) life satisfaction (Campbell, Converse, & Rodgers, 1976), (e) well-being (Andrews & Withey, 1976), (f) psychological well-being (Lawton, 1983a); (g) self-esteem (Enquist, 1979), and (h) health and functional status (Foreman & Kleinpell, 1990). The variety of terms used by researchers has resulted from the lack of an accepted and consistent definition regarding the concept QOL. Generally, QOL can be considered the meaning and value of life as judged solely by the person (Calman, 1987). Although a consistent definition for QOL is lacking, many domains have been identified for measuring the concept.

In its broadest sense, QOL encompasses the physical, psychological, social, spiritual, and economic aspects of human life. QOL is an elusive, multidimensional, and dynamic concept; reflecting ongoing responses to events affecting a person's life (Katz, 1987; Kinney & Packa, 1992;

Schipper & Levitt, 1985). There has been growing consensus among a few researchers that physical and functional health; and psychological, social, spiritual, and economic well-being are the domains that constitute QOL (Fletcher, Dickinson, & Philp, 1992; Goodinson & Singleton, 1989; Nordstrom & Lubkin, 1990; Padilla, Ferrell, Grant, & Rhiner, 1990).

Recently, there has been an increase in the number of research studies being conducted with older adults residing in institutional and non-institutional settings. Older adults comprise the fastest growing segment of the population, especially those 85 years and older. Although 85% of older adults experience one or more chronic degenerative illnesses (Miller, 1990), many perceive themselves to be well and believe they have good QOL.

According to Magilvy (1985), "a major goal of nursing and health care is to improve quality of life of those served" (p.140). In clinical practice, however, the issue of QOL is rarely discussed unless crucial life or death decisions need to be made regarding older adults experiencing life-threatening conditions. A situation that is indeed problematic, since Health Care Professionals (HCPs) frequently perceive older patients as having lower QOL than the patients themselves (Presant, 1984; Pearlman & Uhlmann, 1991).

QOL assessments in clinical practice thus far, have been done primarily by nurse researchers. The focus of nursing research has been two-fold: first, to identify domains and variables pertinent for assessing QOL in healthy and chronically ill adults; and second, to evaluate the outcomes of therapeutic nursing interventions (Molzahan, 1991). Despite the large number of studies conducted during the past 17 years, the magnitude of effect regarding variables and QOL domains continues to be unclear.

Problem of Study

The problem under investigation was to determine the effects of physical, psychological, and social well-being; spiritual integrity; and economic security on perceived QOL in healthy and chronically ill older adults.

Purpose of the Study

The purpose of the research study was to identify psychological, physical, social, spiritual, and economic variables predictive of QOL among adults aged 55^{+} years. A meta-analysis was conducted using QOL research studies completed in nursing, medicine, sociology, psychology, allied/public health, and education from 1970 to 1993. Knowledge of variables considered predictive for impacting QOL, may

enable nurses to positively influence the successful aging of older adults.

Rationale for the Study

Since there is no agreed upon definition, inconsistent interpretations of what actually constitutes QOL remains confusing. The following synopsis is provided to exemplify the numerous variables used in measurement of older adults' QOL: (a) physical well-being, health, and functional status (Ferrans & Powers, 1985; Padilla & Grant, 1985); (b) symptom control (Padilla, Presant, Grant, Metter, Lipsett, & Heide, 1983); (c) psychological well-being (Lawton, 1983a); (d) self-esteem, self-worth, or self-concept (Deyo, 1991; Enquist, 1979); (e) life satisfaction, happiness, fulfillment, or goal attainment (Campbell et al., 1976; Campbell, 1981); (f) attitude toward self, life, or future (Stewart, 1992); (g) internal control and/or coping (Hinds, 1990); (h) religiosity or spirituality (Ferrans & Powers, 1992; McCarthy, 1983; Moberg, 1965); (i) financial adequacy or socioeconomic status (George & Bearon, 1980); (j) social support, social network, and/or social activity (Burckhardt, 1985; Lusky, 1986); and (k) personal safety, leisure, and recreational activities (Flanagan, 1982).

Andrews and Withey (1976), Campbell et al. (1976), Larson (1978), Lawton (1983b), and Magilvy (1985) described the variables of health, social support, and financial adequacy as having the strongest influence on

a person's QOL. However, psychological well-being is the most important variable in determining QOL (Jaloweic, 1990; Padilla et al., 1983). Consequently, the lack of a "gold standard" for measurement of QOL in older adults has perpetuated conflicting study outcomes.

According to the American Association of Retired Persons (1990), adults 65^{+} years comprised 12.5% (31.0 million) of the population in 1989; "about one in every eight Americans" (p.1). Graying of America can be described as aging within itself, since adults aged 85^{+} years are continuing to increase at six times the rate of the general population (Brown, 1988). By the year 2000, half of the aging population will be 75^{+} years. The exponential growth of the aging population has markedly increased the need for vital health care services. With advancing age, the incidence of chronic illness/disease and disability progresses both in number and severity (Kazis, 1990). Although chronic disease is not curable, it does not negate QOL of those afflicted.

Older adults occupy over 50% of adult hospital beds and use more than 70% of available health care services (Miller, 1990). In acute care settings, adults 65^{+} years spend three times as many days in the hospital as their younger counterparts. Additionally, older vs. younger adults spend 30 times as many days in nursing homes and other rehabilitative facilities. Since the greatest percentage of health care services is consumed by older

adults, nurses focus more of their care on adults aged 65^{+} years than any other age group.

QOL is of increasing importance as a concept for nurses because the patient's physical, psychological, social, spiritual, and/or economic well-being is affected by disease and treatment. Varricchio (1990) stated that QOL assessments relate "directly to the goals of nursing care" (p. 255), which include: health maintenance/promotion and restoration of optimum patient function. However, nurses need further clarification of the variables that impact QOL of older adults.

Knowledge from a meta-analysis of QOL studies will enable nurses, other HCPs, and researchers to understand the concept more clearly. The use of valid, reliable, and clinically relevant measures of QOL will facilitate clinical nurses to strengthen plans of care and evaluation of interventions for older adults. Overall, clinical nurses, clinical nurse specialists, and nurse practitioners are in prime positions to positively influence the quality of the older adult's life.

Since this investigator did not find any meta-analytic studies regarding QOL, findings of the present study have far reaching implications for practice. Also, knowledge of ESs of variables that impact perceived QOL among older adults will add to the existing body of gerontological theory and

research; thus clarifying the inconsistencies of conceptualization, operationalization, measurement, and evaluation.

Conceptual Framework

The conceptual framework developed for this study was adapted from Zhan's (1992) Conceptual Model of QOL. Following discussion of the framework components and definitions, a proposition is presented to depict the relationship of concepts under investigation.

In conducting a meta-analytic study, the utility of a conceptual or theoretical framework remains unclear. Researchers have emphatically stressed the importance of using clear and broad conceptual definitions, rather than a conceptual framework. According to Cook and Leviton (1980) and Cooper (1982), broadly stated conceptual definitions enable the researcher to determine which subject-studies should be considered for inclusion in the meta-analytic study. The use of narrow definitions can cause the researcher to needlessly exclude pertinent studies from the meta-analysis. In order to minimize exclusion of studies that could contribute to the understanding of QOL, the conceptual framework for the QOL meta-analytic study has been developed using broad conceptual definitions.

The Conceptual Model of QOL

Figure 1 depicts the conceptual model of QOL. The components of the model are: (a) antecedent variables - personal background, health-related, cultural, and environmental factors; (b) intervening variables - personal meaning of life, coping behaviors, and adaptation; and (c) consequence - QOL, which includes the domains of physical, psychological, and social well-being; spiritual integrity; and economic security.

Antecedent Variables

1. Personal background factors include age, gender, and personality.

Age can positively or negatively influence QOL. Older adults who have: (a) achieved a close match between their actual life conditions and aspirations (Inglehart & Rabier, 1986), (b) sustained minimal losses, and/or (c) maintained their socioeconomic status report greater happiness and satisfaction with life; and consequently, QOL. In contrast, older adults who have not narrowed the gap between actual life conditions and aspirations and/or are confronted with significant losses are less inclined to perceive their life as having quality.

At all ages, economic and social differences exist between the sexes. Therefore, Gender is considered a key societal variable of QOL. As specified by Zins (1987), the differences between men and women

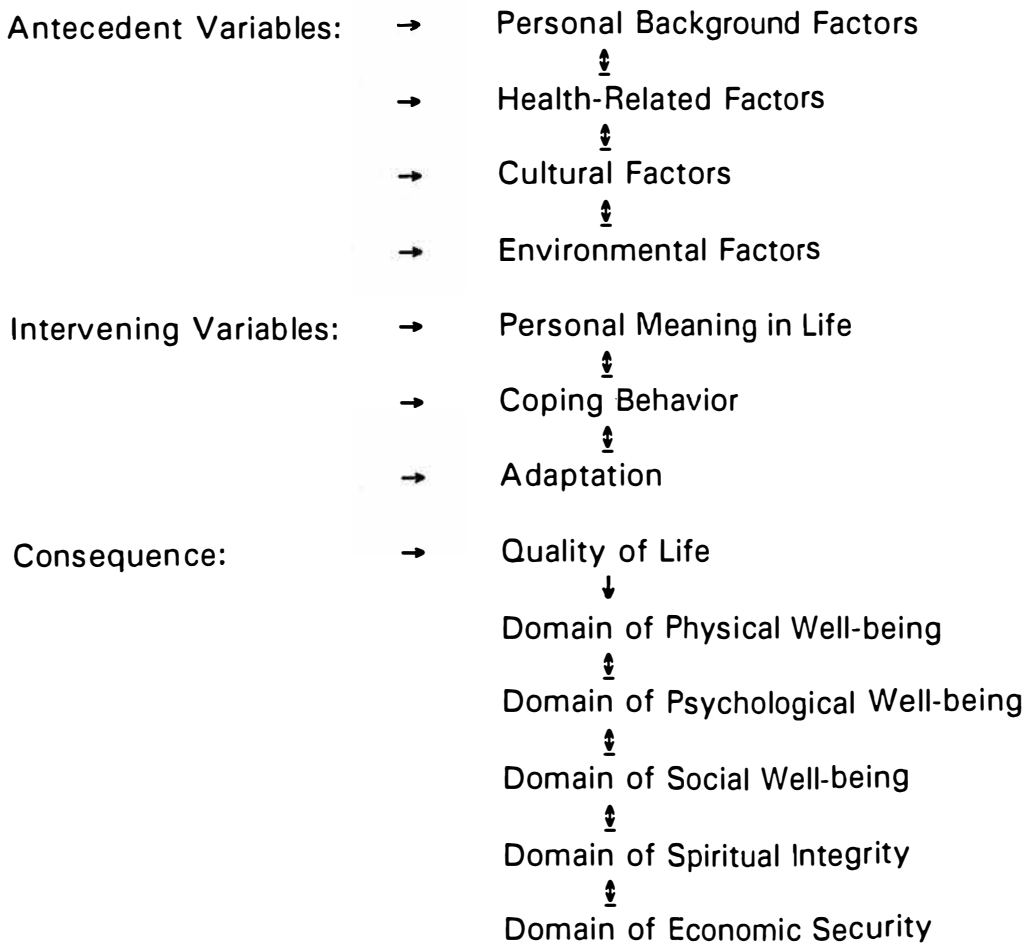

Figure 1. Conceptual Model of QOL

advancing in age pertain to: (a) longevity/life expectancy, (b) marital status, (c) social network system, (d) economic conditions, and (e) mortality rate.

Although men and women are living longer, there is now a longevity gap between the genders. The average life expectancy for caucasian women is 78.7 years; black women, 73.7 years; caucasian men, 71.8 years; and black men, 65.3 years (Strumpf & Knibble, 1990). In addition to gender, age-expectancy differences are also affected by race; thought to be due primarily to socioeconomic factors. Since women have increased longevity, men are likely to be married more than twice as often as women. Married older adults tend to be happier and more satisfied with life than younger adults (Inglehart & Rabier, 1986).

Not surprisingly, women tend to have an extensive social network system; thus, maintaining closer relationships with family and friends over the life span. Following retirement, men most notably establish social relationships with others through their wives.

In terms of economic conditions, women are more likely to endure financial strain than men often as a result of: lower wages, part-time or inconsistent employment, and minimal pension assets (England, 1992). Lower life-time earnings and pension coverage significantly reduce retirement benefits and increase the risk of poverty for older women (Keith, 1993).

With respect to mortality rate, it is much higher for men than women. Men suffer more from the so called major "killers", such as: cancer, stroke,

and heart disease. Women are more likely to be affected by the diseases of diabetes mellitus and osteoporosis, both of which have less lethal effects.

Since a great part of a person's conception of herself/himself is likely to be rooted in experiences and achievements that involve the whole life span, the personality of adults tends to remain stable with advancing age (Zins, 1987). Personality is specifically defined as "a cluster of qualities and predispositions that form [a person's] lifestyles and patterns" (Ebersole & Hess, 1981, p. 401). If older adults possess a positive attitude towards life, QOL may be perceived positively irrespective of underlying problems.

2. Health-related factors include psychological and physiological age-associated changes, health practices, functional ability, and chronic illness.

Psychological age-associated changes are influenced by personal background, social, cultural, and environmental factors. Successful psychological aging requires adjustment to age-associated physical changes, multiple losses, ageist attitudes, retirement, relocation, and/or widowhood. Although widowhood is an inevitable part of aging, it affects women in greater proportions than men. By 65 years, there are 77 men per 100 women. As men approach their late 70's and early 80's, the ratio dramatically drops to 50 per 100 women (Dychtwald, 1986).

Physiological age-associated changes are physical changes that occur as a result of the aging process. Age-associated changes are inevitable, progressive, and irreversible which occur independently of pathologic conditions (Miller, 1990). Predominant changes that commonly impair the physical status of older adults pertain to declines in vision, hearing, short-term memory, and musculoskeletal/neurologic functioning. Depending on the severity of age-associated changes, health practices and psychosocial functioning may be greatly altered.

Health Practices of adults have continued to improve throughout the years. As a result, older adults are now increasingly healthier than their previous counterparts (Palmore, 1986). For a number of older adults, improved health may be attributed to: (a) practicing better health habits over the life span, (b) adhering to medical/nursing plans of care, (c) staying active, (d) maintaining a positive outlook on life, (e) achieving a higher level of education and income, and/or (f) increasing use of health care services due to the availability of Medicare and Medicaid. Federal, state, and local sponsored social/economic/nutritional/psychological programs have also had positive effects on the health practices and health status of older adults (Walker, Volkan, Sechrist, & Pender, 1988). Findings from several research studies indicate that health and functioning are the strongest predictors of life satisfaction and QOL among older adults (Campbell et al., 1976;

Flanagan, 1982; Padilla et al., 1990). However, personal background/ cultural and environmental factors can also impact health practices, overall health, and functional ability of the older adult both positively or negatively.

Functional ability encompasses the capacity of older adults to "function in the home, perform activities of daily living, and interact with their environment" (Miller, 1990, p. 11). Since advancing age is associated with increased morbidity and disability, functional capacities of older adults are related to the type of chronic illness, chronological age, quantity/quality of social support, and environmental conditions. Older adults who are confronted with functional impairments related to mobility, often find their independence and self-esteem threatened. Additionally, functional impairments may affect the older adult's physical and psychosocial well-being, general happiness, economic security, and QOL (Foreman & Kleinpell, 1990).

Chronic illness is defined as a disease entity characterized by an impairment or deviation from normal physiologic function. Common chronic entities sustained by older adults include: (a) cancer; (b) renal disease - kidney failure; (c) orthopedic diseases - rheumatoid arthritis, osteoarthritis, and osteoporosis; (d) cardiovascular diseases - congestive heart failure, coronary artery disease, and hypertension; (e) respiratory diseases - pneumonia and chronic obstructive pulmonary disease; and (f) endocrine

disease - diabetes mellitus. When questioned in a survey conducted by a Special Committee on Aging, most older adults with chronic illnesses did not consider themselves to be seriously impaired in their ADL (U.S. Senate, 1987-88). Interestingly, more than 50% of the older population did not find their chronic illness to be activity-limiting until after 75 years. Factors such as personal background characteristics, inadequate income, cultural aspects, ageist attitudes, lack of supportive relationships, and loss of independence/control may have more of an impact on the QOL of chronically ill older adults than the disease or disability itself (Brown, Rawlinson, & Hillis, 1981). Given the chance, older adults can transcend the physical and emotional adversity of chronicity to maintain feelings of esteem and fulfillment (Wong, 1989).

3. Cultural factors consist of values, beliefs, and mores that stem from cohorts living within a particular social group (Marshall, 1990). Although cultural factors are learned and passed from generation to generation, behaviors may vary within the culture as a result of societal expectations. Culturally determined behaviors may influence the person's: (a) spirituality, (b) personality, (c) attitude towards health practices, (d) adaptability to chronic illness, (e) sense of physical and psychosocial well-being, (f) SES, and (g) lifestyle practices (Gioiella & Bevil, 1985).

4. Environmental factors comprise a number of variables that can affect the external and internal world of older adults. Housing, cultural evaluation of the aged, experience of life challenges, recreation/leisure, aging myths, media communications, and safety/security are some examples of variables that represent the external environment of older adults. In contrast, internal variables "are those within and unique to the [person]" (Roberts, 1990, p. 1031). Specific variables that may alter the older adult's internal environment are: lifelong personality patterns; spiritual beliefs; disease-associated changes; and cognitive function, particularly the interpretation of physical and psychosocial stimuli.

Intervening variables

The older adult's personal meaning in life, coping behavior, and adaptation to external/internal stimuli constitute the intervening variables of the Conceptual Model of QOL. Outcomes of the intervening variables that may or may not enhance QOL are strongly influenced by the older adult's personal background, health-related, cultural and environmental factors.

1. Personal meaning of life is derived by persons through the components of cognition, motivation, and affect. The cognitive component refers to the person's beliefs and interpretations of experiences and life as a whole. The pursuit and attainment of personal goals consistent with the

person's values, needs, and wants comprises the motivational component. Whereas, the affective component refers to feelings of satisfaction that are usually embedded in the conviction that life is worth living. In refining the components, Wong (1989) defined personal meaning "as an individually constructed cognitive system, that is grounded in values and is capable of endowing life with personal significance and satisfaction" (p. 517). Schultz and Fritz (1988) pointed out that personal meaning is a major source of psychological well-being, personal growth, and QOL irrespective of disabilities and losses that accompany advancing age.

2. Coping behavior enables the older adult to preserve physical and psychological well-being, minimize functional impairments, or compensate for irreversible disabilities (Lazarus, 1974). A person's coping style and repertoire of coping strategies constitute coping behavior, respectively defined as the manner and technique in which life challenges and stresses are dealt with. Coping behavior refers to the problem-solving efforts made by persons when faced with demands that are highly relevant to their welfare. If coping behaviors are ineffective, the person "perceives no relationship between his actions and the outcome of the situation" (Craig & Edwards, 1983, p. 401). Consequently, the person senses a lack of control and enters a state of crisis or psychological disorganization.

3. Adaptation reflects the person's ability to adjust positively to constant internal and external stimuli (Roy, 1984). As persons adapt to different situations, Helson (1964) proposed that judgements are made in relation to a new adaptation level. Depending on the appraisal and perceived importance of the situation, the person may have to implement physiological, psychological, and/or sociocultural adaptive tasks to achieve adaptation. Adaptive tasks of older adults experiencing chronicity include: (a) dealing with pain or disabilities, physiological; (b) preparing for an uncertain future or preserving autonomy, psychological; and (c) adjusting to potential role changes and maintaining interpersonal relationships, sociocultural (Craig & Edwards, 1983). Adaptation to chronic illness depends on the older adult's cultural and social background. Wong (1989) emphasized that adaptation is considered more important for health of older adults than all external factors combined. If adaptation enhances health, then older adults may achieve successful aging without hesitancy or fear.

Consequence - QOL.

QOL is specifically defined by this investigator as the older adult's subjective evaluation and perceived importance of life domains over a particular period of time. Global QOL, in contrast, encapsulates the sum of human experiences (Fletcher et al., 1992). Due to the dynamic nature of the concept, QOL can change over time and vary considerably under

normal circumstances. Since the number and specificity of domains have not been definitively established, this investigator believes that: physical, psychological and social well-being; spiritual integrity; and economic security are the domains predictive of QOL among older adults. Due to the multidimensionality of the concept, QOL domains include both subjective and objective variables. High QOL may be perceived when the domains achieved are judged important and match the personal standards of the older adult. For certain older adults, high QOL is attained through achievement of several life domains. While others may attain high QOL through achievement of only one domain.

The QOL domain of Physical Well-being reflects the ability of the older adult to perform normal physical activities in the absence or presence of an underlying chronic illness/disability. The predominant indicator of physical well-being is functional health, which includes ADL and Instrumental Activities of Daily Living (IADL). Bathing, grooming, and ambulation are examples of ADL functions considered essential for self-care. Whereas, shopping, use of transportation, and meal preparation exemplify IADL functions necessary for independent environmental adaptation. Although IADL functions are the first to become impaired in community-residing adults over 75 years, impairment of physical functioning is thought to be due to the older adult's health status rather than the effect of aging per se

(Carlsson, Berg, & Wenestam, 1991). Consequences of functional health impairments for older adults often means limited freedom of existence and dependence on other persons in daily living. Depending on the degree of functional limitations, the older adult's sense of physical/psychological/social well-being, economic security, and overall QOL may be seriously threatened.

The QOL domain of Psychological Well-being is "the overall quality of a [person's] inner experiences" (Lawton, 1983a, p. 350). Psychological well-being is virtually related to every domain of QOL. Spiritual integrity and social well-being positively impact psychological well-being, but the lack of economic security frequently poses a threat to psychological functioning. Negative changes in psychological well-being as a result of chronic life stresses may create instability in: (a) physical and functional health, (b) role performance, (c) social relations, and (d) trust. Depending on the older adult's internal locus of control orientation, effective coping behaviors, and adaptability, psychological well-being can be maintained irrespective of chronic life stresses. If older adults believe they are in control of their own lives, it is predicted that fewer symptoms of psychological distress will be experienced (Keith, 1993). Internal locus of control, happiness, self-esteem, and life satisfaction are a few indicators of psychological well-being.

The QOL domain of Social Well-being indicates a sense of belonging through satisfying interpersonal relationships. Both the quantity and quality of interpersonal relationships are influential in fostering increased happiness, health, self-esteem, and fulfillment of spiritual and social needs among older adults (Callaghan & Morrissey, 1993; Revicki & Mitchell, 1986). As an indictor of social well-being, social support provides the older adult with information that he/she is loved, valued, cared for, and belongs to a reciprocal social network. Intimacy, such as having a confidant, and availability of social resources are other indicators of social well-being that enhance the older adult's sense of psychological well-being, safety, security, and QOL.

The QOL domain of Spiritual Integrity pertains to a person's experience of "wholeness within the self, with other human beings, and in transcendence with another realm" (Labun, 1988, p. 315). Within the spiritual integrity domain, the broad concept of spirituality subsumes religion and religiosity. Spirituality is referred to as the essence of one's human nature, whether expressed through religiosity or not. In a more narrower sense, the concept of religiosity involves faith, beliefs, and practices of persons affiliated with a specific community that has its own recognized leaders (Emblen & Halstead, 1993).

In terms of integrity, it is perceived by Labun (1988) as a sense of wholeness in life. Love, hope, trust, and forgiveness are behaviors that demonstrate integrity. Selected indicators of spiritual integrity include: religiosity, purpose in life, inner strength, and self-determination.

Older adults confronted with chronic health, psychosocial, and/or financial problems may cope and adapt more effectively if experiencing spiritual integrity. Subsequently, the older adult's sense of well-being and perceived QOL may be maintained or enhanced due to the feeling of spiritual integrity (Hiltner, 1981).

The QOL domain of Economic Security refers to the amount of financial income required to support a person's way of life. Economic security can be considered a "dynamic lifelong process in which the course of later life is affected" (Culter & Gregg, 1991, p. 45) by income and financial decisions made earlier and/or later in life. Overall, economic security helps to promote: subjective well-being, life and environmental satisfaction, morale, social relations, and futurity, (Campbell et al., 1976; Diener, 1984; Lawton, Kleban, & diCarlo, 1984). Examples of indicators regarding economic security are material comfort/well-being and perceived financial adequacy.

In conclusion, the conceptual framework of QOL depicted in Figure 1 reflects the concepts considered to impact QOL in older adults. Although

the antecedent variables of personal background, health-related, cultural, and environmental factors are interrelated, changes in one or more variables may or may not effect changes in other variables. For example, cultural practices and functional abilities may not be effected by a marital status change in the older adult's life. Whereas, environmental factors such as the older adult's sense of security and safety could be significantly altered by the marital status change. Antecedent variables can effect each other either directly or indirectly and in turn, strongly influence the outcome of intervening variables. If older adults confront life experiences incorporating personal meaning of life and coping/adaptive behaviors in a positive way, then QOL should consequently be enhanced.

With respect to QOL, the domains may be directly or indirectly related to each other, although there is a substantial degree of independence from one another (Lawton, Moss, & Glicksman, 1990). As aptly stated by Lawton (1983a), "if a change in one [domain] were to be immediately reflected in every other [domain], chaotic instability would be the result" (p. 355). Moreover, the degree of independency between the QOL domains may also depend upon how important the older adult perceives each domain.

Although QOL is considered a consequence of antecedent and intervening variables confronting older adults, it can also be considered temporal and cyclic in nature. Positive changes in the health-related status

of older adults could result from high QOL, whereas adverse changes could result from low QOL. Since QOL is an element of an intrinsically dynamic process, it will change over time affecting a particular period in the older adult's life.

Assumptions

Based on the QOL conceptual framework, the following assumptions were as identified:

1. The domains of QOL are integrated within older adults as interdependent parts of the human condition.

2. The older adult's perception of meaning and QOL may be influenced by personal background factors, health-related status, cultural practices, and environmental situations.

3. The coping abilities and adaptive responses of older adults to physical, psychological, social, spiritual, and economic stimuli may enhance QOL.

Proposition

The following proposition was derived from the conceptual framework developed for the QOL meta-analytic study:

The greater the physical, psychological and social well-being; spiritual integrity; and economic security of the older adult, the greater the QOL of the older adult.

Hypotheses

1. There is no significant effect size between physical well-being and perceived QOL among healthy and chronically ill older adults.

2. There is no significant effect size between psychological well-being and perceived QOL among healthy and chronically ill older adults.

3. There is no significant effect size between social well-being and perceived QOL among healthy and chronically ill older adults.

4. There is no significant effect size between spiritual integrity and perceived QOL among healthy and chronically ill older adults.

5. There is no significant effect size between economic security and perceived QOL among healthy and chronically ill older adults.

6. There is no significant difference in the importance of quality of life domains between adults who are young-old and those who are old-old.

7. There is no significant difference in the terms used to measure quality of life in research studies conducted between 1970 and 1993.

8. There is no significant difference in effect size between published and unpublished subject-studies.

Definition of Terms

Chronic illness - operationally defined as cancer and orthopedic, endocrine, cardiovascular, respiratory, and renal diseases.

Economic security - operationally defined as material comfort or well-being, SES, income, financial status, economic independence, and perceived financial adequacy.

Effect size - "the degree to which the phenomenon [being investigated] is present in the population" (Cohen, 1977, p. 9-10). Operationally defined as the value of *r*, *d*, or *z*.

Health - "the ability of older adults to function at their highest capacity, despite the presence of age-related changes and risk factors" (Miller, 1990, p. 55).

Older adults - operationally defined as healthy or chronically ill persons aged 55 years and older.

Old-old - adults aged 75 years and older.

Physical well-being - operationally defined as a person's: (a) mobility; (b) functional health, which includes ADLs - grooming, bathing, dressing, eating, toileting, and continence, and IADLs - laundrying, meal preparation, housekeeping, shopping, and use of transportation/telephone; (c) physical comfort and independence; (d) disease stability; and (e) symptom control.

Psychological well-being - operationally defined as: (a) perceptions of internal locus of control, usefulness, productivity, and autonomy; (b) education or personal growth/learning; (b) morale and happiness; (c) self-esteem/self-worth; (d) satisfaction with life, health care, and

treatment of chronic illness; (e) adjustment to chronic illness; (f) mental health; (g) coping ability; (h) achievement of goals; and (i) contentment.

Social well-being - operationally defined as: (a) social supports, activities, networks, interactions, and relationships; (b) adequacy of social resources; (c) intimacy; (d) role function/fulfillment; (e) employment; and (f) participation in government or local organizational/association affairs, and recreation/leisure activities.

Spiritual integrity - operationally defined as religion, religiosity, purpose and meaning in life, self-determination, hope, trust, inner strength, peace, and sense of fulfillment.

Young-old - adults aged 55 to 74 years.

QOL - the older adult's subjective evaluation and perceived importance of specific life domains over a particular period of time; as measured by the quantitative instruments used in the meta-analytic sample of QOL studies.

Limitations

Limitations of the QOL meta-analytic study were as follows:

1. Differences in conceptual definitions and instruments measuring QOL may have influenced results of the study.

2. Unequal number of unpublished vs. published QOL studies may have increased the significance of research findings.

Summary

QOL is an elusive, dynamic, and multidimensional concept that has been studied by ancient philosophers and contemporary researchers spanning various disciplines. The elusiveness of QOL has prompted several researchers to study the concept under the auspices of life satisfaction, health, and happiness. Since there is no universal agreed upon definition of QOL, the variety of terms used to conduct QOL research have been perpetuated by many researchers.

Within the discipline of nursing, the major goal is to "improve [QOL] of those served" (Magilvy, 1985, p.140). The focus of studies conducted by nurse researchers have been to: (a) identify the domains pertinent for assessing QOL in healthy and chronically ill adults and (b) evaluate outcomes of therapeutic nursing interventions. QOL is increasing in importance as a concept for nurses, because the patient's essence of being is affected by disease and treatment. Nursing interventions that are directed towards disease prevention, health maintenance/promotion, and restoration of optimum function contribute to QOL among older adults. Overall, nurses need a clearer conceptualization of QOL and further clarification of the variables that impact QOL.

The conceptual basis for this meta-analytic study of QOL was developed and adapted from Zhan's (1992) Conceptual Model of QOL.

Components of the QOL model include: (a) antecedent variables, (b) intervening variables, and (c) consequence variables. Following discussion of the conceptual model of QOL, assumptions, a proposition, hypotheses, definition of terms, and limitations of the study were delineated.

CHAPTER II

REVIEW OF LITERATURE

In the review of literature, selected QOL definitions as stated by various authors/researchers are summarized in table format. Since older adults are major consumers of health care, QOL is further explored in relation to the perceptions of patients, HCPs, and lay public. Rationale and objective variables used in the measurement of QOL within health care are also discussed. Additionally, several approaches that have been implemented for measuring unidimensional and multidimensional Health-Related QOL (HQOL) and QOL are presented from a historical and research perspective. In terms of multidimensional QOL, topics addressed are: QOL among young vs. older healthy adults, QOL among chronically ill older adults, and QOL domains under investigation. In the final section of the chapter, meta-analysis is discussed from both a theoretical and procedural standpoint.

Quality of Life Definitions

There are almost as many definitions of QOL as there are persons who use the term. Although QOL has been defined many ways, there tends to be some overlap of components. Selected definitions of QOL that pertain

to subjective evaluations of a person's life are presented in Table 1. In a comprehensive search of the literature, QOL has been primarily defined in subjective terms; thus, emphasizing the personal nature of QOL. Subjective QOL is based on the perceptual meaning that persons give to life experiences (Oleson, 1990).

Table 1

Selected Definitions of Subjectively Perceived Quality of Life

Authors/Researchers	QOL Definitions
Andrews & Withey (1976)	"Privately known and privately evaluated aspects of life" (p. 12).
Calman (1987)	"The difference, at a particular period of time, between the hopes and aspirations of the individual and the individual's present experience" (p. 8).
Campbell et al. (1976)	"Satisfaction of needs" (p. 9).
de Haes & van Knippenberg (1985)	"An overall evaluation of the subjective experience of life" (p. 812).
Ferrans & Powers (1992)	"A person's sense of well-being that stems from satisfaction or dissatisfaction with the stress of life that is important to him or her" (p. 29).
Grant, Padilla, Ferrell, Rhiner (1990)	"A personal statement of the positivity or negativity of & attributes that characterize one's life" (p. 261).
Hornquist (1982)	"The degree of need-satisfaction within the physical, psychological, social, material, and structural areas of life" (p. 57).
Institute of Medicine (1986)	"Sense of well-being, level of satisfaction with life, and feeling of worth and self-esteem" (p. 15).
Lawton (1983b)	"A set of evaluations that a person makes about each major domain of [his\her] current life" (p. 65).

Table 1 (cont'd)

Selected Definitions of Subjectively Perceived Quality of Life

Authors/Researchers	QOL Definitions
Magilvy (1985)	"Satisfaction expressed by the individual about life at the present time" (p. 140).
Zhan (1992)	"The degree to which a person's life experiences are satisfying" (p. 796).

Objectively defined QOL refers to "the degree to which specified standards of living are met by the objectively verifiable conditions, activities, and activity consequences of [a person's] life" (Rice, 1984, p. 157). When defined objectively, the person's QOL is evaluated by others. In most cases, QOL is frequently defined in terms of the measures or indicators selected by the researcher conducting the study. QOL simply means what the researcher means it to be.

Several definitions in Table 1 reflect an overlap of the component, satisfaction. The definitional overlap suggests a certain degree of agreement among authors/researchers and the important role satisfaction plays in a person's life. Since QOL is a broad and encompassing concept, it should not be defined using only one component or domain. In this meta-analytic study, the definition represents QOL as subjective,

changeable, and applicable to diverse groups of older adults regardless of health status.

Assessment of Quality of Life within Health Care

Although efforts are increasing to measure QOL within health care, study outcomes or implications may be implicitly, explicitly, formally, and/or informally stated. For example, clinical drug trials are considered formal research studies but the relationship of drug outcomes to QOL are often implied rather than explicitly stated. The formal development of new technologies, medical procedures, and nursing interventions often have implications for QOL but again are not explicitly stated. Although study outcomes and implications need to be clearly articulated, HCPs need additional knowledge regarding measurement of patients' QOL. In this investigator's health care experience, QOL of patients is most often assessed by HCPs in an informal manner and in accordance to what the HCP perceives QOL to be.

Generally, HCPs assume that their "perceptions and assessments of their patients' health status are accurate and congruent with those of the patient" (Molzahn & Northcutt, 1989, p. 132). Perceptual discrepancies of QOL between patients and HCPs may interfere with the provision of quality patient care. A lack of perceptual congruency could lead to: (a) limited communication between nurses, physicians, ancillary staff and patients;

(b) implementation of unwarranted medical and nursing interventions; and (c) decreased patient compliance with prescribed therapeutic regimens. If formal assessments and research findings related to QOL were incorporated into clinical practice, HCPs would be more effective in improving QOL specific to those areas deemed important by patients.

QOL judgements made by HCPs are most likely to be biased when assessing patients of a different social and economic class. Taylor (1985) believed that differences among persons "can lead to widely different views of what constitutes a tolerable QOL" (p. 926). In a study conducted by Pearlman and Uhlmann (1988), physicians' ratings of patients' QOL correlated weakly ($r = 0.15$ to 0.31) with the patients own QOL rating. QOL manifests itself differently to different persons and age groups and exists in varying degrees for different illnesses or diseases (Barnett, 1991).

Overall, the lives of older adults are viewed more dramatically by HCPs and the lay public than older adults themselves. In a national survey conducted by Harris in 1981, findings revealed that both the young and old perceived life among older adults to be substantially negative. Not surprisingly, when older adults were asked to self-rate their own lives they did so more favorably than others. The marked disparity between the ratings often resulted from the use of objective variables when evaluating the lives of older adults. Common variables used by HCPs and researchers

to objectively measure QOL include: (a) health status, especially physical function/disability and number of reported illnesses (Karnofsky & Burchenal, 1949; Marshall, 1990; Zhan, 1992); (b) financial and social resources (Campbell et. al., 1976; George & Bearon, 1980); (c) environmental conditions (Najman & Levine, 1981; Schuessler & Fisher, 1985); and/or (d) level of education and employment (Andrews & Withey, 1976; George & Bearon, 1980; Rice 1984).

When HCPs use the term QOL, the health of patients is usually the prime focus. Therefore, references made by HCPs in relation to patients' QOL most often pertains to HQOL. In specific terms, HQOL applies to how a person's total well-being and satisfaction with life is affected by illness, disease, accidents, and therapeutic treatments (Grant et al., 1990).

Health-Related Quality of Life

Unidimensional Aspects of HQOL

Research pertaining to HQOL was pioneered in part, by Karnofsky in 1949 (Karnofsky & Burchenal, 1949). Karnofsky's work in the medical field led to the development of the Karnofsky Performance Status Scale (KPS), an instrument designed for physician use in measuring QOL of patients. The KPS is comprised of a linear analogue scale which ranges from 0% to 100% in increments of 10; 100% denotes the highest activity level. Based primarily on the objective and unidimensional measure of physical activity,

the KPS does not take into account the subjective nature of a person's life quality. Over the years, the KPS has been widely used in clinical practice and cancer trials for measurement of HQOL. Since the instrument contains only one objective measure, it inadequately represents the complexities of QOL. Furthermore, the usefulness of the KPS remains limited in the overall clinical evaluation of patients. Since the KPS has not been subjected to rigorous testing, many authors have criticized the KPS for its lack of reliability (Hutchinson, Farndon, & Wilson, 1979; Selby, 1985).

HQOL has also been objectively measured by HCPs and researchers using the Index of Independence in ADL (Index of ADL). The Index of ADL was developed for the purpose of examining the results of treatment and prognosis in older and chronically ill adults (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963). In the initial development of the Index, six patient functions were delineated by nurses, sociologists, physicians, and other HCPs through observing ADL performed by 250 patients with a fractured hip. The ADL functions that comprise the Index are: dressing, bathing, going to the toilet, transferring, continence, and feeding. Each patient function is graded on a scale in relation to adequacy of performance, which ranges from total independence to total dependence.

In the study, a total of 1,001 healthy and chronically ill subjects from various institutional and community health care settings were evaluated

using the Index of ADL. Ninety percent of the subjects were 40^{+} years, more than 60% were 65^{+} years, and most had more than one chronic illness associated ADL disability. Study findings revealed that subjects who were recovering from a disabling illness, showed a similar sequence of improvement in ADL functions. Disabled subjects passed through three stages: first, recovery of independence in feeding and continence; second, recovery of independence in transferring and going to the toilet; and third, recovery of complete independence in bathing and dressing. An additional study finding demonstrated that the patient's adequacy of performance with regard to a single function, going to the toilet, indicated overall ADL performance.

In conclusion, independence of ADL function helps a person to sustain physical/emotional and social strength; a vital aspect of a person's HQOL and in part, QOL. In general, independence in ADL can be considered a basic component of any definition of health concerning older adults. In terms of the Index of ADL, the instrument could be used within the practice of nursing and medicine as an objective guide for: (a) assessing or predicting the course of chronic illness, (b) establishing individualized plans of patient care, and (c) determining the point in time for initiating medical and nursing interventions. Since the Index of ADL is based on

physiological principles involving physical functions, the instrument could also be used for studying and teaching HCPs about the aging process.

Another approach for objectively measuring HQOL has been through the use of the Quality of Well-being (QWB) Scale developed by Kaplan, Bush, and Berry (1976). The QWB Scale can be best described as a time-specific, general health status index. The purpose of the QWB Scale is to measure QOL in relation to one well or healthy year of life. The interview-based QWB Scale is comprised of 36 symptoms/problem complexes, and 43 function levels based on mobility, physical activity, and social activity. Each step of the scale is associated with standardized consumer preference-weighted measures that are used in a designated formula to calculate the overall QWB of persons. Ultimately, the QWB of persons can range from 1 (asymptomatic optimum functioning or perfect health) to 0.0 (death). For example, if a person who sustained a myocardial infarction had a calculated QWB value of 0.50, then the quality of one year of life with that illness would be equivalent to one-half of a year with perfect health. The value of QWB also decreases in older adults, most often resulting from the increased number of chronic illnesses and health-related problems associated with advancing age. The worse the QOL of an unhealthy person, the worse the QWB value.

Since the QWB Scale has been used in a variety of population studies and clinical trials, reliability ($r = 0.91$), content validity, and construct validity have been established (Kaplan et al., 1976). However, the length of time (20-30 minutes) it takes to administer the instrument may cognitively fatigue older adults; thus, limiting its usefulness. Moreover, the administrative costs involved may limit the practicality of using the interviewer-based QWB Scale in health care settings or studies with large samples. Finally, the QWB Scale may be too "objective" in measuring HQOL since the number of weighted items related to a person's feelings are limited (Ganiats, Palinkas, & Kaplan, 1992).

The Quality Adjusted Life Year (QALY) developed by Williams in 1985 is similar to the QWB Scale in that it represents one year of perfect health. The QALY was designed to: (a) measure the cost benefit/effectiveness of clinical interventions on life expectancy, (b) determine which patients should receive the benefit of available treatments, and (c) justify decisions regarding the allocation of scarce health care resources. In essence, QALY is an economic appraisal of HQOL. Patients who are assigned a higher QALY value, have a greater chance of receiving treatment than those with lower QALY values. The wide use of QALY in the measurement of HQOL has been subject to much criticism, controversy, and debate by researchers and HCPs. Furthermore, it has been suggested that the philosophical basis of

the QALY is unsound and fraught with ageist, racist, and elitist attitudes (Harris, 1987).

The major criticisms of QALY are two-fold. First, determination of QALY ratings were based on 70 healthy persons rather than those affected by illness and disability. When QALY ratings were made by healthy persons with respect to certain illnesses, values were lower than those experiencing the illness. Consequently, the QALY should not be considered universally applicable for all persons. Additionally, the validity of assigning one number to represent HQOL of all persons with the same diagnosis remains questionable (Ferrans, 1990). Second, QALY ratings were based only on the two variables of physical mobility and freedom from pain. The use of limited objective and subjective variables in measuring HQOL, does not provide HCPs with complete information about the impact of activities and illnesses/treatment modalities on the patient's well-being within the domains of life. Also, if patients' preferences are not taken into consideration during the clinical decision-making process, HCPS may choose inappropriate interventions that ultimately foster patient noncompliance (Ben-Zoin & Gafni, 1983).

Researchers who employ only unidimensional and/or objective variables in measuring HQOL, hamper efforts to fully understand the QOL experience. When older adults evaluate their own lives, the objective

variables of health are attenuated by subjective interpretations of feelings and experiences. Objective variables measure things that influence life experiences and subjective variables measure life experiences directly. The use of objective instruments in research and practice is the least optimal method for obtaining patient data pertaining to HQOL or QOL.

Multidimensional Aspects of HQOL

Using a broader approach in the measurement of HQOL, Stewart, Hays, and Ware (1988) conducted a study incorporating both subjective and objective measures. The purpose of the research study was to develop a comprehensive and psychometrically sound short-form version of the General Health Survey. The 75 item General Health Survey is a self-administered questionnaire, which takes an average of 13 minutes to complete. During development, the General Health Survey was administered to thousands of adults from the general population. Reliability coefficients were only reported for the six multi-item health scales, which ranged from 0.76 to 0.88. The researchers also reported that a small subset of items from the General Health Survey were shown to satisfy standards of validity in a general population. However, exact statistical data regarding validity of the long-form measures were not provided.

Patients surveyed in the research study conducted by Stewart et al. (1988) were participating in a Medical Outcomes Study (MOS). The MOS

was an observational study of physician practice styles and patient outcomes in various systems of health care. The short-form version of the General Health Survey was administered to 11,186 subjects with a mean age of 47 years. Average time taken by subjects to complete the instrument was 3 minutes.

The Short-form General Survey contains 20 items that represent six health concepts. Physical functioning, the first health concept, was assessed by limitations specific to a variety of physical activities. Role and social functioning, the second and third health concepts, were defined by limitations as a result of health problems. Mental health, the fourth health concept, was evaluated in terms of psychological distress and well-being. Health perceptions, the fifth health concept, measured patients' self-ratings of their current health status in general. Pain, the sixth health concept, was included to denote the differences in physical discomfort.

Study findings regarding psychometric properties of the Short-form General Survey revealed that reliability coefficients for the multi-item health scales ranged from 0.81 to 0.88. Stewart et al. (1988) stated that results of the study "offered preliminary support for the validity of the measures" (p. 730). Additionally, all correlations among the health measures were statistically significant ($p < .01$).

In terms of the Short-form General Health Survey, one specific item was identified by Cunny and Perri (1991) as a single-item measure of HQOL. Based on the Short-form General Health Survey, Cunny and Perri conducted a study to determine the correlation between the single-item measure of HQOL and the overall survey score of HQOL. The single-item measure of HQOL posed to 35 chronically ill subjects (mean age, 68.1 years) by the researchers was: In general, would you say your health is Excellent, Very Good, Good, Fair, or Poor.

Study findings revealed that the single-item measure of HQOL was positively and significantly correlated with the overall Short-form General Health Survey score for HQOL ($r = .86$, $p < .001$). The significant correlation of the single-item measure of HQOL with the total survey score was considered to be an acceptable method by Cunny and Perri (1991) for assessing HQOL. The researchers felt that the single-item measure of HQOL could be of tremendous value to HCPs who needed to measure HQOL but lacked the time, skills, or funds to use multiple scale items. Other researchers and HCPs purport that single-item measures used in the measurement of HQOL can be considered as satisfactory as multi-item scales. Nevertheless, single HQOL items are usually less precise, reliable, and valid (Stewart et al., 1988). A major criticism of single-item measures of HQOL is that "no clues are provided about why [a person's] functioning

may be impaired" (Frank-Stromberg, 1988, p. 84). In order to capture the multidimensional phenomenon and essential aspects of QOL, studies using single-item measures were excluded from this meta-analytic study.

There is consensus that HQOL or QOL should be objectively and subjectively measured employing a multidimensional approach. Ferrans (1990) pointed out that "care must be taken to capture the broad nature [of QOL], rather than focusing only on health concerns" (p. 253). The multidimensional approach is recommended because other QOL domains, such as: psychological and social well-being, spiritual integrity, and economic security may be substantially affected by changes in health status. In measuring HQOL or QOL, the use of a multidimensional approach provides HCPs with accurate and comprehensive patient assessment data necessary for optimizing individualized plans of care. The subjective and multidimensional aspects of a person's life should not be abandoned, if QOL is to be accurately measured.

Multidimensional Aspects of Quality of Life

In terms of scientific inquiry, the most notable work in the area of multidimensional QOL research has been accomplished by Campbell et al. (1976); sociologists at the University of Michigan. The broad efforts of the researchers were directed at measuring QOL involving subjects of all ages and across all domains of life for the entire American population. The focus

of the national study was primarily based on the subject's perception of well-being or QOL. Subjects were asked to rate their satisfaction with various life domains using a seven point Index of Domain Satisfactions rating scale; 1 = completely satisfied and 7 = completely dissatisfied. The specific satisfaction domains used to measure subjectively perceived QOL included: (a) family life; (b) marriage; (c) health; (d) housework; (e) friendships; (f) finances/savings; (g) housing; (h) life in the US, city, or county; (i) neighborhood; (j) job; (k) standard of living; (l) leisure; (m) usefulness and level of education; and (n) religion.

Findings from the national study revealed the importance of measuring the subjective component of a person's QOL. The researchers concluded that reports of excellent, good, or poor QOL may mean different things to different people. Although reliability and validity of the Index of Domain Satisfactions were not explicitly addressed in the study, several domains identified by Campbell et al. (1976) have been used by other researchers in measuring QOL.

Ferrans and Powers (1985) conducted a study expanding upon the research completed by Campbell et al. (1976). The purpose of the study was to assess the validity and reliability of the Quality Life Index (QLI). Designed by the researchers, the QLI takes into account the subjective

evaluations and unique importance of each life domain relative to the life satisfaction of healthy and nonhealthy persons.

Although QOL has been measured in numerous studies by assessing life satisfaction, the importance of specific domains contributing to QOL has been lacking. Just as life satisfaction varies with each domain, so does the importance of each domain. Since persons differ with regard to which domains predominate in importance, Ferrans and Powers (1985) stated that summated satisfaction scores produce an inaccurate representation of QOL. The rationale provided by Ferrans and Powers (1985) regarding the concept of importance in relation to life domains, underlies the QOL definition formulated for this meta-analytic study.

In terms of using the QLI as an organizing framework for measuring QOL, the QLI is divided into two sections. Section I measures satisfaction with various life domains and Section II, measures the importance of the same life domains to persons. Each section of the QLI specifically includes 32 items for measuring QOL in healthy persons. Specific items can also be added to the QLI for measurement of QOL in persons with various chronic illnesses.

The QLI is a comprehensive instrument that overcomes some of the problems in measuring QOL, especially in relation to the concept of domain importance. Results of the study supported the criterion-related validity

(0.75) and internal consistency reliability (0.93) of the QLI when used with 88 healthy subjects. Additionally, the QLI demonstrated reliability (0.90) and validity (0.65) when modified for use with 37 dialysis patients.

In conclusion, the ease in which the QLI can be adapted for other illness groups may promote its use by other researchers. Nurses could use the QLI in practice to: identify aspects of life that are of greatest concern to patients, facilitate patient-HCP communication, and plan/implement/evaluate pertinent interventions that may ultimately improve the patient's QOL. Despite the advantages of the QLI, one disadvantage may exist in relation to the time it takes to complete the questionnaire. Although the exact time was not mentioned by the researchers, completing a questionnaire with 70 items could be cognitively and physically fatiguing to older adults experiencing serious health problems.

Since there is no uniform standard for measuring QOL, numerous studies have been conducted in an attempt to identify domains and develop reliable and valid instruments for QOL measurement in general and specific populations. Although more QOL research is being conducted, the confusion of what constitutes QOL still persists. To exemplify the existing confusion, QOL domains that have been investigated by a number of researchers in various disciplines are depicted in Table 2.

Table 2

Quality of Life Domains, Disciplines, and Researchers

QOL Domains	Disciplines and Researchers
Family life/activities, housing, job, income, health, well-being, leisure activities, accomplishments, and standard of living.	Sociology: Andrews & Withey (1976).
Life satisfaction, self-esteem, health & functioning, & SES.	Sociology: George & Bearon (1980).
Psychological/physical/financial/interpersonal/material well-being, & sequela of disease & treatment.	Nursing: Grant et al. (1990).
Health & functioning, SES, psychological/spiritual, & family.	Nursing: Ferrans (1990); Ferrans & Powers (1985 & 1992).
Physical/psychological/spiritual & social well-being or social concerns/interpersonal well-being.	Nursing: Padilla et al. (1990).
Family life, friends, standard of living, leisure activities, & residential environment.	Psychology: Lawton (1983b).
Health, social support, & financial adequacy.	Nursing: Magilvy (1985).
Performance of social roles, physiologic & emotional state, intellectual functioning, & general satisfaction.	Medicine: Najman & Levine (1981).
Life satisfaction & subjective evaluation of QOL.	Social Psychology: Neugarten, Havinghurst, & Tobin (1961).
Physical/psychosocial/spiritual & cultural.	Nursing: Nordstrom & Lubkin (1990).
Psychological well-being, physical well-being, & symptom control.	Nursing: Padilla et al. (1983).

Although this meta-analytic study focuses on older adults, research studies involving young adults are presented to contrast the QOL domains considered important by both groups. Findings of the research studies have provided the rationale for including only one group of adults in the QOL meta-analytic study with respect to age.

QOL among Young vs. Older Healthy Adults

Young Healthy Adults. To overcome some of the problems in measuring the phenomenon of QOL, a research study was conducted by Evans, Burns, Robinson, and Garrett (1985) for the purpose of determining the QOL domains that subsume a person's life. Organization of the study encompassed four phases. For the purpose of depicting the difference in QOL between young and older adults, only the phases that provided rationale for the inclusion criteria of the meta-analytic sample are discussed.

Phase 1 focused on scale determinations and item development. Scale determinations as postulated by the researchers included five QOL domains: general well-being, interpersonal relations, organizational activity, occupational activity, and leisure/recreational activity. In terms of item development, 452 measures eventually constituted the preliminary Quality of Life Questionnaire (QOLQ) instrument.

In Phase 2 and 3, the self-administered QOLQ was completed by 298 subjects selected at random; 116 males and 182 females. The average age of the subjects was 38 years. Following an item analysis, scale items were revised and administered to 163 different subjects selected at random for the purpose of cross-validating the instrument. The second study sample consisted of 67 males and 96 females; mean age was 40 years. Internal consistency values of the QOLQ scales using Kuder Richardson-20, ranged from 0.55 to 0.97. To produce a composite index of QOL for each subject, correlations of each scale with the subject's QOL score were calculated. The correlational data was then subjected to principal component factor analysis.

Factorial representation of the QOL domains were reported as follows: Factor I, occupational and material well-being; Factor II, social well-being; Factor III, Family well-being; Factor IV, personal well-being; and Factor V, Physical well-being. Factor V specifically represented the person's involvement in health-protective behaviors. Given the relatively low loading of the QOL score (0.18) on Factor V, Evans et al. (1985) suggested that health-protective behaviors may not be an aspect of QOL. Perhaps health-protective behaviors would have loaded more significantly on Factor V, if the study sample had been comprised of older adults. Since older adults perceive health as a very important aspect of QOL, they may be

more involved with practicing health-protective behaviors. The researchers recommended that further studies needed to be conducted before a conclusion could be drawn regarding the relationship of health-protective behaviors to QOL.

Healthy Older Adults. In an effort to gain better insight regarding the domains considered important to persons in achieving "good" QOL, Flanagan (1982) conducted a study using the critical incident technique. The study sample consisted of 3,000 healthy American adults representing a wide range of socioeconomic levels. The two critical incident questions used, addressed satisfaction and importance of life events as experienced by the subjects.

Due to the large sample size, 6,500 critical incidents were collected and classified according to 15 factors under five components determined by a panel of independent judges. The components and associated factors identified were: (a) physical and material well-being; (b) relations with other people; (c) social, community, and civic activities; (d) personal development and fulfillment; and (e) recreation.

The research findings pertaining to the importance of 15 factors regarding QOL were reported in percentages with respect to three groups of 1,000 persons aged 30, 50, and 70 years. The factors with the highest percentages of importance to QOL for the 30 year old subjects were: (a)

health and personal safety (98%); (b) close relationship with spouse or member of the opposite sex (94%); (d) work that is interesting, rewarding, and worthwhile (90%); and (e) learning, attending school, and improving understanding (84%). The 30 year old female subjects also reported that having and rearing children (93%), understanding yourself and knowing your assets/limitations (92%), and relationships with relatives (83%) were important aspects of QOL. Material comforts, such as security, desirable home, food, and conveniences were factors considered less important by the female subjects. With respect to the 30 year male subjects, factors considered less important to QOL were having close friends, relationships with relatives, and helping/encouraging others.

Since the study findings were similar for the subjects aged 50 and 70 years, factors and associated percentages are presented primarily for the older subjects. The factors deemed important by the 70 year-old subjects were reported as: (a) health and personal safety, 96%; (b) material comforts, 85%; and (c) understanding and knowing your assets/limitations, 84%. In terms of the female subjects, specific factors considered important to QOL were: (a) having a family and close friends, 89%; (b) encouraging/ helping others, 81%; (c) maintaining relationships with relatives, 79%; and (d) reading, listening to music, or watching TV, 65%. Additional study results revealed that participation in local or governmental affairs was the

factor identified as important by the older male subjects, 67%. Other QOL factors considered less important by the older subjects were noted as: learning or attending school, 55%; participation in active recreational activities, 51%; and creativity, 49%. Since the subjects aged 70 years were either partly or fully retired, it was not surprising that work was significantly more important to subjects aged 30 and 50 years.

In summarizing the discussion, Flanagan (1982) stated that the 15 factors identified appeared to be adequate in measuring QOL of people in general. From this investigator's perspective, the unrotated factors should have been subjected to factor analysis for orthogonal rotation and factor loading. With factor analysis, items could have been developed, tested, and analyzed for validity. If reliability of the items had also been determined, researcher bias would have been minimized.

Another study was conducted by Murrell, Schulte, Hutchins, and Brockway (1983) to assess the unmet needs or problems affecting the QOL of older adults. The total survey sample was comprised of 1,847 adults, which included 681 older adults aged 55^{+} years. To assess the unmet needs of all subjects, four measures were used. The Evaluative Need measured the comparative subjective appraisal of problem status in each life domain. The degree of expected difficulty in obtaining services related to various life domains was measured by Service Need. The Descriptive

Need measured the domains of: (a) employment, financial, or total household annual income; (b) environment or neighborhood situations; (c) physical and mental health; (d) nutrition; (e) social or frequency of social contacts; and (f) transportation. Community Support, the last measure, reflected the adequacy of services in a life domain within the subject's community.

QOL, the criterion measure for general sense of well-being, was used to estimate the relative importance of the different types of needs in each QOL domain. The Perceived QOL Scale developed by Andrews and Withey (1976) was employed to measure the needs across the life domains (see Table 2). High scores on the need measures indicated a high degree of unmet needs, whereas high scores on QOL indicated a high degree of well-being.

Within the sample, forward stepwise multiple regression was used for data analysis. For evaluative need, employment had the strongest association with QOL for younger and older subjects (beta = - 0.255, $p < .001$). Since specific ages or details of employment were not provided by the researchers, the study finding with respect to older subjects needs to be questioned. If a significant number of older subjects were between the ages of 55 and 70 years, full-time or part-time employment could still be considered an important aspect of QOL. In comparing the findings with

other research studies, a strong association between full-time employment and QOL for subjects over 70 years would be unlikely for most older adults.

In the service need, the social (beta = - 0.181, $p < .001$) and financial (beta = - 0.179, $p < .001$) domains were the strongest correlates of QOL in the younger sample. Health had the strongest correlation (beta = - 0.197, $p < .001$) with QOL for older subjects; a finding that has been supported in many other studies. With respect to descriptive need, the domain of mental health by far had the strongest association with QOL in both the younger (beta = - 0.407, $p < .001$) and older sample (beta = - 0.343, $p < .001$). The multiple *R* reported for the older sample was 0.54.

In conclusion, study measures were only able to account for 30% of the variance in QOL. Murrell et al. (1983) pointed out that low variance may have resulted from only using subjective measures of well-being. The idiosyncratic personality features and situations of subjects could influence QOL responses; thus, reducing the amount of variance general measures can account for. The study findings have implications for policy-makers. The services most likely to improve QOL would be in the social and financial domains for all persons and in the health domain for older adults.

In terms of noninstitutionalized older adults, a secondary analysis was performed by Haug and Folmar (1986) on data collected from a General Accounting Office (GAO) study. The purpose of the GAO study was to

prepare a report for Congress on the well-being of older adults residing in Cleveland, Ohio. Subjects included in the GAO sample (647) were interviewed in 1975 and if living, were reinterviewed in 1984. Women constituted two-thirds of the sample, which was divided into three age groups: 65 to 74, 75 to 84, and 85^{+} years.

Findings of the secondary analysis revealed that "feminization was evident in the gender difference by age cohort" (Haug & Folmar, 1986, p. 334). Women were shown to experience lower QOL in relation to diminished physical and psychological health, income, and social contacts. In terms of living alone, performing ADL/IADL, sustaining cognitive losses, and having inadequate funds, women were found to be more disadvantaged than men. Other research studies have also revealed that women fair less well with advancing age. Since women have a longer life expectancy than men, their QOL is frequently compromised by the higher incidence of chronic disease, functional impairments, and widowhood.

In summary, QOL among young adults most often encompasses: achievement of a successful career, employment, close relationship with spouse, rearing children, educational pursuits, and personal growth. In contrast, QOL to the majority of older adults often means having: physical, mental, and functional health; material comforts; personal safety; close friends; and understanding of limitations. Although health is a part of QOL

for younger adults, it plays a more vital role in the overall QOL for older adults in terms of physical function and independence (Foreman & Kleinpell, 1990).

Other domains considered important in achieving QOL by older adults are financial resources, independence, and social approval/status. Helping others and maintaining relationships with relatives are the two QOL domains that apply to women of all age groups, suggesting that the domains may be gender rather than age related. As a result of this investigator's specialty in gerontological nursing and the differences noted between young and older adults regarding the importance of QOL domains, only subject-studies with samples of adults aged 55^{+} years were included in this meta-analytic study.

QOL among Chronically ill Older adults

Many QOL research studies of older adults have taken place within long-term care or institutional settings. Institutionalized older adults often place a different emphasis on QOL than younger or older healthy adults. In order to attain life quality, most institutionalized older adults want freedom of choice, privacy, support of independence, safety and security, and continued relationships with family/friends (Enquist, 1979). With respect to community-residing older adults who have an underlying chronic illness, important factors that can enhance QOL are: (a) symptom control,

(b) disease stability, (c) effective therapeutic regimens, and (d) normalization of activities (Nordstrom & Lubkin, 1990).

The measurement of QOL among persons with chronic illnesses has dramatically increased over the past 14 years. The problem, however, is that QOL measurement among chronically ill persons has been accomplished mostly by using the objective indicators of: disease, physical function, and work status. Unfortunately, only a few researchers have asked persons with a chronic illness/disability to identify the importance of QOL domains. A common conceptual theme or instrument has not yet been identified by researchers that could be used to measure QOL as an outcome measure across various chronic illness groups. In the following discussion, several research studies pertinent to older adults with chronic illnesses are presented.

The purpose of a study conducted by Padilla et al. (1983) was to revise an instrument, the QLI for the measurement of QOL in cancer patients. The QLI contains 14 linear analogue scale items that pertain to physical condition, normal activities, and personal attitudes of a person's general QOL. The QLI was tested with four subject groups: oncology outpatients ($n = 43$) and inpatients ($n = 48$) receiving chemotherapy, oncology patients receiving radiation therapy ($n = 39$), and nonpatient

volunteers ($n = 48$). The oncology samples consisted of 92 women and 38 men, mean age was not specified.

In terms of psychometric properties, construct validity for the 14 item QLI was determined by factor analysis for the oncology subjects. Three well-defined factors were extracted using the orthogonal varimax method of rotation. Factor I, psychological well-being, was deemed the most important concept in defining QOL. Factor II represented physical well-being. The analysis of findings support the inclusion of psychological and physical well-being as two of the domains that comprise QOL in this meta-analytic study.

Factor III, symptom control, reflected episodes of pain, nausea, and vomiting experienced by the oncology subjects receiving chemotherapy and radiation treatments. In the present study, symptom control will be considered an indicator of physical well-being. Although Factor IV or personal well-being was extracted from the study data, it was not well defined. Padilla et al. (1983) indicated that the factor IV appeared to be related to financial protection and worry over the cost of care.

The revised QLI differs from the original version in number, wording, and organization of terms/instructions making it more practical and easier to use. The statistical finding for test-retest reliability among the oncology sample was $r = 0.60$, $p < .01$. Reliability of the QLI in terms of internal

consistency was $r = 0.88$, $p. < 01$. However, a study finding that was not surprising revealed that concurrent validity between the oncology subjects' QOL scores and physicians' QOL ratings using the KPS was poor ($R^2 = 0.29$). Low correlations between HCPs and patients' QOL ratings have been documented by several other researchers.

In 1990, Padilla et al. conducted a study to further identify domains and attributes important in measuring the QOL of cancer patients experiencing chronic pain. Forty-one patients with a median age of 51 years were asked open-ended questions about the meaning of QOL, what contributes to a good or poor QOL, and how pain influences QOL. A panel of five judges conducted a content analysis on the patient responses which resulted in the broad categorization of three QOL domains; psychological, physical, and interpersonal well-being. Attributes that related to psychological well-being included: (a) cognitive and affective components, such as: enjoying life, happiness, inner peace and turmoil, spiritual support, self-esteem, communication, and concentration; (b) coping ability, which either reflected financial or a general feeling of security/insecurity; (c) adjustment to life events; (d) meaning of pain and cancer; and (e) accomplishments, especially being useful/satisfied and successful. General functioning, disease, and treatment specific attributes comprised the domain of physical well-being.

With respect to general functioning, factors contributing to poor QOL were most often due to feelings of dependence, not having a normal life, and being sick. Disease and specific treatment attributes related primarily to the presence or absence of pain. In terms of the last domain interpersonal well-being, the attributes identified by the Padilla et al. (1990) were social support and social/role functioning. In the present study, several of the attributes identified have been included under the domains of physical, psychological, and social well-being; spiritual integrity; and economic security.

The researchers concluded that replications of their study using other patient groups could lead to the development of a two-part, multidimensional QOL instrument. The first part of the instrument could be norm-referenced, so that salient QOL attributes could be evaluated irrespective of disease or treatment. Domain-referenced measures could comprise the second part of the instrument, whereby salience of attributes would be dependent on a specific disease, treatment, or life events.

The impetus for conducting a meta-analysis by this investigator, was to develop a norm-referenced QOL instrument that could be used with healthy and chronically ill older adults. As a result of this study, domains and variables that emerge as important in measuring QOL would enhance future development of a norm-referenced instrument. Other

domain-referenced instruments already developed for specific diseases could be used in conjunction with the norm-referenced QOL instrument.

In 1992, Ferrans and Powers conducted a study to: (a) examine the psychometric properties of the QLI with a large group of hemodialysis patients and (b) develop subscales for the instrument. The study sample consisted of 349 subjects who were randomly selected from an in-unit population of adult hemodialysis patients. The mean age of the sample was 55.17 years.

All study data was subjected to factor analysis in order to extract the domains underlying the QLI. The factor structure delineating the domains of the QLI were: Factor I, Health and Functioning; Factor II, Socioeconomic; Factor III, Psychological/Spiritual; and Factor IV, Family. Based on the factor analysis, findings have been integrated into the meta-analytic QOL study. The analysis of findings provide additional support for using psychological and physical well-being as QOL domains. Although perceived financial adequacy is vital to the measurement of QOL, SES needs to be broadly measured. Therefore, SES has been included within the life domain of economic security. In order to determine the importance of spiritual integrity on QOL, the spiritual aspects and psychological well-being of older adults were considered as separate domains. The importance of family on QOL, especially for older adults, cannot be underestimated. In this

meta-analytic study, family has been incorporated into the domain of social well-being.

Psychometric properties of the QLI revealed that construct validity was supported using the contrasted groups approach. As predicted by Ferrans and Powers (1992), it was found that subjects who had higher incomes had significantly higher QOL scores on the socioeconomic subscale. The correlation between the overall QLI score and the single-item regarding life satisfaction taken from the Index of Domain Satisfactions (Campbell et al., 1976) was $r = 0.77$; thus, indicating good convergent validity. In terms of internal consistency reliability, Cronbach's alphas were reported for the: (a) entire QLI, 0.93; (b) health and functioning subscale, 0.87; (c) socioeconomic subscale, 0.82; (d) psychological/spiritual subscale, 0.90; and (e) family subscale, 0.77.

In conclusion, the QLI remains a comprehensive measure of QOL with strong psychometric properties. In addition to dialysis patients, the QLI has been modified for use with other illness related groups. Versions of the QLI have been developed for cardiac, respiratory, cancer, diabetes, arthritis, stroke/head injury, burn, epilepsy, multiple sclerosis, and liver/kidney transplant patients.

A retrospective study was conducted by Hinds (1990) to primarily explore variables that could be used to predict perceptions of QOL among

chronically ill patients. The researcher used a self-administered QOL questionnaire to collect data about patients': (a) preferences for illness-related information, (b) satisfaction with family functioning, (c) level of learned resourcefulness, and (d) perceptions of QOL. The cross-sectional study sample consisted of 87 lung cancer patients; 63 males and 24 females. Age of the subjects ranged between 32 and 82 years; mean age was 61 years.

Using stepwise multiple regression analysis, results revealed seven QOL predictor variables: (a) prognosis, $R^2 = 0.07$; (b) surgery, $R^2 = 0.14$; (c) current radiotherapy, $R^2 = 0.18$; (d) performance status, $R^2 = 0.21$; (e) learned resourcefulness (self-control skills), $R^2 = 0.24$; (f) information preference, $R^2 = 0.27$; and (g) age group, $R^2 = 0.30$. Since the incremental contribution of each QOL predictor variable was small, study findings helped confirm the complexity of QOL as a concept. Additionally, variables "which may be important in determining QOL for some individuals may not be as important for others" (Hinds, 1990, p. 458).

Other research findings revealed that correlations were high between the overall QOL scale and the subscales related to: health, $r = 0.91$; socioeconomic and psychospiritual, $r = 0.80$; and family relationships, $r = 0.51$. The health subscale indicated that if persons perceived their physical health and function to be at an acceptable level,

"they were more likely to view their [QOL] in a positive manner" (Hinds, 1990, p. 457). This investigator is surprised that the correlation between QOL and family relationships was not higher. Perhaps the finding is due to the fact, that 56% of the study subjects had been diagnosed with lung cancer in the previous six months. If these subjects had an acceptable level of function, dependency on family members would be negated. Another reason for the lower value might be due to the unavailability or absence of family members. Based on other research studies, persons with a life-threatening illness usually develop stronger family relationships than is reflected in this study.

As part of a study conducted by Burckhardt, Woods, Schultz, and Zeibarth (1989), three open-ended QOL questions were posed to a convenient sample of 227 middle-aged and older adults (134 females & 70 males) during a telephone interview. The three questions were: What does QOL mean to you? What kinds of things are important to your QOL? Has the quality of your life changed over the past year? The study sample was organized into four chronic illness groups: diabetes mellitus, osteoarthritis, rheumatoid arthritis, and ostomy secondary to colon cancer or colitis. Subjects who participated in the study were between the ages of 35 and 75 years; mean age was 60 years.

Results of the study indicated that the four groups of subjects used very similar terms in describing areas important to their QOL. The predominant QOL themes among the four groups were: (a) ability to care for self/independence; (b) being physically active/healthy; and (c) having a sense of security, positive interactions/relationships with others; and (d) meaning in life. Subjects with osteoarthritis emphasized freedom from pain, while those with diabetes emphasized being in control. All of the themes described by Burckhardt et al. (1989), have been included in the various QOL domains of this meta-analytic study.

Analysis of the question regarding a change in QOL over the past year, revealed that 54% of the subjects had experienced a QOL change. Of those who experienced a QOL change, 63% thought the change was for the better. Although subjects with ostomies experienced much less change than the three other groups, their change in QOL was still perceived as better.

Data from the studies presented indicate that chronically ill persons generate QOL items that are very similar to healthy persons. However, independence may play a more important role in persons with a chronic illness. Most healthy persons take for granted their ability to do for themselves. Persons with a chronic illness, in contrast, may find it a frustrating struggle to remain both physically and emotionally independent. Nordstrom and Lubkin (1990) stated that the goal for persons with a chronic

illness, "is to attain optimal functioning at the highest level of independence" (p. 138). Persons with a stable chronic illness can attain as high QOL as compared to those without a chronic illness. Nonetheless, care must be taken to ensure that the measurement of QOL is clearly subjective and not confounded by the objective measures of health.

McCarthy (1983) examined the meaning in life for persons nearing the end of the life span. Twenty-five older adults, 18 women and 7 men with a mean age of 85.76 years comprised the study sample. All subjects were caucasians and residents of a convalescent and retirement center.

The Life Satisfaction Index (LSI) was used to assess the relative importance of six categories that give meaning in life to older adults. Categories of the LSI were derived from: (a) health; (b) life work; (c) personal growth; (d) relationships; (e) belief; and (f) service, such as helping others. A seventh category of "other" was made optional and if used, a brief description was requested.

The LSI was completed by a person who had visited the subject on either a daily or weekly basis. Since six items were omitted by persons completing the LSI, a one-way Analysis of Variance (ANOVA) for ratings across the six categories was performed for only 20 residents. The researchers reported that the results of the ANOVA were significant ($F_{5,96} = 9.47$, $p < .001$). When Scheffe's test for multiple comparisons on

the treatment means was used, *post hoc t* values demonstrated significant differences ($p < .05$) between relationships, health, personal growth, service and belief. The chance differences ($p > .05$) between the two most important, intermediate, and least important sources of meaning in life were: relationships and health ($t = 1.38$), belief and service ($t = 0.44$), and personal growth and life work ($t = 0.13$).

Relationships were rated as the most favored category by the 20 respondents using the LSI, belief was rated second followed by health. McCarthy (1983) stated that the study findings could be partially due to the milieu of the convalescent and retirement center. The functional milieu of the center was directed toward maintenance or improvement of health, which is likely to complement a relational orientation toward interpersonal/ communal and familial aspects of living. When QOL was measured in other research studies using samples of residents in convalescent centers only, similar findings were reported. Since health has not been supported as primary focus of convalescent residents, those subject-studies were excluded from the meta-analytic study to prevent misleading study conclusions. However, subject-studies involving retirement centers were included in the meta-analytic sample.

Lusky (1986) performed a secondary analysis on data collected from a 1983 survey regarding the health status of older adults residing in West

Hartford, Connecticut. The study sample consisted of 382 subjects who were predominantly white (99%), middle or upper-middle class community residents. Age of the subjects ranged from 65 to 74 years, 75 to 84 years, and 85^{+} years.

In the 1983 health survey, data were collected from subjects via a self-administered questionnaire that contained 278 items. Data extracted for the secondary analysis were organized according to health concerns, social problems, and financial difficulties. With respect to health concerns, only eight percent of the sample reported being unable to independently perform ADL functions. IADL functional dependence was almost four times as likely as ADL dependence. Other findings related to health care concerns revealed that 33% of the subjects had mental health problems pertaining to psychological distress. In terms of perceived health: 21% of the subjects rated their health as excellent; 57%, good; and 22%, fair or low (high problem cases). Subjects aged 75^{+} years were almost three times as likely as subjects aged 65 to 74 years to fall in the high problem group; 36% vs. 13%, respectively.

The social problems that affected subjects were social disruption and interaction. Events considered to be socially disruptive among the subjects were: (a) retirement, 32%; (b) spouse's retirement, 23%; (c) illness of spouse/relative, 19%; (d) death of immediate family member,

14%; (e) major illness/injury, 13%; (f) family discord, 9%; (g) sexual difficulties, 7%; and (h) change in finances, (5%). Although events affected the groups of subjects differently, the rate of moderate and extensive disruption affected both groups similarly. Overall, 40% of the subjects under 75 years and 59% of the subjects over 75 years were identified as having problems with social interaction. The problems with social interaction for the older group often resulted from family illnesses and loss of close family members or friends.

Lusky (1986) stated that despite the long-term environmental, social, and economic advantages of living in West Hartford, the subjects "were not substantially different from other Americans in later life " (p. 1225). Though the subjects had more resources regarding health care, they were just as likely to experience health problems as other older adults. Socioeconomic well-being by itself, does not reduce the rate of morbidity/dependency in aging adults.

In conclusion, healthy and chronically ill older adults were included in the present study, since similar QOL domains were deemed important. As cited in the reported studies, the common themes related to the achievement of good or high QOL in both groups of older adults pertained to the: physical, psychological, social, spiritual, and economic aspects of life. Additional factors of importance for enhancing QOL among chronically

ill older adults were related to stability of disease and functional independence.

Judgements of QOL made by healthy and chronically ill older adults may be influenced by personal value systems, various life perspectives, and self-imposed standards (Cluff, 1981). Personal value systems may encompass a belief in: God or another deity, HCPs, therapeutic regimens, and one's own capabilities. Beliefs enhance inner strength to cope with illness and other life adversities. Depending on the degree of self-imposed standards, QOL may either be enhanced or stunted.

QOL Domains under Investigation

The process of aging is very individualized and independent of chronological age. Older Americans are richly diverse, having heterogeneous health, psychosocial, and economic status (Needham, 1993; Matteson, 1990). Aging can positively or negatively impact the older adult's sense of physical, psychologic, and social well-being; spiritual integrity; and/or economic security. Personal attitudes and coping abilities regarding the stresses and strains of daily living either promote or interfere with successful adaptation to aging.

Physiological parameters decline more rapidly in old age than in any other age group. Geneticity plays a major role regarding the potential for a long life, and degree of susceptibility for developing specific health

problems. Nevertheless, the speed with which aging occurs may be a reflection of socioeconomic factors and personal choice of lifestyles.

The first domain of QOL is Physical Well-being. More specifically, physical well-being relates to that aspect of QOL that involves a person's ability to function irrespective of health status. More than 50% of older adults aged 65^{+} years are free from functional limitations and about one-third who live in the community, require no assistance with self-care (McCabe, Fulk, & Staab, 1990).

Loss of the work role through involuntary retirement, diminished income, chronic illness, and widowhood may adversely affect the physical well-being of older adults. The cumulative losses experienced in the later years of life, make older adults more vulnerable and dependent on others; thus, hampering independent functioning. In studying the effects of widowhood on health, Wan (1985) found that a slightly larger percentage of widows reported a lower level of physical well-being than widowers. Other study findings revealed that more widows and widowers had greater health deterioration than nonwidows and nonwidowers.

Although chronic illnesses are not an inevitable part of aging, 80% to 85% of adults over 65 years have at least one chronic illness and 50% have two or more (Miller, 1990). In terms of functional limitations due to chronic illnesses of older men, heart disease is the leading contributor of morbidity.

For older women, arthritis is the major factor in creating functional health problems (Fletcher, 1994; Larson, 1988). Although cyclic in nature, chronic illness can: (a) alter body integrity, (b) create economic pressures, (c) decrease social interaction, (d) promote functional dependence, (e) foster depression, and (f) enhance spiritual awareness. Depending on the resourcefulness and coping abilities of older adults, the effects of chronic illness may not impair their sense of physical well-being. Aging adults may perceive their life as having quality in spite of sustaining one or more chronic illnesses.

Overall, healthy aging is a gradual process. Sixty-five percent of older adults who reside in the community view their health as good, very good, or excellent. One's perspective of health is highly related to the use of health care services. Older adults who rate their health as poor, tend to spend more time in bed and visit the physician more frequently than those who rate their health more favorably (Matteson, 1990).

The cumulative losses that accompany advancing age significantly impacts the functional status of adults over 75 years. Although functional limitations increase in the mid-to-later years of life, the older population is basically healthier than years past. To further enhance the health and physical well-being of the older population, goals of health care need to be focused on: (a) improving or stabilizing existing levels of health, to

enhance quality rather than quantity of life; (b) minimizing functional dependency, to forestall the rate of physiologic decline; (c) using appropriate home health services, to deter institutionalization; and (d) educating patients/families regarding health protective behaviors, to prevent complications due to existing chronic disease conditions. Persons who have fewer symptoms of illness and problems with mobility/functional health, often experience a greater sense of physical well-being.

The second domain of QOL is Psychological Well-being. In general, psychological well-being can be defined as a balance between positive and negative effect (Bradburn, 1969; Lawton, 1983a). Both positive and negative affect represent emotional states which are relatively independent of each other. Positive life events influence positive affective states but not negative ones. Whereby, negative life events influence negative affective states but not positive ones (Zautra & Reich, 1983).

Positive affect is a contemporary and time-limited feeling of an active pleasure state. Variables that can enhance a person's pleasure state and in turn psychological well-being, are related to the degree of: (a) social contact through organizational membership and friends; (b) sociability and companionship with spouse/family members; (c) physical well-being or health; (d) life satisfaction, autonomy, self-esteem, self-concept, and body image; (e) SES; (f) congruence between desired and achieved goals;

and (g) coping ability/adjustment to other situations that introduce variability into life experiences.

Negative affect reflects an active displeasure state. Variations in negative affect that can alter a person's psychological well being are associated with: (a) serious illnesses; (b) difficulties in marriage and work; (c) depression and pessimism; (d) dependency; (e) chronic strains, anxiety, agitation, and worry; and (g) psychological distress. "The greater the excess of positive over negative affect, the higher the overall rating of psychological well-being" (Bradburn, 1969, p. 9-10). Moreover, the discrepancy between positive and negative affect is considered the best predictor of overall happiness. Persons experiencing happiness tend to be free of symptoms, evaluate themselves positively, and/or have many external gratifications (Lawton et al., 1984). Happier persons achieve higher levels of psychological well-being than those who are not as happy.

Happiness, an affective quality, is a transitory mood of gaiety, elation, or positive feelings. Often, happiness is used interchangeably with the concept of life satisfaction. Although there is some overlap, the two concepts are distinctly different. Life satisfaction is specifically a longer-term cognitive experience resulting from contentment with life in general (Campbell et al., 1976). In a sample of 91 noninstitutionalized subjects aged 66 to 94 years, Baur and Okun (1983) found that life

satisfaction was a relatively stable variable over a three year period. An interesting finding of many research studies have indicated that happiness decreases with age, whereas life satisfaction increases with age. Overall, life satisfaction comes closer to capturing the concepts of psychological well-being and QOL than does happiness.

Increased life satisfaction among older adults may be attributed to factors, such as: (a) degree of life satisfaction in the past (Palmore & Kivett, 1977), (b) openness to new experiences (George, 1986), (c) stronger spiritual or religious orientation (Moberg, 1965), and (d) lowering of aspirations to minimize the discrepancy between what is attained and what is hoped for (Campbell et al., 1976). A potential reason for lowering aspirations lies in the declining number of alternatives that older adults perceive as realistically existing for them. However, the level of life satisfaction may be inflated among older adults. Often, older adults are reluctant to admit problems or situations that sound like an inability to cope (Carp & Carp, 1981). Also, older adults have the tendency to provide socially sanctioned responses; thus, painting a picture of greater satisfaction than truly exists. Factors that are responsible for suppressing the age-satisfaction relationship are lower satisfaction with health, lower income after retirement, and lower educational attainment.

Maguire (1983) conducted a study to determine the major predictors of life satisfaction. The sample consisted of 227 community-residing subjects with a mean age of 72.09 years. Study findings revealed that perceived health was the strongest predictor of life satisfaction. Other predictors of life satisfaction reported in order of significance were: social supports, income, and perceived adequacy of participation in valued activity. Results of the study were consistent with findings of previous research pertaining to life satisfaction.

According to Heidreich (1993), optimal development in the later years "is contingent on successfully negotiating changes associated with the aging process" (p. 124). The search for greater satisfaction, and thus psychological well-being, is usually based on one's purpose in life, personal growth, positive relations with others, and autonomy. Purpose in life refers to productivity, creativity, accomplishment, and/or sense of direction that contributes to a feeling that life is meaningful. Personal growth indicates continued development regarding one's potential. The ability to have empathy, affection, and love for others emphasizes achievement of positive interpersonal relations. Autonomy taps certain qualities, such as: self-determination, self-regulation, and independence.

The third domain of QOL is Social Well-being. A person's sense of social well-being can be linked to: (a) age; (b) marital status; (c)

psychological/physical well-being; (d) formal/informal social supports, networks, resources, and recreation/leisure activities; (e) social utility; (f) confidants; (g) SES; (h) employment; and (i) educational achievement. Having social supports and confidants are two vital aspects of social well-being for the older population.

Perceived adequacy of social supports can provide older adults with a sense of belonging through love, caring, direct aid, respect, and general affirmation of self-worth (Kahn, 1990). Previous research suggests that social supports help a person to: (a) cope more effectively with stressful life experiences, (b) maintain or improve health by reducing the risk of illness, and (c) buffer declining morale resulting from age-related social losses. Social supports are considered significant predictors involving the adjustment process to chronic illness. "The greater the perceived social support, the better the psychosocial adjustment to illness" (White, Richter, & Fry, 1992, p. 220). Moreover, the importance of social supports is directly related to the degree of functional impairment of older adults. The more dependent the older adult is, the more important the social supports.

If persons do not receive enough support from the social environment to meet their needs, eventual physiologic and psychologic strain will be experienced (Kaplan & Cassel, 1977). In a study of 100 community dwelling women aged 65 years or older, Schank and Lough (1989) were

able to confirm the relationship between social supports and health. Results of the study revealed that subjects who reported their health status as good or excellent, had a greater degree of social supports than subjects who reported their health status as fair or poor. Other researchers have also found that the most significant indicator of positive health care practices was that of social support. Perhaps, older adults who take better care of themselves have a greater capacity for initiating and maintaining adequate support systems.

Although social support is important for all persons, having a confidant may be more important to older adults than the quantity or frequency of social interactions. The term "confidant" implies a quality unique to the relationship. In later adulthood, having a confidant reflects a certain degree of: acceptance, intimacy, nurturance, reciprocity, dependability, and regularity of social interaction.

Generally, men tend to have more social interactions and contacts; thus, relying on their spouses for an intimate social relationship. However, men may not have another confidant to share life situations and problems with following widowhood. Since women have more extensive friendships and meaningful relationships over the life span, they are more likely to have an intimate friend following death of a spouse. If widowhood is accompanied by a confidant, older adults are found to have higher morale

and psychological well-being than those who are married but do not have confidant (Murrell & Norris, 1984).

Strain and Chappell (1982) conducted a study, in part, to determine the relationship between social relationships involving a confidant and QOL. Eight-hundred community-residing adults aged 65 years and over participated in the study. Findings revealed that confidant relationships among older adults were a significant predictor of QOL. The finding suggested that the quality of a relationship may be more important to QOL than the quantity of interactions with family and friends.

The fourth domain of QOL is Spiritual Integrity. Up until the 1980s, spirituality and religion were frequently used as interchangeable concepts that generally referred to the organized religions of Catholic, Protestant, and Jewish denominations. Today, spirituality is considered the broader concept which may encompass or be devoid of religious context (Fehring & Rantz, 1991). In essence, spirituality is a highly personal experience in which the person has an inspired desire to transcend the realm of material existence (O'Brien, 1982). A sense of connectedness with others, nature, the universe, God, or supernatural and possessing interpersonal relationships are other major attributes of spirituality (Emblen & Halstead, 1993; Hasse, Britt, Coward, Leidy, & Penn, 1992). Self-transcendence, connectedness, and interpersonal relationships provide the link between the body, mind, and

spirit that enables a person to respond to various situations in totality. The unity of the body, mind, and spirit are essential for good health and in a sense, human survival.

Spirituality is "an aspect of the total person that influences [and] acts in conjunction with other aspects of the person" (Labun, 1988, p. 314). If a person experiences severe stress involving spiritual or emotional aspects of the self for example, a change in physical health and functioning and/or social well-being may result. Similarly, stress directed at the physical body may: (a) influence an emotional response, (b) impact economic security, or (c) stimulate review of life's meaning and previously held spiritual and religious beliefs (McConnell, 1988). According to Moberg (1981), spirituality is an important aspect of the health and well-being of older adults.

The attributes of spirituality provide a basis for identifying the components of spiritual health or integrity experienced by persons in day-to-day life situations. Spiritual integrity is considered present when the person experiences wholeness or totality with the self/others and transcendence with another realm. Love, hope, forgiveness, peace, and trust (Labun, 1988); religiosity (Mull, Cox, & Sullivan, 1987); purpose and meaning in life (McFadden & Gerl, 1990); peace, inner strength, and self-determination (Burkhardt, 1989); and sense of

fulfillment (Bloomfield & Kory, 1978) are behaviors that demonstrate spiritual integrity.

In terms of religiosity, spiritual needs are commonly channeled through the: practice of rites and rituals; use of symbols; and reverence of sacred places, books, and objects. Religiosity refers to the outward signs of a person's spiritual beliefs. A religious person most often is affiliated with a specific community that has it own recognized leaders. Persons who have roots in religious traditions but have not practiced their beliefs over the years, often acquire a sense of renewed importance when confronted with a serious health problem, terminal illness, or threat of death (Smyth & Bellemare, 1988). Religiosity may sustain a person through illness, pain, and disaster. Persons experiencing spiritual integrity, however, may sustain a higher level of physical health and functioning, psychological and social well-being, economic security, thereby increasing perceived QOL.

As the physical and mental capacities of older adults decline, spiritual integrity may be altered as a result of spiritual distress or despair. Factors that often induce an altered sense of spiritual integrity include: (a) separation from religious or cultural ties, (b) challenged belief and value system due to intense suffering, (c) ineffective coping mechanisms, (d) diminished sense of purpose and meaning in life, (e) disability, (f) chronicity of pain and disease, (g) unresolved personal

issues or feelings about death, and (h) anger toward God (Fehring & Rantz, 1991). Altered spiritual integrity can enhance anxiety and fear, decrease self-esteem, impede the healing process, and diminish the person's QOL and overall sense of well-being.

Nurses are in prime positions to assess the status of spiritual integrity among patients being cared for. In clinical practice, unfortunately, the spiritual aspects of patient care are often lacking. Unless the nurse values or is sensitized to the spiritual needs of the patient, cues and signs of altered spiritual integrity may be overlooked. Many nurses and other HCPs do not fully understand the concept of spirituality and therefore, are uncomfortable assessing the spiritual needs of patients. The lack of knowledge regarding spirituality, spiritual health, or spiritual integrity compromises the ability of nurses and other HCPs to administer holistic care that could optimize the well-being and QOL of patients. "As a person gets older, the potential for spiritual growth, unlike physical growth, continues" (Fehring & Rantz, 1991, p. 607).

The fifth domain of QOL is Economic Security. Although the picture of old age is one of poverty, many older adults have greater median wealth than their parents had at a similar age. Overall, the older population is more economically secure than years past. Various sources of income by which aging adults sustain themselves economically are: (a) private wages and

earnings; (b) inheritances, investment returns, and pensions; (c) family and/or public assistance; (d) thievery/shoplifting; and (e) social security/ disability benefits (Ebersole & Hess, 1981).

Despite the economic improvements, older adults have consistently averaged income levels approximately half than that of the younger population. Although poverty has steadily declined from 33% to 12% for the older population in the past 25 years, approximately one-fourth of older adults are at a substandard income level (Abbey & Andrews, 1986; Culter & Gregg, 1991; Strumpf & Knibble, 1990). Not surprisingly, older women are much more likely to experience chronic financial strain than that of men. Also, the retirement incomes of widows are lower than widowers. "Poverty in old age is a characteristic primarily of older women" (Holden, Burkhauser, & Myers, 1986, p. 292). Women constitute 74% of the aged poor. Of all older adults, Afro-American women suffer the worst economic consequences (Lewis, 1994; Pohl & Boyd, 1993).

Other factors that can seriously alter or impact the economic security of older adults are: chronic illness, retirement, level of formal education attained, employment status, and widowhood. Depending on the severity, the effects of chronic illness can slowly or rapidly drain the financial reserves of older adults creating economic insecurity. Older adults

who have private health insurance and/or Medicare often seek medical care for illnesses, thus decreasing their risk of developing long-term complications. Private insurance and Medicare helps to defray health care costs and increase the older adult's chances of preserving economic security or financial well-being. More often than not, chronic illness is the culprit forcing the early retirement of older adults. Campbell et al. (1976) stated that forced retirement due to poor health negatively affects perceived QOL among older adults.

Retirement is considered a significant life event for older adults, in that it can influence: patterns of social interaction/support, income level, sense of usefulness, self-esteem, well-being, and QOL (Palmore, George, & Fillenbaum, 1982). The level of formal education attained in earlier years may impact the specific amount of income received during the retirement years. The better the older adult retiree is educated, the greater accumulation of assets and subsequently retirement income (Campbell et al., 1976).

In the past, two-thirds of the older population have retired before age 65 with a median age of 60.6 years (Matteson, 1990). However, the desire to work beyond the expected age of retirement has become more prominent in recent years as a result of inadequate, personal economic resources (Wan, 1985). In a survey of older adults residing in Massachusetts, nearly half of

the nonworking older adults aged 55 to 64 years reported that they would have preferred to continue working. The older adults who were forced to stop working were less satisfied with their lives than those who actively chose to continue to work or retire (Maloney & Paul, 1990). Research evidence to support the positive impact of work on subjective well-being or QOL with respect to older adults has been limited, since studies are usually cross-sectional rather than longitudinal.

In a household survey of 547 adults, the goal of Rhoads and Raymond (1981) was to determine the effect of income on general well-being and QOL. Among the subjects, there were no significant differences in gender or ethnicity across three income levels; under $5,000, $5,000 - $11,000, and over $11,000. Adults who were 65^{+} years comprised the majority of subjects in the lowest income level. Study findings revealed that lower income was significantly related to poor self-rated mental health ($r = 0.24$, $p < .001$), low level of well-being ($r = 0.26$, $p < .001$), and low level of satisfaction ($r = 0.18$, $p < .001$) with overall QOL.

Ruchlin and Morris (1991) conducted a study to determine the relationship between employment and QOL among 310 older adults aged 65 to 74 years. The study findings revealed that 85.7% of the working adults had the highest QOL rating compared to 57.1% of the nonworking older adults. Regardless of full or part-time work, no significant differences

were noted in the older adults' QOL ratings. The two health-related factors that emerged with the highest QOL profile were self-assessed health and functional independence. A third factor that emerged as a very important variable, was that of work.

When the researchers controlled for SES and health status, the older adults working either full or part-time were 3.5 times as likely to report the highest QOL rating as their counterparts who were not working. Although employment nets extra income to supplement Social Security benefits, pensions, and investment returns, additional study findings revealed that economic security was not a significant correlate of a high QOL profile. The researchers suggested that the feelings of "usefulness" and "value" traditionally associated with having a job, were responsible for the work-QOL relationship.

Other researchers also believe that productivity rather than earned income is what contributes to the health, well-being, and QOL of older adults. In contrast, Rice (1984) stated that "work strongly influences QOL because earned income provides the goods and services that help meet individual needs and wants" (p. 159). Conversely, having a high income does not guarantee high QOL. With respect to older adults who are poor, the lack of income has a negative impact on health, well-being and QOL. Income may be considered to have an effect only at extreme levels of

poverty, once the basic needs are met income has less of an influential effect on QOL (Larson, 1978; Osberg, McGinnis, DeJong, & Seward, 1987).

In conclusion, a person's lifestyle, beliefs, and value system during the younger years can strongly influence healthy aging and QOL in the later years. Of the five QOL domains discussed, physical and functional health are the variables most cherished by aging adults. Knowledge of the variables deemed important by older adults would enable nurses/HCPs to assess patients with a QOL perspective.

In health care settings, education is directed at what the nurse or HCP perceives as important for maintaining or improving the patient's health status. When nurses and other HCPs lack a QOL perspective, nonadherence to therapeutic plans of care among older adults is fostered. To enhance compliance with plans of care, the educational content provided by nurses/HCPs needs to be compatible with what the older adult considers important to their QOL.

Meta-analysis

Although research procedures similar to meta-analysis have been used since the late 1930s, the term was first coined by Glass (1976). Generally, meta-analysis refers to the analysis of analyses. Specifically, meta-analysis is the "statistical analysis of a large collection of analyses from individual studies for the purpose of integrating [empirical research] findings" (Glass,

1976, p.3). Meta-analysis also represents an alternative to the causal, traditional, and narrative discussions of research studies that typify attempts to make sense out of the rapidly expanding body of literature.

The goals that distinguish meta-analysis from traditional, narrative research reviews frequently encompass the following: (a) to summarize studies in an orderly manner so knowledge can be extracted from a myriad of individual research studies (Glass, 1976), (b) to identify multiple outcome variables across studies (Smith & Naftel, 1984), (c) to describe research findings in general and reveal how results vary from study to study (Glass, McGaw, & Smith, 1981), and (d) to organize research results into coherent patterns for "making more accurate estimates of population parameters than is possible from a single study" (Burns & Grove, 1987, p. 523). In essence, meta-analysis represents a rigorous approach to making sense out of confusing and conflicting study outcomes from individual studies that measure the same phenomenon across different studies (Waltz & Bausell, 1981). Publication biases, populations sampled, sampling methods and instruments used, variables measured, statistical analyses performed, and research findings obtained are some of the differences among studies measuring the same phenomenon.

Employing a meta-analytic approach in conducting scientific research offers some specific advantages to the researcher. First, the use of

meta-analytic techniques provides an objective method for statistical integration of findings from numerous studies that might otherwise go undetected in traditional narrative reviews (Polit & Hungler, 1991). Second, the use of meta-analytic techniques allows for the examination of the magnitude of differences or relationships between independent, mediating, and dependent variables. The meta-analyst can explicitly test the statistical significance of a given set of study outcomes within and across studies; "a tactic not customarily employed in conventional reviews" (Durlak & Lipsey, 1991 p. 293). Third, the use of meta-analytic techniques provide for the pooling of research findings in such a way that reliable conclusions can be reached (Cooper, 1979; Glass et al., 1981). Fourth, meta-analysis provides the researcher with a scholarly process that enhances: theory development, discovery of new knowledge, and generation of ideas for future research (Polit & Hungler, 1991). Fifth, implications for social policy formation can be more easily derived from meta-analytic reviews due to the indepth meta-analytic process (Durlak & Lipsey, 1991; Jackson, 1980). Although there are many advantages underlying a meta-analytic review, there are also significant issues that have been engendered by various meta-analysts as controversial.

Controversial Meta-analytic Issues

Use of Published vs. Unpublished Studies. One of the issues confronting meta-analysts: Is whether to include both published and unpublished studies in the meta-analytic sample? If a study reveals significant research findings, the likelihood of that study being published is greater than those with nonsignificant findings (Cook & Leviton, 1980; Cooper, 1989; Polit & Hungler, 1991; Rosenthal, 1991). Disadvantages of using only published studies in the meta-analysis are two-fold: first, the significance and Effect Size (ES) of the dependent variable are overestimated; thus, leading to biased meta-analytic results (Bangert-Drowns, 1986; Wolf, 1986). In a study conducted by Rosenthal (1991), however, findings revealed that there were no clear differences between the ESs averaged across studies (mean ES) using journals vs. unpublished manuscripts. When Rosenthal evaluated theses and dissertations, study findings reflected a small ES or about 1/5th of a Standard Deviation (SD). In a comparison of published studies from journals and unpublished theses/dissertations, Smith (1980) reported that the mean ES for publication bias among the studies was 0.64 and 0.48 respectively. Second, including only published studies in a meta-analytic sample is considered dubious with respect to the scientific inquiry of meta-analysis (Durlak & Lipsey, 1991).

In order to enhance the credibility of this meta-analysis and validity of study conclusions, both published and unpublished studies were included. To omit unpublished works, such as: theses, dissertations, and file drawer research would be "to assume that the direction and magnitude of effect is the same in published and unpublished [studies]" (Smith, 1980, p. 22). Failure to include unpublished studies in the meta-analysis may produce misleading generalizations (Glass et al., 1981). Unpublished studies can be located through: a search of *Dissertation Abstracts International*, reference lists of journal articles/potential subject-studies, and texts; professional networks; and contacting major institutions where the focus of research pertains to the phenomenon being investigated (Curlette & Cannella, 1985; Glass et al., 1981; Rosenthal, 1991).

Since more published studies usually comprise a meta-analytic sample than unpublished studies, use of the fail-safe N has been recommended by several researchers to determine the likelihood of making a Type I error regarding publication bias (Hedges & Olkin, 1985; Rosenthal, 1979; Wolf, 1986). In calculating a fail-safe N, the number of additional unpublished studies of *zero effect* needed to reduce a significant combined probability to nonsignificance can be estimated (Bangert-Drowns, 1986). The fail-safe N controls for the file drawer problem of unpublished studies or null results missed in the data collection process (Cooper, 1989). In this meta-analysis,

a fail-safe N was calculated using the formula described by Cooper to determine if a Type I error existed.

Use of Studies Reflecting Apples and Oranges. Another controversial issue involving meta-analysis pertains to the mixing of studies similar to apples and oranges. Specifically, apples and oranges refers to the problem of combining studies that use different subjects, sampling techniques, operational definitions, and/or treatments to answer the same research question (Glass et al., 1981). Some meta-analysts believe only studies that are the same in certain aspects should be integrated into the meta-analytic sample, so logical and reliable study conclusions may be drawn. The use of nearly identical studies is considered contradictory according meta-analytic theory, since integration of studies with the same characteristics would probably yield similar findings. If all studies had the same findings within statistical error, there would be no need to compare the studies. Glass et al. strongly pointed out that only studies that differ, need to be compared or integrated into the meta-analysis.

An additional problem of apples and oranges in meta-analysis focuses on the use of overly broad categories in averaging ESs across dependent and independent variables (Bangert-Drowns, 1986). The use of broad categories that subsume numerous independent and dependent variables, may obscure some potentially important relationships as a result of "lumpy" data. Also,

the use of broad categories creates nonindependence of data in terms of the study findings. If nonindependent data are used for ES computations, the study findings are used more than once which often leads to biased and unreliable meta-analytic results. Overall, the problem of apples and oranges poses a major threat to construct, statistical conclusion, and external validity (Cook & Campbell, 1979; Wortman, 1983).

When subject-studies are used as the unit of analysis rather than ESs described by Glass et al. (1981), the problem of apples and oranges can be avoided. In order to protect construct validity, dependent measures are analyzed separately if they represent different constructs (Bangert-Drowns, 1986). The independence of ESs allows the meta-analyst to use statistics with more confidence, thus enhancing statistical conclusion and external validity. To avoid the apples and oranges problem in this meta-analysis, the individual study served as the unit of analysis.

Use of Studies with Quality vs. Poor Research Designs. In meta-analysis, individual research studies called subject-studies constitute the study sample. However, the controversial issue among meta-analysts relates to: Which studies should be included in the meta-analytic sample? A few researchers purport that all studies relevant to the concept being investigated should be included in the meta-analytic study sample irrespective of methodological quality (Ganong, 1987; Glass, 1976; Glass

et al., 1981; Hunter & Schmidt, 1990). When all relevant studies are included in the meta-analysis, the researchers indicated that patterns of methodological flaws could be searched for following statistical analyses to determine influences on study outcomes. Glass et al. stated that "to make decisions a priori may inject arbitrariness and bias into the study conclusions" (p. 67).

An empirical question raised by Glass (1976) and Glass et al. (1981): Is whether poorly designed studies provide different findings than that of studies with quality designs? As experienced meta-analysts, the researchers indicated that the differences between studies with poor and quality research designs is small. Quantifying a study as poorly designed is usually based on the researcher's value judgement, which is often considered to be biased (Hunter, Schmidt, & Jackson, 1982). According to these meta-analysts, the exclusion of poorly designed studies from the meta-analytic sample is to simply discard a vast amount of valuable data. Also, exclusion of inferior studies from the meta-analysis may potentially hinder the discovery of some important relations between methodological characteristics and study outcome variances.

Critics of Glassian meta-analysis, have strongly advocated that subject-studies included in the meta-analytic sample should be scrutinized for methodological quality (Bangert-Drowns, 1986; Mansfield & Busse,

1977; McCain, Smith & Abraham, 1986). The inclusion of inferior methodological research studies in the meta-analysis, poses a threat to internal validity and exemplifies the axiom "garbage in-garbage out" complaint (Eysenck, 1978). Results from a review of meta-analyses suggested that "the magnitude of the effect is unrelated to the worthiness of some research domains but not in others" (Wolf, 1986, p. 15). Although there may be no significant difference in ESs between poor and well-designed studies included in the meta-analysis, more ES variation among the poorly designed studies is often demonstrated. In general, poorly designed studies often yield spurious findings as a result of inadequate research designs. Not surprisingly, large well-designed studies are less likely to yield significant results than smaller poorly designed studies (Mansfield & Busse, 1977).

In response to the criticisms, Glass et al. (1981) stated that the meta-analytic process is designed to handle threats of internal validity resulting from poorly designed studies being included in the study sample. By coding the meta-analytic studies for various threats to internal validity, relationships between ESs and existing threats can be determined. The response by Glass et al. has not satisfied certain researchers. Bryant and Wortman (1984) pointed out that "if studies with numerous threats to validity predominate a [meta-analytic] sample, there may not be a sufficient

number of well-controlled studies to provide a comparison" (p. 12). Without well-designed studies to serve as a baseline for comparison, determining how methodological quality affects the study results becomes impossible.

Durlak and Lipsey (1991) stated that the criteria used for inclusion of studies into the meta-analytic sample should, in part, be based on the purpose of the meta-analysis. If examining relationships between methodological study characteristics and study findings are of interest to the meta-analyst, then the methodological quality of the study should be considered before inclusion into the meta-analytic sample. Methodological characteristics related to the study quality can be specified using: (a) inclusion and exclusion criteria, (b) a coding instrument, or (c) a quality of study rating instrument. One advantage of assessing methodological quality, is that biases can be discovered rather than assumed.

Since the relationship between methodological and substantive study characteristics and study findings were examined in this meta-analytic study, only subject-studies with adequate research designs were included. Methodological study characteristics are often evaluated using a coding instrument, thus providing a profile of strengths and weakness of the subject-studies (Okun, Olding, & Cohn, 1990). The use of substantive characteristics, in contrast, provides contextual information about the

subject-studies. A coding instrument is also used for evaluating substantive study characteristics.

The inclusion/exclusion criteria and coding instrument that were used in this meta-analytic study did not include all of the recommended criteria regarding methodological study quality. Therefore, a separate instrument for evaluating study quality was employed. Although there are no absolute standards for determining study quality, it has been common practice among several meta-analysts to only use criteria that address reliability and validity (Durlak & Lipsey, 1991). Nonetheless, the approach to evaluating study quality in this meta-analysis was more rigorous based on the criteria suggested by Gibbs (1989), McCain et al. (1986), and Kohr and Suydam (1970). Criteria that are employed to evaluate the quality of a study commonly include: (a) study significance, (b) relevance and description of population, (c) objectives or hypotheses, (d) definition of terms, (e) sample characteristics, (f) research design, (g) psychometric properties of the instrument, (h) adequacy of the statistical analyses, (i) accuracy of the conclusions, and (j) clarity of the written report.

To enhance the reliability and validity of a meta-analysis, it is recommended that two to three independent reviewers serve as judges for evaluating a number of subject-studies for quality. The study quality variables are usually rated on a scale from 1 to 5, and then averaged across

each subject-study. After a predetermined level of reliability has been achieved, the mean score for quality becomes a study characteristic on the methodological coding instrument for each subject-study.

When the quality of a study has been objectively evaluated using predetermined criteria, interjudge reliabilities have ranged from 0.65 to 0.75. Whereas, subjective evaluations of study quality have yielded interjudge reliabilities of 0.93 (McCain et al., 1986). Although meta-analysts have tried to minimize interjudge biases by using a study quality instrument, it remains difficult to attain a reliability greater than 0.75.

Coding the Subject-Studies

Once the subject-studies have been selected for inclusion in the meta-analysis, coding of methodological/substantive study characteristics is performed. The point of coding subject-studies is to determine whether the findings differ as a result of the methodological and substantive study characteristics (Durlak & Lipsey, 1991; Glass et al., 1981). Frequently used methodological study characteristics in meta-analysis include: (a) publication status, published or unpublished; (b) sampling method, nonprobability or probability; (c) study design, experimental or nonexperimental; and (d) statistical analysis of ESs. Whereas, substantive study characteristics often include the: (a) study setting; (b) sample characteristics; (c) source of data, subject or other; and (d) indicators of independent and dependent

variables. When the subject-study is considered the unit of analysis, the methodological and substantive study characteristics are viewed as independent variables influencing the ES magnitude of the dependent variable (Cooper, 1989; Durlak & Lipsey, 1991; Glass et al., 1981; McCain et al., 1986).

In order enhance the reliability of the methodological and substantive study characteristics, it is also recommended that two to three independent coders evaluate the variables. Coding of the study characteristics should not begin until a predetermined, acceptable level of intercoder reliability has been established (Cooper, 1989).

Measuring the Study Findings

Selecting a Common Metric for Effect Size

After intercoder reliability of the methodological and substantive study characteristics have been established and coding of subject-studies completed, a common metric is selected for determining ESs. Derived from the quantitative findings for each dependent variable reported in the single subject-studies, ES refers to the: (a) index of magnitude and direction of effect between groups (Glass et al., 1981) and (b) "the degree to which the null hypothesis is false" (Cohen, 1977, p. 10). The statistical value of ES in relation to the null hypothesis is always zero.

In calculating an ES, the statistics reported for the dependent variable are converted to a common metric in order to make statistical integration of the study findings possible. The preferred or most common metric measure used for transforming statistical findings into an ES, is the Pearson Product Moment Correlation *r* (Rosenthal, 1984, 1991; Wolf, 1986). However, some meta-analysts prefer to convert the various summary statistics into ES indexed d. The rationale for using the common metric *r* rather than d in calculating an ES, relates to the capability of determining an ES when sample sizes are not equal between groups. In order for an ES indexed d to be accurate, sample sizes need to equal. Additional rationale for preferring *r* over d lies in its greater flexibility, "*r* can always be used whenever d can be but d cannot always be used whenever *r* can be" (Rosenthal, 1991, p. 18). When the correlational metric is employed, it is also easier to correct for measurement unreliability (Hunter & Schmidt, 1990).

An alternate method for calculating ESs of study outcomes has been recommended by Hedges and Olkin (1985). The researchers stated that using *r* "is not very useful unless samples sizes are quite large (e.g., *n* is several hundred....The variance of *r* in the large sample approximation depends strongly on *ρ*, the true value of the correlation" (p. 227). The researchers stated that the use of Fisher's *z*-transformation of *r*, stabilizes the variance of *r* when subject-studies have smaller-sized samples.

According to Hunter and Schmidt (1990), "the Fisher *z* transformation actually yields estimates of variance that are less accurate than the estimate based in the correlation coefficient" (p. 216). The use of Fisher's *z* also produces an upward bias regarding mean correlations, while the use of *r* produces a downward bias.

In situations where the mean of *r* is small regarding ES (0.12), the Fisher *z* transformation of *r* remains basically the same. When the mean of *r* gets larger (0.59) however, Fisher's *z* transformation of *r* markedly inflates the correlation (0.69). To avoid upward bias, *r* was selected to serve as the common metric for ES in this meta-analysis. Formulas for converting *t*, *F*, χ^2, and d tests into ES *r* are described by Glass et al. (1981), Rosenthal (1991), and Wolf (1986). Additionally, a table for transforming *r* into Fisher's *z* is provided by Hedges and Olkin (1985).

Key statistics usually required for estimating ESs are: (a) exact correlations or means, (b) standard deviations, (c) degrees of freedom, (d) and sample size. If key statistics are not reported, estimated ESs are often based on less than optimal statistical information; e.g., *p* levels may be converted to the desired metric (Durlak & Lipsey, 1991).

Averaging Effect Sizes and Mediating Variables. After the ESs of single subject-studies investigating conceptually congruent issues are estimated using a common metric, ESs are summarized into a cumulative or

weighted ES. A weighted ES is the mean ES for a set of subject-studies (McCain et al., 1986). Averaging ESs across studies helps to determine the variance among dependent or outcome variables.

In addition to estimating and averaging ESs, it is important to determine the effect of mediating variables, such as the methodological and substantive study characteristics on the dependent variable. If potential mediating variables are not addressed in the meta-analysis, study results are usually oversimplified as a result of downplaying the interaction effects involving the dependent variable (Wolf, 1986). One of the most difficult problems, however, is to identify which methodological and substantive study characteristics might mediate a relationship regarding the phenomenon under investigation. Interestingly, there are no systematic procedures to guide the meta-analyst in identifying mediating study characteristics. Mediating variables used in previous meta-analytic reviews have been: gender, age, SES, sample size and method, measurement method, and publication status.

Averaging ESs across studies also facilitates the evaluation of potential categories that may include mediating variables. In determining the mediating effect of the methodological and substantive study characteristics on ES, multiple regression analysis is usually the statistical procedure of choice (Wolf, 1986).

Test of Homogeneity. Another statistical procedure that should be taken into consideration when conducting a meta-analysis is the test of homogeneity (Glass et al., 1981; Hedges & Olkin, 1985). If a series of subject-studies provide a homogeneous or common estimate of the population ES, "then it is more likely that various studies are testing the same hypothesis" (Wolf, 1986, p. 42). Estimates that are heterogeneous should raise the question of whether the subject-studies are testing different hypothesis. When heterogeneous estimates are obtained, it may not be appropriate to combine and synthesize all the study results in the same meta-analysis. Heterogeneous estimates indicate that the researcher needs to consider conducting more than one meta-analysis. To illustrate the case in point, separate meta-analyses would be performed for different subsets of studies that represent estimates of homogeneity. With respect to the test of homogeneity, it has been applied to the subject-studies in this meta-analysis.

In conclusion, meta-analysis can be described as a quantitative approach to summarizing research findings from a large collection of individual studies investigating the same phenomenon of interest. Scores of variables from hundreds of subject-studies can be handled using the techniques of meta-analysis. The procedural process of meta-analysis, nevertheless, is comprised of complex techniques that are difficult to sort and apply to research data.

The statistical analysis of meta-analytic data focuses on "the distribution of [ESs] and their covariation with the various descriptive variables coded [for] each study" (Durlak & Lipsey, 1991, p. 309). In meta-analysis, the ES is the dependent variable. Whereas, the descriptive variables included in the methodological/substantive study characteristics are the independent variables. Both types of study characteristics have the capability of mediating the magnitude of ES. Overall, meta-analysis seeks a full and meaningful statistical description of the empirical findings from multiple, diverse studies in which the variance across studies is compared (McCain et al., 1986).

CHAPTER III

PROCEDURE FOR COLLECTION AND TREATMENT OF DATA

In order to synthesize and quantitatively integrate the research findings of multiple QOL studies into coherent patterns, the methodology described by Glass et al. (1981) and McCain et al. (1986) was employed in the explanatory meta-analytic study. The number of studies examined for inclusion in the study are presented and rationale for excluding other studies is provided. The characteristics of the Coding Instrument, interjudge and intercoder reliabilities, selection of *r* as the common metric of ES, and formulas used in determining sample homogeneity, and a Fail-Safe N are elaborated upon.

Population and Sample

The population for the meta-analysis included nursing, psychology, sociology, allied/public health, education, and medical research studies that examined predictor variables of QOL in relation to older adults. Of the 249 studies reviewed, 83 subject-studies comprised the final sample. With respect to the 166 subject-studies not included in the meta-analysis: (a) 52 were comprised of subjects between the ages of 18-98, (b) 35 had statistics reported as percentages or multiple regression coefficients without correlations, (c) 36 measured predictor variables not included in this study,

(d) 35 were conducted outside the US, (e) five were rated as fair for methodological quality, and (f) three assessed QOL with a single-item.

Since the number of subject-studies included in the meta-analysis is considered moderate in size, the technique of nonprobability sampling was used so relevant QOL studies would not be excluded (Ganong, 1987). The meta-analytic sample was derived from both published (66) and unpublished (17) subject-studies. (see Appendix A) QOL studies deemed appropriate for inclusion in the meta-analytic study sample were based on the specific criteria identified.

Inclusion Criteria:

1. QOL subject-studies completed between 1970-1993 in the U.S.

2. Physical, psychological, social, economic, and spiritual variables were the predictors of QOL.

3. QOL or an equatable term was the criterion variable.

4. Subject-study samples comprised of older adults aged 55^{+} years who: (a) were healthy; (b) had sustained a chronic illness with a primary diagnosis of cancer or orthopedic/cardiovascular/respiratory/renal/endocrine disease; (c) resided in the home or a retirement center; or (d) were hospitalized in a tertiary health care setting.

Although QOL research studies were first published in 1976, studies that addressed the concept related to older adults could not be located in

the literature prior to 1979. The beginning date for including QOL studies in the meta-analysis had been previously established as 1980. However, only 16 QOL subject-studies were located between 1980 and 1993 that met the identified inclusion criteria. To increase the meta-analytic sample size and reliability/validity of the study findings, two changes were implemented. First, subject-studies that measured QOL in terms of: (a) subjective, objective, and functional health; (b) self-esteem; (c) life satisfaction; and (d) physical, psychological, and general well-being were included in the meta-analytic sample. QOL and the terms identified were the key words used for abstracting the subject-studies from the literature. Second, the date to begin data collection was re-established as 1970.

The rationale for limiting QOL studies to the U.S. pertained to the type of health care system available. In many other countries, socialized health care exists providing older adults with greater opportunities in seeking care for emerging or chronic health problems. In contrast, many older adults in the U.S. do not have the same health care opportunities due to the lack of private insurance, medicare, and/or medicaid. If subject-studies with different types of health care systems were included, the risk of having a heterogeneous meta-analytic sample would have increased.

Sample heretogeneity could also have been increased by including studies that were conducted in long-term or skilled care facilities. Results of

various research studies have revealed that health is deemed less important by older adults being cared for in long-term facilities than those residing in their home or retirement centers. If health care needs are being met in the long-term facility, the older adult often focuses on the social environment as the most important domain of QOL.

In order to further enhance the accuracy of the meta-analytic study findings, exclusion criteria were employed due to the numerous measures and various instruments used by researchers in evaluating QOL. The subject-studies were also evaluated for quality in order to enhance the reliability and validity of the study conclusions. The exclusion criteria of the study were as identified.

Exclusion Criteria:

1. Subject-studies in which QOL was assessed using a single-item measure.

2. Subject-studies rated as fair or poor in terms of methodological quality.

Being multidimensional in nature, QOL can not be accurately assessed using a single-item. Without knowledge of how older adults perceive their physical, psychological, social, spiritual, and/or economic status, nurses and other HCPs can not intervene appropriately to enhance their QOL.

Locating Subject-studies

Subject-studies were located by manual and computer searches of the: *Cumulative Index to Nursing and Allied Health/CINAHL; International Nursing Index; Index Medicus/Medline; Educational Resource Information Center/ERIC; Dissertation Abstracts International; and Psychological and Sociological Abstracts.* Finally, reference lists of all QOL articles and potential subject-studies reviewed were manually searched to identify additional studies appropriate for inclusion in the meta-analytic study. The search for subject-studies continued until no new studies could be located for retrieval.

The goal of meta-analysis is to provide accurate and impartial quantitative descriptions of research findings including both published and unpublished subject-studies (Glass et al., 1981). Therefore, the best protection against bias is to exhaust the population of existing studies. Although there is no way of knowing whether subject-studies are fully representative of the topic, locating as many studies as possible helps to avoid bias (Jackson, 1980). In order to avoid Type I error regarding publication bias, unpublished dissertations/theses were included in the meta-analytic sample. Additionally, unpublished studies were sought from institutions known for conducting QOL research. Although contact

was made with the various institutions, no unpublished studies were obtained.

Instruments

The first instrument used in the study was directed at evaluating the quality of the meta-analytic subject-studies. The Quality of Study Instrument used in the meta-analysis was developed by this investigator. Various dimensions of quality included in the instrument were: (a) problem statement/purpose, (b) hypotheses, (d) definition of terms, (e) research design/method, (f) psychometric properties of the criterion instrument, (g) appropriateness of statistical analysis, (h) congruency between study results and conclusions, and (i) clarity of the report. (see Appendix B)

To enhance the reliability and validity of the meta-analytic results, three independent reviewers served as judges in evaluating the quality of three subject-studies. Instructions for using the Quality of Study Instrument was provided for the judges by this investigator. Ratings that ranged from 1 (poor) to 5 (excellent) were made by the judges regarding the quality dimensions comprising the instrument.

A predetermined, acceptable level of interjudge reliability had been set at 0.75 using the Spearman-Brown formula: $R = nr/1 + (n - 1)r$. With respect to the formula for determining an acceptable reliability level: R = "effective" reliability, n = number of judges, and r = mean reliability

among all *n* judges "(i.e., mean of *n*(*n* - 1)/2 correlations)" (Rosenthal, 1991, p. 52). Since an acceptable level of "effective" interjudge reliability was not achieved initially (R=0.62), the Quality of Study Instrument was revised. Following revision of the instrument by this investigator, the independent judges re-evaluated the studies for quality. The second evaluation of subject-studies yielded an "effective" reliability of 0.83. Therefore, the Quality of Study Instrument was considered to have interjudge reliability. The quality of study rating was then included as a methodological variable in the Coding Instrument. As recommended by Kohr and Suydam (1970), the same judges independently re-evaluated three subject-studies already coded by this investigator to determine if investigator bias existed. At mid-point of the data collection process, three subject-studies were randomly selected using a table of random numbers. The re-evaluation resulted in a 95% agreement between this investigator and the judges.

The second instrument used in the meta-analysis was a two-part Coding Instrument developed by this investigator. The Coding Instrument served as the primary research tool for extracting data from the studies. Part I of the Coding Instrument addressed the methodological characteristics of the QOL subject-studies and Part II, the substantive characteristics (Glass et al., 1981; McCain et al., 1986). Both types of study characteristics

constituted the independent variables of the meta-analysis. (see Appendix C).

Of the methodological characteristics, three were related to the publication data from the primary subject-studies. Publication data included in the Coding Instrument pertained to the: (a) funding source, (b) source derivation, and (c) publication status. The other methodological study characteristics included the: (a) quality of the study, (b) researcher's discipline, (c) data collection date, (d) research design and classification, (d) sampling method and sample size, (e) outcome measurement, (f) format of instrument, and (g) ESs.

In terms of the substantive study characteristics, there were six major categories included in the Coding Instrument. Of the six, the first category pertained to the theoretical/conceptual framework employed by the various researchers. In nursing, use of a theoretical/conceptual framework exemplifies the belief that "both nursing research and nursing practice should be theory based" (McCain et al., 1986, p. 161).

The study setting constituted the second category. The third category incorporated the sample characteristics of: age, educational level, gender, SES, sociocultural orientation, type of sample, and primary diagnosis of chronic disease. Source of data was the fourth major variable that included the: older adult, family member, significant other, nurse, MD, or

other combinations. The fifth and sixth categories included in the Coding Instrument addressed the: (a) indicators of the predictor variables - physical, psychological, and social well-being; economic security, and spiritual integrity; and (b) criterion variable.

Although the study characteristics were coded by this investigator, intercoder reliability for extracting data was established to enhance the consistency and accuracy of the meta-analytic study findings. To establish reliability of the Coding Instrument, three independent reviewers coded the methodological and substantive characteristics of three subject-studies. Instructions for coding the study characteristics were provided to the reviewers by this investigator.

A predetermined, acceptable level of reliability had been set at 0.85 (Polit & Hungler, 1991). The initial Pearson product-moment coefficient *r* attained for intercoder reliability was 0.76. Following revision of the Coding Instrument, the independent reviewers re-coded the study characteristics. Since an *r* of 0.88 was achieved, the Coding Instrument was considered to have intercoder reliability. Using the same three studies evaluated for quality at mid-point of the data collection process, a 90% agreement between this investigator and the reviewers was demonstrated in terms of the coded study characteristics.

To increase the validity of the Coding Instrument, the variables selected represented a comprehensive review of Coding Instruments used in other meta-analyses. The Coding Instrument developed for the present study reflected the data needed for analysis of the meta-analytic study findings.

Data Collection

After an acceptable level of reliability had been achieved for the Quality of Study and Coding Instrument, this investigator coded the data from each subject-study. Following the coding of methodological and substantive study characteristics, ESs of: (a) QOL, (b) well-being, (c) health, (d) self-esteem, and (e) life satisfaction were calculated. Each ES was computed in relation to the predictor variables of physical, psychological and social well-being; spiritual integrity; and economic security.

Treatment of Data

Calculating an ES

The direction and effect magnitude of study outcomes based on experimental, correlational, and descriptive research designs were calculated according to the formulas described by Glass et al. (1981) and Wolf (1986, p. 35). In calculating an ES, the statistics of *t, F,* and χ^2 reported for study outcomes were converted to the Pearson product-moment correlation coefficient *r*. In experimental studies, ES indexed d was calculated prior to

the statistical conversion of *r* using the formula: ES = d = $\underline{\bar{X}_e - \bar{X}_c / Sx.}$ ES indexed d equals the mean difference between the experimental and control group, divided by the within-group SD (Glass et al., 1981). When the within-group SD was not reported in the subject-study, the SD of the control group was used in the calculation of ES indexed d.

Since *r* had been selected as the common metric, a linear correction factor [(2*N* - 1)/(2*N* - 2) x each *r*] was employed for studies comprised of sample sizes less than 40 in order to reduce downward bias (Hunter & Schmidt, 1990). Once the ESs were computed and/or corrected, the magnitude of ESs were determined using the guidelines provided by Cohen (1977): $r = .10$ for small ES, $r = .30$ for medium ES, and $r = .50$ for large ES. Finally, the proportion of ES variance was determined using r^2.

Determining the Fail-Safe N

Since published research studies tend to be biased toward significant findings, a Fail-Safe N was determined in an attempt to: (a) control for file drawer problems and (b) provide information regarding publication bias or a Type I error. The Fail-Safe formula used in the meta-analysis was as follows: $N_{fs.05} = (\Sigma Z/1.645)^2 - N$ (Cooper, 1989). Specifics of the Fail-Safe formula are: $N_{fs.05}$ = the number of additional studies that would be needed in the meta-analysis to reverse the rejection of the null hypothesis and conclusion that a significant relationship exists at a .05 level of significance;

ΣZ = the square of the sum of individual Z scores divided by 1.645, the critical value of a *z* score for a directional hypothesis with alpha set at .05 (Porter & Hamm, 1986); and N = the number of studies.

To use the formula described by Cooper (1989) in calculating a Fail-Safe N, each *r* was transformed into a Fisher's *z* using a transformation table (Hedges & Olkin, 1985, p. 333). Since this meta-analytic study was comprised of five predictor variables and one criterion variable, a Fail-Safe N was calculated for each of the predictor variables as correlated with the criterion variable. The Fail-Safe N values are presented with the number of obtained unpublished studies in parenthesis: (a) physical well-being, 32 (8); (b) psychological well-being, 24 (6); (c) social well-being, 19 (12); (d) spiritual integrity, 8 (4); and (e) economic security, 25 (8). Since a number of unpublished studies were still needed to reverse the rejection of a null hypothesis and conclusion that a significant relationship existed at a .05 level of significance, a Fail-Safe N was not achieved.

Performing the Test of Homogeneity and Correlating Study Characteristics with ES

The test of homogeneity was performed in order to: (a) determine if the group of QOL studies examined were homogeneous or not and (b) evaluate the generalizability of ESs. The specific formula used to calculate the homogeneity of the independent studies was as follows:

$\chi^2 = \Sigma(\bar{Z}-Z)^2$, where the degrees of freedom = K-1 (Rosenthal & Rubin, 1986). Specifically, Chi-square equals the square of the weighted mean Z for all Zs obtained minus the Z for each study, and K = the number of independent studies being combined.

The test of homogeneity was performed for each predictor variable as correlated with the criterion variable of: QOL, health, life satisfaction, self-esteem, or well-being. After the subject-studies were determined to be homogeneous, the equatable terms of QOL were combined to determine mean ESs as correlated with the predictor variables. To establish the relationship between selected study characteristics identified in the Coding Instrument and ESs, the statistical procedure of multiple regression was used.

In conclusion, the procedures for: (a) determining the reliability and validity of the subject-studies for study quality and characteristics, (b) calculating a Fail-Safe N, and (c) performing the test of homogeneity were in accordance with the techniques described by the various meta-analysts. Although, both published and unpublished dissertation/theses subject-studies were included in the meta-analysis, a Fail-Safe N was not achieved indicating that a Type I error or publication bias existed. The meta-analytic sample, however, was determined to have homogeneity with generalizability of ESs to older adults residing in the community/home or retirement settings.

CHAPTER IV

ANALYSIS OF DATA

Incorporating subject-studies from 1970-1993, the meta-analytic study was conducted to determine the effect of physical, psychological, and social well-being; spiritual integrity, and economic security on QOL among healthy and chronically ill older adults. Description of the sample and findings of methodological and substantive study characteristics are detailed in table format. Results of the statistical analyses are presented for each hypothesis and in relation to the study characteristics predictive of QOL.

Description of the Sample

In terms of methodological characteristics of the QOL meta-analytic study, 16 subjects studies were rated as excellent, 67 as good, and 5 as fair. Only the studies that had quality ratings of good or excellent were included in the meta-analytic sample. Of the 83 studies that comprised the final sample, 66 were published and 17 were unpublished dissertations/ theses. Sixty of the subject-studies were located via manual index and computer searches within the disciplines of nursing, psychology, sociology, medicine, allied/public health, and education.

Thirty-seven percent of the research studies were funded by the following organizations: AARP-Andrus Foundation; American Occupational

Therapy Foundation, Inc.; Hartford Foundation; National Centers for Health Services Research and Nursing Research; National Institutes of Aging, Disability/Rehabilitation Research, and Heart, Lung, and Blood; Ohio Commission of Aging; Social Security Administration; Texas Department of Human Services Universities; U.S. Department of the Interior; and U.S. Public Health Service. Funded research was predominantly conducted by medicine.

In 30 of the subject-studies conducted between 1970 and 1979, the dependent variable identified was either life satisfaction, subjective/objective health, functional status, self-esteem, subjective/general well-being, or psychological well-being. Of the 53 studies conducted between 1979 and 1993, QOL was the dependent variable in 16 subject-studies. The remaining dependent variables were the same as in the studies investigated prior to 1979.

The major research design and sampling method employed in the subject-studies were descriptive-correlational (59%) and nonprobability sampling (52%), respectively. Sample sizes of the 83 studies ranged from 21 to 3,370; 30% were between 201-500. Only 7% of the studies had sample sizes under 40. Also, 88% of the meta-analytic studies were classified as cross-sectional.

Although researcher interviews were the most common method employed for outcome measurement, the self-administered questionnaires in Likert format served as the underlying framework. See Table 3 for the percentages/number of studies regarding the methodological characteristics.

Table 3

Methodological Study Characteristics of Subject-studies

Study Variables	%	N
Quality of the Study		
Good	81%	67
Excellent	19%	16
Funding		
No	63%	52
Yes	37%	31
Source Derivation		
Manual Index Search	39%	32
Computer Search	34%	28
Manual Reference List Search	14%	12
Journal/Text	13%	11
Publication Status		
Published	80%	66
Unpublished Dissertation	17%	14
Unpublished Thesis	3%	3
Researcher's Discipline		
Sociology	36%	30
Nursing	21%	17
Psychology	16%	13
Medicine	12%	10
Allied/Public Health	8%	7
Education	7%	6
Data Collection Date		
1979-1993	64%	53
1970-1978	36%	30

Table 3 (cont'd)

Methodological Study Characteristics of Subject-studies

Study Variables	%	N
Research Design		
Descriptive-correlational	59%	49
Correlational	27%	22
Descriptive	8%	7
Pre-Posttest	4%	3
Posttest	1%	1
Quasi-experimental	1%	1
Research Classification		
Cross-sectional	88%	73
Longitudinal	12%	10
Sampling Method		
Nonprobability	52%	43
Probability	48%	40
Sample Sizes of Subject-studies		
<40	7%	6
41-100	28%	23
101-200	19%	16
201-500	30%	25
501-1,000	5%	4
1,001-1,500	1%	1
1,501-2,000	5%	4
2,001-2,500	1%	1
2,501-3,000	1%	1
3,001-3,500	2%	2
Outcome Measurement		
Interview	57%	47
Self-admin. Questionnaire	42%	35
Physiological	1%	1
Format of Instrument		
Likert Scale	59%	49
Structured Interview	35%	29
Semantic Differential	5%	4
Open-ended Questions	1%	1

With respect to the meta-analytic subject-studies, QOL was measured by researchers using a variety of instruments. The instruments used by multiple researchers are depicted in Table 4. When the psychometric properties of the instruments were examined, reliability was reported in 46% and validity in 11% of the subject-studies.

Table 4

Instruments used for Outcome Measurements in the Subject-studies

Instruments	Subject-studies*
Bradburn Affect Balance Scale (ABS)	Gupta (1989); Levitt, Antonucci, Clark, Rotton, & Finley (1985-86); Snow & Crapo (1982); Zautra (1983).
Cantril Self-Anchoring Scale	Jackson, Bacon, & Peterson (1977); Mancini (1981); Smith (1990); Soumerai & Avorn (1983).
Health Promoting Lifestyle Profile (HPLP)	Foster (1992); McDaniel (1987); Riffle, Yoho, & Sams (1989).
Hollingshead's Two-Factor Social Position Index Scale	Dillard, Campbell, & Chisolm (1984); Foster (1992); Williams (1988).
Life Satisfaction in the Elderly Scale	Brockett (1987); Etienne (1990).
Life Satisfaction Index (LSI)	Doyle & Forehand (1984); Leonard (1981-82); Revicki & Mitchell (1986).
Life Satisfaction Index A (LSI-A)	Brown (1988); Dillard et al. (1984); Chapman & Beaudet (1983); Foster (1992); Gray, Ventis, & Hayslip (1992); Guy (1982); Jackson et al. (1977); Markides (1983); Snow & Crapo (1982); Soumerai & Avorn (1983); Thomas (1988); Wolk & Telleen (1976).

Table 4 (Cont'd)

Instruments used for Outcome Measurements in the Subject-studies

Instruments	Subject-Studies*
Life Satisfaction Index B (LSI-B)	Baur & Okun (1983); Lemon, Bengston, & Peterson (1972); Thomas (1988).
Life Satisfaction Index Z (LSI-Z)	Chatfield (1977); Conner, Powers, & Bultena (1979); Johnson, Foxall, Kidwell-Udin, & Miller (1984); Maguire (1983); Smith (1990); Toseland & Sykes (1977); Usui, Keil, & Durig (1985).
Minnesota Multiphasic Personality Inventory (MMPI)	Deimling & Harel (1984); Harel, Sollod, & Bognar (1982).
Older Americans Resources & Services (OARS) Multidimensional Functional Questionnaire	Deimling & Harel (1984); Harel et al. (1982); Heidrich (1993); Johnson et al. (1984); Palmore, Nowlin, & Wang (1985); Revicki & Mitchell (1986).
Philadelphia Geriatric Center Morale Scale (PGCMS)	Brown (1988); Gupta (1989); Koenig, Kvale, & Ferrel (1988); Lawton et al. (1990); Mancini & Orthner (1980); Mulligan (1986); Walls & Zarit (1991).
Self-esteem Scale	Jackson et al. (1977); Nelson (1990); Revicki & Mitchell (1986); Thomas (1988).
Sickness Impact Profile (SIP)	Epstein, Hall, Tognetti, Son, & Conant (1989); McSweeny, Grant, Heaton, Adams, & Timms (1982); Snow & Crapo (1982).

*See Appendix A

Instruments used to measure study outcomes by individual researchers were the: (a) Activity Index (Gregory, 1983); (b) Age of Universal Religious Orientation (Nelson, 1990); (c) Arizona Social Support Interview Schedule, Louisville Older Person Event Scale (LOPES), and

Flanagan QOL Scale (FQOLS) (Martinez, 1986); (d) Barthel Index (Osberg et al., 1987); (e) Cavan Activity Scale (Baur & Okun, 1983); (f) Dimension of Religion Scale, Social Integration of the Aged in the Church Scale (SIAC), and Social Provision of Support Scale (SPS) (Walls & Zarit, 1991); (g) Health Status Index (Kaplan, Atkins, & Timms, 1984); (h) Illness Index, Leisure Behavior Scale, and Leisure Satisfaction Scale (Mancini & Orthner, 1980); (i) Index of Social Integration (Gray et al., 1992); (j) Intrinsic Religiosity Scale (Koenig, Moberg, & Kvale, 1988); (k) Older Americans Status and Needs Assessment Survey (Fengler & Danigelis, 1982); (l) Perceived QOL Scale and Social Resource Measures (Zautra, 1983); and (m) Perceived Adequacy of Participation in Activities Scale, Perceived Activity Frequency Scale, and Perceived Activity Importance Scale (Maguire, 1983). The total number of instruments employed to measure QOL in the meta-analytic sample was 35.

The theoretical/conceptual framework was the first variable identified in the substantive study characteristics. Twenty-one researchers of published studies and 11 of unpublished dissertations/theses used a framework to guide their research. Activity Theory and Pender's Health Promotion Model were the two most common frameworks employed by the researchers. The theoretical/conceptual frameworks identified in 32 of the subject-studies are presented in Table 5.

Table 5

Theoretical/Conceptual Frameworks of Subject-studies

Theoretical/Conceptual Frameworks
Activity Theory
Activity, Contingency, and Social Learning Theory
Activity, Resource, and Perception Model of Life Satisfaction
Convoy Model
Hierarchical Compensation Model of Social Support Resources
Heuristic Model for Interrelation of COPD & Other Variables Affecting QOL
Human Occupation
Interpersonal Relationships
Levels of Spatial Interaction and Classification of Spatial Behavior
Life Span Developmental Theory
Maslow's Theory of Optimal Wellness
Mediators of Stressor Perception Response Model
Model of Life Satisfaction
Pender's Health Promotion Model
Quality of Well-being
Social Support
Residential Satisfaction
Stress-transactional Framework of Lazarus
Subjective Integration
Systems Change Model
The Good Life
Well-being Model

Subjects in the various studies were recruited predominantly from the community in home settings (89%); general age ranged from 55 to 98 years. There were relatively few studies (6%) that compared the aspects of QOL between subjects aged 55-74 years and 75 years and over. Thirty percent of the subjects had achieved an educational level that ranged from 10 to 12 years of school.

The general characteristics of the subject-studies reflected that the meta-analytic sample was predominantly composed of Caucasians and Afro-Americans who were chronically ill, widowed, females with an annual income under $10,000.00. Osteoarthritis, cancer, diabetes mellitus, congestive heart failure, coronary artery disease, arrhythmias, chronic obstructive pulmonary disease, pneumonia, and renal failure were the chronic illnesses reported in 33% of the subject-studies.

The retired status of subjects was measured in 26% of the meta-analytic studies, followed by living situation (23%) and perceived financial status (9%). The subjects themselves were the source of data in 94% of the studies. See Table 6 for percentages and numbers of studies that addressed the various substantive characteristics included in this meta-analytic study.

Table 6

Substantive Study Characteristics of Subject-studies

Study Variables	%	N
Study Setting		
Community/home	89%	74
Retirement Center	9%	7
Hospital	2%	2
Age Group		
55-74 years	6%	5
75 years & Over	6%	5

Table 6 (cont'd)

Substantive Study Characteristics of Subject-studies

Study Variables	%	N*
General Age		
55 or Above	20%	17
60 or Above	34%	28
65 or Above	40%	33
70 or Above	6%	5
Educational Level		
1-6 years	4%	3
7-9 years	19%	16
10-12 years	30%	25
13 years & over	5%	4
Gender		
Predominantly Female	90%	75
Predominantly Male	6%	5
Marital Status		
Widowed	42%	35
Married	22%	18
Divorced/Separated	7%	6
Never Married	2%	2
Retirement Status		
Retired	24%	20
Not Retired	2%	2
SES		
Under $10,000	35%	29
$10,001-$10,999	5%	4
$11,000-$20,999	1%	1
$21,000-$30,999	1%	1
Perceived Financial Status		
Adequate	8%	7
Inadequate	1%	1
Living Situation		
Lives Alone	10%	8
Lives with Spouse/family/other	13%	11

Table 6 (cont'd)

Substantive Study Characteristics of Subject-studies

Study Variables	%	N*
Ethnicity of Study Samples		
Cauc[1]	27%	22
Mex-Amer[2]	2%	2
Afro-Amer[3]	10%	8
Nat-Amer[4]	1%	1
Cauc & Afro-Amer	25%	21
Cauc, Mex-Amer, Afro-Amer Hisp[5], & Nat-Amer	1%	1
Type of Sample		
Healthy	20%	17
Chronically Ill	23%	19
Healthy & Chronically Ill	20%	17
Source of Data		
Older Adult (OA)	94%	78
Family Member	2%	2
Significant Other (SO)	1%	1
MD	1%	1
OA & SO	1%	1

*N differs due to missing data for the variable
[1]Caucasian [2]Mexican-American [3]Afro-American [4]Native American [5]Hispanic

Findings

A total of 215 ESs were computed from the 83 subject-studies according to the dependent variable reported in the subject-studies. The dependent variables measured by the number of researchers were: (a) life satisfaction, 41; (b) well-being, 20; (c) QOL, 16; (d) health, 3; and (e) self-esteem, 3. As a result of sample homogeneity [determined by $\chi^2 = (\bar{Z}\text{-}Z)^2$, K-1 and ANOVA], the dependent variables were reclassified as QOL.

The *t*-test was used to determine if a difference existed between healthy/chronically ill older adults, published/unpublished studies, and young-old/old-old adults. Findings of each predictor variable as correlated with the criterion variable are presented in relation to the following hypotheses.

1. There is no significant effect size between physical well-being and perceived QOL among healthy and chronically ill older adults. Since mean ES = 0.40, Hypothesis 1 was rejected. Results of the *t*-test revealed a value of -0.70 ($df = 31$, $p = .49$), signifying that there was no difference between healthy and chronically ill older adults.

2. There is no significant effect size between psychological well-being and perceived QOL among healthy and chronically ill older adults. Due to a mean ES of 0.43, Hypothesis 2 was rejected. The *t*-test for healthy and chronically ill older adults revealed a value of 1.22 ($df = 27$, $p = .07$), indicating no difference existed between the groups.

3. There is no significant effect size between social well-being and perceived QOL among healthy and chronically ill older adults. The mean ES was 0.55, therefore, Hypothesis 3 was rejected. The *t*-test revealed a value of 0.31 ($df = 32$, $p = .76$), reflecting no significant difference among healthy and chronically ill older adults.

4. There is no significant effect size between spiritual integrity and perceived QOL among healthy and chronically ill older adults. Hypothesis 4 was rejected, since the mean ES = 0.41. The findings of the *t* test revealed a value of 0.24 ($df = 22$, $p = .81$), indicating there was no significant difference between the two groups of older adults.

5. There is no significant effect size between economic security and perceived QOL among healthy and chronically ill older adults. Hypothesis 5 was rejected, since the mean ES = 0.27. Additionally, there was no significant difference among healthy and chronically ill older adults as revealed by a *t* value of 0.09 ($df = 33$, $p = .93$).

6. There is no significant difference in the importance of quality of life domains between adults who are young-old and those who are old-old. Results of the study findings were: (a) physical well-being and QOL - $t(8) = 1.20$, $p = .27$; (b) psychological well-being and QOL - $t(8) = 1.18$, $p = .29$; (c) social well-being and QOL - $t(8) = -1.20$, $p = .28$; (d) spiritual integrity and QOL - $t(8) = 1.06$, $p = .33$; and (e) economic security and QOL - $t(8) = 1.28$, $p = .27$. Since there was no significant difference between the two groups of older adults, Hypothesis 6 was not rejected.

7. There is no significant difference in the terms used to measure quality of life in research studies conducted between 1970 and 1993. In the test of homogeneity, a χ^2 of 19.71 was under the critical χ^2 value of

101.9 (df = 82) with an alpha of .05. The F test also revealed a value of 1.07 (df = 8, 79), p = .39. Since there was no difference between QOL, life satisfaction, health, self-esteem, & well-being, Hypothesis 7 was not rejected.

8. There is no significant difference in effect size between published and unpublished subject-studies. In terms of the predictor variables and criterion variable, the findings were: (a) physical well-being and QOL - $t(81) = -0.12$, $p = .91$; (b) psychological well-being and QOL - $t(81) = -0.49$, $p = .63$; (c) social well-being and QOL - $t(81) = -0.63$, $p = .51$; (d) spiritual integrity and QOL - $t(81) = 0.23$, $p = .82$; and (e) economic security and QOL - $t(81) = -0.95$, $p = .35$. Since there was no significant difference between the two groups of studies, Hypothesis 8 was not rejected.

In order to avoid inflation of the ESs, the indicators for each of the predictor variables were examined for collinearity. The cutoff point to determine if intercorrelations are collinear, is that no variable "should be included that is more closely related to the best predictor than it is to the dependent variable" (Hair, Anderson, & Tatham, 1987, p. 31). Since self-esteem demonstrated collinearity with mental health in the domain of psychological well-being, it was removed prior to ES calculations.

In Table 7, the total and specific number of ESs for each predictor variable are provided in relation to QOL. The range of ESs, mean ESs, and r^2

of QOL are also presented. Social well-being had the largest mean ES and economic security the smallest.

Table 7

Effect Sizes of QOL by Predictor Variables

Predictor Variables	¶ESs	Range	Mean ES	r^2
Physical well-being	58	-0.55 - 0.79	0.40**	0.16
Psychological well-being	40	-0.27 - 0.77	0.43**	0.18
Social well-being	61	-0.66 - 0.73	0.55**	0.30
Spiritual integrity	15	-0.28 - 0.70	0.41**	0.17
Economic security	41	-0.50 - 0.52	0.27*	0.07

¶ESs = 215 * $p = .01$ (two-tailed) ** $p = .001$ (two-tailed)

Methodological and Substantive Study Variables Predictive of QOL

Stepwise, linear multiple regression was performed to determine which methodological and substantive study characteristics were predictive of QOL. Before the study variables could be entered in the multiple regression equations, three procedures were conducted. First, the characteristics measured in the subject-studies as nonmetric level data were transformed into dummy or metric variables as described by Hair et al. (1987). Second, intercorrelations were performed between all variables to determine if multicollinearity existed. Also, the SPSS Program used for

multiple regression analysis had default values in place for tolerance to protect against inclusion of multicollinear variables. Third, residuals were plotted against the predicted dependent variable scores to determine if the assumptions of normality, linearity, and homoscedasticity were met.

Methodological Study Characteristics. Due to the nonlinearity of the scatterplot and nonnormality of the probability plot, the assumptions of multiple regression were not met. Specific variables examined in the two plots were: (a) funding source; (b) publication status; (c) researcher's discipline; (d) research design, classification, sampling method, and sample size; and (e) outcome measurement. Since the methodological study characteristics could not be subjected to multiple regression, relationships between the variables and QOL were examined using the eta coefficient. Study results, however, revealed that the methodological variables were not related to QOL.

Substantive Study Characteristics. Eta coefficients were also computed to determine if a relationship existed between specific demographic variables and QOL. The variables subjected to analysis were: (a) general age categories, (b) educational level, (c) marital status, (d) SES, (e) ethnic background, and (e) health status. Eta coefficients were calculated in conjunction with the statistical test of ANOVA. Findings indicated that general age was the only variable associated with QOL

(r_{pb} = 0.37) which accounted for 14% of the explained variance. Additionally, there was a significant difference between the age groups and QOL ($F_{4, 78} = 3.28$, $p = .01$). Results of the Tukey *post hoc* test delineated the general age category as 60 years and older.

To determine if the assumptions of linearity, normality, and homoscedasticity of the substantive variables were met, a scatterplot and normal probability plot of regression were examined. In the scatterplot, standardized residuals of the dependent variable QOL were plotted against the standardized predicted value. (see Figure 2) Although the scatterplot was not evenly distributed, a line can be drawn horizontally through the concentrated plots at point zero. Also, the normal probability plot of regression revealed a near linear relationship. (see Figure 3) To achieve meeting the assumptions of multiple regression, transformation of five variables were performed. Personal growth/learning were transformed into education; social network and interaction into adequacy of social resources; and income and financial status into SES.

After the data transformations were completed, intercorrelations were determined between the predictor variables. The correlation coefficients for the predictor variables of physical well-being (PWB), psychological well-being (PYWB), social well-being (SWB), spiritual integrity (SI), and economic security (ES) are provided in Table 8. In terms of the variables,

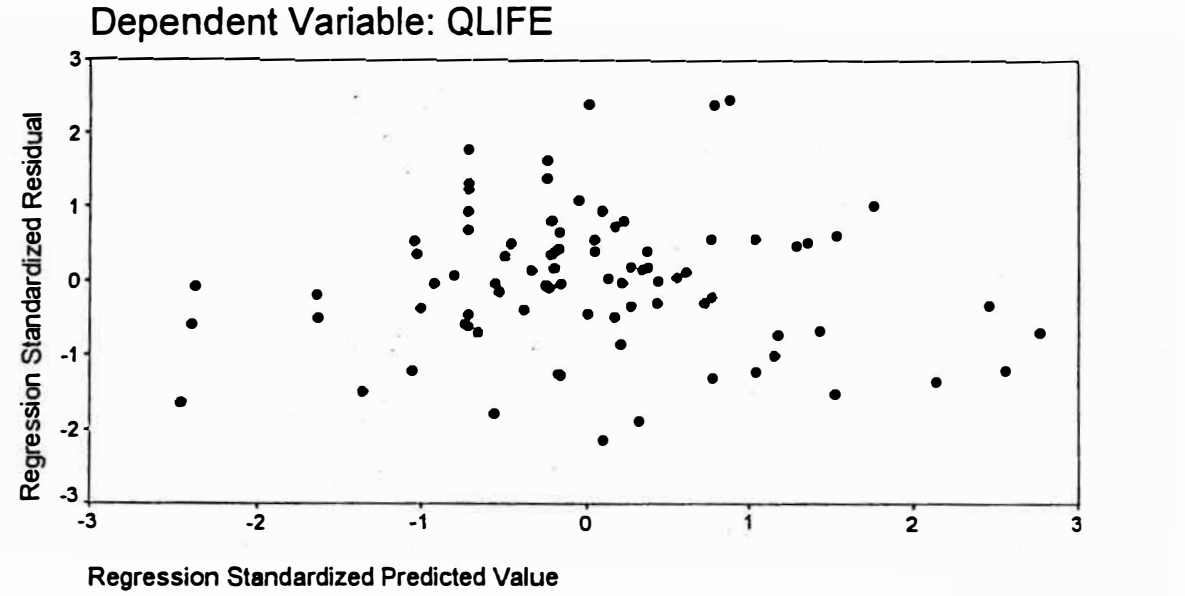

Figure 2. Scatterplot of Substantive Study Characteristics and QOL

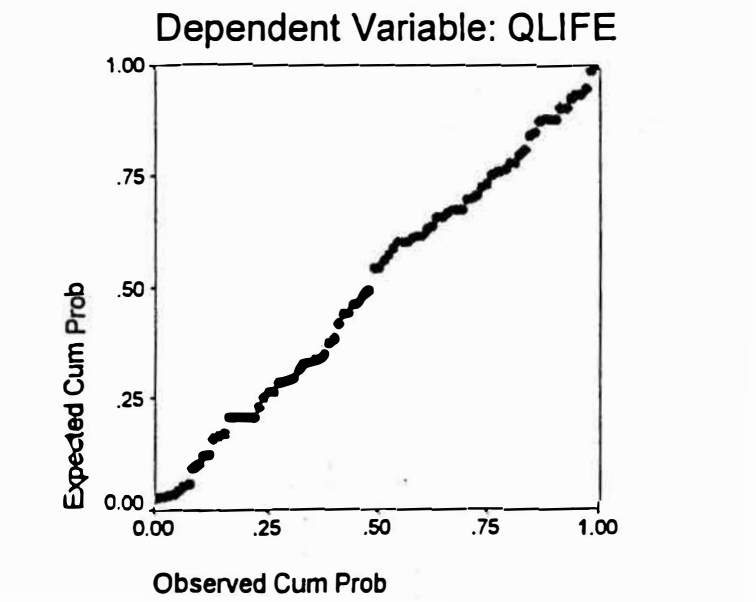

Figure 3. Normal Probability Plot of Regression

intercorrelations were noted between: (a) economic security and social/ psychological well-being, (b) physical well-being and social well-being, and (c) psychological well-being and social well-being. No relationship was noted between physical well-being and psychological well-being/economic security. Spiritual integrity did not demonstrate a relationship with any of the other predictor variables.

Table 8

Correlation Coefficients for Predictor Variables

	PWB	PYWB	SWB	SI	ES
PWB	1.0000	.1407 $p = .189$	.2323 $p = .028$	-.0288 $p = .789$	.1312 $p = .220$
PYWB	.1407 $p = .189$	1.0000	.2798 $p = .008$	-.0433 $p = .687$	.2696 $p = .011$
SWB	.2323 $p = .028$	.2798 $p = .008$	1.0000	-.0665 $p = .536$	.2197 $p = .039$
SI	-.0288 $p = .789$	-.0433 $p = .687$	-.0665 $p = .536$	1.0000	-.0262 $p = .807$
ES	.1312 $p = .220$	.2696 $p = .011$	.2197 $p = .039$	-.0262 $p = .807$	1.0000

Using stepwise multiple regression, the predictor variables found to be predictive of QOL were: physical well-being, psychological well-being, social well-being, and spiritual integrity. Social well-being and spiritual integrity were the strongest predictor variables followed by physical and

psychological well-being. Economic security did not enter the regression equation (see Table 9).

Table 9

Predictor Variables of QOL

Multiple R	.83498
R Square	.69720
Adjusted R Square	.68278
Standard Error	.13649

Variables in the Equation

Variable	B	SE B	Beta	T	Sig T
Physical Well-being	.274277	.049895	.340475	5.497	.0000
Psychological Well-being	.247072	.068393	.226735	3.613	.0005
Spiritual Integrity	.638195	.096648	.397498	6.603	.0000
Social Well-being	.506639	.064849	.499679	7.813	.0000
(Constant)	.082825	.017883		4.632	.0000

Variables not in the Equation

Variable	Beta In	Partial	Min Toler	T	Sig T
Economic Security	.104775	.180680	.864135	1.674	.0980

Indicators of the Predictor Variables. The predictor variable indicators were also statistically analyzed using stepwise multiple regression. Study findings revealed that both subjective and functional health were predictive of physical well-being. Subjective health was the strongest indicator as noted by the standardized regression coefficient (beta = 0.88, $p = .0000$). Functional health was found to have a weak, but significant relationship with physical well-being (beta = 0.23, $p = .0000$). Multiple R and R^2 for the

variables in the equation were 0.97 and 0.93, respectively. In 83 of the subject-studies, the indicators of: mobility, physical comfort/independence, disease stability, symptom control, and objective health were measured in a minimal number of cases (2). Therefore, the limited measured indicators of physical well-being were excluded from the analysis.

Education and mental health were the indicators predictive of psychological well-being. Of the two indicator variables that entered into the regression equation, mental health was the strongest (beta = 0.68, $p = .0000$) and education was the weakest (beta = 0.32, $p = .0001$). Self-esteem was not in the equation due to collinearity with mental health. Multiple R was 0.69 and R^2, 0.48 for the two equation variables. Locus of control entered stepwise in the regression analysis, but was not in the equation. Since the measurements of coping ability, happiness, life satisfaction, morale, usefulness, and autonomy were limited to a number of cases (2), the indicators were not analyzed.

In terms of social well-being, social support was the strongest variable indicator (beta = 0.57, $p = .0000$). Other variables that entered the equation were: (a) social activity - beta = 0.47 ($p = .0000$); (b) relationships - beta = 0.41 ($p = .0000$); and (c) adequacy of social resources - beta = 0.22, ($p = .0002$). Multiple R was 0.86 and R^2, 0.74 for the four indicator variables. As a result of the limited number of cases with reported

measurements (4), the following indicators were eliminated from the analysis: confidant, role fulfillment, employment, leisure activities, participation in associations, and neighborhood satisfaction.

Religiosity and religion were the two indicators predictive of spiritual integrity. The strongest indicator was religiosity (beta = 0.86, $p = .0000$) followed by religion (beta = 0.25, $p = .0000$). Multiple R and R^2 for the two indicators were 0.91 and 0.85, respectively. Since there were no reported measurements of self-determination, fulfillment, meaning in life, and peace, the indicators were excluded from the regression analysis.

Two of the indicators regarding economic security were included in the regression equation. Socioeconomic status revealed the strongest predictive relationship with economic security (beta = 0.74, $p = .0000$) followed by financial adequacy (beta = 0.57, $p = .0000$). In terms of the economic variables that entered the equation, Multiple R = 0.94 and $R^2 = 0.88$. Due to the limited measurements regarding the indicators of material comfort and economic independence (2 cases), the variables were not analyzed.

Indicator Variables and QOL. Intercorrelations were performed between the indicators to determine if multicollinearity existed before the variables were subjected to multiple regression analysis. Significant relationships were demonstrated between: (a) income and education

($r = 0.31$, $p = .003$) and relationships ($r = 0.24$, $p = .03$); (b) adequacy of social resources and financial status ($r = 0.26$, $p = .02$, SES ($r = 0.28$, $p = .01$), and subjective health ($r = 0.21$, $p = .05$); (c) functional health and social activity ($r = 0.37$, $p = .001$), mental health ($r = 0.49$, $p = .001$), and subjective health ($r = 0.23$, $p = .03$); and (d) mental health and social support ($r = 0.21$, $p = .04$) and self-esteem ($r = 0.31$, $p = .003$).

The indicator variables were also examined in relation to QOL. Specific correlations between the indicators and QOL were: (a) mental health, $r = 0.45$ ($p = .001$); (b) subjective health, $r = 0.42$ ($p = .001$); (c) SES, $r = 0.37$ ($p = .001$); (d) social support, $r = 0.36$ ($p = .001$; (e) functional health, $r = 0.36$ ($p = .001$); (f) religiosity, $r = 0.35$ ($p = .001$); (g) social activity, $r = 0.31$ ($p = .003$); and (h) adequacy of social resources, $r = 0.30$ ($p = .005$). All of the indicator variables that correlated with QOL were analyzed using stepwise multiple regression with the exception of functional health. Analysis of findings indicated that functional health demonstrated multicollinearity with mental health and social activity.

Of the seven variables subjected to stepwise regression analysis, religiosity received the highest beta weight. Mental and subjective health were also strong indicators of QOL, followed by: social activity, social support, SES, and adequacy of social resources. (see Table 10)

Table 10

Indicators Predictive of QOL

Multiple R	.80503
R Square	.64807
Adjusted R Square	.61765
Standard Error	.15330

---------- Variables in the Equation ----------

Variable	B	SE B	Beta	T	Sig T
Adeq./Social Res.*	.212630	.084505	.177305	2.516	.0138
Mental Health	.424242	.102155	.293912	4.153	.0001
Religiosity	.695987	.121719	.381580	5.718	.0000
SES	.336063	.121618	.194276	2.763	.0071
Social Activity	.461630	.138677	.226003	3.329	.0013
Social Support	.322580	.107072	.206404	3.013	.0003
Subjective Health	.266599	.064162	.291807	4.155	.0001
(Constant)	.119584	.019110		6.258	.0000

*Adequacy of Social Resources

The substantive characteristics that revealed no predictive value to QOL of older adults were: (a) study setting, (b) general age categories, (c) educational level, (d) marital status, (e) specific income, (f) ethnicity, and (g) healthy or chronically ill status. The variables not analyzed by multiple regression were specific age groups, retirement status, perceived financial adequacy, and living situation due to the limited number of cases.

Summary of Findings

Of the 83 subject-studies that comprised the meta-analytic sample, the majority were: (a) rated as having good methodological quality, (b)

located via a manual index and computer searches, and (c) published within the discipline of sociology. Descriptive-correlational studies that were cross-sectional in nature constituted the major research design. The sampling method used by the researchers was nearly equal between nonprobability and probability with the majority of sample sizes in the subject-studies ranging between 201-500. Outcome measurements were accomplished primarily through structured interviews using Likert scale instruments. Less than half of the researchers used a theoretical or conceptual framework as a basis for conducting their research.

The most common setting for data collection within the subject-studies was achieved in community/home environments. Predominant characteristics of the subjects were chronically ill, widowed, Caucasians and Afro-American females aged 65^{+} years with an educational level of 10-12 years. Although income was reported as a variable in only 35 studies, most of those subjects received under $10,000.00 per year.

Using the Pearson product moment correlation coefficient as the common metric, ESs were computed to determine the relationship of the predictor variables with perceived QOL in healthy and chronically ill older adults. Results of the study findings revealed that the mean ES of the predictor variables and QOL were significantly related. Social well-being had the largest mean ES of QOL; psychological/physical well-being and

spiritual integrity were very similar in terms of medium to large ESs; and economic security had the smallest medium ES.

Since the assumptions of linearity, normality, and homoscedasticity were not met regarding the methodological study characteristics, multiple regression analysis was not performed. Additionally, no relationships were demonstrated between the methodological variables and QOL.

In terms of the substantive study characteristics, QOL was deemed more important to adults aged 60 years and older. With respect to multiple regression, the assumptions were met for the substantive study variables. However, functional health was excluded from the analysis due to the multicollinearity with mental health and social activity.

The indicators that had the strongest relationship with the predictor variables regarding predictive value were: (a) subjective health and physical well-being, (b) mental health and psychological well-being, (c) social support and social well-being, (d) religiosity and spiritual integrity, and (e) SES and economic security. Additionally, the indicators were analyzed in relation to QOL using multiple regression. With respect to the indicator variables, all seven entered the regression equation. Results of the analysis revealed that religiosity was the strongest predictor indicator of QOL with adequacy of social resources being the least.

CHAPTER V

SUMMARY OF THE STUDY

The information presented in this chapter is a summary and discussion of the meta-analytic study findings. Specific findings that are addressed pertain to the methodological and substantive study characteristics. The ESs and correlations of the predictor variables are discussed in relation to QOL and other research studies. Also, the relationship between the indicators and associated predictor variables are examined. In terms of multiple regression, discussion of the analysis focuses on the predictive relationship between the predictor and indicator variables and QOL. In the final section of the chapter, conclusions, implications, and recommendations for further study are presented.

Summary

The meta-analytic sample was selected from published and unpublished research studies conducted in nursing, psychology, sociology, medicine, allied/public health, and education for the years 1970-1993. All potential subject-studies were evaluated for methodological quality using a Quality of Study Instrument developed by this investigator. Of the studies that met the study quality criteria, 66 published and 17 unpublished studies were included in the final data analysis.

Using the investigator developed Coding Instrument, data regarding the methodological and substantive study characteristics were collected from the individual studies. Following the determination of sample homogeneity, a total of 215 ESs were computed using the common metric of *r* according to the procedures outlined by Glass et al. (1981) and Wolf (1985). Results of the study revealed medium to large ESs between physical/psychological/social well-being, spiritual integrity, economic security and QOL. Therefore, the null hypotheses that addressed each of the predictor variables in relation to QOL were rejected.

When study data were subjected to stepwise regression analysis, physical/psychological/social well-being and spiritual integrity were found to be predictive of QOL. Additionally, results of the analysis demonstrated strong predictive relationships between: (a) subjective health and physical well-being, (b) mental health and psychological well-being, (c) social support and social well-being, (d) religiosity and spiritual integrity, and (e) SES and economic security. When the indicators of subjective health, mental health, adequacy of social resources, social activity/support, religiosity, and SES were analyzed, religiosity was the strongest indicator predictive of QOL.

The data were also analyzed to determine if a difference existed in ESs between the: (a) predictor variables and QOL among healthy and chronically ill older adults, (b) publication status of the studies and QOL,

and (c) young-old/old-old adults and QOL. Results of the study indicated that there were no significant differences in ESs among the three pairs of variables.

Discussion of Findings

Methodological Study Characteristics

Publication Status. To avoid a Type I error in the data, meta-analysts have strongly advocated the inclusion of unpublished studies in a meta-analytic sample. However, some researchers have chosen to exclude unpublished research in meta-analytic studies as a result of undue time and cost. For example, if dissertations/theses are not available through interlibrary loan services, the studies must be ordered through University Microfilm International at considerable cost. Additionally, attempts to secure unpublished studies from researchers is both time-consuming and costly; often culminating in unsuccessful results. Although unpublished studies were included in this meta-analytic study (20%), the insufficient number created a Type I error; thus, increasing significance of the research findings.

Research Discipline. The majority of studies conducted in this meta-analysis were from the discipline of sociology. Since researchers in the social sciences began investigating QOL in 1960, it was not surprising to note that nearly all of the subject-studies published prior to 1979 were

conducted by sociologists. In general, 64% of the studies in the meta-analytic sample were conducted between 1979 and 1993.

Following the emergence of the term QOL in the Index Medicus and Sociological Abstracts during the mid and late 1970s, interest in QOL research gained momentum during the 1980s. Graying of America, increased utilization of community and health care services by older adults, health care reform, allocation of scarce resources, and strong political involvement of AARP are examples of other factors that have stimulated continued interest in QOL research.

Research Design. Ninety-four percent of the subject-studies included in the meta-analytic sample were nonexperimental in nature. Although inherently weaker than experimental research, the descriptive-correlational design predominated the studies conducted within the various disciplines. With correlational research, relationships between the variables are inferred rather than elucidating cause-and-effect. Also, inferences can not be made with the same degree of confidence as in studies with experimental designs. Perhaps the selection of a correlational vs. experimental design was due to lack of time and funds, patient/staff inconvenience, inability to manipulate the independent variable, and/or ethical reasons. An underlying problem of correlational research is the threat to internal validity. As a result of

employing a correlational design, the researcher must always search for competing explanations regarding the study findings.

Of the 83 subject-studies in the meta-analytic sample, only 6% had experimental designs. More specifically, 5% of the studies with true experimental designs were conducted within the disciplines of nursing (1), medicine (1), psychology (1), and sociology (1). There are two major advantages of this type of research. First, experimental studies posses a high degree of internal validity. Second, researchers are able to rule out most alternative explanations for the study results due to manipulation of the independent variable and randomization of subjects (Polit & Hungler, 1991). Posttest and quasi-experimental were the other two experimental designs noted in studies conducted by medicine. Threats to internal validity also exist with this type of research.

Cross-sectional designs were also noted in 88% of the studies; in which, 26% were funded. The majority of the funded, cross-sectional studies were conducted by researchers in sociology and medicine followed by: allied health, psychology, and nursing. Cross-sectional study designs are commonly employed by researchers because they are more practical, relatively economical, and easier to manage than longitudinal designs (Polit & Hungler, 1991).

Although researchers maintain that studies need to be longitudinal to capture the "true" essence of QOL, only 12% of the studies in the meta-analytic sample were longitudinal. In contrast to the cross-sectional studies, nearly all of the longitudinal studies were funded (11%). Medicine was the discipline most notably involved in funded, longitudinal QOL research. There were no funded studies conducted longitudinally by nurses. The expense, time, and subject mortality involved in longitudinal research may deter researchers from conducting such studies.

Sampling Method. The use of probability sampling employed by the researchers were: (a) sociologists, 24%; (b) psychologists and educators, 10%; (c) physicians and allied/public health providers, 8%; and (d) nurses (6%). The advantages of probability sampling involves the reduced risk of selection bias and threats to external validity. If the characteristics of the accessible population are similar to the target population, then study results can be generalized with greater certainty using probability sampling.

In terms of recruiting subjects, over half of the researchers used nonprobability sampling. Researchers in nursing predominantly used nonprobability sampling (17%) followed by: sociology (12%), psychology (10%), medicine (8%), allied/public health (4%), and education (1%). With nonprobability sampling, results of the study should only be generalized to the accessible population. Researchers may choose nonprobability vs.

probability sampling due to the shorter time involved in subject recruitment, insufficient number of available subjects, and lack of administrative/research approval from potential research sites. In order to obtain a sufficient number of subject-studies for this meta-analytic study, nonprobability sampling was employed.

Outcome Measurement. In terms of outcome measurement, there were two factors that could have influenced the ESs obtained from the various subject-studies. First, psychometric properties were not reported for the majority instruments used for data collection. ESs of the QOL domains may have been calculated using study findings that were obtained with unreliable and nonvalid instruments. Without the use of valid and reliable instruments, interpretation of study results can be greatly affected. Specifically, ESs have the potential of being either under or overestimated.

Second, 52% of the researchers completed the questionnaire while the subjects were being interviewed. The interviews were necessitated by the subject's difficulty in reading the instrument. Researcher interviews may have prompted some subjects to provide responses that were considered socially desirable. If the subjects gave inaccurate responses, the ESs of the predictor variables and QOL could have been calculated incorrectly. Self-report measures are highly susceptible to measurement error.

Substantive Study Characteristics

With respect to the substantive study characteristics, all of the subjects who participated in the research studies resided in the community. The rationale for selecting subject-studies conducted in the community was two-fold. First, 95% of all older adults reside in the community. This investigator felt that the meta-analytic findings would be generalizable to a greater portion of the older population. Second, the domains of QOL considered important to older adults differ between those residing in community vs. long-term care facilities. Discussion of the various substantive study findings of the subject-studies follows.

Educational Level. The educational level of subjects was reported by 58% of the researchers. Expectedly, 30% of the subjects had attained 10-12 years of education. The finding is probably attributed to the fact that females primarily constituted 90% of the subjects. In the 1930s, the size of families were becoming smaller than in previous years. Since the need for young women to stay at home and care for the other children was not as great, more women were able to remain in school. In terms of men, there was not enough data to reach a conclusion about education. When this investigator questioned a number of older adults about education during their school years, they stated that many men felt they had to seek work in lieu of an education to support their family. Other men, perchance, did not

see the need for education or were drafted. Out of necessity, others joined the Armed Forces in order to learn a trade and survive (C. Baker, N. Hapshe, L. Jones, F. Martin, & C. Smithey, personal communications, April, 1994). Following World War II, however, opportunities for pursuing an education were made available to veterans through the GI Bill.

The educational level of older adults in this study was not associated with or predictive of QOL. Usually, education indirectly impacts QOL through one's socioeconomic status. Research findings have indicated that older adults with more education receive less tangible or instrumental help from family and friends (Krause, 1987a). Since persons tend to have a higher SES with more education, family and friends may feel that the older adult can pay for the instrumental services needed.

Age of Subjects. Though the general age of the subjects was 55-98 years, most were between 65-88 years. An expected study finding revealed that the domains of QOL deemed important to subjects aged 55-74 years and 75 years and above were the same. Even though the studies subjected to statistical analysis were small in number (10), the total sample size for the young-old group was 1,137 and 1,099 for the old-old group. Perhaps the study results would have reflected a difference between the two age groups if a larger number of subject-studies could have been retrieved. However, the meta-analytic finding is supported by the research conducted

by Flanagan (1982), Haug and Folmar (1986), and Murrell et al. (1983). The study findings reported by the researchers suggested that the parameters of QOL were very similar for adults aged 55 years and older.

In terms of age-related issues, the importance of religion/religiosity to older adults has generated much controversy among researchers. Koenig et al. (1988a) reported research results indicating that religion and religiosity becomes more important as adults grow older. However, Finney and Lee (1977) found that age alone had a minimal effect on religious practices and beliefs. In the research conducted by Mull et al. (1987), findings revealed that as the older adult becomes more severely ill the greater the importance of religiosity. Results of this meta-analytic study did not support the findings that religion or religiosity becomes more important in later life. Since the chronically ill subjects in the meta-analytic subject-studies were considered to be stable, possibly there was no need for them to change their spiritual perspective or religious practices.

Another issue confronting older adults is that of finances. With aging, there can be significant financial losses incurred by acute/chronic illness, functional impairments, widowhood, environmental barriers (transportation and neighborhood crime), and forced retirement. Based on the available data in 83% of the meta-analytic subject-studies, 42% of the subjects were widowed. Widowhood for women, in particular, often means reduced

income, pensions, and benefits. Income was reported in 42% of the meta-analytic studies in which 35% of the subjects were living on incomes less than $10,000/year.

In this study there was no difference regarding financial concern or economic security among the young-old and old-old. Perhaps the reason for the lack of difference between the two groups was based on prior experiences. Subjects had learned to manage or cope with their financial situation in spite of life adversities. Overall, the predictor variables measured in this study were considered important to QOL irrespective of age in later adulthood.

Effect Sizes and Stepwise Regressions

Social well-being. Results of the study revealed that the predictor variable of social well-being was measured in 73% of the subject-studies and accounted for 30% of the variance in QOL. Of the five predictor variables, social well-being demonstrated the largest ES (0.55) and strongest predictive value of QOL (beta = 0.50, $p = .0000$). Since many researchers have reported that physical and psychological health are the strongest predictors of QOL, this meta-analytic finding was unexpected. Nonetheless, the study findings were supported by the research conducted by Baur and Okun (1983). Nurturing, fostering, and maintaining relationships with family members/others were the vital aspects

integral to women emphasized by the researchers. Conceivably, the predominant female meta-analytic sample could have accounted for the study findings.

The indicator most predictive of social well-being was that of social support (beta = 0.57, $p = .0000$). Not surprisingly, social support was also significantly related to mental health ($r = 0.21$, $p = .04$). In part, mental health depends on the degree to which essential social needs are gratified through interpersonal interactions (Revicki & Mitchell, 1986). Affection, security, affirmation of self-worth, and a sense of belonging are examples of essential social needs.

Although some researchers differentiate between the quality vs. quantity of social support, study findings are conflicting. In a few of the subject-studies, both the quality and quantity of social support were measured by the researchers. The findings of the subject-studies indicated that older adults benefit more from the quality vs. quantity of social support. Revicki and Mitchell (1986) found that quality of social support was a better predictor of health than quantity of social support.

In the research of Krause (1987b), satisfaction with social support was also found to be a more important determinant of the older adult's health than the amount of support received. Nevertheless, other researchers have reported that the quantity of social support is a strong predictor of

well-being in older adults (Cohen & Wills, 1985; Williams, 1988). Although this investigator believes that quality social support enables older adults to experience social well-being and cope more effectively with compromising life situations, the research findings were inconclusive.

Social activity was the second indicator predictive of social well-being (beta = 0.47, $p = .0000$). Examples of social activity are joining a friend for dinner either in or outside the home, viewing a movie, taking a walk, or attending community events. The amount of social activity often depends upon the older adult's physical capability, mental health, social support systems, and financial resources (Osberg et al., 1987). Older adults want to be vital and active in order to promote their sense of physical, psychological, and social well-being.

The third indicator predictive of social well-being was that of relationships (beta = 0.41, $p = .0000$). Although relationships are deemed very important by women, there are declines in later life. Deteriorating health, institutionalization, shrinking social networks, and/or losing family/ friends can reduce the number and quality of relationships. In a study conducted by Strain and Chappell (1982), results suggested that the quality of a relationship may be more important to the older adult than quantity. Since the quality vs. quantity of relationships were not differentiated in the majority of subject-studies, it could not be measured

in this study. If an older adult had only one relationship with a confidant (quality) vs. several friends (quantity), there is a good possibility that social well-being could remain intact and in turn, enhance QOL.

In terms of this study, the significant relationship found between income and relationships was an unexpected finding. Health permitting, income may enable older adults to maintain or nurture new relationships through continued participation in social activities. There is a strong possibility that income affects the availability of social resources to aging adults.

With respect to adequacy of social resources, it was the fourth indicator predictive of social well-being (beta = 0.22, $p = .0002$). Older adults who perceive that they have adequate social resources tend to: (a) report fewer physical, social, and psychological problems; and (b) mobilize instrumental support more effectively. In this study, analysis of findings indicated that financial status, SES, and subjective health were significantly correlated with adequacy of social resources. Having adequate resources promotes the older adult's sense of safety and security, thus enhancing physical/psychological/social well-being.

The three indicators of social well-being that revealed predictive values in relation to QOL were: (a) social activity (beta = 0.23, p.0013), (b) social support (beta = 0.21, $p = .0003$), and (c) adequacy of social resources

(beta = 0.18, $p = .0138$). In a random sample of 351 older adults, Krause (1987a) found that older adults confronted with undesirable life stressors attempt to cope by mobilizing available social resources. Women were noted to be the predominant recipients of tangible or instrumental support (beta = 0.37, $p < .001$). In this study, the mobilization of social activity/ support/social resources could have buffered the detrimental effects of physical problems, thus increasing the importance of social well-being to QOL. Perhaps social well-being was the strongest predictor of QOL in this meta-analytic study, as a result of the sample being primarily composed of women.

Psychological well-being. With respect to psychological and social well-being, results of the study revealed a medium ES of 0.28 ($p = .008$). The meta-analytic finding is supported by work of Lawton (1983b). Psychological well-being was found to have a strong link with social behaviors. When the older adult is happy and satisfied with life, the greater the chance of maintaining relationships, social support, social activity, and adequate resources. In contrast, older adults who view life more negatively have less of a chance to experience social well-being. Relationships between friends and relatives frequently become more distant as the older adult becomes more difficult to contend with.

Psychological well-being was also found to be correlated with economic security. The medium ES between the two variables was 0.27 ($p = .011$). Economic security may increase the older adult's ability to: (a) seek care for pertinent health problems, (b) be socially active, (c) provide social support to others, and (d) maintain relationships. In spite of the older adult's SES, a sense of economic security may help to buffer psychological stresses, provide peace of mind, and enhance well-being.

In terms of QOL, psychological well-being was measured in 48% of the subject-studies and accounted for 18% of the explained variance. A medium to large ES was found between the predictor variable and QOL (0.43). Also, psychological well-being was noted to have a moderate predictive value of QOL (beta = 0.23, $p = .0005$). The meta-analytic study findings are consistent with the research of Larson (1978), Lawton (1983a), Lawton et al. (1984). According to the researchers, psychological well-being represents a person's cognitive and affective evaluation of life as a whole. The degree to which psychological well-being is experienced, depends upon the amount of pleasure vs. pain in the older adult's life. Bradburn (1969) stated that "the greater the positive over negative affect, the higher the overall rating of psychological well-being" (p. 10).

The indicator variables predictive of psychological well-being were mental health (beta = 0.68, $p = .0000$) and education (beta = 0.32,

$p = .0001$). The collinearity that existed between self-esteem and mental health was supported in the research conducted by Lawton (1983b). Specifically, mental health is commonly thought to be the indicator of unobservable constructs such as self-esteem or ego strength. Usually, mental health is reflected by the older adult's ability to cope with difficult situations without undue pain. As an indicator of psychological well-being, mental health was also moderately predictive of QOL (beta = 0.29, $p = .0001$) in this meta-analytic study.

In terms of the relationship between education and psychological well-being, study findings have been conflicting. In a study of 320 older adults, Leonard (1981-82) found that education and psychological well-being were significantly related ($r_c = 0.21$, $p < .001$). The research findings of Brockett (1987) and Fengler (1984) have also indicated that the more years of formal education a person has, the greater the life satisfaction or psychological well-being. Education can bolster self-esteem/confidence and morale, promote problem-solving abilities, foster independence, and help bridge the gap between a person's aspirations and expectations.

In other studies, education was not significantly correlated with psychological well-being (Usui et al., 1985; Wolk & Telleen, 1976). The effect of education on a person's life, many times, is measured in relation to SES or income. However, when income was controlled for in the study

conducted by Usui et al., education had no effect on psychological well-being. In the study of McKenzie and Campbell (1987) however, it was found that the educational background of older adults emerged as the most important SES factor in predicting morale/psychological well-being. In this study, education was correlated with income ($r = 0.31$, $r^2 = 0.10$, $p = .003$) but had no effect on SES.

Spiritual integrity. An unanticipated finding of this study revealed that spiritual integrity was not related to any of the predictor variables. In studies conducted by other researchers, spirituality had been incorporated into the different domains of QOL. For example, Ferrans and Powers (1992), Ruffing-Rahal (1984), and Padilla et al. (1990), considered spiritual support or spirituality as the major attribute of psychological well-being. Whereas, membership in church-affiliated activities was found to be the significant predictor of psychological well-being in a study of older adults conducted by Culter (1976). In contrast, Emblen and Halstead (1993) and Hasse et al. (1992) indicated that spirituality could also be manifested by having a sense of connectedness with others and possessing interpersonal relationships.

In this study, the lack of a relationship between the predictor variables could have been attributed to the limited number of studies (18%) included in the sample that addressed spiritual integrity. ESs could have been

underestimated in terms of the significance between the various predictor variables. Also, the study finding may imply that spiritual integrity is indeed independent of or mediated through the domains of physical/psychological/ social well-being and economic security.

In lieu of a relationship with the other predictor variables, spiritual integrity did demonstrate a medium to large ES (0.41) which accounted for 17% of the variance in QOL. Moreover, spiritual integrity was a strong predictor of QOL (beta = 0.40, $p = .0000$). The finding, however, may have resulted from the large ESs of religiosity reported in five of the subject-studies (0.56-0.70). The ESs could have inflated the predictive value of spiritual integrity in relation to QOL. Also, the predominance of older women in the sample may have attributed to the study finding.

In a convenience sample of 106 older adults, Koenig et al. (1988a) found that religiosity was a more important factor in the life of women rather than men. The finding was also consistent with other research studies (Blazer & Palmore, 1976; Heisel & Faulkner, 1982; Markides, 1983). Although Blazer and Palmer noted that religious activities and attitudes increased over time among older adults, the finding was not supported by Markides's or this investigator's research.

Religiosity was the strongest indicator predictive of spiritual integrity (beta = 0.88, $p = .0000$) and QOL (beta = 0.38, $p = .0000$). Study findings of

a longitudinal study suggested that older adults who continued to participate in organized religious activities were more likely to express positive attitudes toward life and experience better health than those who did not (Keith, 1993). Other study findings have also suggested that religious attendance is significantly associated with health and QOL.

In terms of religiosity, there are two types of religious practices that can that can impact spiritual integrity and QOL. The first type of practice is considered organized or formal religious activities, which often include attending church or participating in religious events (Bible study or prayer groups). The second type of practice pertains to nonorganized or informal religious activities. Private devotional practices like praying, reading the bible/religious literature, and/or viewing televised religious programs are examples of informal religious activities.

Several researchers have found that private devotional aspects of religiosity were more salient for older adults in "poor" health (Koenig et al., 1988b); Levin, 1988; Mull et al., 1987; Mindel & Vaughan, 1978; Young & Dowling, 1987). In a study of 581 Black older adults, findings indicated that women reported reading religious materials and praying more frequently than men (Taylor & Chatters, 1991). The use of prayer regarding personal problems has also been particularly evident in the coping responses of women.

Although religion was an indicator of spiritual integrity, it was a modest predictor (beta = 0.25, $p = .0000$). If religious, a person can have either an intrinsic or extrinsic orientation. An intrinsic orientation refers to a person's cognitive commitment to religious beliefs from a subjective and attitudinal perspective. Nelson (1990) found that persons intrinsically oriented were more likely to be older, educated women who attended church-related events more frequently than extrinsically oriented persons. The research findings noted by Markides (1983), also suggested that older adults experiencing decreased health tend to have greater intrinsic religious orientation.

Extrinsic religious orientation, in contrast, refers to a person's superficial commitment to religious beliefs. Persons who are extrinsically oriented seek out formal religious activities to satisfy their personal needs for social gains. Attending church-affiliated activities, nonetheless, provides older adults with opportunities to develop social networks and close friendships. Research findings have indicated that physical disability is the main deterrent for church attendance (Guy, 1982). As stated by Markides (1983), church attendance may be a better indicator of functional health than religious commitment among older adults. In this study, neither religiosity or religion were related to the other predictor variable indicators.

Physical well-being. In terms of the predictor variable, there were some unanticipated findings. First, physical and psychological well-being were not correlated. Study findings from the research of Harel et al. (1982), revealed that the perception of adequate health, functional competence, and minimal loneliness were the important determinants of mental health among 1,008 older adults. Results of a path analysis also indicated that health had a substantial effect on psychological well-being among the aged (Deimling & Harel, 1984). Physical well-being or health usually enables a person to sustain emotional strength during difficult times.

Few researchers have suggested that perceived health may relate to psychological well-being in a nonlinear fashion (Bull & Aucion, 1975; Pearlman & Uhlmann, 1988). If older adults perceive themselves to have a slightly higher than moderate degree of positive health, then health may be of little importance to psychological well-being. At the negative end of the health continuum, however, health may assume a strong importance for psychological well-being. Perhaps the meta-analytic subject-studies were comprised of older adults who perceived their health to be positive, regardless of existing chronic illnesses. Additional rationale that possibly supports the meta-analytic finding may be due to the fact that physical well-being indirectly impacts psychological well-being through

the QOL domain of social well-being. In this study, physical and social well-being did demonstrate a small to medium ES of 0.23 ($p = .028$).

Second, study findings revealed the lack of a significant relationship between physical well-being and economic security. Older adults who possess adequate financial resources and have access to health care, often seek out HCPs for health problems. The availability of health care provides an avenue for older adults to seek treatment regarding symptom control, disease stability, and mobility/physical independence problems. If the financial resources are maintained and problems are managed effectively by HCPs, then older adults have a greater chance of experiencing physical well-being. In this meta-analytic study, physical well-being was possibly indirectly mediated by social well-being since economic security and social well-being were intercorrelated ($r = 0.22$, $r^2 = 0.05$, $p = .039$).

In relation to QOL, physical well-being was found to have a medium to large ES of 0.40. Measured in 70% of the subject-studies, physical well-being accounted for 16% of the variance in QOL. In terms of regression analysis, physical well-being was found to be moderately predictive of QOL (beta = 0.34, $p = .0000$). Research findings from several studies support the importance of physical well-being in determining QOL among older adults (Andrews & Withey, 1976; Campbell et al., 1976;

Larson, 1978; Osberg et al., 1987; Pearlman & Uhlmann, 1991. Pearlman and Uhlmann (1988) stated that the variable of health/physical well-being has been consistently correlated with QOL. In a large survey of the general adult population, the researchers implied that QOL may be independent of both age and disease. Though health-related problems can affect QOL, older adults with a serious illness tend report similar levels of QOL to those with a less serious illness.

Mancini and Orthner (1980) indicated that self-rated health may be a stronger situational influence of QOL than is the index of an underlying illness. Despite the actual health level, older adults may feel their health is as good as can be expected. Therefore, aging adults may not feel unduly distressed or constrained physically. Interestingly, females who are old-old tend to be more optimistic about their health than younger aged persons.

With respect to the indicator of subjective health, it was highly predictive of physical well-being (beta = 0.88, $p = .0000$) and moderately predictive of QOL (beta = 0.29, $p = .0001$). Self-assessed or subjective health is a global evaluation of physical well-being. In determining the level of subjective health, parameters often assessed by older adults include: mobility, ADL, IADL, physical comfort/independence, disease stability, and symptom control. The research findings of Ferraro (1980) and Riffle et al., (1989) found that subjective health of older adults was strongly related to

positive physical health/well-being; thus, supporting the findings of this study. In a comprehensive review of the literature, Larson (1978) also concluded that subjective health is a valid predictor of health status or physical well-being. Furthermore, subjective health has been shown to be strongly related to the QOL in older adults.

Functional health was the second indicator predictive of physical well-being (beta = 0.23, $p = .0000$). In contrast to subjective health, functional health is narrower in focus. Mobility, ADL, and IDL are the specific components that pertain to functional health. According to the meta-analytic study findings, functional health was significantly related to mental health ($r = 0.49$, $r^2 = 0.24$, $p = .001$; social activity ($r = 0.37$, $r^2 = 0.14$ $p = .001$); and subjective health ($r = 0.23$, $r^2 = 0.50$, $p = .03$). Functional health enhances mental health by preserving physical independence and established social relationships; thus minimizing loneliness and depression. Although the frequency of social activity may decrease, stability of relationships, social support, and resources can help to preserve the older adult's QOL. The study finding indicates that older adults can achieve a sense of social well-being, irrespective of functional impairment.

Economic Security. A small to medium ES of 0.22 was found between economic security and social well-being ($p = .039$). Though economic security impacts social well-being, it does not determine the

degree. For example, financially well-off older adults may experience minimal social well-being as a result of physical and/or psychological difficulties. Whereby, older adults considered financially impaired by others but perceive their financial status as adequate, may experience a higher level of social well-being based of their outlook on life.

In terms of QOL, economic security demonstrated a medium ES (0.27). Although measured in 49% of the subject-studies, the explained variance accounted for in QOL was 7%. The small variance was probably attributed to the underlying intercorrelations between economic security and the other predictor variables. In the regression analysis, economic security did not enter the regression equation due to multicollinearity with physical/psychological/social well-being and/or spiritual integrity. However, findings from a study conducted by Spreitzer and Synder (1974) indicated that economic sufficiency was one of the strongest predictors of QOL for adults over age 65.

Research findings presented by Koenig et al. (1988a), indicated that financial status appeared to be more important among older men. As breadwinners, men are responsible for providing the economic security of the family. For older men, economic security generally reflects success in both family and employment roles. Whereas, family life and social activities have traditionally been the primary concern of women. Perhaps the small to

medium ES of this QOL domain is due to the meta-analytic sample being primarily composed of older women and multicollinearity with the other predictor variables.

Of the two indicators subjected to regression analysis, SES strongly predicted economic security (beta = 0.74, $p = .0000$) and weakly predicted QOL (beta = 0.19, $p = 0071$). In the research conducted by Larson (1978), income was noted to be the most influential component of SES. Therefore, income was included under the auspices of SES in this study. Due to the similarity between financial status and SES, financial status was also subsumed by SES.

Financial adequacy was also a strong predictor of economic security (beta = 0.57, $p = .0000$). Study findings have shown that satisfaction with standard of living may have greater importance to the older adult's outlook on life than her/his actual financial condition (Fengler & Danigelis, 1982; Medley, 1980). The greater the perception of financial adequacy, the greater the sense of economic security and independence.

In a study of 2,500 older adults, Chatfield (1977) found that low income did not necessarily mean low life satisfaction. Stallworth (1983) also noted that older adults at or below the poverty level were able to make attitudinal adjustments concerning their adequacy of income. Although no relationship was demonstrated between income and QOL, the older adult's

perception of income adequacy had more of a positive influence on QOL than actual income. In other studies, perceived income/financial adequacy was also found to be a stronger predictor of QOL than the objective indicator of SES (Spreitzer & Synder, 1974; Toseland & Sykes, 1977). Perceived financial adequacy in this meta-analytic study was not correlated with QOL.

Conclusions and Implications

A major strength of this study has been the integration of empirical findings statistically analyzed across a number of individual research studies. Using the meta-analytic process, confusing and/or conflicting results of various individual studies were organized into coherent patterns. Subsequently, variables related to QOL emerged with greater clarity than would have been possible from a single study. Although there were a number of differences between the meta-analytic studies, the study findings have implications for nursing theory, research and practice.

In terms of nursing theory, findings of this study provide partial support for specific variables depicted in Figure 1: The Conceptual Model of QOL. Developed by this investigator, the model provided a framework for determining the QOL domains important to healthy and chronically ill older adults. In this study, physical, psychological, and social well-being; spiritual integrity, and economic security were found to be related to QOL. With the

exception of economic security, the variables were also found to be moderate to strong predictors of QOL. However, age and health status did not reflect a difference in the predictor variables between the young-old and old-old group of adults.

Although the predictor variables have been measured in other studies, results of this study have provided another way to view QOL. With respect to the various disciplines, contributions of this study may provide support for development or changes regarding the curriculum of gerontological programs. For example, courses that specifically pertain to QOL of older adults might be incorporated into the curriculum. Also, educators may change their emphasis on what constitutes QOL. Social well-being and spiritual integrity rather than physical or psychological well-being, might be the starting point for addressing the QOL of aged adults. Results of the meta-analytic study will add to the existing body of knowledge regarding gerontological theory.

Another finding of this study alluded to the majority of researchers labeling the subjects in the study samples as elderly. Unfortunately, the term "elderly" conjures up images of dependent, sick, and frail adults. Since 95% of the elderly reside in the community, the myths and stereotypic images of these adults are misleading. In this study, the elderly were referred to as older adults. Perhaps using the term "older adult" will help

to dispel negative attitudes and create more positive feelings towards the aged.

Nurse educators can also play a vital role in changing society's perspective about aging by providing positive gerontological experiences for students. One way to enhance positive attitudes is to plan the first clinical rotation of nursing students caring for older adults in community settings, rather than in nursing homes or skilled nursing facilities.

With respect to clinical practice, results of this meta-analytic study can provide rationale for altering the care administered by nurses and other HCPs to older patients. Knowledge of the variables predictive of QOL should facilitate HCPs in prioritizing the patient parameters to be assessed or evaluated. In stable patients, assessing the domain of social well-being and implementing warranted interventions first, may improve the success of interventions in other domains. A decreased sense or lack of social well-being can minimize the older adult's sense of psychological well-being; thus, creating feelings of loneliness, depression, and despair.

In terms of social well-being, social support/activity and adequacy of resources were the indicators predictive of QOL. Nurses need to encourage patients to discuss their perception of support networks, social involvement, and available resources so interventions can be implemented to ensure that older adults see themselves as valuable members of the community.

Spending more social time with patients, recommending ways that patients can establish reciprocal relationships, and collaborating with social agencies are a few interventions that nurses could employ to enhance the social dimension of aging adults. If problems affecting social well-being are not dealt with, resistance on the older adult's part to learn other aspects of care may increase.

As patient advocates, nurses and other HCPs can also effect the social well-being of older adults by becoming actively involved on the local, state, and/or federal level. Development of social policy or education of policy makers should be the specific emphasis of nurses. For example, a pet may be the only source of companionship for some older adults. If owners of retirement centers understood the importance of social well-being on QOL, then environmental policies prohibiting pets might be changed.

Another factor that may increase the social well-being of older adults is the provision of transportation. In the study conducted by Stallworth (1983), public transportation was found to be the primary transportation mode for the majority of older adults. In planning transportation routes, authorities need to take into account the heavy reliance aging adults have on public transportation. If public access to transportation were made easier, older adults could maintain or increase their participation in social activities.

Older adults who are unable to use or access public transportation, must depend on family/friends, social agencies, pay for transportation, or due without. Presently, social policy at the state and federal level only reimburses for transportation regarding medical reasons. If policy makers understood the positive impact of social activity on social well-being, more programs with funded transportation might be established to enhance the QOL of older adults.

Of the four domains predictive of QOL, nurses probably possess the least knowledge about the spiritual integrity of older patients. Often, the only information requested from patients is their religious faith. Therefore, this particular domain is usually neglected or minimally assessed. Yet, spiritual integrity was strongly related to QOL in this study. Additionally, the religiosity component of spiritual integrity was the strongest indicator predictive of QOL. As the population of older patients being cared for in the hospital and home continue to increase, nurses and other HCPs need to expand their knowledge regarding spiritual integrity. If the goal of nursing is holistic care, then nurses must recognize the potential healing powers of the spiritual dimension.

In relation to psychological and physical well-being, nurses and other HCPS usually assess these parameters with greater ease. Often, hospital nurses receive the greatest financial rewards or recognition from others

in administering competent physical or psychological care to patients. Nurses are specifically rewarded for their ability to: (a) perform physical and psychological assessments, (b) operate and troubleshoot technical equipment, (c) identify emerging physiologic/psychologic crises situations, and (d) decrease the length of stay of patients by implementing effective interventions.

With respect to home health, the type of patient care delivered is often mandated by third party insurers. Reimbursement for services includes; (a) education regarding the patient's illness or physical problem; (b) consultation by social workers to evaluate and secure other patient services needed; and/or (c) physical care administered by nurses, aides, and occupational/physical/speech therapists. Since home health nurses are required to make a number of established visits per day, time for assessing the psychological, social, and spiritual needs of patients is minimized.

When holistic care is not provided, discrepancies in communication and goals of care emerge between HCPs and patients. When patients and HCPs are not on the same wavelength, unwarranted medical and nursing interventions may be implemented. Interventions that do not meet the older patient's need, dramatically increases the risk for patient noncompliance with therapeutic plans of care.

In clinical practice, findings of this study should increase the HCP's knowledge and understanding of older adults and the concept of QOL. HCPs need to: assess the five domains impacting QOL, identify QOL problem areas, and implement interventions that will restore or promote QOL among older adults. Quality vs. quantity of life should be the primary goal of nurses and other HCPs.

Focusing on research, results of the meta-analytic study have clearly revealed some of the inadequacies embedded in published studies. When the subject-studies were evaluated for methodological quality in this study, a number of problems existed. The major problems interfering with study quality were attributed to missing and incomplete reporting of data. Specific aspects of the research studies that lacked sufficient information were: (a) description of the sample and data collection process, (b) reliability and validity of the instruments used to measure the criterion variable, and (c) data presentation. Thirty-seven percent of the researchers did not report if subjects in their study were healthy or chronically ill. The data collection process was rated as fair in 24% of the subject-studies. With respect to the psychometric properties, 54% of the studies had no data regarding reliability of the criterion instrument. Validity data was also missing in 89% of the studies. For data presentation, many researchers reported study findings using regression analysis but failed to report the correlation coefficients of

the measured variables. Other researchers reported statistical findings in table format without specifying the statistical test used.

The meta-analytic findings reinforce the importance and necessity of publishers to edit research studies with greater scientific rigor. Criteria for published studies should require researchers to more fully report pertinent study details and findings. Since numerous instruments were employed across the subject-studies in this meta-analysis, knowledge of psychometric properties is essential for determining the accuracy of study findings.

Recommendations for Further Study

The meta-analytic study of the effects of physical, psychological, and social well-being; spiritual integrity, and economic security on QOL in older adults provides a direction for further research. Recommendations for future studies are as presented.

1. More experimental studies with random assignment of subjects to groups need to be conducted in order to examine the effects of various interventions on QOL.

2. Additional longitudinal designed studies are needed to differentiate aging vs. generational or cohort effects on QOL.

3. Researchers measuring QOL should use established QOL instruments in order to strengthen the psychometric properties.

4. Testing the Conceptual Model of QOL developed for this study using path analysis would help to establish its credibility and provide a framework for other studies measuring QOL among older adults.

5. Research directed at using QOL instruments as assessment tools in practice would help to educate nurses and other HCPs regarding the concept of QOL, and bridge the gap between practice and research.

6. Since gender may dictate different QOL interventions, more research studies need to focus on the variables important to the QOL of older men vs. women.

7. Due to the conflicting study findings associated with aging, research needs to further explore the relationship between: (a) spirituality/religiosity and QOL and (b) quality vs. quantity of social support and QOL.

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Appendices

Appendix A

Meta-analytic Subject-studies

Meta-analytic Subject-studies

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Appendix B

Quality of Study Instrument

Quality of Study Instrument

1. Description re: Significance of the study
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

2. Problem Statement
    1 Explicit
    2 Implicit

    Clarity:
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

3. Objectives/Hypotheses
    1 Explicit
    2 Implicit

    Clarity:
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

4. Completeness re: Definition of Terms
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

5. Description of the Sample
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

6. Research Design
    1 Explicit
    2 Implicit

    Appropriateness:
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

7. Criterion Instrument
    1 Reliability Reported
    2 Reliability Not Reported

    1 Validity Reported
    2 Validity Not Reported

    Adequacy of Reliability:
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

    Adequacy of Validity:
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

8. Description of Data Collection Process
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

9. Appropriateness of Statistical Analysis
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

10. Data Presentation
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not ascertainable

11. Congruency between Study Results and Conclusions
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

12. Discussion of Limitations
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

13. Clarity of the Report
    1 Excellent
    2 Good
    3 Fair
    4 Poor
    5 Not Ascertainable

Appendix C

Coding Instrument

CODING INSTRUMENT

PART I - Methodological Study Characteristics

(ID) 1. Identification Number: _____

(Qual) 2. Quality of the Study
1 Excellent
2 Good
3 Fair
4 Poor

(Fund) 3. Funding Source
1 Yes
2 None

Type: _____

_____

_____

(Source) 4. Source Derivation
1 Computer search
2 Manual index search
3 Manual reference list search
4 Journal
5 Text
6 Other_____

(Publ) 5. Publication Status
1 Published
2 Unpublished dissertation
3 Unpublished Thesis
4 Unpublished Research
5 Other_____

(ResDisc) 6. Researcher's Discipline
1 Nursing
2 Psychology
3 Sociology
4 Medicine
5 Allied Health
6 Public Health
7 Other_____

(DataDate) 7. Data Collection Date
- 1 1978 & under
- 2 1979 & over

(Design) 8. Research Design
- 1 Solomon Four Group
- 2 Pretest-Posttest
- 3 Posttest
- 4 Quasi Experimental
- 5 Descriptive Correlational
- 6 Correlational
- 7 Descriptive

(ResClass) 9. Research Classification
- 1 Longitudinal
- 2 Cross-sectional

(SMeth) 10. Sampling Method
- 1 Probability
- 2 Nonprobability
- 3 Not Ascertainable

(SSize) 11. Sample Size _____

(Meas) 12. Outcome Measurement
- 1 Interview
- 2 Self-administered questionnaire
- 3 Observational
- 4 Physiological
- 5 Chart Audits
- 6 Other _____

(Format) 13. Format of Instrument
- 1 Likert Scale
- 2 Semantic Differential
- 4 Open-ended Questions
- 5 Structured Interview

Name: _____

_____

_____

_____

_____

(ESPWB) 14. ES - Physical well-being/QOL_____

(ESPYWB) 15. ES - Psychological well-being/QOL_____

(ESSWB) 16. ES - Social well-being/QOL_____

(ESSI) 17. ES - Spiritual well-being/QOL_____

(ESES) 18. ES - Economic security/QOL_____

PART II - Substantive Characteristics

(Frame) 1. Theoretical/Conceptual Framework
1 Yes
2 No

Specify:_____

_____

(Setting) 2. Study Setting
1 Community/Home
2 Retirement Center
3 Hospital

(SpecAge) 3. Specific Age Group
1 55-74
2 55-84
3 55-100
4 60-74
5 60-84
6 60-100
7 65-74
8 65-84
9 65-100

4. Age Group
1 74 & under
2 75 & over

(GenAge) 5. General Age
1 55 or above
2 60 or above
3 65 or above
4 70 or above

(Educ) 6. Educational Level
1 0 years
2 1-6 years
3 7-9 years
4 10-12 years
5 13 years & over

(Sex) 7. Gender
1 Predominantly Female
2 Predominantly Male
3 Not Ascertainable

(MStatus) 8. Marital Status
- 1 Widowed
- 2 Married
- 3 Never married
- 4 Divorced/Separated
- 5 Not Ascertainable

(RStatus) 9. Retirement Status
- 1 Retired
- 2 Not Retired
- 3 Not Ascertainable

(SES) 10. SES
- 1 Under $10,000
- 2 $10,001 - $10,999
- 3 $11,000 - $20,999
- 3 $21,000 - $30,999
- 4 $31,000 - $40,999
- 5 $41,000 - $50,999
- 6 $60,000 or above

(FStatus) 11. Perceived Financial Status
- 1 Adequate
- 2 Inadequate
- 3 Not Ascertainable

(LivSit) 12. Living Situation
- 1 Lives alone
- 2 Lives with spouse
- 3 Lives with family
- 4 Lives with another
- 5 Not Ascertainable

(Ethnic) 13. Sociocultural Orientation
- 1 Caucasians (Ca)
- 2 Mexican American (MA)
- 3 Afro-American (AA)
- 4 Asian (As)
- 5 Hispanic (Hisp)
- 6 Native American (NA)
- 7 Not Ascertainable

(EthnGrp) 14. Ethnic Grouping
1 Ca/MA
2 Ca/AA
3 Ca/MA/AA
4 Ca/MA/AA/Hisp
5 Ca/MA/AA/Hisp/NA
6 Not Ascertainable

(SType) 15. Type of sample
1 Healthy
2 Chronically ill
3 Healthy-Chron. ill
4 Not Ascertainable

(CA) 1 Cancer
(Ortho) 2 Orthopedic
(Resp) 3 Respiratory
(CV) 4 Cardiovascular
(Renal) 5 Renal
(Endo) 6 Endocrine
(NA) 7 Not Ascertainable

(Source) 16. Source of Data
1 Older Adult (OA)
2 Family member
3 Significant other
4 Nurse
5 MD
6 OA & Sig. Other
7 OA & MD
8 OA & Fam. Member
9 Other_____
(specify)

(Rx) 17. Treatment
1 Yes
2 No

Type:_____

18. Predictor Variables & Indicators

(PWB)	1 Physical well-being	1 = Yes
(Mob)	2 Mobility	2 = No
(FxH)	3 Functional Health	
(PhyComf)	4 Physical Comfort	
(DisStab)	5 Disease Stability	
(SymCont)	6 Symptom Control	
(PhyInd)	7 Physical Independence	
(Subj.H)	8 Subjective Health	
(ObjH)	9 Objective Health	
(PsyWB)	1 Psychological well-being	1 = Yes
(LOC)	2 Locus of Control	2 = No
(PersGr)	3 Personal Growth/Learning	
(MorHap)	4 Morale/Happiness	
(Useful)	5 Usefulness	
(Esteem)	6 Self-esteem	
(LS)	7 Life Satisfaction	
(Cope)	8 Coping Ability	
(MenHth)	9 Mental Health	
(Auton)	10 Autonomy	
(Concpt)	11 Self-concept	
(SWB)	1 Social Well-being	1 = Yes
(SocS)	2 Social Support	2 = No
(Confid)	3 Intimacy/Confidant	
(RoleFul)	4 Role Fulfillment	
(Employ)	5 Employment	
(LeisAc)	6 Leisure Activities	
(Assoc)	7 Assoc. Participation	
(SocFreq)	8 Freq. of Soc. Interaction	
(AdeqRes)	9 Adeq. of Soc. Resources	
(SocNet)	10 Social Network	
(Relat)	11 Relationships	
(SocAct)	12 Social Activities	
(Spirit)	1 Spiritual Integrity	1 = Yes
(Rgosity)	2 Religiosity	1 = No
(Relg)	3 Religion	
(MeanLfe)	4 Meaning in Life	
(Peace)	5 Peace	
(Determ)	6 Self-determination	
(Ful)	7 Fulfillment	

(ES)	1 Economic Security	1 = Yes
(MatComf)	2 Material Comfort	2 = No
(SES)	3 SES	
(EconInd)	4 Economic Independence	
(FinAdq)	5 Financial Adequacy	
(Income)	6 Income	
(FStatus)	7 Financial Status	

19. Criterion Variable

(QOL)	1 QOL	1 = Yes
(PhyWB)	2 Physical Well-being	2 = No
(FxStat)	3 Functional Status	
(PsycWB)	4 Psychological Well-being	
(SEstem)	5 Self-esteem	
(WB)	6 Well-being	
(Health)	7 Health	
(LfeSat)	8 Life Satisfaction	