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PSYCHOMETRIC PROPERTIES OF INSTRUMENTS MEASURING STRESS IN  
THE AGED

*The University of Arizona*

PH.D. 1984

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PSYCHOMETRIC PROPERTIES OF INSTRUMENTS  
MEASURING STRESS IN THE AGED

by

Elaine Waldman Rousseau

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A Dissertation Submitted to the Faculty of the  
DEPARTMENT OF EDUCATIONAL PSYCHOLOGY  
In Partial Fulfillment of the Requirements  
For the Degree of  
DOCTOR OF PHILOSOPHY  
In the Graduate College  
THE UNIVERSITY OF ARIZONA

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entitled PSYCHOMETRIC PROPERTIES OF INSTRUMENTS

MEASURING STRESS IN THE AGED

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## ACKNOWLEDGMENTS

Achieving a meaningful personal goal provides one with the opportunity to reflect upon the significant contribution of others in the steps along the way to goal achievement. Some were helpful during the course of study while others were instrumental during dissertation. I am grateful to those who helped in both processes.

I am indebted to those faculty members whose interest, instruction, and intellectual stimulation over a number of years provided me with the academic background to write this dissertation. My parents have provided a lifetime of love, support, and encouragement in all my endeavors thus letting me know that everything is attainable; for this I am grateful.

I am further indebted to those who have made the writing of this dissertation possible. My co-directors, Drs. Meredith and Nicholson, were a source of both conceptual and developmental ideas in the writing. To the other members of the dissertation committee, Drs. Dinham, Marquart, and Wrenn, I acknowledge my indebtedness. To my brother, Mark, and my close friends, I gratefully acknowledge the psychological and practical help provided during times of high stress--thanks for helping keep me on task.

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## ABSTRACT

This study was designed to assess the appropriateness of current standardized checklists used to measure stressful life events in a noninstitutionalized population aged 65-74 years of age. Previous studies, sampling from a younger aged population, have demonstrated a temporal association between an increase in stressful life events and psychophysiological disease. Before stress can be studied as a precipitator of disease onset in the aged, it must be determined if the instruments designed to measure stress are reliable and valid for use with the aged. Specifically, the following questions were examined:

### Reliability

- Are the checklists reliable for use with this population?

### Relevance

- Are the checklists valid for use with this population?
- Are these events considered to be stressful for this population?
- Does the scoring system used influence the results?

- Are the events included on the checklists events that occur in the lives of people aged 65-74?
- Are there other events, not on the checklists, which are stressful for older people?

The data base for this study consisted of responses from 185 subjects aged 65-74 years. Each respondent completed three standardized checklists designed to measure stressful life events and a demographic sheet which included provision for respondents to write any stressful event(s) that had occurred. Results were analyzed by subscale.

As a result of this study it was determined that:

1. Reliability coefficients across subscales were not sufficiently large to warrant using these checklists with this aged population.
2. The three checklists were not valid for use with this aged population.
3. Respondents in this study perceived most events as being more stressful than did a younger aged standardized group.
4. Standardized weights for the events should be assigned by people aged 65-74 years.
5. Stressful life events are different for people aged 65-74 years than for younger aged people.

It was recommended that the checklists be revised for use with this age population. This revision includes modifying events on the checklist and having people aged 65-74 years assign standardized weights that reflect the stressfulness of the events.

## CHAPTER 1

### INTRODUCTION

Many clinicians have concluded that stress precipitates disease and exacerbates disease progress. Consequently a large body of literature has developed examining the relationship between stressful life events and illness onset. These life events studies have demonstrated a temporal association between the onset of physical or mental illness and a recent increase in the number of stressful life events. Some studies have examined the relationship between stressful events and episodes of physical illness (Amster & Krauss, 1974; Antonovsky & Kats, 1967; Hinkle, 1974; Holmes & Masuda, 1974; McFarlane, Norman, Streiner, & Roy, 1983; McFarlane, Norman, Streiner, Roy, & Scott, 1980; Mechanic, 1974); some between stressful events and psychiatric disorder (Brown & Birley, 1968; Lewinsohn & Lee, 1981; Myers, Lindenthal, & Pepper, 1974; Paykel & Uhlenruth, 1972; Thoits, 1981); and others between stressful life events and psychological symptoms (Markush & Favero, 1974; Myers et al., 1974; Vinokur & Selzer, 1975). These studies have consistently

demonstrated a positive relationship between stressful life events and commencement of disease.

#### Rationale for Population Studied

Most of the studies examining the relationship between stress and psychophysiological dysfunction have been done with young to middle-aged populations. Several factors could provide possible explanations for studying these age populations to the exclusion of the aged including accessibility, proportional representation of the range of ages in the entire population, and the historical perspective of pathology among the aged.

Rahe, who coauthored the first life stress events checklist (Holmes & Rahe, 1967), was in the Navy. Many of his early studies were based on results obtained from Naval personnel who were predominantly young men and readily accessible for research purposes. This tendency toward studying a younger population has been continued by other researchers.

Neglecting study of the aged is no longer legitimate since they are accessible in sufficient number for the conduct of research. In the past, the aged have contributed a relatively small proportion of the total population. For example, in 1900, 3.1 percent of the U.S. population was over 65 years. In 1980, 10.3 percent of this same population was in this age category. Based on

this rate of increase, the prediction is that over 15 percent of the population will be in this age category by the year 2050.

The third potential explanation for neglecting the aged while concentrating on a young to middle-aged population is the natural decline in health that is considered to be concomitant with aging. The historical perspective has been that as people age, their health deteriorates. This perspective has been supported by both Williams (1984), who stated that as persons age there is a gradual, progressive loss of function, and by Shanas and Maddox (1976), who stated that the risk of illness and impairment increases with age. The immune system deteriorates as the biological clock ticks onward with decay occurring at the cellular level. These biological changes, which are usually gradual, result in a decreased capacity for functioning and survival. This historical perspective is used to explain both physical and psychological decline. Clark (1984) asserted that any single disease process, and especially multiple concurrent diseases, may result in physical, psychological, nutritional, and social changes, all of which may significantly affect functions. According to Riley, Foner, Moore, Hess, and Roth (1968), four of five persons over age 65 have at least one chronic condition while Clark (1984) stated that the elderly population

characteristically manifests multiple and chronic disease processes. A more current perspective to explain this phenomenon is to accept that deterioration does occur with aging but identify contributors to help determine if deterioration can be modified in intensity or delayed in its progress through interventions that may help to improve the quality of life.

One such contributor to illness in the aged may well be stress. Eisdorfer and Wilkie (1977) claimed that there is an apparent increase with advancing age in the relative incidence of deaths attributed to disease suspected of being related to stress. Since stress has been demonstrated to be an important precipitating factor to disease onset in young to middle-aged populations, it is reasonable to expect that stress would also be a contributing factor in an aged population.

#### Health Problems of the Aged

Health problems in the aged population are similar to those that exist in a younger generation. However, the problems both in frequency and severity exist to an even greater extent in the aged population. Those health problems include physical as well as psychological or psychiatric components.

Both acute disease and chronic or debilitating illnesses occur in an aged population. However, as we

become more adept at dealing with acute diseases across all ages, chronic diseases become more important in the aged as they affect quality of life. The occurrence of chronic disease increases markedly with age. Shanas and Maddox (1976) stated that about 50 percent of individuals 65 years of age and older experience some limitation of normal activity that is related to a chronic health condition. Although chronic conditions are the most frequent health problems in later life, acute episodes of illness and injury which occasion restriction of activity or need attention are also common. When acute conditions are contracted by older people, the older people are disabled longer than are younger people.

The psychological and psychiatric well-being of the aged appears to be related to variables associated with the concept of loss. Potential losses for the aged range from the loss of personal belongings (e.g., familiar surroundings are lost upon institutionalization), the loss of valued others, role loss, loss of physical faculties (e.g., sight and hearing), to the expectations of the loss of life itself. Loebel and Eisdorfer (1984) claimed that loss as the precipitant of depression may well be the rule rather than the clinical exception for the aged. They stated that depressive symptomatology increases in later life. Several researchers (Aldrich, 1964; Aldrich & Mendkoff, 1963;

Lieberman, 1974; Miller & Lieberman, 1965; Turner, Tobin, & Lieberman, 1972) have examined the effects of one loss, viz. personal belongings through institutionalization, upon the aged. Their findings consistently reported a positive relationship between institutionalization and depressive affect. Further research is needed to positively identify other losses, to locate additional stressful events, and to determine the impact of multiple stressors upon the psychological and psychiatric health of the aged.

#### Purpose of the Study

The onset and progression of disease and its concomitants such as stress are as critical to study in an aged population as they are in a younger population. The variables inherent in stress research conducted on young to middle-aged populations need to be examined as they relate to an aged population given the dramatic increase in this age group during the twentieth century and the fact that the same health problems exist to an even greater extent in the aged. However, before stress can be studied as a precipitator of disease onset in the aged, it must be determined if the instruments designed to measure stress are appropriate for use with this age population.

Therefore, the purpose of this current study was to examine currently used life stress checklists to determine if these checklists are reliable and valid for use with the aged.

## CHAPTER 2

### REVIEW OF THE LITERATURE

This chapter will be limited to a review of the literature which examines measuring stress. Emphasis will be placed upon describing three currently used stressful life events checklists, examining problems in measuring stress, and outlining a methodology for examining reliability and construct validity. In addition, the research problem will be stated.

#### Measuring Stress

Two basic methods of examining stress have been developed. One method is through laboratory research to examine the physiological mechanisms required to adapt to stress. Selye (1936) defined this physiological phenomenon as the general adaptation syndrome which has three stages, viz. alarm reaction, stage of resistance, and stage of exhaustion. He found that regardless of the type of stress to which an organism is exposed the reaction in organ changes remains constant and is characterized by enlargement and hyperactivity of the adrenal cortex, shrinkage (or atrophy) of the thymus gland and lymph nodes, and the appearance of gastrointestinal ulcers.

The second method of measuring stress is through the use of checklists designed to identify life events that would be considered stressful by the majority of people. This approach to studying stress was initiated by Holmes and Rahe (1967) with the publication of the first stressful life events checklist, the Schedule of Recent Events (SRE). Events on the checklist were developed by reviewing over 5000 patients' life charts which contained medical data. They studied the quality and quantity of life events that were empirically observed to cluster at the time of disease onset to identify events for inclusion on the checklist.

Stressful life events have been assigned to subscales. This assignment has been accomplished either by experts in the field making the assignments or by analyzing results from studies designed to identify homogeneous subsets of events that are assigned to subscales. Predictions of illness onset have been based on either total scores or on subscale scores.

This study will utilize the checklist approach to measuring stress. This method was selected because it is widely used, the positive relationship between stressful life events and disease onset has been established in young to middle-aged populations, and data collection is relatively easy to accomplish.

Since the publication of Holmes' and Rahe's (1967) checklist, many researchers have utilized the checklist approach for measuring stress. Given a list of possible stress producing events, respondents are directed to indicate those events that have occurred in their lives. The period of recall ranges from one week (Hawkins, Davies, & Holmes, 1957; Rahe, 1975a) to ten years (Amster & Krauss, 1974) with a 12 month recall period being most prevalent.

Three methods of scoring the life events checklists have evolved. Some investigators measure stress additively by counting the number of events that have occurred during a specified time period, resulting in unitary weights. Other investigators utilize standardized weights for scoring the events that are designed to reflect the amount of change or adaptation a particular event would necessitate for the average individual. Weights are either determined by a panel of judges who are considered to be experts in the field or by subjects who are included in a study designed to determine the magnitude of stressors. These weights are the mean ratings assigned by the respondents. A third scoring method utilizes individual weights assigned by the person completing the events checklist. These individual weights are assigned under two different weighting schemes. Some investigators have utilized a Likert-type scale where respondents indicate the amount of

change required by those events they have personally experienced. Other investigators select one item (e.g., marriage), assign a weight to the event (e.g., 500 points) and respondents are instructed to rate the other life events in terms of whether they are more or less stressful than the base event.

### Checklists for Measuring Stress

Three stressful life events checklists were examined in this study. The checklists were the: (1) Recent Life Changes Questionnaire (RLCQ) developed by Rahe (1975a); (2) Psychiatric Epidemiology Research Interview--Life Events Scale (PERI-LES) developed by Dohrenwend, Krasnoff, Askenasy, and Dohrenwend (1978); and (3) Geriatric Social Readjustment Rating Scale (GSRRS) developed by Amster and Krauss (1974).

#### Recent Life Changes Questionnaire

The RLCQ (Appendix A), a refinement of the SRE, was selected because the SRE has served as the basis for most of the checklists that have been developed subsequently by other researchers. The events included on the RLCQ are an expansion of the events from the SRE and the Social Readjustment Rating Questionnaire (SRRQ) (Holmes & Rahe, 1967), an intermediate refinement of the SRE. A total of 76 events have been assigned to the six subscales of health,

work, home and family, marriage, personal and social, and financial. The response format is designed so that each event may be marked as occurring during the following four time periods: 19-24 months ago, 13-18 months ago, 7-12 months ago, and 0-6 months ago. Respondents are directed to indicate all events they have experienced and then assign individual weights.

All three types of scoring, viz. unitary weights, standardized weights, and individual weights, may be used with the RLCQ. Standardized weights were developed for the SRRQ by a sample of convenience of 394 subjects (Holmes & Rahe, 1967). Respondents were directed to rate the life events as to their relative degree of necessary adjustment. One event, marriage, was arbitrarily assigned a value of 500. Readjustment scores were assigned to indicate if each event required more or less readjustment than marriage. Standardized weights, called life change unit (LCU) scores by the authors, were assigned to events on the RLCQ that are the same or similar to events on the SRRQ (Rahe, 1975b). Not all of the events on the RLCQ have standardized weights. Individual weights are determined in the following manner. After completing the entire checklist, respondents are directed to assign a score to each experienced event representing the amount of personal adjustment that was required to cope with the event. These scores

range from one, indicating little or no adjustment, to 100, indicating maximal adjustment.

Psychiatric Epidemiology Research  
Interview--Life Events Scale

The PERI-LES (Appendix B) was selected for inclusion in this study because of its widespread use in epidemiological research. Events included on the PERI-LES were drawn from previous lists, the researchers' own experience, and from events that were elicited from subjects during a previous study conducted by these researchers. A total of 102 potentially stressful events were assigned to the subscales of school, work, love and marriage, having children, family, residence, crime and legal matters, finances, social activities, miscellaneous, and health. The response format is designed so that respondents indicate those events which they have experienced. No recall period is specified by the authors.

Two types of scoring, viz. unitary weights and standardized weights, may be used with the PERI-LES. The history of the sample of judges who determined the standardized weights involves "what one might call three sampling generations" (Dohrenwend et al., 1978, p. 217). The first sampling generation involved 2,627 adults ranging in age from 21 to 64 years. The second sampling generation was a subset of 250 adults. The third sampling generation

was a subset of 200 adults from the second sampling generation. This complex sampling procedure was conducted so as "to stratify as we wished on the basis of data from previous research" (Dohrenwend et al., 1978, p. 217). Due to subjects' refusal to cooperate and loss of judges who did not follow instructions for the rating task, the standardized weights are based upon 89 subjects. Respondents were directed to indicate the amount of change needed for each event. The event marriage was used as the modulus and arbitrarily assigned a value of 500. Readjustment scores were assigned to indicate if each event required more or less readjustment than marriage.

#### Geriatric Social Readjustment Rating Scale

The GSRRS (Appendix C) was selected for inclusion in this study because it is a modification of life-events items used by Holmes and Masuda (1970) designed specifically to be applied to a population aged 70 and above. The criterion for event inclusion or modification was that the events be appropriate for an aged population. This was determined by a panel of experts in geriatric medicine (Amster & Krauss, 1974). A total of 35 potentially stressful events are included. There are no subscales for this checklist. The response format is designed so that respondents indicate those events which they have

experienced. In the first use of the GSRRS, Amster and Krauss (1974) used a recall period of ten years.

Two types of scoring, viz. unitary weights and standardized weights, may be used with the GSRRS. Standardized weights for the GSRRS were developed by "30 experts in geriatric problems, internists, social workers, psychiatrists, nurses, and clergymen" (Amster & Krauss, 1974, p. 53). Respondents were directed to rate the relative degree of necessary adjustment for each event. Marriage was assigned an arbitrary score of 500. Readjustment scores were assigned to indicate if each event required more or less social readjustment than marriage.

#### Problems in Measuring Stress

Concomitant with the growth of the body of literature examining the relationship between stressful life events and psychophysiological disease, has been growth in the number of articles criticizing this research (Dohrenwend et al., 1978; Hinkle, 1974; Hudgens, 1974; Miller, 1981; Rabkin & Struening, 1976). Criticism focuses largely on issues of validity. For the purpose of this study, validity is broadly defined as having

two aspects, which may be termed relevance and reliability. "Relevance" concerns the closeness of agreement between what the test measures and the function that it is used to measure. "Reliability" concerns the accuracy and consistency with which it measures whatever it does measure in the group with which it is used. To be valid--that is, to serve its

purpose adequately--a test must measure something with reasonably high reliability, and that something must be fairly closely related to the function it is used to measure. (Cureton, 1951, p. 622)

Issues of both reliability and relevance as defined by Cureton (1951) have been addressed in the literature.

Determination of the appropriateness of checklists for use with an aged population requires many different types of evidence. Both reliability and relevance need to be examined. As Cronbach (1971) has pointed out, "the varieties of investigations are not alternatives any one of which would be adequate . . . investigations supplement one another" (p. 445). An integration of many types of evidence is necessary to examine the validity of the checklists.

#### Reliability

In the course of this review, no studies were found examining the reliability for any of the three instruments being used in this study. However, reliability studies have been reported for the SRE, the predecessor of the RLCQ.

Two types of reliability studies have been reported for the SRE, internal consistency and test-retest reliability. Skinner and Lei (1980) reported internal consistency reliability coefficients for both the subscales and the

total test. The total test reliability was 0.80, whereas the values for the six subscales ranged from 0.40 to 0.76.

Several studies have examined test-retest reliability for the SRE. Casey, Masuda, and Holmes (1967) reported correlations of 0.67, 0.64, and 0.74 for three six-month recall periods on the total score. Three reliability estimates were reported for college subjects with a week between testing times. The correlations were between 0.87 and 0.90 (Hawkins et al., 1957; Rahe, 1975a). Researchers who utilized resident physicians as subjects obtained test-retest coefficients of 0.70 over a six month interval (Rahe, 1974). A study utilizing U.S. Navy enlisted men as subjects reported a correlation of 0.55 over a nine month interval (Rahe, Romo, Bennett, & Siltanen, 1974). McDonald, Pugh, Gunderson, and Rahe (1972) reported test-retest reliabilities over four six-month periods for a military version of the SRE ranging from 0.48 to 0.60. Thurlow (1971) reported a correlation of 0.26 for a three year period on life change unit (LCU) scores and a correlation of 0.78 for LCU scores over five years. Jenkins, Hurst, and Rose (1979) using a modified form of the SRE of 39 events reported a reliability coefficient of 0.38 over a nine month interval.

Reliability studies reported for the stressful life events checklists are limited. None of the studies examined an aged population.

#### Relevance

Three major criticisms in the area of relevance are construct validity, scoring system, and the domain of stressful life events. Each of these issues needs to be investigated.

Construct validity. This type of validity is concerned with the extent to which the test may be said to measure a construct or theoretical trait, in this case stressful life events. Brown (1974) stressed the importance of examining the construct validity of the instruments used to measure stress.

Evidence for construct validity may be demonstrated by examining the correlations of a test with other variables. If a test correlates highly with variables with which it should theoretically correlate and also does not significantly correlate with variables from which it should differ, documentation for construct validity is offered.

In the course of this review, only one type of construct validity study was found. Construct validity that has been reported is concerned with convergent validity, viz. correlations with those variables with which the checklist should theoretically correlate. Rahe et al.

(1974) had spouses separately rate their mate's scoring of recent life changes. They reported obtained correlations ranging from 0.50 to 0.75 over periods of one to two years prior to testing. Schless and Mendels (1978) used a section of the PERI-LES to examine agreement between 35 subjects and significant others (family members or friends) regarding the occurrence of stressful life events. They reported that the significant other contributes about 29 percent additional information about the occurrence of life events as compared with what the patient provides.

Scoring system. This type of relevance is also important. The scoring procedure is "the transformation of test performance into a report on the individual [that] is a part of the procedure being validated" (Cronbach, 1971, p. 450).

Several researchers have conducted studies to examine the effects of different weighting schemes on the interpretation of results. McFarlane et al. (1980) reported the results from a longitudinal study begun in 1977 designed to study the relationship between recent life change events and subjective strain. They used a modified RLCQ (Rahe, 1974) to measure life events. Three weighting procedures were used: (1) unitary weights, (2) standardized weights, and (3) individual weights. Results showed

that there is little difference in the three scoring methods and that clearly none is superior.

Vinokur and Selzer (1975) used a modified version of the Holmes and Rahe Schedule of Recent Events to examine the relationship between stress and psychological impairment utilizing the same three scoring methods outlined by McFarlane et al. (1980). Vinokur and Selzer (1975) concluded that the life change unit score is basically unrelated to subjects' self-rating scores and asserted that the self-rating score is best suited for capturing the stress produced by various life events and its multifarious consequences.

Lei and Skinner (1980) used the SRE to examine the differences as a function of unitary scaling vs. standardized weights of life change units. They found virtual overlap between the two scoring systems resulting in a correlation of 0.97. The reliability estimate for the unitary scoring system was slightly higher than that for the standardized weights.

Paykel and Uhlenhuth (1972) asserted that standardized weights are most appropriate for predicting sample means. However, there was too much variability in the scores assigned to predict future illness for an individual with confidence.

Ross and Mirowsky (1979) examined various weighting schemes of life events for predicting psychiatric symptomatology. In addition to unitary and standardized weights, they also examined the effect of a new system they developed for assigning standardized weights. Use of their scoring system resulted in an effect proportional index where events are weighted in proportion to their statistical effect. This was determined by regressing psychiatric symptomatology as measured by the Gurin Index (Gurin, Veroff, & Feld, 1960) on all of the individual life events and using the resulting regression coefficients as weights. Ross and Mirowsky (1979) cautioned that these weights are (1) specific for a given population (2) specific for predicting the type of psychological and/or physiological dysfunction, and (3) not reliable unless large samples are used so that many of the subjects will have experienced any given life event.

Ross and Mirowsky (1979) analyzed 23 indices using the same sample to avoid introducing sample differences in the comparisons. Since the life events checklist used in their study contained items in common with two other checklists that are widely used in research (Holmes' and Rahe's (1967) checklist and Hough's, Fairbank's, and Garcia's (1976) checklist), they analyzed the data in two steps. In step one, the 26 events in common across the

three checklists were analyzed for their predictive power of psychiatric symptomatology. In step two, the 51 events on their checklist were analyzed. Individually assigned weights were not used in either of the analyses. Ross and Mirowsky reported that unitary weights predict psychiatric symptomatology as well as standardized weights. However, the effect proportional index is significantly better than the next best weighting scheme used as a predictor in both steps of the analyses.

Results from studies examining the effects of different weighting schemes on the interpretation of results are inconsistent. However, if only the three most commonly used weighting schemes are considered, two of the four studies cited concluded that unitary weights are best.

Domain of stressful life events. This area of relevance is evaluated by "showing how well the content of the test samples the class of situations or subject matter about which conclusions are to be drawn" (Cronbach, 1971, p. 444). Two issues are involved in this aspect of determining relevance: (1) definition of the universe of stressful life events, and (2) drawing a representative sample of events from this universe. Researchers are in agreement that the universe definition includes those stressful life events of sufficient magnitude to bring about change in the usual activities of most individuals.

Dohrenwend et al. (1978) identified two subpopulations of events that need to be sampled: (1) the universals of human experience, and (2) specifics as to social and cultural settings. The universals are represented by such events as marriage, illness, injury, and death. The specifics are defined for the particular subjects being studied. In the course of this review, several studies were found which examined specific events for an aged population. Results from these studies provide some information concerning the appropriateness of current checklists for use with the aged.

A consistent finding across studies regardless of the age of the respondent or the checklist utilized for the study is that younger subjects reported more stressful events than did the older subjects (Chiriboga & Dean, 1978; Markush & Favero, 1974; Sands & Parker, 1980; Skinner & Lei, 1980; Teri & Lewinsohn, 1982). Three possible interpretations may be made from these findings. One is that younger people experience more stressful life events. Another is that the items on the checklist reflect proportionately more events that are likely to occur in younger years than they are to occur in older years. A third interpretation is that since the aged have encountered a greater number of experiences they do not view some events as being stressful as younger people do.

Evidence that the events included on the checklists are events that are more likely to occur in younger years than they are to occur in older years may be found by examining the development of the checklists. The life charts reviewed by Holmes & Rahe (1967) which provided events included on the SRE were primarily from patients who were less than 65 years old.

The Holmes and Rahe checklist was used by other researchers as a basis upon which events should be included and/or expanded upon in the checklists they developed (Amster & Krauss, 1974; Brown & Birley, 1968; Dohrenwend et al., 1978). Consequently if the stressful life events included in the Holmes and Rahe checklist are biased in frequency of occurrence towards younger adults, this bias may contaminate other checklists. This potential bias suggests that the domain of events being sampled may be inappropriate for older subjects.

Linn, Linn, and Harris (1981) used the 43 items on the SRE without modification for use with the elderly. About ten percent of their sample of 280 reported no major changes in their lives over the prior year. From the data reported in this study, it is not possible to determine if these 28 subjects experienced no stressful events at all or if they had experienced stressful events that were not included on the SRE.

Three studies (Amster & Krauss, 1974; Blazer, 1980; Elwell & Maltbie-Crannel, 1981) have adapted the Holmes and Rahe (1967) checklist for use with the elderly. These adaptations were accomplished by having a panel of experts in gerontology determine which items should be included on the checklist. However, no attempt was made to elicit appropriate items from aged populations.

In order to design an appropriate checklist for the aged, it is important to consider what happens to people as they age. Bengston and Haber (1975) reported on the social problems of aging. They identified the following losses as typically occurring at or after age 65: (1) poor health which included both physical disadvantages and cost of health care, (2) poverty--a rising level of income is followed by a 50 percent reduction of income on the first day of retirement, (3) social loss--loss of rights and responsibilities attached to social roles or specialized positions within social groups, and (4) reduction in normative control--norms available to govern their behavior become increasingly less well defined or disappear altogether.

Other stressful events relevant for old people have been documented by Coakley and Woodford-Williams (1979) and Chellam (1981). Coakley and Woodford-Williams (1979) reported that burglary and vandalism are particularly

stressful events which can precipitate a major health crisis. Chellam (1981) examined stresses and crises for a young group aged 15-24 and an older group aged 65-74 years. She found that the worst fears for the young group were that they would lose mobility and be rejected. The older group, in addition to having these two fears, also feared that they would become physically paralyzed and dependent and have a nervous breakdown and lose control over life. The events identified in these studies as being particularly salient for older people are not included on most checklists.

Neugarten (1973) has pointed out that particular events may have different meanings to individuals at various stages of the life cycle. In other words, whether or not an event is perceived as stressful will vary with age. Sands and Parker (1980) tested this hypothesis by having adults from three different age groups, viz. 18-24, 30-40, and 65-86, rate the stressfulness of the events included in Amster's and Krauss' (1974) list. They found that older persons rated death-related events as requiring significantly less adjustment than the two younger groups did. The elderly also rated changing into a different line of work as less stressful. The elderly found the following items to be significantly more stressful than did the two younger groups: (1) change in social activities, (2)

feelings of slowing down, (3) vacations, and (4) holidays and anniversaries.

Palmore, Cleveland, Nowlin, Ramm, and Siegler (1979) examined the effects of five major life events (retirement, spouse's retirement, major medical event, widowhood, and departure of last child from home) and of three types of resources on the physical and social-psychological adaptation of older subjects. These five life events were chosen by the researchers because they are believed to be common experiences of later life. They concluded that many of these potentially stressful events have less serious long term outcomes than expected and that with good physical, psychological, and social resources there is less to fear from these "fearful" events.

Relatively little work has been done in examining stressful life events of older people, and so far, there is no evidence that the currently used checklists are appropriate for use with this population. As Kellam (1974) has pointed out, inventories of stressful life events must be carefully constructed for each stage of life; we cannot assume that stage of life is irrelevant to the measurement of stressful life events.

#### Methodology for Examination of Construct Validity

Campbell and Fiske (1967) developed the multitrait-multimethod (MTMM) analysis to examine instrument construct

validity. This method provides information about both the internal structure of the nomological network and the influence of the methods used to measure the construct, viz. stressful life events.

The MTMM approach provides information on reliability as well as both divergent and convergent validity. Variables are measured by two or more methods assumed to be independent and not specific to the content being measured. Theoretical relationships among constructs are then analyzed by empirically established correlations of measurements supposedly reflecting these relationships. Evidence for convergent validity is offered when constructs that are theoretically related are also empirically related. This may be expected to occur when the same set of stressors (e.g., those related to financial matters such as taking out a mortgage) are highly correlated across the three measurement methods. Evidence for divergent or discriminant validity is offered when constructs which theory predicts to be unrelated show near zero correlations. This could be expected to occur between the subscales of finances and marriage, for example, regardless of the measurement method that was utilized. Both kinds of evidence are essential for fully describing a nomological network. In using the MTMM approach, other comparisons of individual and patterns of correlations may be used to

estimate the extent to which particular methods of measurement influence or obscure facets of the hypothetical construct.

To illustrate the MTMM procedure, an example is presented in Table 1. This illustration involves three different traits measured by two different methods generating six separate variables. Reliability coefficients appear in the two reliability diagonals, one for each method. These values are enclosed in parentheses in Table 1. Adjacent to each reliability diagonal is a heterotrait-monomethod triangle. These triangles are enclosed in a solid line in Table 1. Both a reliability diagonal and its adjacent heterotrait-monomethod triangle comprise a monomethod block. The remaining block in Table 1 is a heteromethod block. This heteromethod block is comprised of a validity coefficient diagonal and two heterotrait-heteromethod triangles which are enclosed in slashed lines in Table 1. Note that the heterotrait-heteromethod triangles are not identical.

Reliability coefficients should be significantly different from zero and sufficiently large in order to accurately assess validity, requiring the presence of both statistical significance and practical significance. The reliability coefficients reported in Table 1 meet these requirements.

Table 1. Sample Multitrait-Multimethod Matrix

Traits	Method 1			Method 2		
	A1	B1	C1	A2	B2	C2
Method 1	A1	(89) <sup>a</sup>				
	B1	52	(88)			
	C1	36	38	(74)		
Method 2	A2	56	23	08	(92)	
	B2	22	58	10	66	(91)
	C2	10	12	46	59	61 (84)

<sup>a</sup> Decimals in the coefficients have been omitted.

Campbell and Fiske (1967) have identified four aspects bearing upon validity which will be delineated by referring to the entries in Table 1. The values in the validity diagonal should be significantly different from zero and sufficiently large enough to encourage further examination of validity. The values in Table 1 meet this criterion. These coefficients provide evidence of convergent validity.

A second desideratum is that the value in the validity diagonal should be greater than the values lying in the same column and row of the heterotrait-heteromethod triangles (slashed lines). This states that a validity value for a variable should be higher than correlations obtained between that variable and any other variable

having neither method nor trait in common. The data in Table 1 meet this requirement. This requirement provides evidence of divergent validity.

Further evidence of divergent validity is provided by the third desideratum outlined by Campbell and Fiske (1967). They state that a variable should correlate higher with an independent effort to measure the same trait than with measures designed to get at different traits which happen to employ the same method. To make this determination, it is necessary to compare values in the validity diagonal for a given variable with its values in the heterotrait-monomethod (solid lines) triangles. For variables A1, B1, and C1 this requirement is met to some degree. The values of 0.56, 0.58, and 0.46 in the validity diagonal are generally of greater magnitude than those values of 0.52, 0.36, and 0.38 found in the heterotrait-monomethod triangle for method one. For variables A2, B2, and C2 this requirement is not met. All the values in the validity diagonal are of smaller magnitude than the values in the heterotrait-monomethod triangle for variable two.

The fourth desideratum outlined by Campbell and Fiske (1967) also examines evidence of divergent validity. They state that the same pattern of trait interrelationship be shown in all the heterotrait triangles of both the monomethod (solid lines) and heteromethod (slashed lines)

blocks. The data in Table 1 meet this criterion. In all three triangles, the largest correlation is between A and B, next largest between B and C, and the smallest between A and C.

Campbell and Fiske (1967) explain why both several traits and several methods are necessary for examining instrument validity. Without these replications, high correlations between tests may be explained as either due to trait similarity or to shared method variance. By using the MTMM matrix, it is possible to determine an indication of the method variance. This is accomplished by comparing the correlations between the parallel values of the monomethod triangle (solid lines) with the heteromethod triangles (slashed lines). The contribution of method variance for variable A1 is indicated by the elevation of  $r_{A1B1}$  above  $r_{A1B2}$ . Referring to Table 1, this is the difference between 0.52 and 0.22. This difference, viz. 0.30, is an indication of the method variance for variable A1.

#### Statement of the Problem

This study was designed to explore the appropriateness of the RLCQ, PERI-LES, and GSRRS for use with a noninstitutionalized, aged population. Issues of validity including both reliability and relevance were addressed. Specifically the following questions were examined:

### Reliability

-Are the checklists reliable for use with this population?

### Relevance

-Are the checklists valid for use with this population?

-Are these events considered to be stressful for this population?

-Does the scoring system used influence the results?

-Are the events included on the checklists events that occur in the lives of people aged 65-74?

-Are there other events, not on the checklists, which are stressful for older people?

## CHAPTER 3

### METHODOLOGY

This chapter includes a description of the sample of subjects, procedure and data collection instruments, and scoring procedures used. In addition, the data analyses for each of the six questions being addressed in this study will be specified.

#### Subjects

Arrangements were made with Carol Clark, director of Fort Wayne Senior Centers, Fort Wayne, Indiana to collect data from 185 noninstitutionalized subjects between the ages of 65 and 74 years. The senior center is a federally funded project whose function is to serve meals at low cost and to provide social activities and recreation such as crafts, pool, and cards. Recreational activities generally occur in conjunction with the serving of meals. Meals and social activities are provided in various locations throughout Fort Wayne including public buildings, apartment complexes, and churches. Data were collected at several locations in various sections of Fort Wayne in order to obtain a broad cross section of socio-economic levels.

### Procedure

Data were collected in group settings with two to ten people in a group. Each person within a group received the checklists in the same order to facilitate the management of data collection. All possible orders of checklists were balanced across groups to help control for any fatigue factors that may have occurred among the respondents.

Specific directions to the respondents for checklist completion were standardized. However, the sequence was changed according to changes in the order of presentation of checklists. Directions to the entire group were as follows:

Write your name on the envelope. After completing the demographic sheet, please hand it to me. The first two questionnaires [Note to reader: these are the GSRRS and the PERI-LES] are designed for you to indicate those events that have occurred during the past 12 months. This would be about last Fourth of July. Circle any event that you have experienced during this time period. The third questionnaire [Note to reader: the RLCQ] also covers the past 12 months; however, you are asked to record events as occurring 0-6 months ago or 7-12 months ago. Six months ago would be about the beginning of 1984. Please put an "X" in the appropriate column to indicate when the event occurred for those events that you have experienced. After you have completed this third questionnaire, please let me know, and I will give you further instructions.

After each respondent completed checking the events on all three lists, individual directions were given for assigning adjustment scores on the RLCQ:

Persons adapt to their recent life changes in different ways. Some people find the adjustment to a residential move, for example, to be enormous, while others find very little life adjustment necessary. You are now requested to "score" each of the recent life changes that you marked with an "X" as to the amount of adjustment you needed to handle the event.

Your scores can range from 1 to 100 "points." If, for example, you experienced a recent residential move but felt it required very little life adjustment, you would choose a low number and place it in the blank to the right of the question's lines. On the other hand, if you recently changed residence and felt it required a near maximal life adjustment, you would place a high number, toward 100, in the blank to the right of that question's lines. For intermediate life adjustment scores you would choose intermediate numbers between 1 and 100.

Please go back through your questionnaire and for each recent life change you indicated with an "X," choose your personal life change adjustment score (between 1 and 100) which reflects what you saw to be the amount of life adjustment necessary to cope with or handle the event. Use both your estimates of the intensity of the life change and its duration to arrive at your scores. (Rahe, 1975a, p. 137)

#### Data Collection Instruments

The recall period for the current study was 12 months, necessitating a change in the RLCQ. Only recall periods of 0-6 months ago and 7-12 months ago were used for comparability with the PERI-LES and the GSRRS. A further change on the RLCQ was made. On the original checklist, Rahe (1975a) ordered the recall periods from longest ago to most recent. The order was reversed for this study.

To facilitate the analysis, items on the GSRRS were assigned to subscales. Twenty-five of the events on this instrument were the same as those used by Holmes and Masuda

(1970) and had been assigned to the subscales of health, work, home and family, marriage, personal and social, and financial. The new events developed by Amster and Krauss (1974) were assigned to these six subscales by the author and five experts in measurement. The minimum criterion of 67 percent agreement had to be reached for event assignment to subscale. The following events were assigned to the health subscale: eyesight failing, hearing failing, and painful arthritis. Events assigned to the subscale of home and family included institutionalization and argument with children. The remaining events were assigned to the subscale of personal and social. These events were feeling of slowing down, losing driver's license, reaching 65, reaching 70, and holidays and anniversaries.

Several subscales of the PERI-LES were combined because the events within the respective subscales are similar to those within the corresponding subscales of the RLCQ and the GSRRS. These subscales were then renamed to correspond with the subscale names on the RLCQ and the GSRRS. Family and residence were combined and will be referred to as home and family. Love and marriage, and having children were combined and will be referred to as marriage. School, social activities, miscellaneous, and crime and legal matters were combined and will be referred to as personal and social.

Each respondent also completed a questionnaire on demographic information (Appendix D). The items included age, ethnicity, gender, marital status, health status, income, and any stressful event(s) that has/have occurred during the past 12 months. Many of these variables have no relevance for this study but are important for follow-up studies.

### Scoring

Previous research on measuring stress has resulted in disagreement concerning the way events should be scored on stressful life events checklists. The three scoring systems most commonly used are unitary weights, standardized weights, and individually assigned weights. Both unitary weights and standardized weights were used to examine reliability, construct validity, and influence of the scoring system. Standardized weights and individually assigned weights on the RLCQ were used to examine the perceived stressfulness of the events. Unitary weights were used to examine the frequency of occurrence of the events included on the three checklists.

### Data Analyses

Six questions were addressed in this current study to examine the validity of the checklists. These questions are:

- Are the checklists reliable for use with this population?
- Are the checklists valid for use with this population?
- Are these events considered to be stressful for this population?
- Does the scoring system used influence the results?
- Are the events included on the checklists events that occur in the lives of people aged 65-74?
- Are there other events, not on the checklists, which are stressful for older people?

Information in Table 2 restates these six research questions as purposes and identifies the data source, presentation, and analysis and interpretation that was used.

To examine the reliability and construct validity of the three checklists for use with a population aged 65-74 years, the multitrait-multimethod analysis of Campbell and Fiske (1967) was used. Two MTMM matrices were generated from the data--one based on unitary scoring of the events, the other based on standardized scoring of the events. The coefficients for the matrices were calculated using subprograms Pearson Corr and Reliability of the Statistical Package for the Social Sciences (SPSS).

Comparisons were made across the three checklists to examine the relative quality of the checklists. Patterns of correlation coefficients within the

Table 2. Research Purposes and Data Analyses.

Purpose	Data Source	Data Presentation	Analysis and Interpretation
To determine the reliability of the checklists	unitary weights and standardized weights from all three checklists	reliability diagonals of MTMM matrices based on unitary weights or on standardized weights	inferential statistics to determine if reliability coefficients are significantly greater than zero
To determine the construct validity of the checklists	unitary weights and standardized weights from all three checklists	heterotrait-heteromethod triangles from matrices based on unitary weights or on standardized weights	inferential statistics to determine if validity coefficients are significantly greater than zero; descriptive statistics analyzing magnitude and patterns of coefficients
To determine the perceived stressfulness of the events	standardized weights and individually assigned weights from the RLCQ	rank order events on RLCQ from study subjects and from standardization group	inferential statistics--calculate Spearman Rank Coefficient and construct confidence interval estimate
To determine influence of the scoring system on reliability and validity	unitary weights and standardized weights from all three checklists	median, minimum, and maximum coefficients for reliability, validity, and subscale correlations based on unitary weights, standardized weights, and unitary with standardized weights; reliability coefficients based on weights assigned by study respondents to events experienced on the RLCQ	inferential statistics to compare magnitude of all coefficients and correlations
To determine the frequency of occurrence of the events	unitary weights from all three checklists	list events not experienced from all three checklists	events identified are assumed inappropriate for this age population
To identify other stressful life events	events listed on demographic sheet	list unique events identified by study respondents	identify events not included on any of the three checklists

heterotrait-monomethod triangles and heterotrait-hetero-method triangles were examined to determine if the desiderata outlined by Campbell and Fiske (1967) were met. Values in the validity diagonals were tested to determine if they were significantly different from zero.

Data providing information about the perceived stressfulness of an event came from responses to the RLCQ. This instrument is the only one used in this study that makes provision for respondents to indicate the amount of adjustment required to cope with each of the personally experienced stressful events. Respondents assigned a score ranging from one to 100 indicating the amount of adjustment needed to handle the event. Directions for scoring the stressful events stated that a score of 100 indicates a maximal life adjustment while a score of one indicates a minimal life adjustment. The average adjustment score for each event was calculated using the Condescriptive subprogram of SPSS. Events were then arranged in order from the most stressful event to the least stressful event.

A comparison using the Spearman Rank Correlation Coefficient determined if the rank ordering of events by subjects in this study differed from the ranking by the normative group used by Holmes and Rahe (1967). Nearly 88 percent of the normative group was age 60 or younger. This analysis provided evidence of possible similarities or

differences in the perceptions of the stressfulness of an event between mostly young respondents and older respondents.

Data providing information about how the scoring system influences the results came from the MTMM matrices. Comparisons were made between the matrix generated from unitary weights and the matrix generated from standardized weights. Corresponding coefficients across these two matrices were compared to determine if they were significantly different.

The influence of the scoring system was further examined with data from a third MTMM matrix. The correlations and coefficients in this matrix were calculated between unitary weights and standardized weights. This matrix differs from the first two matrices which were based exclusively on either unitary or standardized weights. This matrix provides correlations between the two scoring systems as well as reliability coefficients based on parallel scoring. The coefficients reported in this matrix were compared with the coefficients from the other two matrices.

The number of respondents who indicated that an event had occurred to them during the past 12 months was determined by analyzing the data with subprogram Frequencies of SPSS. Separate lists of the events for each

of the three checklists that were not experienced by any of the respondents were prepared. These events are assumed to be inappropriate for use with this population.

Provision was made for the respondents to list any stressful event(s) that has/have occurred in their lives during the past 12 months. These events were listed. For each event, the number of respondents listing this event was included. Events were arranged sequentially within subscale starting with the most frequently mentioned event and ending with the least frequently mentioned event.

## CHAPTER 4

### RESULTS

The Recent Life Changes Questionnaire (RLCQ), Psychiatric Epidemiology Research Interview--Life Events Scale (PERI-LES), Geriatric Social Readjustment Rating Scale (GSRRS), and demographic sheets were completed by 185 noninstitutionalized subjects aged 65-74 years. Responses from these completed checklists were analyzed to examine the validity of the checklists for use with an aged population.

Six questions examining issues of validity including reliability and relevance were addressed in this study. Results from each of these questions are presented in succeeding sections of this chapter.

#### Reliability

The first purpose of this study was to examine the reliability of the checklists for use with people aged 65-74 years. Kuder-Richardson 20 internal consistency estimates were calculated for the six subscales of the RLCQ and the PERI-LES and for five of the six subscales of the GSRRS. No coefficient was calculated for the financial subscale of the GSRRS which included only one event.

Coefficients were calculated for both unitary and standardized weights and were tested for statistical significance at  $\alpha = 0.05$ . Internal consistency estimates based upon unitary weights are reported in the main diagonal of the MTMM matrix presented in Table 3. Internal consistency estimates based upon standardized weights are reported in the main diagonal of the MTMM matrix presented in Table 4. The reliability coefficients are enclosed in parentheses.

#### Results Based on Unitary Weights

Coefficients for the subscales based on unitary weights for the RLCQ were as follow: health, 0.50; work, 0.48; home and family, 0.46; marriage, 0.21; personal and social, 0.44; and financial, 0.11. The coefficient for the financial subscale was not significantly different from zero. The remaining five subscales met this minimum criterion of being significantly greater than zero.

Unitary weights for the PERI-LES resulted in reliability coefficients of 0.09 for health, 0.38 for work, 0.37 for home and family, 0.07 for marriage, 0.38 for personal and social, and 0.01 for financial. Reliability coefficients for three of the subscales including health, marriage, and financial were not significantly different from zero. The subscales that were significantly greater

Table 3. Multitrait-Multimethod Matrix for the Three Checklists Using Unitary Weights.

Inventory	k <sup>a</sup>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
GSRRS																			
1. Health	4	(.58) <sup>b</sup>																	
2. Work	3	.03	(.03)																
3. Home and Family	7	.17	.14	(.30)															
4. Marriage	4	.05	.14	.18	(.17)														
5. Personal and Social	10	.21	.13	.22	.03	(.38)													
6. Financial	1	.03	.16	.22	.30	.06													
PERI-LES																			
7. Health	4	.28	-.07	.11	-.01	.18	.08												
8. Work	12	-.09	.35	-.06	.10	.01	.11	(.09)											
9. Home and Family	13	.16	-.02	.33	-.13	.23	.14	.03	(.38)										
10. Marriage	9	-.12	.02	.12	-.18	-.02	.14	.23	.08	(.37)									
11. Personal and Social	18	-.10	.05	.12	.08	.33	-.04	-.04	.10	.20	(.07)								
12. Financial	5	-.02	.15	.08	.09	.08	.17	.18	.13	.31	.16	(.38)							
								.14	.08	.19	-.03	.16	(.01)						
RLCQ																			
13. Health	6	.24	-.06	.05	-.02	.12	.16	.40	.11	.10	-.17	.08	.05	(.50)					
14. Work	15	-.06	.21	.11	.04	.06	.14	.09	.59	-.04	.05	.08	.02	.23	(.48)				
15. Home and Family	12	-.03	.17	.57	-.09	.15	.20	.09	.15	.32	-.09	.11	-.03	.25	.28	(.46)			
16. Marriage	9	.03	.20	.28	-.36	-.20	.44	.09	.23	.30	-.17	-.08	.19	.19	.25	.36	(.21)		
17. Personal and Social	16	.05	.05	.20	.20	.31	-.24	.28	.02	.16	-.01	-.31	-.08	.32	.15	.27	.44	(.44)	
18. Financial	3	-.03	.13	.19	.06	.09	.28	.19	.14	.02	.00	.09	-.33	.14	.25	.17	.22	.28	(.11)

<sup>a</sup>k = number of events on each subscale.

<sup>b</sup>Decimals in the coefficients have been omitted; Kuder-Richardson 20 internal consistency estimates appear in the main diagonal.

Table 4. Multitrait-Multimethod Matrix for the Three Checklists Using Standardized Weights.

Inventory	k <sup>a</sup>	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
GSRRS																			
1. Health	4	(.57) <sup>b</sup>																	
2. Work	3	.02	(.03)																
3. Home and Family	7	.15	.16	(.25)															
4. Marriage	4	.05	.14	.09	(.12)														
5. Personal and Social	10	.26	.19	.19	.06	(.34)													
6. Financial	1	.05	.17	.16	.21	.06													
PERI-LES																			
7. Health	4	.33	-.06	.09	-.02	.20	.09	(.09)											
8. Work	12	-.08	-.45	-.05	.06	.02	.10	.01	(.32)										
9. Home and Family	13	.16	.00	-.33	-.12	.22	.10	.23	.10	(.30)									
10. Marriage	9	-.09	.04	.28	-.16	-.05	.12	-.06	.08	.23	(.07)								
11. Personal and Social	18	-.11	.05	.14	.05	-.22	-.05	.16	.09	.31	.10	(.37)							
12. Financial	5	-.04	.13	.05	.03	.05	.16	.14	.10	.15	-.03	.18	(.04)						
RLCQ																			
13. Health	4	.38	-.06	.03	.00	.16	.12	.51	-.06	.13	-.12	-.02	.00	(.31)					
14. Work	7	-.09	.17	-.02	.00	.07	.01	.09	-.45	-.01	-.01	.04	.01	.18	(.33)				
15. Home and Family	7	-.02	.11	-.65	-.02	.10	.14	.08	.10	-.35	-.27	.10	-.07	.14	.14	(.35)			
16. Marriage	7	-.02	.18	.19	-.45	.11	.41	.08	.33	.34	-.21	-.09	.06	.07	.18	.24	(.28)		
17. Personal and Social	8	.05	.10	.02	.23	-.26	-.20	.20	.03	.14	-.01	-.26	-.06	.23	.14	.10	.21	(.44)	
18. Financial	2	-.02	.14	.18	.06	.07	.35	.17	.18	.01	.04	.04	-.22	.17	.26	.15	.13	.20	(.17)

<sup>a</sup>k = number of events on each subscale.

<sup>b</sup>Decimals in the coefficients have been omitted: Kuder-Richardson 20 internal consistency estimates appear in the main diagonal.

than zero were work, home and family, and personal and social.

GSRRS results based on unitary weights were health, 0.58; work, 0.03; home and family, 0.30, marriage, 0.17; and personal and social, 0.38. The reliability coefficient for the work subscale was the only one not significantly greater than zero.

#### Results Based on Standardized Weights

Standardized weights for the RLCQ yielded coefficients of 0.31 for health, 0.33 for work, 0.35 for home and family, 0.28 for marriage, 0.44 for personal and social, and 0.17 for financial. All six coefficients were significantly greater than zero.

PERI-LES results based on standardized weights were health, 0.09; work, 0.32; home and family, 0.30; marriage, 0.07; personal and social, 0.37; and financial, 0.04. Reliability coefficients for three of the subscales including health, marriage, and financial were not significantly different from zero.

Coefficients based on standardized weights for the GSRRS were as follow: health, 0.57; work, 0.03; home and family, 0.25; marriage, 0.12; and personal and social, 0.34. Two coefficients, those for the work subscale and

marriage subscale, were not significantly different from zero.

### Validity

The second purpose of this study was to determine if the checklists were valid for use with this aged population. Validity was examined through the MTMM analysis developed by Campbell and Fiske (1967). Results based on unitary weights are presented in Table 3. Results based on standardized weights are presented in Table 4.

Campbell and Fiske (1967) have identified four desiderata addressing the issues of convergent and divergent validity. In addition, they proposed a procedure to obtain an indication of method variance for further examination of validity. Examination of convergent and divergent validity as well as method variance requires comparisons across the three checklists. Both convergent and divergent validity as well as the indication of method variance will be considered separately for each of the scoring systems.

#### Convergent Validity

The first desideratum outlined by Campbell and Fiske (1967) is concerned with convergent validity. To establish convergent validity, the values in the validity

diagonals (diagonals in blocks with slashed line triangles) should be significantly different from zero.

Coefficients based on unitary weights for the RLCQ with the PERI-LES were 0.40, 0.59, 0.32, 0.17, 0.31, and 0.33. Coefficients based on unitary weights for the RLCQ with the GSRRS were 0.24, 0.21, 0.57, 0.36, 0.31, and 0.28. Coefficients based on unitary weights for the PERI-LES with the GSRRS were 0.28, 0.35, 0.33, 0.18, 0.33, and 0.17. These results are presented across the subscales of health, work, home and family, marriage, personal and social, and financial respectively. All validity coefficients in the validity diagonals of this matrix were significantly greater than zero ( $p \leq 0.02$ ).

Coefficients based on standardized weights for the RLCQ with the PERI-LES were 0.51, 0.45, 0.35, 0.21, 0.26, and 0.22. Coefficients based on standardized weights for the RLCQ with the GSRRS were 0.38, 0.17, 0.65, 0.45, 0.26, and 0.35. Coefficients based on standardized weights for the PERI-LES with the GSRRS were 0.33, 0.45, 0.33, 0.16, 0.22, and 0.16. These results are presented across the subscales of health, work, home and family, marriage, personal and social, and financial respectively. All validity coefficients in the validity diagonals of this matrix were significantly greater than zero ( $p \leq 0.02$ ).

## Divergent Validity

The remaining three desiderata of Campbell and Fiske (1967) address issues relating to divergent validity. Two of these desiderata are concerned with the magnitude of the validity coefficients. These coefficients are examined both within subscales of their corresponding checklists and across checklists. The third desideratum is concerned with patterns of trait interrelationships. Both issues, viz. magnitude of validity coefficients and patterns of trait interrelationships, will be defined under the paradigm of Campbell and Fiske (1967) and relevant results will be presented both for unitary and standardized weights.

Magnitude of validity coefficients. The first aspect of divergent validity requires that the value in the validity diagonal should be greater than the values lying in the same column and row of the heterotrait-heteromethod triangles. This involves comparing the validity coefficients with the corresponding values in the triangles enclosed in slashed lines in Table 3 (unitary weights) and Table 4 (standardized weights).

Six validity coefficients did not meet this criterion and are listed in Table 5. Two coefficients resulted from unitary scoring and four from standardized scoring. Regardless of the scoring method and checklists compared, all the correlations that exceeded their

Table 5. Validity Coefficients not Meeting the Criterion of Being Greater than the Coefficient in the Corresponding Columns and Rows.

Checklists	Subscale	Validity Coefficient	Subscales with correlations greater than validity coefficient <sup>a</sup>	Correlations
RLCQ/PERI-LES (Unitary weights)	marriage	0.17 <sup>b</sup>	RLCQ marriage with PERI-LES home and family	0.30 <sup>b</sup>
			work	0.23
			financial	0.19
RLCQ/GSRRS (unitary weight)	marriage	0.36	RLCQ Marriage with GSRRS financial	0.44
RLCQ/PERI-LES (Standardized weights)	marriage	0.21	RLCQ marriage with PERI-LES home and family	0.34
			work	0.33
RLCQ/GSRRS (standardized weights)	work	0.17	RLCQ marriage with GSRRS work	0.18
	financial	0.35	financial	0.41
PERI-LES/GSRRS (standardized weights)	marriage	0.16	PERI-LES marriage with GSRRS home and family	0.28

<sup>a</sup>Differences between validity coefficients and correlations are not statistically significant at alpha = 0.05.

<sup>b</sup>Obtained coefficients.

respective validity coefficients included the marriage subscale. None of the differences was significantly different at  $\alpha = 0.05$ .

The second aspect of divergent validity examining the magnitude of the validity coefficients requires that a variable should correlate higher with an independent effort to measure the same trait than with measures designed to get at different traits which happen to employ the same method. To make this determination, it was necessary to compare values in the validity diagonal for a given variable with correlation coefficients across subscales within each of the two checklists upon which the validity coefficient was calculated. This means that each validity coefficient was compared with 15 coefficients across subscales within one checklist and with 15 coefficients across subscales within the second checklist. For example, the validity coefficient for the subscale of health across the RLCQ and the PERI-LES was compared with (a) 15 coefficients across subscales for the RLCQ, and (b) 15 coefficients for the PERI-LES. Validity coefficients were compared with correlation coefficients enclosed in the solid line triangles in Table 3 (unitary weights) and Table 4 (standardized weights).

Validity coefficients based on unitary scoring which did not meet this criterion are listed in Table 6.

Table 6. Validity Coefficients Based on Unitary Weights not Meeting the Criterion of Correlating Higher with an Independent Effort to Measure the Same Trait than with Measures Designed to Examine Different Traits Which Employ the Same Method.

Source of Coefficient	Subscale	Validity Coefficient	List	Subscales	Correlations	List	Subscales	Correlations				
RLCQ/ PERI-LES	marriage	0.17 <sup>a</sup>	RLCQ	marriage/pers & soc	0.44	PERI	home & fam/pers & soc	0.31 <sup>a</sup>				
				marriage/home & fam	0.36		home & fam/health	0.23				
				pers & soc/health	0.32		home & fam/marriage	0.20				
				pers & soc/financial	0.28		home & fam/financial	0.19				
				work/home & fam	0.28		pers & soc/health	0.18				
				pers & soc/home & fam	0.27							
				work/financial	0.25							
				marriage/work	0.25							
				health/home & fam	0.25							
				work/health	0.23							
				marriage/financial	0.22							
				marriage/health	0.19							
				financial and	0.33			marriage/pers & soc	0.44			
				home & fam	0.32			marriage/home & fam	0.36			
				pers & soc	0.31			marriage/pers & soc	0.44			
			marriage/home & fam	0.36								
			pers & soc/health	0.32								
health	0.40		pers & soc/marriage	0.44								

Table 6, Continued.

Source of Coefficient	Subscale	Validity Coefficient	List	Subscales	Correlations	List	Subscales	Correlations	
RLCQ/ GSRRS	health and work	0.24	RLCQ	pers & soc/marriage	0.44	GSRRS	marriage/financial	0.30	
		0.21		home & fam/marriage	0.36				
		pers & soc/health		0.32					
		home & fam/work		0.28					
		pers & soc/financial		0.28					
		pers & soc/home & fam		0.27					
		work/financial		0.25					
		work/marriage		0.25					
		home & fam/health		0.25					
		work only		0.21	work/health		0.23	home & fam/financial	0.22
					marriage/financial		0.22	home & fam/pers & soc	0.22
		financial and pers & soc		0.28 0.31	marriage/pers & soc		0.44		
			home & fam/marriage	0.36					
			health/pers & soc	0.32					
	financial only	0.28				marriage/financial	0.30		
	marriage	0.36	marriage/pers & soc	0.44					
PERI-LES/ GSRRS	health	0.28	PERI	home & fam/pers & soc	0.31	GSRRS	marriage/financial	0.30	
	marriage and financial	0.18		home & fam/pers & soc	0.31		marriage/financial	0.30	
		0.17		health/home & fam	0.23		home & fam/pers & soc	0.22	
				home & fam/marriage	0.20		home & fam/financial	0.22	
				home & fam/financial	0.19		health/pers & soc	0.21	
financial only	0.17	health/pers & soc	0.18	home & fam/marriage	0.18				

<sup>a</sup>Obtained coefficients; differences between validity coefficients and correlations are not statistically significant at alpha = 0.05.

Validity coefficients reported for the RLCQ with both the PERI-LES and the GSRRS were smaller than RLCQ correlations that usually included the subscales of home and family, marriage, and personal and social. Most of the PERI-LES correlations that exceeded the validity coefficients with both the RLCQ and the GSRRS included correlations with the subscale of home and family. Validity coefficients for the GSRRS with the RLCQ tended to be smaller than GSRRS correlations for the subscales of marriage and financial. All of the reported GSRRS correlations that exceeded PERI-LES/GSRRS validity coefficients included correlations with the subscales of home and family, marriage, personal and social, and/or financial. None of the differences was statistically significant at  $\alpha = 0.05$ .

Validity coefficients based on standardized scoring which did not meet this criterion are listed in Table 7. Validity coefficients for the RLCQ with the PERI-LES were smaller than six RLCQ correlations; four of these correlations included the subscale of home and family. The validity coefficients for the work subscale for the RLCQ with the GSRRS was smaller than seven RLCQ correlations all based on the subscales of work, marriage, and personal and social. Validity coefficients for the PERI-LES with both the RLCQ and the GSRRS tended to be smaller than PERI-LES correlations involving the subscale of home and family.

Table 7. Validity Coefficients Based on Standardized Weights not Meeting the Criterion of Correlating Higher with an Independent Effort to Measure the Same Trait than with Measures Designed to get at Different Traits Which Employ the Same Method.

Source of Coefficient	Subscale	Validity Coefficient	List	Subscales	Correlations	List	Subscales	Correlations
RLCQ/ PERI-LES	marriage	0.21	RLCQ	work/financial	0.26	PERI	home & fam/pers & soc	0.31 <sup>a</sup>
	financial	0.22		home & fam/marriage	0.24		home & fam/health	0.23
	pers & soc	0.26		pers & soc/health	0.23		home & fam/marriage	0.23
							home & fam/pers & soc	0.31
RLCQ/ GSRRS	work	0.17	RLCQ	work/financial	0.26	GSRRS	pers & soc/health	0.26
				home & fam/marriage	0.24		marriage/financial	0.21
				pers & soc/health	0.23		pers & soc/work	0.19
				pers & soc/marriage	0.21		pers & soc/home & fam	0.19
				pers & soc/financial	0.20			
				work/marriage	0.18			
work/health	0.18							
PERI-LES/ GSRRS	marriage	0.16	PERI	home & fam/pers & soc	0.31	GSRRS	pers & soc/health	0.26
	financial	0.16		home & fam/health	0.23		financial/marriage	0.21
				home & fam/marriage	0.23		pers & soc/home & fam	0.19
				pers & soc/financial	0.18		pers & soc/work	0.19
						financial/work	0.17	
	pers & soc	0.22		home & fam/pers & soc	0.31		health/pers & soc	0.26
				home & fam/marriage	0.23			
				home & fam/health	0.23			

<sup>a</sup>Obtained coefficients; differences between validity coefficients and correlations are not statistically significant at alpha = 0.05.

Validity coefficients for the GSRRS with both the RLCQ and the PERI-LES tended to be smaller than GSRRS correlations involving the subscale of personal and social. None of the differences was statistically significant at  $\alpha = 0.05$ .

Scoring based on standardized weights came closer to meeting this criterion than did scoring based on unitary weights. Seven validity coefficients were smaller than a total of 31 subscale correlations when the values were based on standardized weights. When the coefficients and correlations were calculated from unitary weights, 13 validity coefficients were exceeded by a total of 54 subscale correlations.

Patterns of trait interrelationships. This last aspect of divergent validity outlined by Campbell and Fiske (1967) requires examination of the values in all hetero-trait triangles of both the monomethod (solid lines) and heteromethod (slashed lines) blocks in Tables 3 and 4. The same patterns of trait interrelationships are desired. For example, if the data met this requirement, the relative magnitude of the coefficients within the triangles would be the same. The coefficient of health with work might always be the largest while the coefficient of marriage with financial might always be the smallest.

Examination of the coefficients based on unitary weights revealed that there was no discernible pattern of

trait relationships. This was true both in examining the coefficients for all three checklists simultaneously and in examining the coefficients for only two checklists, viz. comparisons of RLCQ with PERI-LES, RLCQ with GSRRS, or PERI-LES with GSRRS.

Coefficients based on standardized weights revealed no discernible pattern of trait relationships. This lack of pattern of relationships was evident both in examining the coefficients for all three checklists simultaneously and in examining the coefficients for only two checklists at a time.

#### Indication of Method Variance

Another purpose of this study was to examine the extent to which method variance was contributing to the magnitude of the observed coefficients. This was accomplished by comparing coefficients between parallel values of the heterotrait-monomethod (solid line) triangles with heterotrait-heteromethod (slashed line) triangles to determine if they were significantly different with  $\alpha = 0.05$ . Method variance for each of the six subscales across all three checklists was examined. Results are presented for both of the scoring systems.

Four comparisons among coefficients in the unitary MTMM matrix (Table 3) were significantly different. Three

were found on subscales of the RLCQ and one was found on a subscale of the GSRRS. The RLCQ subscales of health, marriage, and personal and social each had one comparison that was significantly different. The RLCQ coefficient of 0.19 between the health and marriage subscales was significantly greater than the correlation of -0.17 obtained from the same subscales for the correlation between RLCQ and PERI-LES. The RLCQ coefficient of 0.44 between marriage and personal and social was significantly greater than the correlation of 0.08 for the correlation between RLCQ and PERI-LES for the same subscales. The RLCQ coefficient of 0.44 between personal and social and marriage subscales was significantly greater than the correlation of -0.01 for the correlation between RLCQ and PERI-LES for the same subscales.

The GSRRS health subscale had one comparison that was significantly different. The correlation of 0.21 between health and personal and social was significantly greater than the correlation of -0.10 for the correlation between GSRRS and PERI-LES for the same subscales.

Two comparisons among coefficients in the weighted MTMM matrix (Table 4) were significantly different. Both the RLCQ subscale of marriage and the GSRRS subscale of health had one comparison that was significantly different. The RLCQ coefficient of 0.13 between marriage and financial

was significantly less than the correlation of 0.41 between RLCQ and GSRRS for the same subscales. The GSRRS coefficient of 0.26 between health and personal and social was significantly greater than the correlation of -0.11 for the correlation between GSRRS and PERI-LES for the same subscales.

Method variance contributed less to the magnitude of the observed coefficients for results based on standardized weights than for results based on unitary weights. Two coefficients within checklists were exceeded by two correlations across checklists when the values were calculated using standardized weights. Correlations and coefficients calculated from unitary weights resulted in four coefficients within checklists being exceeded by four correlations across checklists.

#### Stressfulness of the Events

The third purpose of this study was to examine the perceived stressfulness of the events for this aged population. Perceived stressfulness was examined by calculating the Spearman Rank Correlation Coefficient between standardized weights for the RLCQ and weights assigned to the events on the RLCQ experienced by subjects in this study. Only 43 of the 76 events were the same or similar to events on the Social Readjustment Rating Questionnaire (SRRQ) which was the source for assigning standardized

weights to the RLCQ. Fourteen of these events were not experienced by the subjects in this study. The remaining 29 events were used in this analysis.

Theoretically events should be ranked the same by subjects in this study and by the subjects in the standardization group. To examine if this were true, confidence interval estimates with a 0.95 level of confidence was established for the obtained values of rho. If the interval contained 1.0, then it could be assumed that the ranks across the two groups might be perfectly related and that the relative position did not change across groups. The point estimate around which the confidence interval was established was Fisher's Z-transformation of the obtained rho (Fieller & Pearson, 1961) to insure that the sampling distribution would have the same variance regardless of the value of the population parameter.

The obtained confidence interval estimate based upon an obtained rho = 0.59 for the 29 events was  $0.29 \leq \rho_s \leq 0.79$ . Since the confidence interval estimate did not contain 1.0, the ranks were not perfectly related and the relative position did change across groups.

Six of these 29 events had been scored by only one subject in the current sample, an insufficient number to provide a stable estimate of event stressfulness. These six events were deleted and rho = 0.70 was calculated for

the remaining 23 events (Table 8). The obtained confidence interval estimate was  $0.40 \leq \rho_s \leq 0.86$ . Since the confidence interval estimate did not contain 1.0, the ranks were not perfectly related and the relative position did change across groups.

Examination of assigned weights revealed that the magnitude of stress was greater for the older people than for the standardization sample on all events in the subscales of health, work, and personal and social. In addition, stress was greater for five of the eight events on the home and family subscale, and one of the two events on each of the subscales of marriage and financial.

Data from this analysis were used to examine the discrepancies by subscale between weights assigned by study respondents and the standardization sample. The discrepancy was calculated for each of the 23 events. The average discrepancy by subscale was: three for financial (k=2), ten for home and family (k=7), 15 for personal and social (k=6), 20 for marriage (k=2), 23 for health (k=4), and 39 for work (k=2). Similarities in assigned weights were greater for the subscales of financial, home and family, and personal and social than for the subscales of marriage, health, and work.

Kuder-Richardson 20 internal consistency estimates based on the mean ratings assigned by the respondents were

Table 8. Events Used to Examine Stressfulness.

Subscale	Event	Number of Respondents
Health	illness or injury	22
	major change in eating habits	15
	major change in sleeping habits	12
	change in usual type and/or amount of recreation	14
Work	change in responsibilities at work	3
	fired from work	2
Home and family	change in residence	4
	change in family "get-togethers"	9
	major change in health or behavior of a family member	12
	major change in living conditions	5
	death of spouse	4
	death of child, sibling, parent, other close family member	10
	death of close friend	13
Marriage	change in arguments with your spouse	4
	separation from spouse due to marital problems	2
Personal and social	major personal achievement	4
	change in personal habits	5
	sexual difficulties	3
	vacation	23
	change in religious beliefs	3
	change in social activities	11
Financial	taken on a moderate purchase	15
	major change in finances	6

calculated. These coefficients were 0.42 for health (k=6), 0.26 for work (k=8), 0.47 for home and family (k=11), 0.45 for marriage (k=5), 0.54 for personal and social (k=13), and 0.16 for financial (k=3).

#### Influence of the Scoring System

The fourth purpose of this study was to determine if the scoring system used influenced the magnitude of the correlations and reliability and validity coefficients. This was determined by comparing obtained coefficients across the MTMM matrices based on either unitary weights or standardized weights. For each of the three heterotrait-monomethod (solid line) triangles and the six heterotrait-heteromethod (slashed line) triangles within scoring systems the median, minimum, and maximum correlations were identified along with the same information for subscale reliability coefficients and validity coefficients. Results are presented in Table 9.

There were no significant differences in the magnitudes of the median, minimum, and maximum correlations and reliability and validity coefficients with  $\alpha = 0.05$ . The coefficients are similar across scoring systems.

An additional MTMM analysis was conducted. Coefficients were calculated between the two scoring systems for all subscales across the three checklists. For each of the heterotrait-monomethod blocks and the

Table 9. Descriptive Statistics for Correlation, KR-20 Coefficients and Validity Coefficients.

	Correlations <sup>a</sup>			KR-20			Validity		
	Mdn	Min	Max	Mdn	Min	Max	Mdn	Min	Max
heterotrait-monomethod triangles	Unitary Weights								
RLCQ	25	14	44	45	11	50			
PERI-LES	14	-04	31	23	01	38			
GSRRS	14	03	30	30	03	58			
heterotrait-heteromethod triangles									
RLCQ/PERI-LES	09	-17	30				33	17	59
RLCQ/GSRRS	12	-06	44				30	21	57
PERI-LES/GSRRS	08	-12	23				31	17	35
	Standardized Weights								
heterotrait-monomethod triangles									
RLCQ	16	07	26	32	17	44			
PERI-LES	10	-06	31	20	04	37			
GSRRS	15	02	26	25	03	57			
heterotrait-heteromethod triangles									
RLCQ/PERI-LES	06	-12	34				31	21	51
RLCQ/GSRRS	07	-09	41				37	17	65
PERI-LES/GSRRS	05	-11	28				28	16	45

<sup>a</sup>Decimals in the coefficients have been omitted.

heterotrait-heteromethod blocks the median, minimum, and maximum correlations were identified. These are presented in Table 10 along with the same information for subscale reliability coefficients and validity coefficients. KR-20 reliability coefficients are now based on parallel scoring rather than within scoring systems as presented in Table 9.

The reliability coefficients for this matrix were all significantly greater than zero ( $p \leq 0.001$ ). The remaining coefficients were of the same relative magnitude as those reported for unitary weights and standardized weights (Table 9).

#### Frequency of Event Occurrence

The fifth purpose of this study was to determine if the events included on the checklists were events that occur in the lives of people aged 65-74 years. This was determined by identifying those events across the three checklists that were not experienced by the subjects in this study. These events were assumed to be inappropriate for use with this population. Results are presented in Table 11.

The percent of events not experienced for each of the checklists was calculated. For the RLCQ, 20% were not experienced; for the PERI-LES, 39%; and for the GSRRS, 20%.

The number of events not experienced within each of the six subscales across the three checklists was

Table 10. Descriptive Statistics for Correlations, Parallel Scoring Reliability and Validity Coefficients Across Unitary and Standardized Weights.

	Correlations <sup>a</sup>			Mdn	KR-20		Validity		
	Mdn	Min	Max		Min	Mas	Mdn	Min	Max
heterotrait-monomethod rectangles									
RLCQ	20	09	44	87	75	94			
PERI-LES	14	-06	32	98	95	100			
GSRRS	15	01	30	96	94	100			
heterotrait-heteromethod rectangles									
RLCQ/PERI-LES	07	-17	37				31	13	57
RLCQ/GSRRS	08	-09	44				30	17	58
PERI-LES/GSRRS	07	-12	24				31	15	44

<sup>a</sup>Decimals in the coefficients have been omitted.

Table 11. Events from the Three Checklists not Experienced by Subjects in this Current Study.

Subscale	RLCQ	PERI-LES	GSRRS
Health	--	--	--
Work	transfer	started work for first time changed jobs for better one changed jobs for one no better and no worse than last one found out was not getting promoted promoted fired started business or profession expanded business or profes- sional practice suffered business loss or failure	change in responsibilities at work changed to different line of work major change in working hours or conditions troubles with the boss
Home and family	remarriage of parents	--	institutionalization
Marriage	separation from spouse due to work reconciliation with spouse divorce birth of a child wife becoming pregnant child leaving home due to marriage child leaving home to attend college wife having miscarriage or abortion	engagement broken divorce married couple got together after separation marital infidelity became pregnant birth of first child birth of second or later child abortion	divorce marital reconciliation with mate

Table 11, Continued

Subscale	RLCQ	PERI-LES	GSRRS
		miscarriage or stillbirth child died adopted a child started menopause	
Personal and social	beginning or ceasing school or college legal troubles resulting in your being held in jail	had problems in school or training program failed school, training program assaulted involved in a law suit accused of something for which a person could be sent to jail arrested went to jail convicted of a crime acquitted of a crime released from jail didn't get out of jail when expected entered the armed services left the armed services	--
Financial	taken on a major purchase or a mortgage loan experienced fore- closure on a mortgage or loan credit rating difficulties	took out a mortgage foreclosure of a mortgage or a loan repossession of items bought on installment plan took cut in wage or salary without a demotion went off welfare got a substantial increase in wage or salary without a promotion	--

calculated. All health events on all three checklists had been experienced by some of the respondents. The number of events not experienced on the work subscale was one of 16 events on the RLCQ (6%), nine of 21 events on the PERI-LES (43%), and four of six events on the GSRRS (67%). The number of events not experienced on the home and family subscale was one of 13 events on the RLCQ (8%), zero of 13 events on the PERI-LES (0%), and one of eight events on the GSRRS (13%). The one event not experienced on the GSRRS was institutionalization which would not apply to this sample since one of the criteria for study inclusion was that of noninstitutionalization. The number of events not experienced on the marriage subscale was eight of 17 events on the RLCQ (47%), 12 of 21 events on the PERI-LES (57%), and two of six events on the GSRRS (33%). The number of events not experienced on the personal and social subscale was two of 18 events for the RLCQ (11%), 13 of 32 events for the PERI-LES (41%), and zero of ten events for the GSRRS (0%). The number of events not experienced on the financial subscale was three of six events on the RLCQ (50%), six of 11 events on the PERI-LES (55%), and zero of one event for the GSRRS (0%).

For each checklist, the total number of events not experienced was calculated. Fifteen events on the RLCQ, 40

events on the PERI-LES, and six events (excluding institutionalization) on the GSRRS were not experienced.

The number of respondents experiencing each event was also calculated. The number ranged from no respondents (Table 11) to 80 respondents for the event feeling of slowing down on the GSRRS subscale of personal and social.

#### Additional Stressful Life Events

The sixth purpose of this study was to identify additional life events which are considered to be stressful by older people themselves. This was accomplished by reviewing the events listed by the respondents on the demographic sheet and identifying those unique events.

Many of the listed events were duplicates of events on at least one of the three checklists. Other listed events could readily be subsumed under events on one or more of the checklists. For example, eight respondents mentioned heart problems which could be included under the event illness or injury on the RLCQ, physical illness on the PERI-LES, or major injury or illness on the GSRRS. A total of 61 events were listed which were subsumed under events on the health subscales of the three checklists. Fifty events were listed which were subsumed under events on the home and family subscales of the three checklists.

A total of 26 unique stressful life events were identified by the respondents. These responses were

clustered into the six subscales used on the checklists and a miscellaneous category. Unique stressful life events are presented in Table 12. No unique events were identified for the subscales of health, work, and marriage. Six unique events were clustered in the home and family subscale. The most frequently mentioned events were separation or divorce of children and/or grandchildren listed by six respondents and change in relationships with grandchildren listed by five respondents. Two unique events were identified on the personal and social subscale. Loss of freedom due to spouse's retirement was mentioned by two respondents. Seven unique events, including unusually high expenditures (mentioned by two respondents), were identified on the financial subscale. The remaining six events were listed by only one respondent. Eleven unique events were identified on the miscellaneous subscale. The most frequently mentioned events were house maintenance and repairs listed by seven respondents and car problems/accidents listed by six respondents.

Table 12. Additional Stressful Events Identified by Study Respondents.

Subscale	Event	Number of Respondents
Health	no unique events were identified	
Work	no unique events were identified	
Home and family	separation or divorce of children and/or grandchildren	6
	change in relationships with grandchildren	5
	financial concerns for children	3
	remarriage	2
	spouse in nursing home	1
	birth of great grandchildren	1
Marriage	no unique events were identified	
Personal and social	loss of freedom due to spouse's retirement	2
	can't stand people fighting	1
Financial	unusually high expenditures	2
	fear of losing pension and medical benefits	1
	extremely hard time financially	1
	medical expenses	1
	funds cut back at veteran's hospital	1
	raise in rent	1
	trouble with sister as executrix	1
Miscellaneous	house maintenance and repairs	7
	car problems/accidents	6
	worry about all things	2
	feeling threatened	2
	airplane ride	2
	funeral arrangements for sister	1
	feelings of inadequacy and low self-esteem	1
	very lonely	1
	possibility of Reagan being reelected	1
	learning English	1
conducting a meeting	1	

## CHAPTER 5

### DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

This chapter includes a discussion of the results, conclusions based on these results, and recommendations for future studies. The discussion, conclusions, and recommendations are based upon responses from 185 noninstitutionalized subjects aged 65-74 years who completed three checklists measuring stressful life events and a demographic sheet which provided additional information on stressful life events relevant for this age population.

#### Discussion

This study has been one of the first attempts to investigate stressful life events experienced by people aged 65-74 years. Results from this study have provided information concerning the relationships among the subscales on the three checklists and the events that are considered to be stressful for this age population. Because of the exploratory nature of the study, as defined by Kerlinger (1973), one limitation in the data set must be considered when discussing the results. This limitation concerns the number of events comprising subscales. Sixty (26%) of the 213 events across the three checklists were

not experienced by the study respondents. Coefficients calculated on subscales within checklists were based upon one to 20 events actually experienced rather than one to 31 potential events.

### Reliability

Reliability is the first issue that must be addressed in evaluating the appropriateness of the three checklists for use with an aged population. Examination of reliability requires analyzing both statistical significance and practical significance. Both types of significance must be sufficiently large to encourage examination of the validity coefficients.

Statistical significance is established empirically. Results from this study provided evidence that most of the subscales on the three checklists are statistically reliable for use with an aged population. This finding was expected since a relatively large sample ( $n=185$ ) was used in this study.

Practical significance is more difficult to establish than statistical significance since it is not based on a probability model but determined subjectively. The decision to be made regarding practical significance concerns the minimum acceptable value for the reliability coefficients. Considerations in determining the minimum value include: (1) examination of an absolute cutoff, (2)

level of accuracy in describing an individual or a group, and (3) comparisons with other research results.

Considerations for establishing an absolute cutoff have been discussed by Nunnally (1978). He proposed that in the early stages of research it is possible to work with instruments that have only modest reliability when coefficients of 0.70 or higher will suffice. This study is an exploratory study and therefore meets the requirement of being in the early stages of research. Regardless of the type of scoring used, the highest obtained reliability coefficient in this study was 0.58 and 27 of the 35 reliability coefficients were  $\leq$  0.38. None of the reliability coefficients met the minimum cutoff of 0.70. A satisfactory level of reliability has not been achieved using the criterion of absolute cutoff.

The magnitude of the reliability coefficient required to achieve specified levels of accuracy in describing an individual or a group has been determined by Thorndike and Hagen (1977). They calculated the percent of reversals that would occur in relative standing if the measure were repeated using  $n=1$ ,  $n=25$ , and  $n=100$  for reliability coefficients of 0.00, 0.95, and 0.98, and from 0.40 to 0.90 in intervals of 0.10. A reversal occurs when individual A scores higher than individual B at the time of the first test and lower than B when retested. The percent

of reversals was calculated for the median, minimum, and maximum reliability coefficients reported in this study by interpolating the tabled values of Thorndike and Hagen (1977). With a median reliability coefficient of 0.30, 43% of the scores for individuals would be reversed, 21% for  $n=25$ , and 13% for  $n=100$ . The minimum obtained coefficient of 0.01 would result in 50% reversals for  $n=1$ , 49% for both  $n=25$  and  $n=100$ . Thirty-three percent reversals for  $n=1$ , and 1% reversals for  $n=25$  would occur with the maximum reliability coefficient of 0.58. Insufficient data were reported by Thorndike and Hagen (1977) to calculate the percent of reversals for  $n=100$  when  $r=0.58$ . Since the percentage of reversals decreases as the reliability coefficient increases, the low reliabilities obtained in this study could have resulted in a large percent of reversals for individuals if the measure were repeated.

The third consideration in determining the minimum acceptable value involves comparisons with other research results. In the course of reviewing the literature, only one study was found that had examined internal consistency coefficients for stressful life events checklists (Skinner & Lei, 1980). Skinner and Lei (1980) factor analyzed the 43 events of the SRE and calculated internal consistency reliabilities based on unitary weights for the six subscales identified from their factor analysis. They

reported that five of their six subscales were similar to four of the subscales identified by Rahe (1975a). Two of their subscales contained events similar to those of the personal and social subscale. Reliability coefficients and the number of events comprising the subscales identified by Skinner and Lei (1980) that are similar to those in this study are presented in Table 13. Their coefficients, ranging from 0.40 to 0.76, tended to be greater than the coefficients obtained from unitary scoring of the data in this study which ranged from 0.03 to 0.48 across the three checklists.

A possible explanation for the higher reliability coefficients reported by Skinner and Lei (1980) from those reported in this study may be related to the manner in which the SRE was developed. Identification of life events to be included on the SRE was derived primarily from experiences of young people. Holmes and Rahe (1967) reviewed the life charts of patients primarily under 65 years of age when developing their checklist resulting in a checklist particularly relevant for a young population. Younger respondents have a greater probability of experiencing these events than do older respondents. It is reasonable to expect that KR-20 reliability coefficients calculated from a sample with a mean age of 33.7 years would tend to be higher than KR-20 reliability coefficients calculated

Table 13. Comparisons of Reliability Coefficients and Number of Events with Other Research Results.

Subscale	Skinner & Lei		RLCQ		PERI-LES		GSRRS	
	r	k	r	k	r	k	r	k
Work	0.67	5	0.48	15	0.38	12	0.03	3
Home and Family	0.40	3	0.46	12	0.37	13	0.30	7
Marriage	0.55	3	0.21	9	0.07	9	0.17	4
Personal and social	0.76	7	0.44	16	0.38	18	0.38	10
	0.41	3						

from a sample with a mean age of 69.6 years. The magnitude of the KR-20 reliability coefficient is influenced by the proportion of respondents who have experienced the event.

This explanation is appropriate for comparisons between reliability coefficients from Skinner and Lei (1980) with those of the RLCQ and PERI-LES since these checklists were developed from the experiences of a young population. Events on the GSRRS are a modification of events by experts in geriatric medicine (Amster & Krauss, 1974) designed specifically for people aged 70 and above. Reliability coefficients obtained from subscales of the GSRRS tend to be smaller than those from either the RLCQ or the PERI-LES (Table 13). This finding raises the question of whether or not experts in the field have identified events appropriate for an older population.

#### Validity

Another consideration in evaluating the appropriateness of the three checklists for use with an aged population is validity. Three issues are involved: (1) the relationship between reliability and validity, (2) convergent validity, and (3) divergent validity.

Reliability is a necessary but not a sufficient condition for validity. The relatively low reliability coefficients reported in this study place serious limitations on the potential validity of the checklists.

Measurement error not only decreases the magnitude of the correlations but also "places a limit on the amount of validity that an instrument can have" (Nunnally, 1978, p. 192). Measurement error also causes results to be unstable. If the measures were repeated, the coefficients would fluctuate--those that are now relatively large might become relatively small while relatively small coefficients might become relatively large with repeated measures. Results concerning both convergent and divergent validity must be interpreted with extreme caution because of the low obtained reliability coefficients.

Convergent validity is examined both empirically and subjectively. Empirical examination is based on a probability model while subjective examination is based on one of the uses to be made of the checklists.

The empirical requirement for establishing convergent validity is that the coefficients are significantly greater than zero. All the obtained validity coefficients met this requirement. The relatively large sample ( $n=185$ ) used in this study made this finding expected.

The subjective requirement for convergent validity is that the validity coefficients must be sufficiently large to encourage further examination of validity. "Sufficiently large" will be evaluated in terms of the errors of estimate that would occur if predictions of

future illness were made for an individual. The standard for comparison is the amount of error in prediction with zero validity. Comparisons were calculated for the median, minimum, and maximum validity coefficients across scoring systems. With a median validity coefficient of 0.33, error is 94% as large as it would be by chance. The minimum obtained coefficient of 0.16 would result with error 99% as large as it would be by chance. Errors of prediction would be 24% smaller than those from random guessing with the maximum coefficient of 0.65. The relatively low validity coefficients obtained in this study would result in minor decreases of prediction error when compared with zero validity.

Most of the results did not support the existence of divergent validity. This was evidenced by: (1) the tendency of the values in the monomethod triangles to approximate the reliability coefficients, (2) the lack of confirmation of patterns of correlations among traits, and (3) the tendency for the highest correlations to occur between different constructs using the same method. The only evidence in support of divergent validity was the finding that the values in the validity diagonal tend to be greater than values in the monomethod and heteromethod triangles.

## Unitary vs. Standardized Weights

Evaluation of unitary vs. standardized weights requires examination of statistically significant outcomes and trends in the data. Using the criterion of significant differences, results from this study suggested that there is little difference in the two scoring methods. This finding was consistent with results reported by Skinner and Lei (1980), McFarlane et al. (1980), and Ross and Mirowsky (1979). Analyzing trends in the magnitude of the reliability coefficients revealed differences between the two scoring systems. Reliability coefficients reported for unitary weights tend to be larger than those reported for standardized weights. This finding suggested that unitary weights are preferred.

Results from analyzing the perceived stressfulness of the events provide the most information concerning the scoring method. Comparisons of individually assigned weights to events on the RLCQ by study respondents and the standardization sample revealed that there were differences. Ranking of the events was not the same across the two groups. In addition, the study subjects indicated that more stress was involved in adapting to a majority of the stressful life events than did the standardization sample. Furthermore, reliability coefficients calculated from weights assigned by the standardization sample tended to be

smaller than those computed from individual weights assigned by study respondents themselves.

#### Stressful Life Events

Another consideration in evaluating the appropriateness of the checklists is identification of events that occur in the lives of people aged 65-74 years. Results from this study provided information on events from the checklists that had been experienced and identified additional stress events that were not on any of the three checklists. In addition, information was provided concerning the relative adequacy of the six subscales. None of the three checklists was better than the others in terms of the magnitude of the reliability coefficients. Therefore information from all three checklists has been pooled to examine the stressful events.

Many of the events (k=62) included on the three checklists were not experienced by any of the respondents (Table 11, p. 69). Twenty-six unique events were identified on the demographic sheets by the respondents (Table 12, p. 74). These results help identify events that are considered to be stressful by an aged population.

Results also provided information concerning which subscales contain events important for this aged population. Relative adequacy of subscales was determined

on the following three criteria: (1) proportion of checklist events experienced, (2) number of free responses subsumed under checklist events, and (3) number of unique free responses. For each of these three criteria, the subscales were ranked from most adequate to least adequate. Health ranked first for two of the three criteria. Home and family ranked second for all three criteria. Personal and social ranked third for two of the three criteria. Both marriage and work had tied ranks for least adequate on three of the three criteria.

As people age, it appears as if stressful life events change. Those events which are commonly stressful for younger populations do not equally apply to older persons. Health related events take on more importance as evidenced by the large number of events ( $k=61$ ) from the free responses. Home and family related events include more concerns with problems experienced by children, and/or grandchildren for the older people than for younger people. Marriage takes on a new focus. For the younger aged population, salient events are centered around pregnancy, birth, and rearing children; whereas for the older aged population, concerns focus upon the relationship with spouse. Work related events appear to be inappropriate for the older people since the most frequently experienced event on this subscale was retirement.

### Conclusions and Recommendations

Examination of reliability in the context of statistical significance and practical significance has provided some information concerning the appropriateness of the checklists for use with an aged population. The relatively large sample size used in this study insured that most of the reliability coefficients would be statistically significant. This finding is not unexpected and not of much interest. A more critical issue in examining the reliability coefficients is practical significance. All three criteria examined, viz. absolute cutoff, level of accuracy, and comparisons with other research results, offered evidence that the obtained coefficients are inadequate. These results showed that the subscales do not have sufficient practical reliability to justify using them with an older noninstitutionalized population. Modifications need to be made to increase the magnitude of the reliability coefficients.

One method for increasing the reliability coefficients is to increase the number of events on the subscales. As Anastasi (1976) has pointed out, when other things are equal, "the longer a test, the more reliable it will be" (p. 115). However, increasing the number of events on the subscales will not insure a concomitant increase in the magnitude of the reliability coefficients.

Results from this study illustrate this point. The largest reported reliability coefficient was 0.58 based on four events. One of the smallest reliability coefficients was 0.07 based on nine events. Events included within a subscale must represent a homogeneous subset of events if a high internal consistency coefficient is to be obtained. Nunnally (1978) has pointed out that a "major source of error within a test is due to sampling of items" (p. 226). Therefore, modifications must be carefully made.

Results from this study suggest that a more appropriate set of events could be developed for this aged population. More events need to be included on the health subscale. Although each of the three checklists includes the event illness or injury, this event needs to be expanded. Hospitalizations and surgery often signal major life changes for the aged and are connected with chronic and/or life threatening conditions. The focus of events on the marriage subscale should be on relationship with spouse. Events concerning birth and child rearing need to be omitted. Since work related events are not salient for the aged, fewer events need to be included. The home and family subscale should include more events pertaining to difficulties of children and/or grandchildren. Legal problems were not experienced by study respondents and should be omitted from the personal and social subscale.

Financial events need to focus on limitations inherent with a fixed income rather than on events relating to large expenditures.

Several of the results document the need of establishing standardized weights assigned by older people. Reliability coefficients calculated for the subscales from individual weights assigned by the study respondents tended to be greater than those calculated from standardized weights assigned during the development of the checklist. Perception of the amount of stress involved in adjusting to an event was different for the study respondents from the standardization sample. Study respondents ranked the events differently and in general reported higher levels of stress. These results emphasize the importance of developing standardized weights for various age cohorts.

Further study is needed in the area of standardized weights. Magnitude of the stressfulness of life events needs to be established by older respondents themselves since the results from this study show that their perception of stressfulness is different from a younger aged population. Once these weights have been determined, it is necessary to study whether unitary or standardized weights are best used with this aged population.

APPENDIX A

RECENT LIFE CHANGES QUESTIONNAIRE

## Recent Life Changes Questionnaire

Directions: To answer the questions below, mark an "X" in one or two of the columns to the right of each question. If the event in question has occurred to you within the past year, indicate when it occurred by marking the appropriate column: 0-6 months ago, or 7-12 months ago. It may be the case with some of the events below that you experienced them over more than one of the time periods listed for the past year. If so, mark both the appropriate columns. If the event has not occurred to you during the last year, leave all the columns empty.

Now go through the questionnaire and mark your recent life changes. The column marked "Your Adjustment Score" will be explained at the end of the questionnaire.

Within the time periods listed, have you experienced:	0-6 Months <u>Ago</u>	7-12 Months <u>Ago</u>	Your Adjust <u>Score</u>
<b>A. HEALTH</b>			
1. an illness or injury which			
(a) kept you in bed a week or more, or took you to the hospital?	_____	_____	_____
(b) was less serious than described above?	_____	_____	_____
2. a major change in eating habits?	_____	_____	_____
3. a major change in sleeping habits?	_____	_____	_____
4. a change in your usual type and/or amount of recreation?	_____	_____	_____
5. major dental work?	_____	_____	_____
<b>B. WORK</b>			
6. changed to a new type of work?	_____	_____	_____
7. changed your work hours or conditions?	_____	_____	_____
8. had a change in your responsibilities at work:			
(a) more responsibilities?	_____	_____	_____
(b) less responsibilities?	_____	_____	_____
(c) promotion?	_____	_____	_____
(d) demotion?	_____	_____	_____
(e) transfer?	_____	_____	_____
9. Experienced troubles at work:			
(a) with your boss?	_____	_____	_____
(b) with co-workers?	_____	_____	_____
(c) with persons under your supervision?	_____	_____	_____

## Recent Life Changes Questionnaire Cont. (2)

Within the time periods listed, have you experienced:	0-6 Months <u>Ago</u>	7-12 Months <u>Ago</u>	Your Adjust <u>Score</u>
10. experienced a major business readjustment?	_____	_____	_____
11. retired?	_____	_____	_____
12. experienced being:			
(a) fired from work?	_____	_____	_____
(b) laid off from work?	_____	_____	_____
13. taken courses by mail or studied at home to help you in your work?	_____	_____	_____

## C. HOME AND FAMILY

14. a change in residence:			
(a) a move within the same town or city?	_____	_____	_____
(b) a move to a different town, city, or state?	_____	_____	_____
15. a change in family "get-togethers"?	_____	_____	_____
16. a major change in the health or behavior of a family member (illnesses, accidents, drug or disciplinary problems, etc.)?	_____	_____	_____
17. major change in your living conditions (home improvements or a decline in your home or neighborhood)?	_____	_____	_____
18. the death of a spouse?	_____	_____	_____
19. the death of a:			
(a) child?	_____	_____	_____
(b) brother or sister?	_____	_____	_____
(c) parent?	_____	_____	_____
(d) other close family member?	_____	_____	_____
20. the death of a close friend?	_____	_____	_____
21. a change in the marital status of your parents:			
(a) divorce?	_____	_____	_____
(b) remarriage?	_____	_____	_____

NOTE: (Questions 22-33 concern marriage. For persons never married, go to Item 34)

22. marriage?	_____	_____	_____
23. a change in arguments with your spouse?	_____	_____	_____
24. in-law problems?	_____	_____	_____

## Recent Life Changes Questionnaire Cont. (3)

Within the time periods listed, have you experienced:	0-6 Months <u>Ago</u>	7-12 Months <u>Ago</u>	Your Adjust <u>Score</u>
25. a separation from spouse:			
(a) due to work?	_____	_____	_____
(b) due to marital problems?	_____	_____	_____
26. a reconciliation with spouse?	_____	_____	_____
27. a divorce?	_____	_____	_____
28. a gain of a new family member:			
(a) birth of a child?	_____	_____	_____
(b) adoption of a child?	_____	_____	_____
(c) a relative moving in with you?	_____	_____	_____
29. wife beginning or ceasing work outside the home?	_____	_____	_____
30. wife becoming pregnant?	_____	_____	_____
31. a child leaving home:			
(a) due to marriage?	_____	_____	_____
(b) to attend college?	_____	_____	_____
(c) for other reasons?	_____	_____	_____
32. wife having a miscarriage or abortion?	_____	_____	_____
33. birth of a grandchild?	_____	_____	_____
<b>D. PERSONAL AND SOCIAL</b>			
34. a major personal achievement?	_____	_____	_____
35. a change in your personal habits (your dress, friends, life-style, etc.)?	_____	_____	_____
36. sexual difficulties?	_____	_____	_____
37. beginning or ceasing school or college?	_____	_____	_____
38. a change of school or college?	_____	_____	_____
39. a vacation?	_____	_____	_____
40. a change in your religious beliefs?	_____	_____	_____
41. a change in your social activities (clubs, movies, visiting)?	_____	_____	_____
42. a minor violation of the law?	_____	_____	_____
43. legal troubles resulting in your being held in jail?	_____	_____	_____
44. a change in your political beliefs?	_____	_____	_____
45. a new, close personal relationship?	_____	_____	_____
46. an engagement to marry?	_____	_____	_____
47. a "falling out" of a close personal relationship?	_____	_____	_____
48. girlfriend (or boyfriend) problems?	_____	_____	_____
49. a loss or damage of personal property?	_____	_____	_____

## Recent Life Changes Questionnaire Cont. (4)

Within the time periods listed, have you experienced:	0-6 Months <u>Ago</u>	7-12 Months <u>Ago</u>	Your Adjust <u>Score</u>
50. an accident?	_____	_____	_____
51. a major decision regarding your immediate future?	_____	_____	_____
<b>E. FINANCIAL</b>			
52. taken on a moderate purchase, such as a T.V., car, freezer, etc.?	_____	_____	_____
53. taken on a major purchase or a mortgage loan, such as a home, business, property, etc.?	_____	_____	_____
54. experienced a foreclosure on a mortgage or loan?	_____	_____	_____
55. experienced a major change in finances:			
(a) increased income?	_____	_____	_____
(b) decreased income?	_____	_____	_____
(c) credit rating difficulties?	_____	_____	_____

APPENDIX B

PSYCHIATRIC EPIDEMIOLOGY RESEARCH INTERVIEW--  
LIFE EVENTS SCALE

## Psychiatric Epidemiology Research Interview - Life Events Scale

Directions: Circle those events which have occurred to you during the past 12 months.

## SCHOOL

1. Started school or a training program after not going to school for a long time
2. Changed schools or training programs
3. Graduated from school or training program
4. Had problems in school or in training program
5. Failed school, training program
6. Did not graduate from school or training program

## WORK

7. Started work for the first time
8. Returned to work after not working for a long time
9. Changed jobs for a better one
10. Changed jobs for a worse one
11. Changed jobs for one that was no better and no worse than the last one
12. Had trouble with a boss
13. Demoted at work
14. Found out that was not going to be promoted at work
15. Conditions at work got worse, other than demotion or trouble with the boss
16. Promoted
17. Had significant success at work
18. Conditions at work improved, not counting promotion or other personal successes
19. Laid off
20. Fired
21. Started a business or profession
22. Expanded business or professional practice
23. Took on a greatly increased work load
24. Suffered a business loss or failure
25. Sharply reduced work load
26. Retired
27. Stopped working, not retirement, for an extended period

## LOVE AND MARRIAGE

28. Became engaged
29. Engagement was broken
30. Married
31. Started a love affair

## Psychiatric Epidemiology Research Interview -

## Life Events Scale Cont. (2)

Circle those events which have occurred to you during the past 12 months.

32. Relations with spouse changed for the worse, without separation or divorce
33. Married couple separated
34. Divorce
35. Relations with spouse changed for the better
36. Married couple got together again after separation
37. Marital infidelity
38. Trouble with in-laws
39. Spouse died

## HAVING CHILDREN

40. Became pregnant
41. Birth of a first child
42. Birth of a second or later child
43. Abortion
44. Miscarriage or stillbirth
45. Found out that cannot have children
46. Child died
47. Adopted a child
48. Started menopause

## FAMILY

49. New person moved into the household
50. Person moved out of the household
51. Someone stayed on in the household after he was expected to leave
52. Serious family argument other than with spouse
53. A change in the frequency of family get-togethers
54. Family member other than spouse or child dies

## RESIDENCE

55. Moved to a better residence or neighborhood
56. Moved to a worse residence or neighborhood
57. Moved to a residence or neighborhood no better or no worse than the last one
58. Unable to move after expecting to be able to move
59. Built a home or had one built
60. Remodeled a home
61. Lost a home through fire, flood, or other disaster

## Psychiatric Epidemiology Research Interview -

## Life Events Scale Cont. (3)

Circle those events which have occurred to you during the past 12 months.

## CRIME AND LEGAL MATTERS

62. Assaulted
63. Robbed
64. Accident in which there were no injuries
65. Involved in a law suit
66. Accused of something for which a person could be sent to jail
67. Lost drivers license
68. Arrested
69. Went to jail
70. Got involved in a court case
71. Convicted of a crime
72. Acquitted of a crime
73. Released from jail
74. Didn't get out of jail when expected

## FINANCES

75. Took out a mortgage
76. Started buying a car, furniture, or other large purchase on the installment plan
77. Foreclosure of a mortgage or loan
78. Repossession of a car, furniture or other items bought on the installment plan
79. Took a cut in wage or salary without a demotion
80. Suffered a financial loss or loss of property not related to work
81. Went on welfare
82. Went off welfare
83. Got a substantial increase in wage or salary without a promotion
84. Did not get an expected wage or salary increase
85. Had financial improvement not related to work

## SOCIAL ACTIVITIES

86. Increased church or synagogue, club, neighborhood, or other organizational activities
87. Took a vacation
88. Was not able to take a planned vacation
89. Took up a new hobby, sport, craft or recreational activity
90. Dropped a hobby, sport, craft or recreational activity
91. Acquired a pet
92. Pet died
93. Made new friends

## Psychiatric Epidemiology Research Interview -

## Life Events Scale Cont. (4)

- 94. Broke up with a friend
- 95. Close friend died

## MISCELLANEOUS

- 96. Entered the Armed Services
- 97. Left the Armed Services
- 98. Took a trip other than a vacation

## HEALTH

- 99. Physical health improved
- 100. Physical illness
- 101. Injury
- 102. Unable to get treatment for an illness or injury

APPENDIX C

GERIATRIC SOCIAL READJUSTMENT RATING SCALE

## Geriatric Social Readjustment Rating Scale

Directions: Circle those events which have occurred to you during the past 12 months.

1. Death of spouse
2. Institutionalization
3. Death of close family member
4. Major personal injury or illness
5. Being fired from work
6. Divorce
7. Major change in financial state
8. Retirement
9. Marital separation from mate
10. Eyesight failing
11. Marriage
12. Death of close friend
13. Major change in health or behavior of family member
14. Major change in gratifying activities
15. Hearing failing
16. Change in sexual behavior
17. Change in responsibilities at work
18. Change in residence other than institutionalization
19. Painful arthritis
20. Feeling of slowing down
21. Changing to different line of work
22. Spouse ceasing work outside home
23. Change in living conditions or environment
24. Marital reconciliation with mate
25. Change in social activities
26. Losing driver's license
27. Change in living composition
28. Reaching 65
29. Reaching 70
30. Major change in working hours or conditions
31. Troubles with the boss
32. Holidays and anniversaries
33. Argument with children
34. Argument with spouse
35. Vacation

APPENDIX D  
DEMOGRAPHIC SHEET



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