

**WIDOWHOOD: THE FIRST ANNIVERSARY
SPOUSAL BEREAVEMENT-RELATED STRESS,
COPING AND WELL-BEING IN OLDER WOMEN**

By

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A Dissertation

Presented to the Faculty of

The Graduate College in the University of Nebraska

In Partial Fulfillment of the Requirements

For the Degree of Doctor of Philosophy

Nursing

Under the Supervision of Dr. Cecilia R. Barron

Medical Center

Omaha, Nebraska

December, 2006

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University of Nebraska, 2006

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By 2020 approximately one million individuals will experience spousal bereavement annually, primarily older women. However, little is known about the survivor's well-being around the first year death anniversary. This study examined spousal bereavement-related stress, coping, and well-being in widows 65 years and older at months 11, 12, and 13 following the death of the spouse based on Lazarus and Folkman's transactional approach and Schaefer and Moos' model of life crises and transitions.

Using a prospective, longitudinal, correlational design, data were collected from 47 widows. Concepts and related variables measured were: personal resource (optimism); environmental resource (social network); bereavement-related physiological (salivary cortisol) and psychological (intrusion-avoidance) stress; coping (spiritual, social support); and well-being (spiritual, psychosocial, and physical). The average participant was 74 years old (range 65-91), Caucasian (100%), and married an average of 46 years (range 3-64 years). The death of the spouse represented the end of a first marriage (76.6%).

Data were analyzed using descriptive statistics, Pearson correlation coefficients and repeated measures ANOVA with planned comparisons. Results indicated that, at all three time periods, optimism was: a) inversely correlated with intrusion-avoidance ($r = -$

.52 to -.66, $p < .01$), and b) positively correlated with well-being (physical: $r = .36$ to $.46$, $p < .05$; psychosocial: $r = .58$ to $.72$, $p < .01$; spiritual: $r = .50$ to $.69$, $p < .01$). Moreover, at all three time periods, social network was positively correlated with social support coping ($r = .46$ to $.56$, $p < .01$) and spiritual coping was positively correlated with spiritual well-being ($r = .47$ to $.60$, $p < .01$).

Physiological stress as measured by salivary cortisol was a) inversely correlated with optimism at months 12 and 13 (month 12 am cortisol: $r = -.30$, $p < .05$; month 13 pm cortisol: $r = -.35$, $p < .05$; AUC₁₂: $r = -.52$ and $-.64$, $p < .01$), and b) inversely correlated with social network at month 13 (pm cortisol: $r = -.38$, $p < .01$; AUC₁₂: $r = -.45$, $p < .01$). As expected, psychological stress as measured by the Impact of Event Scale (intrusion-avoidance) was higher at month 12 when compared to month 13 ($t [43] = 2.54$, $p = .015$) but not when compared to month 11 ($t [43] = 1.49$, $p = .144$). Results will aid in developing interventions to strengthen survivor's coping strategies during the first anniversary.

Acknowledgements

This dissertation reflects the dedication and expertise of many people. Faculty, family, and friends created an instructive and supportive web which allowed me to complete this work. Deep and wide is my gratitude for each of you.

I am most grateful for the privileged mentorship of these five distinguished members of my advisory committee:

Chairperson Dr. Cecilia R. Barron unfailingly provided scholarly guidance, warm hospitality, and compassionate kindness beyond all expectation. It is an honor to call her advisor and a pure joy to call her friend.

Dr. Jeff French shared expertise in salivary cortisol measurement and offered challenging perspectives on stress research with a positive and humorous approach. The use of his lab, his time, and assistant Katie's time are deeply appreciated.

Dr. Melody Hertzog spent numerous hours assisting in data analyses with remarkable patience, interest, and expertise from which I gained a deep respect for the science and art of statistical analysis and interpretation.

Dr. Roni Reitor-Palmon imparted clarity and flexibility during proposal development, and offered keen insight in instrument evaluation and selection.

Dr. Barbara McCabe provided a valuable gerontological nursing point of view and always incorporated "uplifts" into her communications.

South Dakota State University College of Nursing generously shared their facility and long distance learning technology in Rapid City. Zeta Zeta and Phi Chapters of Sigma Theta Tau International provided partial funding. Long-time friend and nursing colleague, Dr. Kay Foland, nudged me and literally kept me going on this journey.

My faithful walking partner, Cindy, provided a can-do attitude, abundant laughter, proof-reading skills, and devoted friendship. The sharp mind and kind heart of my 96 year old friend, Art, offered common sense and an abiding faith. The wise trio of Doris, Gail, and Doris Marie embodied first class inspiration.

Carl and Leona Stadler are parents extraordinaire. Their love and gracious tenacity keep me energized. Kent and Kate have nurtured me personally and professionally with the patient, wise and loving candor of a brother and sister. My children Ryan, Neal, Ross, and Trevor are the light of my life. They gained compassion and independence while also giving me balance, challenge and joy as I struggled with the demands of being a student. My canine companion, Toby, devotedly rested at my feet during long computer sessions and, with exuberance, frequently reminded me to take a break.

My husband, Tim, is an endless source of support. My gratitude for him knows no bounds. His unconditional love and friendship are the wind beneath my wings, his ability to make me laugh is unparalleled, and his presence in my life is priceless.

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Chapter 1

Introduction

Though seemingly ubiquitous, the death of a spouse remains a personally stressful, human experience for which little or no preparation is made (Sanders, 1999; Scannell-Desch, 2005). In later life, spousal bereavement is considered a normal life cycle transition, albeit major and stressful (Silverman, 2002; Ungar & Florian, 2004). This event is more pronounced for females whose life expectancy extends five to eight years beyond males and who comprise two thirds of the population over 65 and three fourths among those older than 85 (Minino & Smith, 2001; World Health Day, 1999). For these women, spousal loss potentially intensifies other losses associated with aging, such as functional status, finances, living arrangements, and social connectedness.

The loss of a spouse marks the beginning of a cascade of myriad attendant losses, i.e., the loss of emotional, social, physical (Anderson & Dimond, 1995; Carr, 2004; Hansson, Remondet, & Galusha, 1993) and often, financial support (Aber, 1992). These losses represent risk factors for the health of the bereaved, particularly during the first year, as studies have shown increased rates of mortality and psychological and physical morbidity (Williams, 2004). Spousal bereavement affects mental health; disrupts lifestyle, including social networks and activities; challenges spiritual direction and meaning in life; and increases stress. The stress associated with the loss of a spouse poses an implicit threat to the health and well-being of the survivor.

Poignant reminders of the loss of the loved one, such as the anniversary of the death, may serve as associated threats to health and well-being of the surviving spouse.

Clinical data indicate that anniversary reactions can trigger serious pathology in vulnerable persons (Kirkley-Best & Kellner, 1982). While numerous studies have examined the personal and environmental resources of the survivor, as well as coping strategies related to the health and well-being of the widowed, no research was found that examined the influence of the first anniversary of the spouse's death on the survivor's well-being. A more thorough understanding of the influence of the first anniversary on the health and well-being of older widowed women is important to nurses and other health care providers so that the health care needs of this population can be better addressed.

Purpose

The purpose of this prospective longitudinal correlational study was to examine spousal bereavement-related stress, coping with spousal bereavement-related stress, and well-being in widows 65 years of age and older at three points in time, starting at month 11 and continuing through month 13 following the death of the spouse. The primary aim, secondary aim and associated hypotheses were as follows:

Aim #1: Determine the relationships among personal (optimism) and environmental (social network) resources, spousal bereavement-related stress (salivary cortisol, intrusion-avoidance), coping with spousal bereavement-related stress (spiritual, social support), and well-being (spiritual, psychosocial, physical) in widows 65 years of age and older during the first year anniversary of spousal death, starting at month 11 and continuing through month 13 following the death.

In widows 65 years of age and older at months 11, 12, and 13 following the death:

H #1A: Personal (optimism) resources will be negatively related to spousal bereavement-related stress of the first anniversary (salivary cortisol, intrusion-avoidance) and positively related to coping with spousal bereavement-related stress (spiritual, social support), and well-being (spiritual, psychosocial, physical).

H #1B: Environmental (social network) resources will be negatively related to spousal bereavement-related stress of the first anniversary (salivary cortisol, intrusion-avoidance) and positively related to coping with spousal bereavement-related stress (spiritual, social support) and well-being (spiritual, psychosocial, physical).

H #2: Spousal bereavement-related stress (salivary cortisol, intrusion-avoidance) will be positively correlated with coping with spousal bereavement-related stress (spiritual, social support).

H #3: Coping with spousal bereavement-related stress (spiritual, social support) will be positively correlated with well-being (spiritual, psychosocial, physical).

Aim #2: Determine if there are differences in spousal bereavement-related stress (salivary cortisol, intrusion-avoidance), coping with spousal bereavement-related stress (spiritual, social support), and well-being (spiritual, psychosocial, physical) in widows 65 years of age and older across three time periods, i.e., 11 through 13 months following the death of the spouse.

In widows 65 years of age and older:

H #4: Spousal bereavement-related stress (salivary cortisol, intrusion-avoidance) will be higher at the 12th month when compared to the 11th and 13th months following the death of the spouse.

H #5: Coping with spousal bereavement-related stress (spiritual, social support) will differ at the 12th month when compared to the 11th and 13th months following the death of the spouse.

H #6: Well-being (spiritual, psychosocial, physical) will be lower at the 12th month when compared to the 11th and 13th months following the death of the spouse.

Background and Significance

There are approximately 13 million widowed people in the United States of whom more than 10 million are older adults. Of these widowed adults, 80% are women (Fields & Casper, 2001). Widowhood is a time of myriad losses associated with the death of the spouse (Lopata, 1993). It is also an opportunity for growth coming out of the changes incurred through loss (Lieberman, 1996; Neimeyer, Prigerson, & Davies, 2001). Dynamics of loss and change add to issues associated with the aging process for these older women.

The bereavement experience is highly individual and dynamic, comprises the elderly widow's biopsychosocial and spiritual response to the loss of a loved one, and is multi-factorial and process-oriented (Kim & Jacobs, 1993; Lev & McCorkle, 1998; Solari-Twadell, Bunkers & Wang, 1995). This process is characterized by cognitive appraisals and reappraisals, coping and emotional involvement (Lazarus, 1991), and is

influenced by environmental and personal resources (Schaeffer & Moos, 2001).

Embedded within the transitional and holistic context of this process are numerous health implications ranging from depression and anxiety to disturbances in cardiac, immune, neuroendocrine, and lifestyle behaviors (Hall & Irwin, 2001; Reyes-Ortiz, Moreno-Macias, & Ceballos-Osario, 2001; Shuchter & Zisook, 1993).

The process of bereavement also includes reactions to poignant reminders of the loved one at various times. These occurrences may be unpredictable, as well as predictable, and may be triggered by birthdays, holidays, and other circumstances related to the memory of the deceased (Osterweis, 1984; Sanders, 1999). However, reactions to the anniversary may be associated with clinical symptomatology in vulnerable persons (Kirkley-Best & Kellner, 1992). These reactions are usually transitory and limited in intensity and duration (Raphael, 1983). While anniversary reactions have been studied in Gulf War veterans (Morgan, Kingham, Nicolaou, & Southwick, 1998), in children's reactions to the death of a family member (Fox, 1984), following abortion (Franco, Campbell, Tamburrino, Jurs, Pentz, & Evans, 1989), and in traumatized young children (Azarian, Miller, Palumbo, & Skriptchenko-Gregorian, 1997), little research has examined the anniversary reactions of widows.

Longitudinal bereavement research has explored the experience of widowhood quantitatively and qualitatively with foci on the early months of bereavement (Costello & Kendrick, 2000; Jacob, 1996; Kanacki, Jones, & Galbraith, 1996; Kurtz, Kurtz, Given, & Given, 1997; Saunders, 1981) or following the first year of bereavement (Anderson & Dimond, 1995; Farberow, Gallagher-Thompson, Gilewski, & Thompson, 1992;

1992; Kaunonen, Tarkka, Paunonen, & Laippala, 1999). One study documented the widows' acknowledgment of the particular painfulness of the first anniversary (Anderson & Dimond). However, bereavement research during the first year has not typically incorporated examination of the experience of the first anniversary of the death of the spouse.

Wide variation exists in the older widow's psychosocial adjustment to loss. Resources used to cope with the loss of a spouse include personal, such as the widow's personality, and environmental, such as her material supports (Carr & Utz, 2002; Folkman, 2001). Personal resources encompass coping skills, and personality factors such as optimism, resilience, and self-confidence (Hegge & Fischer, 2000; Kurtz, et al., 1997; Schaeffer & Moos, 2001; Thoits, 1995). Faith, determination, willingness to accept help, and attempts at emotional control are constructive personal resources identified by elderly widows within the bereavement process (Hegge, 1991).

In contrast, low self-esteem and poor mental health have been identified as risk factors associated with poor outcome in the bereaved elderly (Parkes, 1997). Furthermore, personality variables of locus of control, mastery and self-esteem are related to the mobilization, perception, availability, and provision of support (Hobfoll & Freedy, 1990; Lowenstein & Rosen, 1995). While these personal resources have been identified in previous research on bereavement, there is a dearth of research regarding the role of personal resources in coping, specifically, with the experience of the first anniversary of spousal death.

An individual's environmental resources include finances, home, community, relationships with, and social network of friends and family. Bereavement alters a widow's reality of financial and tangible resources, as well as her perception of social and emotional supportive networks, and these changes, in turn, may influence coping with spousal bereavement (McCormack, 1996; Zettel & Rook, 2004). Support systems comprising family, friends, clergy, other widows, and health care professionals, are typically identified by elderly widows (Gass, 1988; Herth, 1991; Stroebe, 1998). The utilization of these various types of social support during the first anniversary of the death of the spouse has not been studied.

Bereavement and aging engender significant reductions in and a diminished sense of closeness to primary networks of relatives and close friends (Lund, Caserta, Van Pelt, & Gass, 1990). This finding is significant given that large, strong social networks are related to increased life satisfaction in bereaved older adults (Cleiren, 1993; Davis, Hoshiko, Jones, & Gosnell, 1992). The perception of actual support is positively related to post bereavement improvement in depressive symptomatology (Parkes, 1997) and is associated with lower ratings of loneliness after one year of bereavement (Lund & Caserta, 1992) while a perceived lack of social support and reduced material resources have been identified as risk factors for adverse psychological outcome following bereavement (Sanders, 1993; Stillion, 1985). Data regarding the strong influence of environmental resources in coping with spousal bereavement have not specifically included the critical focus of coping with the first anniversary of spousal death, a time

when utilization of these resources may enhance the health and well being of the older widow.

Research on bereavement and aging has established the critical impact of spousal bereavement related to the health, lifestyle, and personal well being of the older widow. Anniversary reaction data indicate the vulnerability of survivors at particular time points in the bereavement process. It is reasonable to suggest that the process orientation of spousal bereavement calls for longitudinal data that reflect the relationships among intraindividual differences within the transitional experience of adjusting to the widowed lifestyle especially during the first year. Careful examination of death anniversary reactions may yield pertinent clinical data related to psychiatric complications in bereavement (Jacobs, Schaefer, Ostfel, & Kasl, 1987).

This project was conducted to address gaps in the spousal bereavement literature by examining bereavement-related stress, coping, and well-being in widows 65 years of age and older during the first year anniversary of the spousal death. Information from this project can guide health care professionals in identifying widows at risk for poor health outcomes.

Knowledge of the personal and environmental resources that enhance or hinder progression through this time frame would allow for the future development of individual treatment protocols and broad based community preventive interventions aimed at strengthening the older widows' ability and strategies for coping with the bereavement-related stress of the first anniversary.

Definition of Terms

The following definitions were used in this project.

Coping with Spousal Bereavement-Related Stress of the First Anniversary: Coping is the constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands appraised as taxing or exceeding the resources of the individual (Lazarus & Folkman, 1984). Based on this definition, coping is a process.

For this study, spiritual coping and seeking social support were the components of the coping process measured within the context of managing the bereavement-related stress of the first anniversary of spousal death.

Spiritual Coping: Spiritual coping during the first anniversary of spousal bereavement is broadly defined to include individual behaviors, practices, and beliefs related to one's relationship with God or a higher power (Ellerhorst-Ryan, 1997). The documented conceptual overlap of religion with spirituality implies that behaviors, practices and beliefs may or may not stem from a structured religious base (Koenig, McCullough, & Larson, 2001; Moss, 2002). The spiritually based coping subscale of the Religious Coping Activities Scale (RCAS) operationalized spiritual coping during the first anniversary of spousal bereavement (Pargament, Ensing, Falgout, Olsen, Reilly, Van Haitsma, & Warren, 1990).

Social Support Coping: Accessing or seeking support that is perceived as available within one's social network is a dimension of social support and is also a form of coping (Thoits, 1995; Underwood, 2000). Part one of the Personal

Resource Questionnaire (PRQ 85) (Brandt & Weinert, 1981) was used to operationalize who would be contacted by the widow for support and the rating of satisfaction if that support was sought. The PRQ 2000 is a revision of part two of the PRQ 85 and was used to measure the widow's level of perceived social support.

Environmental Resources: Environmental resources refer to the individual's non-psychological assets and include relationships within the social network (Schaeffer & Moos, 2001).

Social Network: Social network, an environmental resource, was defined as a group of people with whom an individual has social connections. These formal or informal connections are characterized by size, density, complexity, heterogeneity, and reciprocity (Albrecht & Adelman, 1984; Lindsay, 1997). The function of the social network is to provide information and aid (Lindsay, 1997). In this study, the Lubben Social Network Scale (Lubben, 1988) was used to assess 1) family networks, 2) friendship networks, and 3) interdependent social supports.

Personal Resources: Personal resources are individual characteristics that can influence perceived stress, coping, and well-being during stressful transitions, such as bereavement (Schaeffer & Moos, 2001).

Optimism: Optimism or dispositional optimism, a personal resource studied in this project, is a stable trait: a) defined as "the tendency to believe that one will generally experience good versus bad outcomes in life" (Scheier & Carver, 1992, p.203), b) believed to be beneficial for physical and psychological well-being, and

c) predictive of health outcomes (Scheier, Carver, & Bridges, 1994). An optimist would purportedly experience bereavement differently than a pessimist (Carver, 1998). For this study, optimism was operationalized using the Life Orientation Test-revised (LOT-R) (Scheier & Carver).

Spousal Bereavement-Related Stress: Bereavement is formally defined as the loss of a loved one through death (Mish, 1996). The death of a loved one is recognized as a stressful life event, which triggers physical and psychological responses, and involves biopsychosocial coping processes on the part of the survivor (Genevro, Marshall, Miller, & Center for the Advancement of Health, 2004; Jacobs, Bruce, & Kim, 1997; Stroebe, Stroebe, Abakoumin, & Schut, 1996). For purposes of this study, bereavement-related stress comprised aspects of the physiological and psychological stress process of elderly widows during the time of the first anniversary of the death of the spouse.

Physiological Stress: Physiological stress is the biological response to bereavement-related stress and includes the involvement of the autonomic nervous system, the neuroendocrine system and the immune system. Although these three systems operate synergistically during the stress response, the focus in this study was on the neuroendocrine response to bereavement-related stress. The hypothalamic pituitary adrenal (HPA) axis mechanism links the brain and the body during stress, and activates the hormonal components of the neuroendocrine response to stress i.e., increased secretions of cortisol, epinephrine and norepinephrine (Biondi & Picardi, 1999; Nelson, 2000; Porth & White, 2000). In this study, physiological stress was operationalized through the collection of

diurnal salivary cortisol samples (morning and evening) over 3 days each month that the participant was in the study, i.e., a total of 3 months with a potential for 18 salivary samples.

Psychological Stress: Psychological stress incorporates perception, subjective meaning and interpretation relevant to the stress process (Werner & Frost, 2000) of bereavement. The focus of the psychological stress variable in this study was the subjective psychological qualities of intrusion-avoidance related to the hypothesized stressful experience of the first anniversary of spousal bereavement. The Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979) was used to operationalize these components of psychological stress.

Well-Being: This term refers to the widow's perception of her spiritual, psychosocial, and physical well-being and functioning during the first anniversary of the death of the spouse. The tools used to operationalize this variable were the Spiritual Well Being Scale (Ellison, 1983), the Life Satisfaction Index-A (Neugarten, Havighurst, & Tobin, 1961), and a 3-item measure of self-rated health.

Assumptions

This study was based on the following assumptions.

1. Spousal bereavement is a major, stressful transition in the life of the older woman.
2. Spousal bereavement has the potential to affect the whole person, that is, physically, psychologically, socially, and spiritually.
3. Coping with spousal bereavement is an ongoing process.
4. Older women exhibit the expected diurnal rhythm of cortisol secretion.

Chapter Two

Review of the Literature

Introduction

Marriage is generally approached as a commitment for a lifetime of togetherness, however, the ubiquitous reality that increases with age for all married couples is the loss of a mate (Khin & Sunderland, 2000). The widowed population is estimated at 12 million with an annual addition of 800,000 widows and widowers (Rosenzweig, Prigerson, Miller, & Reynolds, 1997). By the year 2020 it is estimated that there will be in excess of 1 million individuals experiencing spousal bereavement annually (Khin & Sunderland).

Elderly women represent a prominent subset of spousally bereaved survivors. In 2004 nearly half (43%) of women over 65 years of age were widows with 8.2 million widows as opposed to 2.0 million widowers and 39.7% of older women living alone compared to 18.8% of older men. As women reach 75 years of age and older 49.9% of them live alone (Greenberg, 2005). Clearly, a vast number of older women are challenged to adapt to the major life transition of living independently in the absence of the emotional, social, physical, and often financial support that may have been provided by the spouse (Aber, 1992; Bonanno, Wortman, & Nesse, 2004). Concomitant health and lifestyle transitions associated with aging may further magnify the challenges of widowhood for the older woman.

The effects of bereavement spread far beyond the initial death of the loved one as widows face biopsychosocial changes, lifestyle adaptations, altered relationships, and

role challenges (Zettel & Rook, 2004). Tremendous variation exists among widows' reactions to spousal loss based on the unique interplay of biopsychosocial processes, economic structures, and environmental variables (Lopata, 1993; Schaeffer & Moos, 2001). While the intensity of the bereavement process varies among widows, this normal, transitional life event is recognized as a stressful experience (Carr, House, Kessler, Nesse, Sonnega, & Wortman, 2000).

In the stressful aftermath of spousal death, the overall health and well-being of the widow is potentially threatened. Numerous physical and psychosocial sequelae related to the stressful impact of bereavement on the health status of the elderly have been reported. Health status alterations include increased or late-onset alcohol consumption (Alcohol Concern, 2001; Shuchter & Zisook, 1993), cardiac morbidity or mortality (Reyes-Ortiz, Moreno-Macias, & Ceballos-Osorio, 2001), clinical depression and anxiety leading to impairments in physical functioning, pain, and general health (Balk, 2004; Brazil, Bedard, & Willison, 2002; Hall & Irwin, 2001) increased risk of mortality (Williams, 2002), increased risk for suicidal behavior (Knowlton, 2000), and disturbances in the survivor's endocrine, immune, autonomic nervous, and chronobiological systems (Osterweis, 1984). Increased physician visits and referrals are a result of these varied physical and psychological outcomes of bereavement, especially among individuals with poor prior medical histories (Murrell, Himmelfarb, & Phifer, 1988). Moreover, depressive symptomatology serves as motivation to bereaved survivors to visit their physician (McHorney & Moor, 1988).

The overall picture of the older widowed woman is an individual at risk for physical and psychological health problems related to normal aging processes and to the permanence of spousal loss. It is important that the older widowed woman have an understanding of the magnitude of spousal bereavement, especially as she approaches the first year anniversary of the death of her spouse when intense feelings and reactions may be triggered (Zerbe & Steinberg, 2000). Moreover, researchers need to further explicate the influence and interaction of physiologic, psychosocial, and spiritual variables involved in this process, especially during critical periods such as the first anniversary of the spousal death, so that interventions may be developed to prevent or decrease health problems associated with spousal bereavement.

Conceptual Background

Bereavement is a nearly universal aspect of the life span. The spousal bereavement experience is highly individual and dynamic, comprises the widow's biopsychosocial and spiritual response to loss of a loved one, and is multidimensional, transactional, and process-oriented (Balk, 2004; Lev & McCorkle, 1998). Bereavement has been studied using psychoanalytic theory (Lindemann, 1944), interpersonal attachment theory (Bowlby, 1980), crisis theory (Osterweis, 1987), a cognitive behavioral (stress/coping) approach (Lazarus & Folkman, 1984) and a process-oriented model (Stroebe, Van Den Bout, & Schut, 1994). All of these approaches are useful; however, a cognitive-behavioral (stress/coping) model is used for this project because it incorporates a process-oriented approach suitable to understanding spousal bereavement.

Spousal bereavement, as process, can be conceptualized using Lazarus and Folkman's (1984) transactional approach to coping with stress, and Schaeffer and Moos' (2001) model for understanding the positive outcomes of life crises and transitions. The multifactorial nature of spousal bereavement is represented, in part, by cognitive appraisals and reappraisals, emotional involvement, and coping addressed within the context of stressful encounters (Lazarus, 1991; Lazarus & Folkman). Multidimensional personal and environmental resources are influential in coping with life crises and transitions and are postulated to contribute to subsequent positive outcomes (Schaeffer & Moos).

The transactional model of stress, developed and tested by Richard Lazarus (1984), was based on his interest in describing and explaining the dynamics of stressful experiences. He purported that stress: (1) as a concept has heuristic value but is immeasurable as a singular variable, (2) is not comprised of an event but, rather, is the result of a transaction between the person and the environment, and (3) represents a set of cognitive, affective, and coping factors (Lyon, 2000). Schaeffer and Moos' (2001) conceptual model of positive outcomes of life crises dovetails with Lazarus and Folkman's (1984) theory in that the influence of personal and environmental resources upon a life crisis or transition is hypothesized to shape the appraisal of and coping with these events.

Personal and environmental resources may also contribute to positive outcomes in the aftermath of life crises and transitions such as spousal bereavement. The bi-directional pathways in the model by Schaeffer and Moos (2001) illustrate the

transactional nature of the bereavement process, and combine with the transactional approach to coping with stress by Lazarus and Folkman (1984) to serve as the basis for the development of the First Anniversary of Spousal Bereavement Conceptual Framework (FASBCF) used in this study.

First Anniversary of Spousal Bereavement Conceptual Framework

The First Anniversary of Spousal Bereavement Conceptual Framework (FASBCF) (see Figure 1, p. 18), based on Lazarus and Folkman's (1984) transactional approach to coping with stress and Schaeffer and Moos' (2001) model for understanding the positive outcomes of life crises and transitions, offers a longitudinal perspective on older widows' process of coping with the stress of the first anniversary of the death.

This framework proposes that the widow's personal and environmental resources influence the bereavement-related stress experienced during the first anniversary of spousal death, the coping used to deal with that stress, and her level of well being. Moreover, the stress experienced influences the coping used to deal with that stress. Coping, in turn, influences the widow's level of well-being. For this project, optimism was the personal resource investigated, and social support network was the environmental resource investigated. The stress of the first anniversary of spousal death was studied both physiologically and psychologically by measures of the neuroendocrine marker of salivary cortisol and intrusion-avoidance, respectively. Coping with the stress of the first anniversary focused on spiritual coping and social support. Personal and environmental resources, spousal bereavement-related stress, coping, and well-being were measured at 11, 12, and 13 months following the death of the spouse.

The remainder of chapter two (beginning on p.19) will focus on review and analysis of the literature related to the FASBCF concepts. Based on the literature review, gaps in knowledge regarding the hypothesized conceptual relationships are identified.

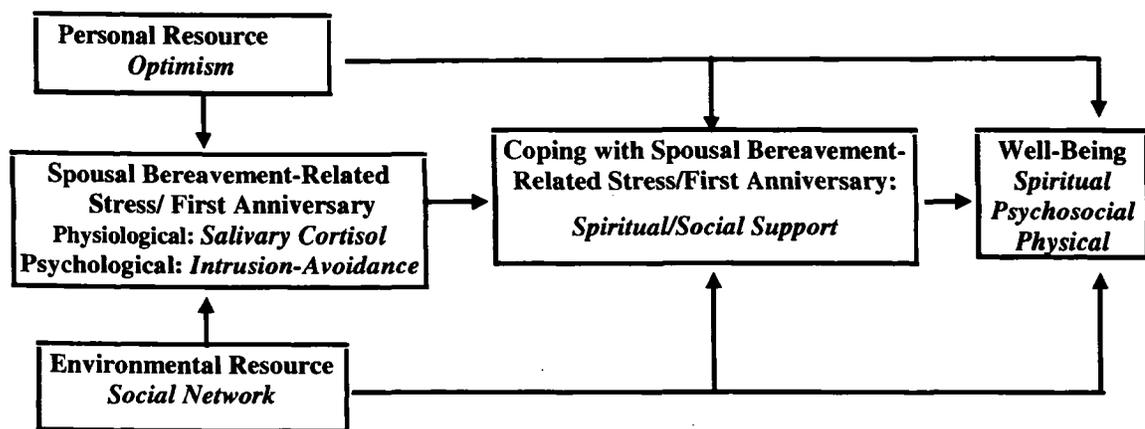


Figure 1. Conceptual Model: Spousal Bereavement-Related Stress, Coping, and Well-Being in Older Women during the First Year Anniversary Following Spousal Death

Spousal Bereavement Overview

Freud's (1917/1957) theoretical analysis of grief near the turn of the twentieth century followed by Lindemann's (1944) well-known publication "Symptomatology and Management of Acute Grief" provided the foundation for bereavement research. The complexities and outcomes of bereavement have been studied for nearly a century using increasingly sophisticated methodologies and theoretical discourse. However, questions remain concerning the bereavement process (Stroebe, Hansson, Stroebe, & Schut, 2001).

Loss is normative to the human experience and incorporates multivariate human adaptation (Benoliel, 1985). Interrelationships among death event characteristics, i.e., type of death, setting of death, and cause of death, combine with the highly individual physical, psychosocial and spiritual responses of the bereaved to reflect the ongoing nature of the bereavement process (Mallinson, 1999). The significant, permanent loss associated with death is an event of ordinary life that threatens the meaning associated with the lost relationship. This creates physical, emotional, and spiritual suffering (Saunders, 1981).

Classic psychodynamic models of grief and loss (Bowlby, 1980; Freud, 1917/1957) are based on assumptions that the bereaved universally experience intense distress warranting professional help and that the goal in bereavement is recovery from the loss through participation in "grief-work" (Wortman & Silver, 1989). However, there is a lack of empirical data to support this view of recovery from loss (Bonanno & Kaltman, 1999; Stroebe & Stroebe, 1991). The premise that successful bereavement adjustment is equated with a return to the pre-death state of the survivor (Hansson,

Carpenter & Fairchild, 1993) is in opposition to findings that bereaved individuals are forever changed by their loss (Balk, 2004; Ferszt, Heinemann, Ferszt & Romano, 1998) and often experience personal growth (Seltzer, 2000).

For the older widow spousal bereavement occurs at a time when existential concerns become more prominent (Vogel, 1995). The ability to find meaning in aging and suffering can mobilize hope and facilitate growth (Miller, 1989) in the bereaved when loss is considered an initiator of creative, personal expression (Benoliel, 1985). This suggests that the bereavement process opens a critical window of opportunity for transformation and personal change. For example, a 7-year widowhood study (N= 600) revealed that grief adjustment involved numerous paths of which recovery was not an endpoint, most widows did not require professional help, and there was opportunity for growth and meaningful life change (Lieberman, 1996). Because older widows may still live from 10-15 years beyond the death of the spouse, widowhood may be viewed as the beginning of a major segment of the life course rather than the end of a productive life (Hansson et al, 1993) or in comparison to the more 'normative' status of marriage (Blieszner, 1993). Within the last decade, there has been increasing interest in studying the growth and transformation aspects of the bereavement process (Moskowitz, Folkman, & Acree, 2003).

While bereavement can promote personal growth, it is important that future research identify factors that facilitate the survivor's passage through the spousal bereavement process. Past studies have identified the following predictors of spousal

bereavement adjustment: amount of time since the death event, initial or early bereavement adjustments, communication with others, positive self-esteem, personal personal competencies, and coping resources (Lund et al, 1993), as well as social support, subjective perceptions of control (self-esteem, mastery, belief that the world is a safe and secure place), and objective indications of personal control such as intellectual and financial resources (Wortman, Silver, & Kessler, 1993). While gender, type of death, and health status have predicted adverse psychological outcomes in many bereaved samples (Sanders, 1993), they have not been predictive in older widow samples (Lieberman, 1996) in which existential factors such as personal meaning, spirituality, and optimism are identified as important predictors of psychological well-being (Fry, 2001b).

Overall, spousal bereavement is generally characterized by a roller coaster of many ups and downs, gradual improvement over time, a pervasive sense of loneliness, considerable diversity within and between bereaved individuals, and with a high degree of resiliency, resourcefulness and adaptability particularly among older bereaved spouses (Lieberman, 1992; Lund et al., 1993). While previous studies have examined spousal bereavement in older widows, there is a dearth of studies which have focused on the stress of bereavement during the first year death anniversary.

Spousal Bereavement-Related Stress: Overview

Stress was originally derived from an engineering term connoting forces that act against resistance (Nelson, 2000). Current conceptualizations of stress comprehensively, and often confusingly, include stressor, stress response, and the physiologic intermediates between the stressor and stress response (Parker & Wright, 1997; Toates, 1995). Despite

conceptual diversity, the consensus is that stress is a process in which environmental demands tax or exceed the adaptive capacity of an organism, resulting in psychological or biological changes that place one at risk for disease (Cohen, Kessler, & Gordon, 1995).

There is ongoing interest in biopsychosocial and environmental variables that explain the relationship between stress and illness (Sapolsky, 1998). It is suggested that an individual's vulnerability to illness is increased relative to the magnitude of life changes experienced (Osterweis, 1984). In an early focus on stress and health, psychiatrist Adolf Meyer incorporated a patient's situational factors with his/her physical symptoms (Lief, 1948). Thereafter, several measures of life event stress were used as predictors of illness, e.g., the Social Readjustment Rating Scale (SRRS), the Schedule of Recent Experiences (SRE) (Holmes & Rahe, 1967), positive or negative interpretations of a life event (Rahe, 1977), and daily hassles and uplifts (Kanner, Coyne, Schaefer, & Lazarus, 1981). However, researcher-selected events with preassigned normative weights may not have a uniform effect on people, and other factors such as social support should be considered in the stress-health outcome relationship (Lyon, 2000).

A modification of the life event approach conceptualizes stressful life events categorically: life-related catastrophic, health-illness related normative, and health-illness related catastrophic (Werner & Frost, 2000). Bereavement is categorized as a life-related catastrophic event characterized by its unpredictability, infrequency, and a required period of adjustment or adaptation but also as a normative event in terms of the universality. Although spousal bereavement is a stressful life change event that becomes

more normative with older age (Brown & Harris, 1987; Holmes & Rahe, 1967) the bereaved find nothing 'normal' about the irrevocable loss of a loved one. The assumption that bereavement results in universal readjustment demands, and has common threshold adaptation demands beyond which illness results (Lyon, 2000) disregards the unique, individual and personal nature of bereavement. Moreover, the inherent potential for growth and transformation is overlooked (Lieberman, 1996). The normative category precludes the emotional and unpredictable characteristics related to bereavement.

The event of spousal bereavement potentially creates a disorganization of the roles, commitments, patterns, and financial outlook in a widow's life while adding to the cluster of other age acquired stressors related to health, loss of independence, and involuntary relocation (Hungerford, 2001; Lopata, 1996; O'Bryant & Hansson, 1995). Bereavement-related stress is valid and real to each individual widow only to the extent that she identifies it as such. Consequently her adjustment will be just as individual as the issues she identifies as stressful (Demi, 1989).

This study hypothesized the first anniversary as a stressful event. The project focused on the linkages among widows' resources (optimism, network), stress response (physiological, psychological), and coping (spiritual and social support) during the first anniversary of spousal death.

Spousal Bereavement-Related Stress: Physiological

Placing a quantifiable label on stressful stimuli falls short of explaining why some individuals remain healthy while others fall ill during hardships and catastrophes.

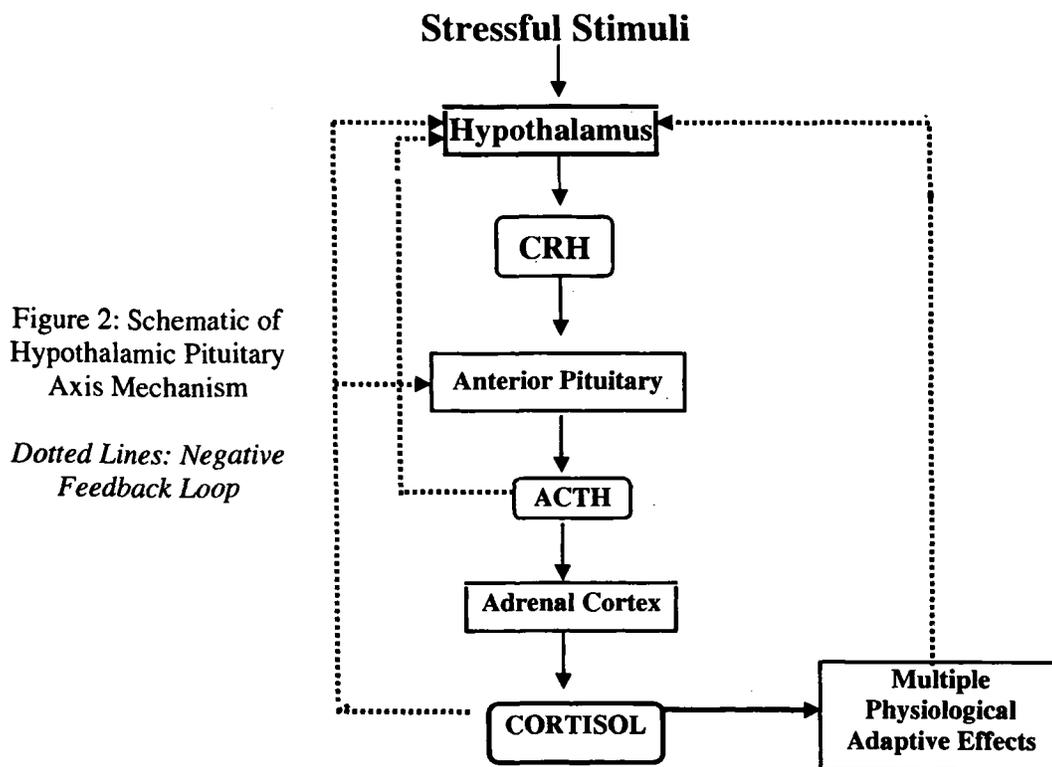
Assessment of individual vulnerability (Lawler, Kline, Harriman, & Kelly, 1999) integrates endocrinology, immunology, psychology, and neuroscience in understanding the linkages between stress and health (McEwen, 2000; Sapolsky, 1998). The synergistic three-pronged stress response involves the neuroendocrine, immune, and autonomic nervous systems (Cohen, Hamrick, Rodriguez, Rabin, & Manuck, 2000). The focus in this review, however, will be the hypothalamic-pituitary-adrenal (HPA) mechanism of the neuroendocrine response to stress and the hypothesized relationship to spousal bereavement- related stress in older widows.

The HPA axis daily performs an intricate balancing act in managing biological responses to internal and external changes so that the individual is not harmed (Porth & White, 2000). The HPA mechanism integrates the cognitive interpretation of stressful stimuli and control of biobehavioral responses with information from peripheral body sites. The result is activation of the hormonal components of the stress response (Crofford, Jacobsen, & Young, 1999; Stein-Behrens & Sapolsky, 1992).

Cannon's (1936) seminal work provided the foundation for understanding the neuroendocrine response to stress (fight or flight theory). Selye's (1974) general adaptation syndrome (GAS) focused on physical stressors by proposing that stress is a nonspecific, biological response of the body to any demand, and that, under certain conditions, these responses lead to disease. Currently it is recognized that psychological and experiential factors e.g., novelty, withholding of reward, and anticipation of punishment rather than the punishment itself, are also powerful stressors and potent activators of HPA activity (McEwen, 2000).

In the HPA response (Figure 2, p. 26), neurons in the hypothalamic paraventricular nucleus (PVN) are stimulated by perceived stress. Corticotropin releasing hormone (CRH) is secreted, and acts on the anterior pituitary to release adrenocorticotropic hormone (ACTH). As ACTH reaches the adrenal gland, the cortex is stimulated to release glucocorticoids, primarily cortisol (Nelson, 2000). Physiological adaptive effects of the stress response include increased energy and oxygen intake; decreased circulation to areas not needed for movement; inhibited digestion, growth, immune function, reproduction, and pain perception; and enhanced memory and sensory function. The cascade of effects is the result of sympathetic nervous system secretion of norepinephrine, adrenal medulla secretion of epinephrine, endocrine secretion of prolactin, glucagon, thyroid hormones, and vasopressin, and a feedback inhibition component (Nelson, 2000).

This response provides efficient mobilization of energy to meet the short-term challenges of a stressor. Repeated exposure to stress, however, results in chronic neuroendocrine activity, which decreases the efficiency in much the same way that continually drawing funds from a bank depletes the reserve (Sapolsky, 1998). The energy consumed in repeatedly activating and turning off the stress response results in fatigue and vulnerability to disease (Wimbush & Nelson, 2000). This wear and tear is known as allostatic load and reflects the price exacted upon the body as it strives to achieve homeostatic balance in response to stress (McEwen & Stellar, 1993).



Allostatic load is also influenced by individual appraisals of physical and psychological stimuli. These stimuli reflect multiple influencing variables, i.e., social context, social status, genetic makeup, gender, past learning, and biological development, which have been measured as a score based on urinary cortisol samples (Lupien et al, 2001). Low baseline allostatic load scores correlated with higher physical and cognitive functioning and lower incidence of cardiovascular disease, hypertension and diabetes (McEwen, Albeck, & Cameron, 1995; Seeman, McEwen, Singer, Albert, & Rowe, 1997). At three-year follow-up, cardiovascular disease and decreased cognitive and physiological functioning correlated with higher baseline allostatic load scores suggesting a link between allostatic load and specific health conditions (McEwen et al).

Behavioral outcomes of the stress response include the fight-or-flight reaction (GAS), health influencing behaviors (eating, smoking, alcohol or other substance abuse), and increased vigilance characterized by anxiety and worry (McEwen, 2000). Depending on allostatic requirements, these outcomes are adaptive (replenishing energy reserves after fleeing a predator) or damaging (hypertension and related atherosclerosis) due to inefficient termination of the stress response and subsequent glucocorticoid hypersecretion (Meaney et al., 1993).

The glucocorticoid cortisol is the primary component in the human physiologic response to stress. This hormone: a) blocks transport of nutrients into fat cells (inhibiting energy storage) thus counteracting the effect of circulating insulin; (b) breaks down triglycerides in the fat cells allowing free fatty acids and glycerol entry into the circulatory system; (c) degrades glycogen to glucose at the cellular level (energy mobilization); (d) converts protein in nonexercising muscle to individual amino acids sent to the liver and converted to glucose, and e) inhibits energy uptake not needed in certain muscles and fat tissue thus granting exercising muscles full access to circulating nutrients (Stein-Behrens & Sapolsky, 1992). Physiologic stress responses are further modulated by various neuropeptides, vagal (parasympathetic) outflow, circadian influences, adaptive strategies, genetic factors, and the presence of disease or defects (Elliot & Morales-Ballejo, 1994).

Individual differences in the stress response and variability in the response from the same stressor (such as spousal bereavement) are products of multiple influences upon the complex secretion and feedback inhibition regulation mechanisms of the HPA axis

(McCleery, Bhaawager, Smith, Goodwin, & Cowen, 2000). Increased cortisol is related to pathological conditions such as diabetes, gastric ulceration, hypertension, myopathy, osteoporosis, and body fat redistribution (Meaney et al, 1995). Paradoxically, the presence of hypocortisolism noted in patients suffering from post-traumatic stress disorder (PTSD) (King, Mandansky, King, Fletcher, & Brewer, 2001; Yehuda, 1997) chronic fatigue syndrome, fibromyalgia, chronic pelvic pain, and asthma (Demitrack, Dale, Straus, 1991; Heim, Ehlert, & Helhammer, 2000) further confirms individual differences in stress responsiveness in humans (Kirschbaum et al., 1995; McEwen, 2000).

The glucocorticoid overexposure related to chronic stress results in hippocampal damage, which, in turn, contributes to excessive glucocorticoid secretion via insufficient feedback inhibition (Sapolsky, Armanini, Packan, & Tombaugh, 1987). Conclusive evidence in rodent and human studies indicates that increased glucocorticoid levels alter the metabolic capacity of hippocampal neurons, potentiate neuron loss, and contribute to neuronal dysfunction and variations in cognitive impairment, e.g., Alzheimer's disease in the aged (Lupien, Lecours, Lussier, Schwartz, Nair, & Meaney, 1994). The HPA axis in aged humans is strikingly normal in terms of basal secretion of cortisol. However, circadian rhythm, stressor responsivity, distribution of blood flow, and sensitivity to glucocorticoid HPA axis abnormalities are found in a significant proportion of depressive illnesses, thus, the cortisol response is of great interest as a possible mediator between environmental challenge and the onset of depression (McCleery et al, 2000; Sapolsky, 1998).

Depressive illnesses are highly associated with severe stressful life events (SLEs) (Monroe & Depue, 1991) and individual variability of the cortisol response may be associated with vulnerability to depressive episodes. Depression related SLEs often have an element of loss (Brown, Bifulco, & Harris, 1987), include bereavement (Brown, Harris, & Hepworth, 1995), and are unlike the provocative tests (physical exertion and psychological tasks) used to evaluate HPA activity. Feedback regulation and the relationships among HPA activity, hippocampal function, and cognitive ability further suggest that age related stress hyperresponsivity is stressor dependent and individual (Herman, Larson, Speert, & Seasholtz, 2001).

The presence of increased cortisol secretion has become nearly synonymous with defining stress states (Sapolsky, 1998) and includes studies of increased adrenocortical activity in bereaved individuals (Biondi & Picardi, 1999). Higher cortisol levels were found in bereaved than in non-bereaved controls (Irwin, Daniels, Risch, Bloom, & Weiner, 1988) while other studies found no differences (Bartrop, Luckhurst, Lazarus, Kiloh, & Penny, 1977; Spratt & Denny, 1991). Elevated cortisol levels are associated with higher levels of distress, anxiety, or mourning in parents of children with leukemia prior to and following the death of the child (Hofer, Wolff, Friedman, & Mason, 1972), in bereaved spouses one month post loss (Jacobs, Mason, Kosten, Kasl, Ostfeld, & Wahby, 1987) and in depressed, bereaved individuals compared to non-depressed, bereaved subjects or non-bereaved controls (Roy, Gallucci, Avgerinos, Linnoila, & Gold, 1988). The latter finding suggests elevated HPA axis activity and subsequent dysregulation in bereavement, particularly when complicated by depression. Few studies have measured

cortisol secretion in response to situations arousing sadness. An experimental design of a loss event (Clark, 1983) combined significant bereavement imagery with emotionally laden music to induce a temporary mood lowering and a modest, transient elevation of salivary cortisol (Smith, Clifford, Hockney, Clark, & Cowen, 1997). Thirty minutes following mood induction there was a return to baseline in both cortisol and mood. The subjective mood change and cortisol stress response were uncorrelated which is consistent with previous psychological and physiological stress response research. McCleery et al (2000) recommend further prospective study of the cortisol response to naturally occurring loss events.

Spousal Bereavement-Related Stress: Psychological

Psychological stress incorporates the person's perception, subjective meaning and interpretation relevant to the stress process (Werner & Frost, 2000). Cognitive intrusion and avoidance are common psychological descriptors used in research related to the stress of natural disaster and traumatic events (Anisman, Griffiths, Matheson, Ravindron, & Merali, 2001; Dougall & Baum, 1999), breast cancer (Thewes, Meiser, & Hickie, 2001), 'upsetting events' (Briere & Elliot, 1998), general psychiatry patients (Spurrell & McFarlane, 1995), and spousal bereavement (Levy & Derby, 1992). The antithetical nature of intrusive and avoidant thoughts is a distinctive manifestation of the human stress response syndrome following traumatic events and can increase with frequency and intensity to a diagnostic determination of posttraumatic stress disorder (Horowitz, 1986).

Cognitive intrusion mediates the psychological effect while cognitive avoidance plays a subsidiary role (Averill & Beck, 2000). Intrusion refers to a compulsive re-living of ideas and feelings surrounding the event, e.g., sleep and dream disturbances and hypervigilance. Avoidance implies a state of denial, i.e., amnesia, inability to visualize memories, and evidence of disavowal (Aldwin & Yancura, 2004). The extremity of an individual's reaction, as evidenced by the intrusion avoidant pattern, reflects the impact of the event (Stroebe & Schut, 2001) and is not to be misconstrued as attempts to cope with or moderate the effects of stress (Van Heck & de Ridder, 2001).

Spousally bereaved women who joined a bereavement support group in the first thirteen months of bereavement (n=40, mean age 60 years) had higher subjective stress, i.e., intrusive thoughts, compared with non-joiners (n= 96). In this sample there was no difference however in perceived level of social support. This suggests that the benefit of social support in coping with spousal bereavement was not sufficient for the joiners possibly because of their higher levels of distress (Levy & Derby, 1992).

Bereavement related stress of the first anniversary of spousal bereavement has not been investigated with respect to psychologic or physiologic stress response in older women. Stress-related neuroendocrine alterations have been observed during various times in the bereavement process, though not consistently. Given that the HPA mechanism is vulnerable with age and with repeated exposure to stress in some individuals the investigation of patterns of cortisol secretion and intrusive-avoidant thoughts during the first anniversary of spousal death in this study is relevant.

Antecedents and Consequences of Spousal Bereavement-Related Stress: Overview

Richard Lazarus (1966) developed and tested a model of person environment transaction based on his interest in describing and explaining the dynamics of stressful experiences such as bereavement. The person-environment interaction deemed stress immeasurable as a single variable (Lyon, 2000). The relevance of cognitive, affective, person/environment and coping variables in the transactional approach to stress (Lazarus, 1991) expanded the conceptualization of stress beyond a nonspecific response (Selye, 1983) and a life event (Holmes & Rahe, 1967). The concept of coping was interwoven into the transactional process as a mediator in the management of psychological stress (Lazarus, 2000).

The spousal bereavement coping process includes cognitive appraisals of loss (Stein, Folkman, Trabasso, & Richards, 1997), which were expected to be influenced by a variety of person/environment variables, e.g., optimism and social network. In turn, coping with bereavement related stress was expected to have health implications, such as influencing well-being. These variables and their linkages within the context of stress as transaction are discussed below.

Personal Resource: Optimism

The commonly held belief that positive thinking can influence how one responds to adversity (Cousins, 1977; Peale, 1956) is demonstrated in scientific investigations linking optimism, a personality variable, to psychological and physical well-being by buffering the effects of stress on health (Chang, 2002; Hooker, Monahan, Bowman,

Frazier, & Shifren, 1998). Under the premise that one's actions are greatly affected by beliefs regarding the probable outcomes of those actions, this variable has important implications for how people deal with life stressors (Scheier & Carver, 1987).

Essentially, optimism refers to a person's generalized expectations for success or positive outcome (Scheier et al., 1989) and is potentially malleable related to daily ups and downs (Reker & Wong, 1985). The theoretical basis comes out of psychological theories of motivation (Bandura, 1982; Kanfer, 1977; Seligman, 2000) and models of outcome expectancies (Scheier & Carver, 1988). Outcome expectancy models postulate that people will seek desired outcomes despite difficulty or pain. However, when outcomes become sufficiently unattainable, expectancies are reduced and there is disengagement from pursuit of goals (Scheier & Carver).

The beneficial effects of optimism on outcomes (Scheier, Magovern, Abbott, Matthews, Owens, Lefebvre, & Carver, 1989) suggest that optimists focus on resources rather than on threats related to disease (Anderson, 2000). This is consistent with the construct of optimism as a positive expectancy for successful outcomes (Carver, Pozo, Harris, Ketcham, Moffat, & Clark, 1993). In terms of coping, optimists utilize problem-focused coping strategies more consistently, while pessimists display a tendency towards emotion-based coping, particularly denial (Carver, Scheier, & Weintraub, 1989).

Optimists as compared with pessimists are more likely to engage in health promoting behaviors, experience fewer physical symptoms, and experience less psychological distress in managing stressful events (Scheier & Bridges, 1995). Coping reactions are found to play mediating roles in the effects of optimism (Carver et al.,

1993). One recommendation is that optimism and pessimism be explored separately to determine if beneficial effects of optimism result from avoiding pessimistic thinking, having optimistic beliefs, or a combination thereof (Robinson-Whelen, Kim, MacCullum, & Kiecolt-Glaser, 1997).

Optimism predicts life satisfaction in healthy older women (Rijken, Komproe, Ros, Winnubst, & Van Heesch, 1995), yet in another female sample (including some older widows) this did not hold when the influence of related variables such as neuroticism was controlled for (Boland & Cappaliez, 1997). However, it is argued that optimism does predict distress over 12 months time when relevant medical variables and baseline measures of distress are controlled among surgical subjects (Scheier & Carver, 1992).

Among family caregivers following the death of their cancer patient (in some cases a spouse) optimism is reported as a critical factor in predicting postbereavement depressive symptomatology (Kurtz et al., 1997). Similarly, in bereaved caregiving partners of men with AIDS, high levels of optimism are associated with an absence of suicidal ideation (Rosengard & Folkman, 1997), and in caregivers of ill spouses (Alzheimers disease and Parkinson's disease) lower levels of optimism are directly related to decreased social support, higher perceived stress, and decreased mental health (Hooker, Monahan, Bowman, Frazier, & Shifren, 1998). Finally, optimism is among several predictors of psychological well-being in older widows and widowers (Fry, 2001b).

These findings suggest a relevant role for optimism related to stress, coping, and

well-being in older women. This underscores the importance of addressing the gap in knowledge regarding the relationship of optimism with spousal bereavement related stress, coping, and well-being in older widows during the first anniversary of spousal death.

Environmental Resource: Social Network

Social network figures prominently as an environmental resource in tackling the life transition of spousal bereavement (Scannell-Desch, 2005; Stelle & Uchida, 2004). Levels of network support correlate positively with coping scores in widows during the second year of bereavement suggesting a positive relationship between environmental resources and spousal bereavement adjustment (Robinson, 1995). The support network, defined as a set of personal contacts (professional and nonprofessional) through which the older widow receives emotional support, material aid and services, information and new social contacts, is postulated as an intervening factor between death of the spouse and adaptation (Dimond, 1981).

Social networks are an environmental resource through which widows may summon effective coping strategies and positively reframe the stressful event of spousal loss (Schaefer & Moos, 2001), and, as hypothesized in this study, the experience of the first anniversary of spousal death. Social connectedness is central to a woman's health and well-being throughout the life span (Ornstein & Sobel, 1987; Thomas, 1995). Large, strong social networks are associated with increased life satisfaction in bereaved older adults (Cleiren, 1993).

The reconfiguration of a social network void of the spouse may come at a time of

increased geographic mobility of significant network members, thus producing a concurrent reduction in a widow's support network (Ferszt, Heinemann, Ferszt & Romano, 1998; Miller, 2000; Steen, 1998). Thus, spousal bereavement may be an impetus for widows to strengthen old ties and find new sources of social support (Norris & Murrell, 1990). Structure and quality of social networks can serve as a hindrance or a facilitator of social support. Social support also may be examined with respect to network density, i.e., the extent to which social group members know and contact one another (Walker, MacBride, & Vachon, 1977).

Total network size is associated with widows' perceived need for emotional help 6 months post-bereavement with friends assuming importance over family in reducing the risk of developing emotional problems or the need for counseling (Goldberg, Comstock, & Harlow, 1998). The networks of older bereaved men and women demonstrate relative stability during the first two years of bereavement, however, for those over 75, significant reductions of relatives and close friends are accompanied by decreased closeness to primary network members (Lund, Caserta, Van Pelt, & Gass, 1990). The structural changes of the older person's network may pose a risk for support deficits and negative adjustment outcomes. Widowers from large, long standing networks with frequent contact experienced high levels of somatic symptoms and a loss of control while women with low density networks characterized by less familiar but reciprocal relationships were more able to develop new social roles congruent with their changed status (Warner, 1987).

In bereaved persons with high social integration, i.e., more social contacts, older

widows had greater difficulties maintaining positive affect than those with lower integration (Krause & Markides, 1990) due to the burden of coping with personal grief amidst the social demands accompanying high integration (Lazarus & Folkman, 1984). However, network size has also correlated negatively with depression and positively with coping and life satisfaction in older widows and widowers within two years of bereavement (Dimond, Lund, & Caserta, 1987).

Variable findings (Krause & Markides, 1990) suggest positive and negative qualitative aspects of the social network (Rook, 1984; Lazarus & Folkman, 1984). Members of high-density networks may concurrently experience stressful life events such as bereavement, resulting in network stress (Eckenrode & Gore, 1981) and a decrease in reciprocal emotional support. A balance is needed between amount of support offered and the perceived threat of a particular situation, and the changes in type and amount of support needed over time. The examination of social network within the context of spousal bereavement in older adults was augmented with the exploration of the relationships among social network, spousal bereavement-related stress, coping and well-being in this study.

Spousal Bereavement-Related Coping: Overview

Within the transactional framework, coping is a flexible response to personal preferences and environmental demands (Aldwin & Yancura, 2004) comprised of processes, strategies, or styles (Lazarus, 1999). Coping is a critical intervening variable

that shapes bereavement adaptation (Dimond, 1981; Robinson, 1995) via emotion/problem focused coping, cognitive regulation, revision of assumptions/meanings, grief work, and two track processing (Stroebe & Schut, 2001).

Descriptions of coping vary, e.g., strategies, tactics, responses, cognitions, and resources (Schwarzer & Schwarzer, 1996), but the common definition is the changing thoughts and acts that an individual uses to manage the external or internal demands of stressful situations (Lazarus & Folkman, 1984). Support systems (family, friends, clergy, other widows, health care professionals), internal attributes (e.g., faith, determination, optimism, accepting help, attempts at emotional control), and activities such as developing new skills, keeping busy, and reflecting on the loss are among the coping strategies and resources identified by elderly widows (Hegge & Fischer, 2000; Herth, 1990; Stroebe, 1998).

Although coping process approaches are criticized for reasons of instability and vagueness there is general agreement regarding the types of coping strategies that exist (Coyne & Racioppo, 2000). There is no universally effective or ineffective coping strategy (Folkman & Moskowitz, 2000). Person environment interactions generate stressors unique to each individual thus posing unique challenges and coping needs. This suggests the salience of a match between the coping response and the benefits associated with using a particular resource (Mattlin, Wethington, & Kessler, 1990).

Pertinent coping strategy classifications include problem-focused coping, emotion-focused coping, social support, religious coping, and making meaning (Park & Benore, 2004; Van Heck & De Ridder, 2001). The latter is identified as a long-term

strategy for coping with spousal bereavement (Arbuckle & DeVries, 1995; Bonnano & Kaltman, 1999). One construal of meaning, making sense of the loss, was associated with less distress in the first year post loss. An alternate construal, benefit finding was more strongly associated with adjustment at 13 months and 18 months (Davis, Nolen-Hoeksema, & Larson, 1998).

Problem focused coping involves behaviors and cognitions directed towards problem analysis and solution, e.g., breaking a problem into manageable pieces, considering alternatives, seeking information or taking direct action. Decisive action may be avoided if specific behaviors might exacerbate the problem, or delayed pending more information (Aldwin & Yancura, 2004). Emotion focused coping is aimed at regulating the emotions tied to the stress situation (e.g., by avoiding thinking about the threat or reappraising it) without changing the reality of the stressful situation (Aldwin, 1994).

Bereavement studies measuring problem/emotion-focused functions of coping report these bidimensional strategies (Jalowiec, 1989) related to hope and grief resolution (Chapman & Peplar, 1998; Herth, 1990; Remondet & Hansson, 1987), to health and depression (Wright, 1994), coping resources (Gass & Chang, 1989), to contextual stimuli of social support, social network, income/education, and spiritual beliefs (Robinson, 1995); and to perceived physical and psychological health in widows (Ide, Tobias, Kay, Monk, & Guernsey, 1990). Movement between emotion and problem-oriented coping is suggested to be most conducive to bereavement adaptation (Hewson, 1998; Ide et al., 1990; Jacob, 1996; Stroebe, 1998). The discussion will now turn to the other two strategies, i.e., spiritual coping and social support coping, as pertinent components of

copied. These two strategies were selected for this study of older widows during the time of the first anniversary.

Coping with Spousal Bereavement-Related Stress: Spiritual

Spiritual coping as discussed in this review includes both spiritual and religious aspects, as both are valued in research (Koenig et al., 2001). Studies frequently use these terms interchangeably but also acknowledge the overlap that exists: (Moss, 2002).

Spirituality is the larger quest for ultimate meaning in life through a personal connection with a transcendent or sacred realm (Reed, 1987). Religion is the organized system of beliefs, practices, rituals, and symbols facilitating closeness to that which is sacred and also providing a behavioral moral code (Moss, 2002). Older adults often express their spirituality through religious practices and beliefs (Fehring, Miller, & Shaw, 1997).

A primary function of spiritual coping is to assist people in coping with adversity (Vogel, 1995), e.g., an Old Testament passage asserts "God is our refuge and strength, a very present help in trouble" (Psalms 46:1 King James Version). The adversity inherent in spousal loss can erode meaning, thus, it is not unusual that spiritual coping is utilized as a coping strategy to help restore meaning in life (Brown, Nesse, House, & Utz, 2004; Krause, 1998). As physical capabilities decrease for behaviorally managing stress, the elderly increasingly turn to spiritual coping for inner strength (Koenig, 1994; Williams, 2004) in managing stressful life events such as bereavement (Reed, 1991).

The inner strength derived from spiritual coping with stressful life events is an impetus towards self-transcendence. The self-transcendent person is introspectively active, shows concern for others' welfare, and integrates one's past and future to enhance

the present (Reed, 1991). As a descriptor of spirituality and an aspect of spiritual coping, self-transcendence is posited as a developmental correlate of mental health particularly when one is confronted with personal mortality through various life events (Chinen, 1986). Thus, spirituality is also an important dimension of well-being in the elderly (Fehring & Rantz, 1991).

In terms of mental health, religion can have a positive impact, e.g., fostering social cohesiveness, helping establish meaning in life, influencing positive health practices, and offering stress reduction mechanisms such as prayer (Ai, Peterson, Bolling, & Koenig, 2002; Mickley, Carson, & Soeken, 1995). Conversely there can be a negative impact as well, e.g., fostering guilt or shame, ascribing to religious demands that are stressors themselves, and espousing deviant religious ideas (Koenig, 1991). For religion to be considered in the coping process it must first be available, i.e., familiarity with religious teaching and orientations, and it must provide a compelling avenue for problem solving (Hathaway & Pargament, 1991).

In bereaved parents there is wide variation regarding the utility of religion, i.e., being helpful, having a negative impact, or not relevant (Gilbert, 1992). However, religion (operationalized as spiritual support) played a more prominent role at high stress as opposed to low stress periods in bereaved parents (Maton, 1989). Similar findings are reported in first semester college freshmen (Maton) and women recovering from mastectomy (Northouse, 1989), although in the latter, other forms of support (emotional, informational) surpassed religious beliefs one month post-operatively.

Religious variables, particularly spiritually based activities focusing on a personal relationship with God, predicted positive outcomes in a large sample of church members

(n= 586) coping with a serious negative event (Pargament et al., 1990). Among the suddenly bereaved, spiritual coping increased self-esteem but did not significantly effect depression (Sherkat & Reed, 1992). Richards and Folkman (1997) concluded that spiritual coping strategies (beliefs, experiences, rituals, social support) assist in finding meaning and comfort at the time of a partner's death from AIDS; this research design included ongoing follow-up to explore spiritual coping beyond the early months post-loss. The coping with bereavement literature broadly identifies spiritual coping practices such as praying or attending church, however, there is a lack of research data specifying the overall role of spiritual coping in older widows.

A high level of spirituality reported in a sample of older women, including widows, (Foley, Wagner, & Waskel, 1998) concurs with others who have found spirituality to be important in the aging process (Hurwich, 1993; Mickley et al., 1992; Williams, 1991). Spiritual coping is a prominent factor in the lives of elderly individuals during times of crisis and chronic illness (Koenig & Weaver, 1997; Pargament, 1997; Weaver, Flanely, & Flanely, 2001) and is related to a wide range of health benefits related to drug and alcohol abuse, emotional illness, chronic pain, cardiovascular disease, general health, and overall survival (Mueller, Plevak, & Rumans, 2001).

Results from a multiyear study (n=4,000, 65 years of age and over) indicated that religiously active people enjoyed better health, had fewer physical health problems, and experienced less depression (Koenig, 1999). These major findings were used to formulate a multivariate model wherein religion (spiritual coping) was found to be related to mental health, stress hormones and social support (Koenig). This is consistent with the hypothesized relationships set forth for study in older widows during the time of the first

anniversary of spousal bereavement.

Coping with Spousal Bereavement-Related Stress: Social Support

The functional aspect of social support refers to supportive actions directed toward the individual from network members including provision of information, affirmation of self worth, tangible assistance with problems, encouragement to maintain hope, and encouragement regarding health promoting behaviors (Thomas, 1995). In bereaved adults, positive associations were reported between social support and encouragement regarding health promoting behaviors (House, 1981). Positive associations were also reported between social support and psychological health and well-being (Kurtz et al., 1997) whereas lack of support was linked with greater levels of depression, psychological distress, increased use of anxiolytics, and increased role strain (Lehman, Ellard, & Wortman, 1986; Stylianos & Vachon, 1993).

As a coping resource, social support was inversely related to grief response (Robinson, 1995). Loneliness and loss of companionship identified by widows (Anderson & Dimond, 1995) was offset with the benefits of emotional support found in support groups. Older bereaved adults found additional supportive social contact outside scheduled group meetings and reported less loneliness one year after bereavement (Lund & Caserta, 1992). The support group ideally represents a warm, therapeutic place of understanding, functions as a cognitive restructuring system designed to assist individuals in reframing dilemmas, and fosters development of supportive relationships (Lieberman, 1992). Reported efficacy of this intervention in bereaved samples was inconclusive related to inconsistencies in support group setting and composition (Kato & Mann, 1999; Stewart, Craig, MacPherson, & Alexander, 2001). However, support groups remain a low

cost, viable alternative to professional help, and extant data suggests these groups are generally helpful (Lieberman, 1992).

Structural and functional characteristics of a social network impact the potential availability of support, however, it is the individual's appraisal of the actual network transactions that determines if help has been provided (Heller, Swindle, & Dusenbury, 1986). The extent to which a bereaved person perceives social support within a network is interwoven with the type and availability of that support. The focus on perceived social support is a step toward unraveling the diversity of emotions, cognitions, and behaviors associated with the personal relationships that influence behavior and well-being amidst diverse situations (Pierce, Sarason, & Sarason, 1996).

Decreases in perceived social support and material resources pose a risk for adverse psychological outcome following bereavement (Sanders, 1993). In the 3-12 months post loss, widows defined interpersonal support as emotional, informational and material support provided by family and friends during the last week of their spouse's life. Emotional support and informational/tangible support were important perceived resources (Richter, 1987), as were perceptions of received support that allowed the bereaved to experience emotional release and to reciprocally comfort others (Kaunonen, Tarka, Paunonen, & Laippala, 1999).

Attention to the fit between the type of support offered and the needs of the recipient was influenced by the amount, timing, source, structure and function of social support (Lieberman, 1992; Stylianos & Vachon, 1993). The perceived value of informational support may vary depending on the source. Suggestions coming from a health professional source may be viewed as neutral expressions of caring. However,

similar suggestions from a family source may be construed as invasive and critical resulting in guilt and anxiety if the bereaved perceives disapproval from primary others (Lazarus & Folkman, 1984).

Social support measurement is considered controversial by some because social support (as a coping strategy) may be contaminated by the availability of social support (social network) which can be considered an environmental resource (De Ridder, 1997). This valid concern does not preclude endeavoring to further describe the relationship between social support coping and variables during the first anniversary of spousal bereavement. Reported associations of social network characteristics with bereavement adjustment shows variation indicating that social support is contextually, multidimensional and varies according to the widow's needs.

The buffering effects of social support have not been demonstrated in spousally bereaved individuals which may indicate that support received cannot compensate for the loss of support previously provided by the spouse (Stroebe et al., 1996). The bereaved's perceptions of social support have been found to be nearly uncorrelated with supportive responses evoked in others (Capps & Bonnano, 2000). As a contextual moderator in bereavement, social support warrants further study (Bonnano & Kaltman, 1999) even though a general conclusion is that perceived social support usually buffers the damaging psychological and physical health effects of major and chronic stress (Thoits, 1995).

In spousal bereavement studies it is imperative to address changes in social support and network over time, especially for widows whose lifestyle arrangements and social contacts may change due to spousal loss. Exploration of the role of community groups, e.g., churches, and senior citizen centers, as promoters of perceived support and

social integration is warranted in light of the geographic mobility, which keeps potentially supportive family members at a distance (Thoits, 1995). Finally, research is needed to better understand the role of support network and social support coping on well-being during the time of the first anniversary of spousal death.

Well-Being: Spiritual, Psychosocial, Physical

There is a vast amount of research on well-being as a health related outcome of stress adaptation. The previous focus on negative emotions such as depression and anxiety has shifted towards understanding positive emotions such as happiness and satisfaction including spiritual well-being. Well-being typically comprises life satisfaction, positive and negative affect (Deiner, 1984), and is sometimes referenced in terms of subjective traits (Myers & Deiner, 1995).

Spiritual well-being is associated with effective coping, physical and psychological health (Buford et al., 1991), hardiness and the ability to find meaning and purpose in living (Carson & Green, 1992). While spirituality is an important component of well-being, only a handful of studies have addressed this variable in older adults (Brown et al., 2004; Miller, 1985; Reed, 1987) and no studies were found that investigated spiritual well-being in older bereaved widows.

Assessment of religious and spiritual beliefs in older widows at 6, 24, and 48 months post loss indicated that widowed individuals were more likely than controls to increase their religious/spiritual beliefs (Brown et al., 2004). A comprehensive review of bereavement research (Stroebe et al, 2001) asserts that all bereaved are engaged in a spiritual task, i.e., a profound quest for meaning (Balk & Corr, 2001) with the recommendation to include this variable in future bereavement research. With the

growing interest in the relationship between spirituality, religion and health, this study added useful data on the relationships among personal and environmental resources, bereavement related stress, coping and spiritual well-being in older widows.

As for psychosocial and physical well-being, the death of a partner potentially increases vulnerability to psychological distress, thus impacting psychosocial well-being particularly among the older bereaved who may have fewer coping resources (Martin, Grunendahl, & Martin, 2001). However, it is also suggested that well-being may improve with age related to changes in emotion regulation (Carstensen, 1991). Variations in life satisfaction over 4-8 years in older widowed women were based on effects in both mental health and morale (Bennett, 1997). And while widowhood effects did not contribute to change in physical health, the effect of aging introduced change in mental and physical health. (Bennett).

Psychosocial and physical well-being is measured in bereavement research in various ways: social participation (Lopata, 1979); global measures, i.e., self rated health and life satisfaction (Wells, & Kendig, 1997); physical and social (Neiboer, Lindenberg, & Ormel, 1997); depressive mood, positive morale, positive state of mind, and impact of death (Stein, Folkman, Trabasso, & Richards, 1997); and depression, mastery and relationship complications (Mullen, 1992). In the latter study, well-being was used synonymously with bereavement adaptation.

An array of indicators of well-being used by Lawton, Moss, and Kleban (1984) included cognitive functioning, health, use of time, family and friend interaction, perceived use of time, perceived quality family and friend interaction, perceived environment and objective environmental quality. Analysis of these indicators in married

and widowed older women revealed that living alone was associated with better health but also with decreases in all other types of subjective well-being. Likewise, older bereaved individuals scored lower on well-being than their married counterparts (total n=4642) (Nieboer et al., 1997). These findings suggest that widowed and nonwidowed people differ in well-being, however, research comparisons of widows to marrieds as the norm disregard widowhood as its own entity (Blieszner, 1993). Knowledge gained from this study regarding psychological and physical well-being in older women contributes to understanding well-being as an adaptive outcome to spousal bereavement-related stress.

Chapter Three

Methods and Procedures

Introduction

This prospective longitudinal correlational study examined spousal bereavement-related stress, coping, and well-being in widows 65 years of age and older during months 11, 12, and 13 following the death of the spouse. This selected time frame matched the aims of exploring relationships among study variables at the time surrounding and including the first anniversary of the death of the spouse.

Sample

To meet the study aims, a convenience sample of widows was recruited based on the following criteria: at least 65 years of age; the death of the spouse had occurred 10 months prior to entrance into study; resided in a private residence or independent retirement setting; lived in Rapid City, SD or within a 150 mile radius in the surrounding Black Hills area; was not in the terminal stages of a disease; had access to a telephone; was able to read and write English; had not remarried since death of spouse; and was cognitively competent.

Cognitive competency was assessed based on the researcher's expertise in assessing mental health status of older women. At the time of the initial contact with each potential participant indicating interest in the study, the researcher asked questions related to age, date of birth, place of residence, status as a registered voter, membership in a church, date and time. All questions required recall of and accurate identification of information. A secondary check of competence was assessed during the process of obtaining informed consent.

Recruitment

Random samples are considered most representative in research. In bereavement studies, however, random sampling of surviving relatives listed on death certificates yields low acceptance rates, i.e., less than 50% recruitment of bereaved people contacted. Higher acceptance rates are found in studies that contacted participants through religious groups or medical professionals (Stroebe & Stroebe, 1989). The sample for this study was recruited through the following venues:

- 1) Obituaries published in the Rapid City Journal and the Gillette News-Record.
- 2) Study advertisements placed in two senior citizen newspapers: the Minneluzahan News and the Canyon Lake Senior Citizen News.
- 3) Recruitment flyers posted at two Black Hills area senior citizen centers, i.e., Canyon Lake, and Minneluzahan.
- 4) Recruitment flyers distributed through Hospice of the Hills Bereavement Support Group coordinator and Widowed Persons' Services volunteer coordinator who also published study information in the monthly newsletter.
- 5) Informational letters and flyers sent to area clergy and/or parish nurses who were asked to refer appropriate parishioners.
- 6) Word of mouth referral.

Sample Size for Significance

There was limited extant change data on the measures selected for this study of older widows and so this research was considered exploratory. To estimate necessary sample size, an a priori power analysis was based on two non-orthogonal within-subject

planned comparisons of means (month 12 compared to month 11 and month 12 compared to month 13), using separate variance estimates and a Bonferroni-adjusted value of alpha ($.05/2 = .025$). For a two sided test and a medium effect size of Cohen's $f = .25$, 62 subjects would provide power of at least .84 as long as the correlation of measures at the two times was at least .30, a conservative estimate. To account for attrition, the sample size was increased 20% for an estimated sample size of 74 subjects (Polit & Hungler, 1999). This sample size would provide enough power to detect a population correlation of .31 using a two sided test with alpha = .05. Typically, one would adjust for the multiple dependent variables and correlations being tested in order to control for a Type I error. This was exploratory work, however, and there was more concern about making a Type II error, so no further adjustment was made.

Recruitment efforts began in December 2003 and continued through March 2006. Due to the longitudinal nature of the study design and time constraints related to completion of this study to fulfill doctoral degree requirements it was determined that the cut-off for recruitment would be March 2006. The final sample size was 47, with 45 subjects completing data collection for all three months. With a sample size of 45, effect sizes for the mean comparisons would have to be Cohen's $f = .28$ to maintain the planned level of power at alpha = .025.

Research Design

The study used a longitudinal correlational design to examine these relationships among personal resources, environmental resources, spousal bereavement-related stress, coping with spousal bereavement-related stress and well-being during the first anniversary of spousal death. Data collection involved three time points, i.e., the 11th,

12th, and 13th month following the death of the spouse. For each widow the following variables were measured during months 11, 12, and 13: optimism, social network, psychological stress (intrusion-avoidance), physiological stress (salivary cortisol), spiritual coping, social support coping, spiritual well-being, subjective well-being, and physical well-being (self-rated health). In addition, each widow was asked to provide salivary cortisol samples collected twice daily over three days each month they were in the study to more effectively assess diurnal patterns (see Appendix A, Data Collection Schedule, p. 154).

The longitudinal design was used for a variety of reasons. The course of bereavement is characterized by many spontaneous ups and downs. Longitudinal designs assess patterns of stability and change within individuals across time and situations (Aldwin, 1994; Lazarus, 1999; Somerfield & McCrae, 2000; Tennen, Affleck, Armeli, & Carney, 2000). Cross sectional correlational designs cannot adequately reflect the dynamic, fluctuating essence implied in the most widely accepted definition of coping, i.e., changing cognitive and behavioral efforts to manage psychological stress (Lazarus & Folkman, 1984). Repeated measurements over time offer assessment and consideration of the transitory nature of the dynamics of bereavement (Lund, Caserta, & Dimond, 1993), the multidimensionality of bereavement, and allows for analyses of intra-individual differences. The absence of these design considerations create data that are void of the most important factor in stress, emotion, and coping, i.e., the relational meaning an individual constructs from a person-environment transaction (Lazarus).

The maintenance of the sample was of prime concern in this longitudinal design. Attrition and non-response are obstacles to relevant study outcomes and validity of

Attrition and non-response are obstacles to relevant study outcomes and validity of study findings (Weinert & Burman, 1996). Social exchange theory asserts that individual actions are motivated by expectation of return or reward (Blau, 1964). Theoretically, this view has a role in motivating honest completion of questionnaires, and compliance in returning them (Dillman, 1978). Based on previous longitudinal nursing research (Weinert & Burman), strategies to address participant burden and loss of interest in this design included: stapled questionnaires to allow ease in opening and laying flat; ample white space to reduce the image of an overwhelming amount of content; defining key terms; bolding mental effort instructions such as 'CIRCLE THE BEST RESPONSE'; and providing monthly telephone contact between the researcher and participant.

Instruments

The aim of exploring the relationships among optimism, social network, intrusion-avoidance, salivary cortisol, spiritual coping, social support coping, and well-being during the first anniversary of spousal death in widows 65 years of age and older was accomplished through various tools. These tools were selected based on: a) ability to operationalize the first anniversary of spousal bereavement conceptual framework variables, b) sound psychometric properties, and c) brevity to reduce subject burden in this older sample (Rubinstein, Lubben, & Mintzer, 1994). Copies of each tool are found in the appendices (see Appendix B-K, pp. 155-172) and a detailed scoring description for each tool may be found in Appendix L (p. 173). Study variables and associated instruments are as follows:

Personal Resource

Optimism: The Life Orientation Test-Revised (LOT-R; Appendix B, p. 155)

was used to assess dispositional optimism, which is defined as a stable generalized expectancy for the occurrence of good outcomes in life (Scheier & Carver, 1987). The LOT-R consists of items to which persons respond using a 5-point (0-4) Likert scale ranging from “strongly agree” to “strongly disagree.” A total optimism score is computed by summing the ratings of six items (four items are not scored). Total optimism scores may range from 0-24 with higher scores reflecting greater optimism.

The LOT-R is a revision of the LOT, a tool widely used in various samples and demonstrating strong psychometric properties (Anderson, 2000; King, Rowe, Kimble, & Zerwic, 1998; Northouse et al., 1999; Scheier, Magovern, Abbott, Matthews, Owens, Lefebvre, & Carver, 1989). Two items from the original tool were eliminated because these items were found to be inconsistent with the conceptual definition used by the original tool developers (Scheier, Carver, & Bridges, 1994). Scheier and associates (1989) report Cronbach’s alpha of .78 and four test-retest reliability measurements of .68, .60, .56, and .79 (4 to 28 months). Adequate predictive, convergent, and discriminant validity was supported in a sample of 4,309 subjects, which included a small subsample of older women.

The coefficient alpha for the LOT was 0.78 in a sample of women (N= 1099) over 60 which included some widows (Boland & Cappeliez, 1997). King and associates (1997) reported coefficient alphas ranging from .73 to .78 over four time periods in another sample of women (n = 55; mean age 62.6 years). There is support for convergent validity (significant correlations in the expected directions with other constructs, e.g., depression, hopelessness, self-esteem, locus of control), discriminant validity (weak correlations with related measures), and construct validity (moderate correlations with

psychological well-being and unrelated to measures of social desirability) (Scheier & Carver, 1992; Scheier et al., 1994). While there is reported use of the LOT in older women, there is no reported use of the LOT-R specifically in older widows.

Environmental Resource

Social Network: The Lubben Social Network Scale (LSNS; Appendix C, p. 156) (Lubben, 1988) is a social network measure developed for gerontological research to assess tendency for social isolation. Participants rate 10 items using a scale from 0 (least connected) to 5 (most connected); total scores may range from 0-50 with lower scores indicating a higher risk of social isolation. Bereavement is among the common causes of social isolation reported (Lubben & Gironda, 1996).

Factor analyses suggest that the LSNS represents three distinct structural dimensions of social networks: 1) family networks (in-laws are considered relatives), 2) friendship networks, and 3) interdependent social networks support, including confidant relationships. For family network items and friendship network items respondents are asked to indicate: "number seen monthly," "frequency of social contact," and "number participant feels close to." For interdependent social support, items include: "has a confidant", "is a confidant", "relies upon and helps others," and "living arrangement" (Lubben, 1988).

Lubben (1988) reported adequate internal consistency (Cronbach alpha = 0.76), and a mean score of 25.11 (SD=9.6) in an elderly sample predominantly residing alone (mean age =77.2 years). A cut-off score of 20 is suggested to target elderly at high risk for social isolation (Lubben). Semi-partial coefficients indicated strong contributions of each item to the total score and construct validity was supported based on interscale

comparisons of the LSNS with the MOS-SS (a social support scale) and the UCLA-LS (a loneliness scale) which demonstrates that social networks, social support and loneliness are distinct constructs among the elderly. Lower social network scores were reported for the poor elderly and for octogenarians compared to their younger counterparts (Lubben & Gironde, 1996).

Spousal Bereavement-Related Stress of the First Anniversary

Physiological Stress: Cortisol is considered an index of altered physiological status related to stressful situations and can be evaluated through salivary sampling (Baum & Grunberg, 1997). During three days of each month of the three-month period of this study morning and evening salivary samples were collected for evaluation of cortisol as a physiological index of the hypothesized spousal bereavement-related stress during the first anniversary. To observe relatively small changes in unstimulated cortisol and detect stress related alterations of the circadian hormone profile the recommended sampling times are 8-9 am, 11-12 am, 3-4 pm, and 8-10 pm (Kirschbaum & Hellhammer, 1989). In this study only the early morning and later evening times were measured in an effort to reduce subject burden.

The diurnal cortisol cycle is synchronized to awakening, i.e., cortisol concentration peaks approximately 30 minutes following awakening and subsequently declines over the day (Edwards, Evans, Hucklebridge, & Clow, 2001). A waking cortisol sample and one 45 minutes following are the indices of normal morning activation of the HPA; another sample 12 hours later completes the diurnal profile. To reduce subject burden this study included a sample 45 minutes post awakening and an evening sample 12 hours following time of awakening. Three-day measurement was used to ensure at

least 2 days of sample every month for each participant and build in latitude if one day was inadvertently omitted.

Measurement of salivary cortisol is unaffected by salivary flow rate, offers the features of ease of sampling, storage conditions, reliability of available analytical assays, and an overall advantage to the conventional method of analyzing plasma or serum cortisol (Kirschbaum & Høelhammer, 1994). The collection method was via Salivette® tubes (Sarstedt, Hanover, NJ), which comprise a plastic holder (centrifuge tube) with a plastic insert containing a cotton swab. Participants chew the cotton swab for approximately 1-2 minutes before returning it to the plastic insert. Samples were frozen (McCleery, Bhaagwager, Smith, Goodwin, & Cowen, 2000) until completion of the study and transferred to the laboratory of Dr. Jeffrey A. French at the University of Nebraska-Omaha for enzyme immunoassay (EIA) analyses. Reported temperatures for freezing range from -70° C (Furlan, DeMartinis, Schweizer, Rieckels, & Lucki, 2001) to -20° C (Aardal-Eriksson, Eriksson, Holm, & Lundlin, 1999)..

EIA involves the competitive binding of an antibody tagged with a compound to change optical density (color) in response to binding with an antigen (Nelson, 2000) and is procedurally documented (Hubl, Daxenbichler, Meissner, & Thiele, 1988; Smith & French, 1997). Samples are brought to room temperature and centrifuged in preparation for analysis involving a fixed amount of rabbit antibody (on pre-coated microtitre plates), and a constant amount of cortisol labeled with horseradish peroxidase, i.e., cortisol HRP. Cortisol concentrations are interpreted on a scale of 77.8 to 1000 pg. cortisol/ 50 microliters of saliva (J. French, personal communication, 2002). Quality control precision

was checked with duplicate salivary cortisol pools in each assay run to monitor intra- and inter-plate variance in compliance with standard laboratory procedure.

There is no available data on diurnal mean cortisol concentrations in older spousally bereaved women. Over a three-day period, the mean a.m. cortisol (measured in micrograms/dl) in women (mean age 53) with breast cancer was .75, and the mean p.m. cortisol was .35 (Turner-Cobb, Sephton, Koopman, Blake-Mortimer, & Spiegel, 2000). It is known that normal aging shows subtle increases in cortisol secretion, which may be pronounced in the evening (Kern, Dodt, Born, & Fehm, 1996; Van Cauter, Leproult, & Kupfer, 1996). In older adults cortisol reactivity to current mood and daily stressors may be diminished (Ice, 2005) and increased variance is noted. A longitudinal study of healthy elderly subjects covering 3-6 years indicated 3 subgroups: increased cortisol with time; decreased cortisol with time; and stable cortisol secretion with time (Lupien, King, Meaney, & McEwen, 2001). Salivary cortisol samples taken at six points in the day in normal elderly ($n = 28$, mean age 68.6) show the following: 9 am/ 0.53 μ g/dl; 11 am/ 0.38 μ g/dl; 2 pm/ 0.36 μ g/dl; 4 pm/ 0.29 μ g/dl; 9 pm/ 0.24 μ g/dl; and 11 pm/ 0.22 μ g/dl (Wolf, Convit, Thorn, & de Leon, 2002).

Psychological Stress: Intrusive and avoidant processes are a manifestation of psychological stress commonly following stressful events (such as spousal bereavement) and serve as an indicator of psychological adjustment (Horowitz, 1986). The Impact of Event Scale (IES; Appendix D, p. 158) (Horowitz, Wilner, & Alvarez, 1979) is a 15 item Likert scale measure assessing symptoms of intrusion and avoidance (Joseph, 2000). Participants rate each item using a 5-point scale from "not at all" (0) to "often" (4). The composite of the intrusion subscale and the avoidance subscale forms the IES score

(range 0-60), which was reported in this study as an overall indicator of psychological stress. Higher composite scores reflect greater psychological stress.

Coefficient alpha of 0.86 for IES intrusion and 0.82 for IES avoidance indicate subscale internal consistency, each measuring a homogenous construct (Sundin & Horowitz, 2002). Split half reliability for the IES is 0.86 (Horowitz et al, 1979). The avoidance items tap into attempts to suppress thoughts about the experience, e.g., "I try to banish it from my store of memories." Intrusion items assess frequency of unintended or intrusive thoughts, e.g., "Images related to it popped into my mind" and "Any reminder brought back emotions related to it." The two-factor structure is stable over different types of events and is a sensitive indicator of change in stress reactions over time (Sundin & Horowitz). Horowitz and associates reported total scale test-retest reliability of 0.87 (0.89 for intrusion and 0.79 for avoidance) in a sample (n=30) tested twice in one week.

Content validity was supported by a mean correlation of 0.63 between IES intrusion and avoidance in results from 12 studies indicating the relative independence of the two subscales within the context of stressful situations. Moderate correlations between intrusion and avoidance in some studies are consistent with the assumption that individuals oscillate from intrusive thoughts to avoidance and that intrusive and avoidant symptoms attenuate as implications of the stressful event are assimilated (Horowitz et al., 1976), thus indicating construct validity of the IES (Sundin & Horowitz, 2001).

Finally, convergent validity of the IES was supported with moderate correlations in studies assessing anxiety, depression, PTSD, cortisol, heart rate, and somatic symptoms through scales such as the Symptom Checklist-90 (Derogatis, Lipman, Covi, 1973), Profile of Mood States (McNair, Lorr, & Droppelman, 1981), and General Health

Questionnaire (Goldberg & Hillier, 1979) indicating that the IES contributes information not captured with other symptom inventories (Sundin & Horowitz, 2002).

The IES has extensive use in over 15,000 subjects exposed to various types of trauma such as natural disasters, physical abuse, violence related to war events and community crime, and chronic or terminal disease states such as renal disease and breast cancer (Aardal-Eriksson, Eriksson, Holm, & Lundlin, 1999; Thewes, Meiser, & Hickie, 2001). Although the IES has not had reported use with older widows, initial testing of this tool included 34 bereaved subjects with an average of 25 weeks (range=1 to 136 weeks) from occurrence of loss to use of the IES (Horowitz et al., 1979).

Coping with Spousal Bereavement-Related Stress of the First Anniversary

Spiritual Coping: For this study, the spiritually based activities subscale of the 29 item (4-point Likert style) Religious Coping Activities Scale (RCAS; Appendix E, p. 160) (Pargament, Ensing, Falgout, Olsen, Reilly, Van Haitsma et al., 1990) broadly represented spiritual coping during the first anniversary of spousal bereavement.

Conceptually, spirituality and religiosity overlap; spirituality may be experienced with the help of religion. Spirituality is the larger quest for ultimate meaning in life and a personal connection with a transcendent or sacred realm. Religion is the organized system of beliefs, practices, rituals, and symbols facilitating closeness to that which is sacred and also providing a behavioral moral code (Moss, 2002). Empirical research supports the value of spirituality and religion (Koenig, McCullough, & Larson, 2001).

The RCAS assesses six types of religious coping: spiritually based activities, good deeds, discontent, interpersonal religious support, plead, and religious avoidance. Each subscale is scored separately and reported as an average. For this study only the

spiritually based activities subscale data were analyzed. Reported psychometric data for this subscale include a mean of 32.3 (SD = 11.7) and a coefficient alpha of .92 in mainline Protestant and Catholic clergy and members (N=500) dealing with various life crises (Pargament et al., 1990).

Validity was demonstrated by: 1) the six subscales' robust contribution to three measures of coping, which was substantially beyond the variance explained by other religious measures, and 2) significant correlations with measures of nonreligious coping activities (Pargament et al, 1990). In a sample of women (n= 32, age range of 39-67 years), the RCAS was positively correlated ($r=.39$, $p<.05$) with optimism as measured with the LOT. Internal consistency in this sample was not reported. There is no reported use of the RCAS in older widows.

Social Support Coping: Social support coping was operationalized using parts one and two of the Personal Resource Questionnaire (PRQ 85/ 2000) (Weinert, 1987; PRQ 2000). Part One (PRQ85; Appendix F, p. 162) assesses the support that would be sought by the widow related to nine hypothetical scenarios and the satisfaction with support that was sought. Part Two (PRQ2000; Appendix G, p.166) measures the perception of available support. The conceptual underpinnings of this tool are the dimensions of worth, social integration, intimacy, nurturance, and assistance (Weiss, 1974).

The PRQ85 Part One consists of 9 life situation items (three parts in each item) in which social support might be sought. Information from this section was not scored as a total, but was used to interpret the widow's usage of and satisfaction with the social network. An example of an item from the PRQ part one is: "If you were to experience urgent needs (crisis), who would you turn to for help?" The participant circles all that

apply from thirteen choices that cover a range of people one might find in a given social network. The second part of this item is “Have you had urgent needs (crisis) this month?” If the answer is no, the participant moves to question 2. If the answer is yes, then the participant moves on to answer: “If you have experienced urgent needs (crisis) this month to what extent do you feel satisfied with the help you received?” The latter is answered in a 6 point Likert format ranging from very satisfied (6) to very dissatisfied (1). Permission was granted to omit question #3 from Part one which refers to relationship with spouse, partner, or significant other; and to adapt the questions to fit the longitudinal design of the proposed study (the original version asks subjects to think back on the last six months) (C. Weinert, personal communication, 2002).

Part two of the PRQ 85 was originally 25 items scored on a 7-point Likert scale (7-strongly agree to 1-strongly disagree). Weinert & Brandt (1987) reported coefficient alphas ranging from .85 to .93, and supportive data for construct validity using the Beck (1967) Depression Inventory (BDI), the Trait Anxiety Scale (Spielberger, Gorsuch, & Lushene, 1970), and the Profile of Mood States (POMS) (McNair et al., 1981). Previous psychometric evaluation of the PRQ85 indicated several weak items that did not factor well or correlate well with other items or with the total, thus prompting additional psychometric evaluation in a large sample (n = 899). A three-factor structure emerged more appropriately representing the underlying dimensions of the tool. Internal consistency estimates for the items comprising the three-factor structure are as consistently strong as for the full 25-item scale, and correlations are in the expected direction and strength with mental health indicators (PRQ 2002). The more parsimonious 15 item PRQ 2000 taps the level of perceived social support, does not

estimate interpersonal resources, and produces a total score ranging from 15-105 (higher scores indicate more support) (PRQ 2000).

Well-Being

Spiritual Well Being: The 20 item self-report Spiritual Well-being Scale (SWBS; Appendix H, p.167) (Paloutzian & Ellison, 1982) was used to assess spiritual well-being. Although spiritual well-being is multidimensional, the two most often cited dimensions include the existential and the religious (Mickley, Soeken, & Belcher, 1992). The SWBS has two 10-item subscales, religious well-being (RWB) and existential well being (EWB). The RWB subscale focuses on one's relationship to God while the EWB subscale focuses on life purpose and satisfaction.

Both subscales consist of 10 Likert-scale items ranging from 1 (strongly disagree) to 6 (strongly agree). A total score for the SWBS may range from 20-120 with higher scores indicating higher levels of spiritual well-being. The overall function of the SWBS is to measure the quality of one's spiritual health and may be used in various religious groups (Ellison, 1983).

Total and subscale test-retest reliability coefficients are reported ranging from .82-.99 over a 1-10 week interval and coefficient alphas indicate an internal consistency of .89 for SWBS, 0.87 for RWB, and 0.78 for EWB (Bufford, Paloutzian, & Ellison, 1991). The items offer high face validity; and a review of several scales (Bassett et al, 1991) shows support for concurrent validity as evidenced by correlations between the SWBS and the following instruments: Intrinsic Scale ($r = .72$) (Hoge, 1972), Spiritual Maturity Index ($r = .74$) (Ellison, 1983), Shepherd Scale ($r = .72$) (Bassett et al), and the Religious Status Interview ($r = .71$) (Malony, 1988). The SWBS and its subscales are positively correlated with several indicators of well-being including self-esteem,

assertiveness, finding purpose in life and hope (Mickley et al, 1992). Additionally this instrument has shown negative correlations with loneliness and depression (Buford et al; Ellison; & Fehring, Brennan & Keller, 1987).

Studies using the SWBS with adults (n =25) ranging in age from 19-70 years (mean age =40.74 years) report a Cronbach alpha of .92 for SWBS, .85 for EWB, and .94 for RWB (Hawkins, Tan, & Turk, 1999). A study using another elderly sample (n= 100; 67 females; mean age 73 years) reported the following mean scores: SWB of 87.50 (SD = 18.57); RWB of 44.08 (SD = 10.43), and EWB of 43 (SD = 9.04) (Fehring, Miller, & Shaw, 1997). In a sample of women with breast cancer who ranged in age from 29- 89 years (M=58.70 years), the coefficient alpha for the total SWBS score, the RWB and EWB subscales was 0.91, 0.92, and 0.84, respectively (Mickley et al, 1992). Currently there are no data on use of this tool in older spousally bereaved women.

Psychosocial Well-Being: Psychosocial well-being was operationalized using the Life Satisfaction Index (LSI; Appendix I, p. 169), which is designed for use with older people (Neugarten et al, 1961). This tool has two parts, the LSI-A and the LSI-B; these two parts may be used separately or together. Only the LSI-A was used in this study to reduce subject burden.

LSI-A has 20 items with the choices agree, disagree, or not sure. Scores range from 0-20 based on scoring one point for agree answers only; reported mean score for the LSI-A is 12.4, SD= 4.4 in a sample of women aged 50-90 (Neugarten et al, 1961). The items in the self-administered LSI-A were derived from Life Satisfaction Ratings (LSR), an initial interview measure designed to assess components of psychological well-being: zest versus apathy, resolution and fortitude, congruence between desired and achieved

goals, self-concept, and mood tone. High and low scorers on the LSR were used as criterion groups for development of the Life Satisfaction Indexes. Ratings were based on lengthy interview material and validated against the expertise of a clinical psychologist who re-interviewed and rated 80 cases (Neugarten et al).

Content validity is supported by the development of items based on repeated interviews with individuals between 50-90 years of age regarding life pattern, attitudes, values, daily activities, social interactions and other concerns (Hoyt & Creech, 1983). Construct validity has been demonstrated via correlations between LSI-A and a Life Satisfaction Rating. A factor analysis of the LSI-A produced 4 factors. Of these, three were interpretable: mood tone, zest for life, and congruence (Liang, 1984).

A review of 157 journal publications supports reliability across a variety of sample characteristics but also points to incomplete documentation of the psychometric properties of the LSI (Wallace & Wheeler, 2002). As examples of the latter, a modified LSI used in a longitudinal study (4-8 years) of well-being in widowed women ($n = 22$, mean age 73.4) reported means over time (16.5, $SD = 6.7$; 11.9, $SD=7.3$; 14.3, $SD=6.0$) but not internal consistency (Bennett, 1997). In another study, the LSI-A was used to test a leisure education intervention in an elderly sample ($n=22$) but only pre and post intervention means were reported (Searle & Mahon, 1998). Fry (2001a) reports an alpha of .76 in an older widowed sample ($n = 118$), and a mean score of 13.7 ($SD = 3.3$).

Physical Well-Being: The widow's physiological well-being during the time of the first anniversary was assessed with a measure of self rated health (SRH, Appendix J, p. 171). Rating of relative perceived health consisted of three items: 1) Compared to others your age, how would you describe your health? (excellent, good, fair, or poor); 2)

response format anchored by “never” and “all the time”); and 3) To what extent, if any, are health worries a concern? (4- point response format, anchored by “not at all” and “extremely”). Ratings for each item were summated with total scores ranging from 3-13; a lower score indicated a self-perception of better health. Participants also were asked to note doctor visits each month, reason (symptom) for the visit, and who initiated the visit (patient, doctor, or member of social network). The following statement was added to the self-rated health questionnaire for month 13, “Please describe any anniversary activities you participated in last month” with several blank lines provided for the response.

The rated items on the self-perceived health instrument used for this study are similar to Ware’s (1976) Health Perceptions Questionnaire, a widely used measure of self assessed health status with reported alphas of .75 and an average inter-item correlation of .50 in a female sample (mean age 43.6 years) (Thomas,1995). Validity was supported based on previous studies in which similar subjective ratings of health corresponded well with objective assessments by health care providers (Hunt, McKenna, McEwen, Backett, Williams, & Papp, 1980, Mossey & Shapiro, 1982) and were a remarkably consistent predictor of mortality (Krause, 1998). The brevity of the self-rated health tool used in this study was intended to reduce subject burden as opposed to the lengthier (32 items) Health Perceptions Questionnaire (Ware).

Demographic Data

During the first visit the following demographic information was collected: age, wedding date (to calculate length of marriage), any previous marriage, cause of termination of previous marriage, place of husband’s death, and type of death (anticipated/unanticipated; accidental/nonaccidental), whether the wife was present at

her husband's death, religious affiliation, and ethnic background (Demographic Data Form; Appendix K, p. 172).

Procedure

The Internal Review Board (IRB) of the University of Nebraska Medical Center approved this study (see Appendix M, Informed Consent, pp. 175-178). Following IRB approval, participants were recruited using two methods: a) circulation of recruitment flyers, and b) daily scanning of the obituaries to identify widows who may meet sample inclusion criteria.

In the first method, recruitment flyers (Appendix N, p. 179) were sent to Black Hills area clergy and parish nurses, selected physicians and nurse practitioners, Hospice of the Hills Bereavement Coordinator, Widowed Persons Services Volunteer Coordinator, two Black Hills senior citizen centers, and two senior citizen newsletters. The recruitment flyer included a description of the study, criteria for participation, and contact information (nurse researcher's name, phone number, and e-mail address). Widows interested in learning more about the study were asked to contact the investigator.

In the second method of recruitment, the nurse researcher scanned the daily obituaries of the *Rapid City Journal* and the *Gillette News-Record* for death notices of men aged 65 and over who had a surviving spouse. Addresses of surviving spouses were obtained from the area telephone directories. Between 9 and 10 months post loss, an empathetically worded letter (Appendix O, p. 180) was sent to widows identified through the obituary notices. The letter briefly described the study, including the sampling criteria, and invited their participation if criteria were met. A stamped addressed postcard

criteria, and invited their participation if criteria were met. A stamped addressed postcard requesting telephone contact information was included for the widow to use if interested in learning more about the study.

Interested women who received the recruitment flyer contacted the investigator via telephone. Women who received the letter and returned their interest postcard were contacted by the investigator via telephone. The investigator explained the study further, determined whether sampling criteria were met, and scheduled a home visit with eligible widows who agreed to participate. A total of 47 women comprised the convenience sample. Of these women, 44 were recruited via the invitation letter and 3 were recruited from the recruitment flyer.

The investigator made a home visit during the 11th month of spousal bereavement to each widow who met inclusion criteria and expressed an interest in participation. During this home visit (Time 1) the investigator: a) obtained signed informed consent, b) assessed for cognitive function as part of eligibility criteria, c) assessed for daily patterns to determine suitable consecutive days of the week for salivary cortisol collection (i.e., trying to avoid days of heavy travel, erratic eating and sleep, etc.), d) demonstrated use and storage of the Salivette devices, e) explained the contents of the monthly data collection packets and procedure for return to and follow-up by the nurse researcher, f) provided orientation to questionnaire format and content with time allowed to address questions about completion of the packet, and g) collected demographic data.

At the home visit during Time 1 (month 11), data collection days for Time 2 (month 12) and Time 3 (month 13) were mapped out for each widow to allow approximately 4 week intervals. The widow was instructed which days within each 4-

those dates highlighted as a reminder. Data collection was not intended to fall on the exact day of the anniversary of the death, (Time 2) but was scheduled within a 3-5-day period preceding the anniversary as negotiated with the widow.

At each data collection point, the procedure for obtaining saliva samples allowed for the influence of awakening on cortisol secretory activity. Widows were asked what time they normally awakened and were instructed to collect the morning saliva sample 45 minutes post awakening. The evening sample was collected 12 hours from the awakening time to complete the diurnal profile.

Time of awakening, time of morning sample, and time of evening sample were recorded by each widow on the Salivary Cortisol Diary sheet provided (Appendix P, p. 181). Widows were asked to refrain from smoking or exercising for at least 30 minutes prior to sample collection and were instructed not to drink anything for at least 5 minutes prior to sample collection. A reminder sheet with these instructions was provided (Appendix Q, p. 182). The salivary cortisol diary also included the statement: Please describe the most stressful or upsetting thing you have had to deal with during these three days. Several blank lines were provided for the participant's answer.

Saliva samples were stored at room temperature (appropriate for up to three weeks) or in the freezer at the home of the widow until picked up by the nurse researcher (Kirschbaum & Hellhammer, 1989). Samples were then stored in the nurse researcher's freezer until dry ice transfer via overnight express mail to Dr. Jeff French's laboratory at the University of Nebraska, Omaha, where they were kept frozen prior to conduction of assays. All saliva tubes were pre-labeled according to month (11, 12, and 13), day of

collection (Day 1, Day 2, or Day 3), time of day (am or pm), and with the ID number of the participant.

At each data collection point, the widow completed the packet of self-administered instruments during one of the three days of saliva sampling. After the initial visit, a letter (Appendix R, pp.183-184) and the instrument packet for the next data collection (i.e., month 12 and month 13) was mailed to each widow one week before her scheduled time of data collection for that month. The investigator telephoned the widow each month to insure materials were received, to encourage compliance in completion of self-report instruments and collection of saliva samples, and to answer any questions. A large stamped and addressed envelope was provided for the widow to mail each completed monthly packet to the nurse researcher.

Statistical Analysis Plan

Preliminary data analyses included assessment of missingness, normality, presence of outliers, and linearity. Histograms of raw composite scores, transformed z-scores ($> \pm 4$), skewness (> 2) and kurtosis (> 3) statistics were evaluated to detect normality and outliers. Scatter plots of Pearson correlation tests were run to ascertain linearity of relationships. The quantification of the hypothesized relationships among variables in this study pertaining to older widows experiencing the first anniversary of spousal death was through the commonly used Pearson's r correlation coefficient. Data were evaluated to determine patterns of missingness for individual tool items and for composite scores. Regarding the latter, if at least 80% of an instrument's items were completed, the missing values were replaced with the average of that individual's valid responses.

The area under the curve estimate (AUC_{12}) was applied to salivary cortisol data to assess diurnal cortisol activity for the specified time period (Pruessner, Kirschbaum, Meinlschmid, & Hellhammer, 2003). The area under the curve with respect to ground formula was modified to summing the averages of each daily 12-hour measurement time frame (day 1 pm + day 1 am/2; day 2 pm + day 2 am/2; day 3 pm + day 3 am/2). The average of this sum provided an estimate of the diurnal cortisol activity during the monthly 72-hour period in this study of older widows.

To address Aim 1, H #1A, correlations were determined between the LOT-R scores and 1) monthly morning salivary cortisol averages and monthly evening salivary cortisol averages, and cortisol area under the curve (AUC_{12}) values; 2) IES scores; 3) RCAS scores; 4) PRQ2000 scores; 5) LSI-A scores; 6) SWBS scores; and 7) self rated health scores in widows 65 years of age and older at months 11, 12, and 13 during the first year of spousal bereavement.

Analysis of Aim 1, H #1B examined the correlations of the LSNS score with: 1) averages of morning and evening salivary cortisol measurements and AUC_{12} values, 2) IES scores, 3) RCAS scores, 4) PRQ2000 scores, 5) SWBS scores, 6) LSI-A scores, and 7) self rated health items. Likewise, the Pearson r was used to analyze the relationships hypothesized in Aim 1, H #2, i.e., salivary cortisol morning and evening averages with RCAS scores and PRQ2000 scores; and IES scores with RCAS scores and PRQ2000 scores measured during months 11, 12, and 13 following spousal death. Aim 1, H #3 of this study was examined through the correlations among the RCAS and PRQ 2000 scores with SWBS and LSI-A scores and self rated health information.

Although participants were measured at three time points (months 11, 12, and 13), the study hypotheses involved pairwise comparisons of month 12 with the preceding and following month. An omnibus F-test from repeated measures ANOVA would control Type I error across all possible comparisons but it would not directly reflect the comparisons of interest. Planned comparisons allow focused tests corresponding to specific directional or non-directional hypotheses and are often preferable to the omnibus test (Keppel, 1991; Thompson, 1994). Because the study was exploratory, two sided tests were used. Each comparison was tested using separate variance estimates and corresponding degrees of freedom. This conservative strategy is often recommended over using a pooled error term due to the latter's tendency to inadequately control Type I error in the presence of even slight sphericity or heterogeneity of variance (Stevens, 1996). Because the two pairwise comparisons of interest here are not orthogonal, a Bonferroni-adjusted alpha of .025 was used in testing.

Therefore, to address Aim2, H #4, two planned comparisons were used to test mean differences in IES scores in widows 65 years of age and older at month 12 compared to month 11 and month 12 compared to month 13 following the death of the spouse. In analyzing the salivary cortisol measurements, time of day (am or pm) was added as a second within subject factor to the same two planned comparisons. The effects tested in this analysis were main effects of month and time of day and month X time of day interaction. For H #5, the same strategy was used to compare mean differences in RCAS and PRQ2000 scores, and for H #6, to compare means on SWBS, LSI-A, and self-rated health.

A content analysis (Stemler, 2001) was used to analyze qualitative data.

Categories of stressors were established following an examination of monthly stresses identified by the participants in the salivary cortisol diary. Categories of anniversary activities also were developed based on an examination of specific anniversary activities identified by participants on the self-rated health questionnaire reported during month 13. Descriptive statistics were used to describe additional self-rated health information, such as frequency of doctor's visits and symptoms experienced.

Chapter Four

Results

This chapter includes a description of the study sample and a presentation of the data analyses related to the research hypotheses.

Description of the Sample

Widows 65 years of age or older and who resided within a 150 mile radius of Rapid City, SD were recruited into the study. Participants were recruited based on obituary information published in local newspapers (*Rapid City Journal*, *Gillette News-Record*) and telephone calls received from women who read about the study in the Widowed Persons Support monthly newsletter. A total of 319 invitation letters explaining the study further were sent to potential participants during the 26-month recruitment period. Seventy-three (23%) women invited to participate responded to the letter. Of the 73 women who responded, 58 (79%) met the inclusion criteria and 15 (21%) did not meet the inclusion criteria. Of those meeting the inclusion criteria, 47 (89%) completed the study while 15% (11) declined to participate due to personal conflicts or perception of current stress level

The mean age of the sample was 74.1 years (SD=6.30; range 65-91 years) (see Table 1, p.75). The average widow was Caucasian (100%), Protestant (68.1%) and married a mean of 46.3 years (SD = 14.96, range 3-64 years). The death of the spouse represented the end of a first marriage (76.6%) from cancer (38.3%) or cardiovascular disease (38.3%). The husband's death was non-accidental (97.9%), anticipated (55.3%) and usually occurred in a health care facility (53.2%) in the presence of the wife (89.4%).

Of interest was that the death of the spouse represented the end of a second marriage for 11 (23.4%) women; half (6) of these women had experienced a prior spousal death.

Table 1.

Sample Demographics (N=47)

Variable	Mean (SD)	Range	Frequency	%
Age	74.1(6.3)	65-91 yrs.		
Ethnicity				
Caucasian			47	100
Religious Affiliation				
Catholic			11	23
Protestant			32	68
Other			4	8
Marriage				
First			36	76
Second			11	23
Marriage Length	46.3 (14.96)	3-64 yrs.		
Cause of Husband's Death				
Cancer			18	38
Cardiovascular			18	38
Pulmonary			8	17
Alzheimer's Disease			1	2
Suicide			1	2
Neurologic Disorder			1	2
Death Characteristics				
Anticipated			26	55.3
Death Location				
Home			22	46.8
Hospital			18	38.3
Nursing Home			4	8.5
Hospice			3	6.4
Death Presence				
Wife present			42	89.4

Introduction to Data Analysis

Descriptive statistics (e.g., mean, SD, reliability) for all tools appear in Table 2 (see Appendix S, p. 185). Scoring information for all measures is provided in Appendix L (p. 173). As a preliminary step in data analyses all composite scores were transformed to Z-scores. Associated skewness/kurtosis statistics and histograms were evaluated to determine the presence of outliers. All data were within a normal range with the exception of the PRQ2000 for months 11 and 12. These two distributions exhibited high kurtosis (5.97 and 8.75, respectively), which appeared to be caused by values for a single outlier, subject #24, whose z-scores were -4.16 and -4.58 for these months. Correlations were run with and without this subject's data on the PRQ2000. Because there were only minor changes in the results, her scores were retained in the data set.

There was relatively little missing data in this study. One month of data was completely missing for subject # 28 (month 12) due to temporary nursing home placement and for subject #18 (month 13) due to hospitalization. A partial set of data occurred for subject 24 (month 13) who expressed frustration with the 'useless' content of the questionnaire packet. Scattered missing values for self-report items ranged from 0-5% with no single item consistently missing. Finally, page 2 of the IES was missing from subject #2's questionnaire packet, which resulted in a missing IES score for month 11.

For each month the morning cortisol values were averaged and the evening cortisol values were averaged, thus providing a monthly am average and a monthly pm average. All reported analyses regarding morning and evening salivary cortisol data refer to logarithm transformed values (see Table 3, Appendix T, p. 186), which is standard procedure with biological variables (Burke, Fernald, Gertler, & Adler, 2005). The raw

values for subject #28 were outliers for month 12 morning and evening salivary cortisol. The log transformation of these values allowed a closer approximation to the normal curve so these data were retained after ruling out all possible sources of synthetic steroid ingestion.

The AUC₁₂ cortisol values represent raw cortisol data according to formula (Pruessner et al., 2003) and represent only complete data sets. An additional computation of AUC₁₂ from partial data sets was conducted and applied to correlation analyses. Correlation coefficients involving AUC₁₂ were slightly lower when partial cases were used, but conclusions were identical to those reported for complete cases.

Analyses of Study Aims and Hypotheses

- **H #1A:** Personal (optimism) resources will be negatively related to spousal bereavement-related stress of the first anniversary (salivary cortisol, intrusion-avoidance) and positively related to coping with spousal bereavement-related stress (spiritual, social support) and well-being (spiritual, psychosocial, physical).

Pearson Product Moment correlation coefficients were computed to determine relationships between optimism (LOT-R) at month 11, 12, and 13 following spousal death and the following: spousal bereavement-related stress (monthly average morning salivary cortisol level, monthly average evening salivary cortisol level, area under the curve cortisol [AUC₁₂], intrusion-avoidance total score of IES), coping (spiritually based activities subscale score of the RCAS, and PRQ2000 total score) and well-being (spiritual, SWBS; psychosocial, LSI-A; physical, SRH) (see Tables 4 and 5, p.78).

Table 4.

Pearson Correlations of Optimism with Spousal Bereavement-Related Stress

		Spousal Bereavement Related Stress			
		AM Cort	PM Cort	Cort AUC ₁₂	Int-Avd IES
Optimism LOT-R	Month (N)				
	11 (47)	-.24 (45)	-.14 (45)	-.21 (41)	-.54** (46)
	12 (46)	-.30 * (44)	-.26 (44)	-.52 ** (41)	-.52 ** (46)
	13 (46)	-.18 (42)	-.35 * (42)	-.64** (35)	-.66 ** (46)

* $p \leq .05$ (two-sided) ** $p \leq .01$ (two-sided)

Table 5.

Pearson Correlations of Optimism with Coping and Well-Being

		Coping		Well-Being		
		Spiritual SWBS	Social Support PRQ2000	Spiritual SWBS	Psy/Soc LSI-A	Physical SRH
Optimism LOT-R	Month					
	11 (47)	-.03 (47)	.24 (47)	.50** (47)	.58** (47)	.43** (47)
	12 (46)	.30 * (46)	.41** (46)	.65** (45)	.65** (45)	.46** (46)
	13 (46)	.27 (45)	.52** (45)	.69** (45)	.72** (46)	.36** (46)

* $p \leq .05$ (two sided) ** $p \leq .01$ (two sided)

As predicted, optimism was negatively correlated with spousal bereavement-related stress as measured by IES intrusion/avoidance at all three time periods ($r = -.52$ to $-.66$). However, optimism was significantly negatively correlated with spousal bereavement-related stress as measured by cortisol only at month 12 for am cortisol ($r = -.30$) and cortisol AUC₁₂ ($r = -.52$); and at month 13 for pm cortisol ($r = -.35$) and AUC₁₂ ($r = -.64$).

While a positive relationship between optimism and coping was predicted, results were mixed. Optimism was positively correlated with spiritual coping only at month 12 ($r = .30$) and with social support at months 12 and 13 ($r = .41$ and $.52$, respectively). The remaining three correlations between optimism and coping were not statistically significant.

As expected, optimism was correlated with self-reported well-being (spiritual, psychosocial, physical) at all three time periods. Optimism was positively related with spiritual ($r = .50$ to $.69$), psychosocial ($r = .58$ to $.72$), and physical well-being ($r = .36$ to $.46$).

Based on all correlations, Hypothesis 1A was partially supported during months 11, 12, and 13. There was support for a relationship between optimism and spousal bereavement related stress as measured through self-report and between optimism and well being but limited support between optimism and coping.

- **H #1B:** Environmental (social network) resources will be negatively related to spousal bereavement-related stress of the first anniversary (salivary cortisol, intrusion-avoidance) and positively related to coping with spousal bereavement-related stress (spiritual, social support) and well-being (spiritual, psychosocial, physical).

Pearson correlations were computed at months 11, 12, and 13 after spousal death between social network (LSNS) and the following: spousal bereavement-related stress (monthly average morning salivary cortisol level, monthly average evening salivary cortisol level, cortisol area under the curve [AUC₁₂], intrusion/avoidance total score of IES), coping with spousal bereavement-related stress (spiritually based activities subscale score of the RCAS, and PRQ2000 total score) and well-being (spiritual, SWBS; psychosocial, LSI-A; physical, SRH)(see Table 6, p. 80; and Table 7, p. 81).

Table 6.

Pearson Correlations of Social Network with Spousal Bereavement-Related Stress

		Spousal Bereavement Related Stress			
		AM Cort	PM Cort	Cort AUC ₁₂	Intr-Avd IES
Social Network LSNS	11 (47)	-.15 (45)	-.13 (45)	-.18 (41)	-.13 (46)
	12 (46)	-.03 (44)	-.23 (44)	-.03 (41)	-.46** (46)
	13 (46)	-.14 (42)	-.38 ** (42)	-.45** (35)	-.32 * (46)

* $p \leq .05$ (two-sided) ** $p \leq .01$ (two-sided)

While there was no relationship between social network and spousal bereavement-related stress during month 11, correlations during month 12 and 13 were in the predicted direction between social network and spousal bereavement-related stress as measured by IES intrusion-avoidance ($r = -.46$ and $-.32$, respectively.) Moreover, social network was inversely correlated with spousal bereavement related stress as measured by evening cortisol during month 13 only ($r = -.38$; cortisol AUC₁₂ $r = -.50$).

Based on these findings, there was support for the relationship between social network and bereavement related stress at month 13 but little or no support for such a relationship at months 12 and 11. Therefore, the hypothesis between social network and spousal bereavement related stress was partially supported.

Table 7.

Pearson Correlations of Social Network with Coping and Well-Being

Month (N)	Coping		Well-Being		
	Spiritual RCAS	Social Support PRQ2000	Spiritual SWBS	Psy/Soc LSI-A	Physical SRH
11 (47)	-.18 (47)	.46** (47)	-.02 (47)	.02 (45)	.08 (47)
12 (46)	.06 (46)	.56** (46)	.23 (46)	.31* (45)	.14 (46)
13 (46)	-.16 (45)	.47** (45)	.30* (45)	.40** (46)	.08 (46)

* $p \leq .05$ (two-sided) ** $p \leq .01$ (two-sided)

There was support for the hypothesized relationship between social network and coping with spousal bereavement related stress as measured by the PRQ2000 at all three data points ($r = .46$ to $.56$). In contrast there was no support for the hypothesized relationship between social network and coping with spousal bereavement related stress as measured by the RCAS (spiritual activities subscale). Similarly there was no support for the hypothesized relationship between social network and self-reported physical well-being. Limited support was found between social network and psychosocial well-being (LSI-A) at month 12 ($r = .31$) and month 13 ($r = .40$) and between social network and spiritual well being (SWBS) at month 13 ($r = .30$).

- **H #2:** Spousal bereavement-related stress (salivary cortisol, intrusion-avoidance) will be positively correlated with coping with spousal bereavement-related stress (spiritual, social support).

Pearson correlations were computed between spousal bereavement-related stress (am average salivary cortisol, pm salivary cortisol, cortisol area under the curve [AUC₁₂], intrusion-avoidance total score of IES) and coping with spousal bereavement-related stress (spiritually based activities subscale score of the RCAS, and PRQ2000 total score) at months 11, 12, and 13 following spousal death (see Table 8, p.83). There were no significant correlations between spousal bereavement related stress as measured by cortisol levels and the variables of spiritual and social support coping. While there were no significant correlations between stress as measured by IES and spiritual coping at all three time periods, there were significant inverse correlations between IES and social support coping at all three months ($r = -.34$ to $-.50$, respectively). Since the hypothesis predicted positive correlations but the results indicated negative correlations, this hypothesis was not supported.

- **H #3:** Coping with spousal bereavement-related stress (spiritual, social support) will be positively correlated with well-being (spiritual, psychosocial, physical).

Pearson correlations were computed between coping with spousal bereavement-related stress (spiritually based activities subscale score of the RCAS, PRQ2000 total score) and well-being (spiritual, SWBS; psychosocial, LSI-A; physical, SRH) at months 11, 12, and 13 following spousal death (see Table 9, p.83 and Table 10, p.84).

Table 8.

Pearson Correlations of Spousal Bereavement-Related Stress with Coping

Spousal Bereavement-Related Stress Month (N)		Coping with Spousal Bereavement-Related Stress	
		Spiritual (RCAS)	Social Support (PRQ2000)
AM Cort	11 (45)	.17 (47)	-.03 (47)
	12 (44)	-.05 (46)	.01 (46)
	13 (41)	-.15 (45)	.03(45)
PM Cort	11 (45)	-.15 (47)	-.16 (47)
	12 (45)	-.08 (46)	-.21 (46)
	13 (41)	-.09 (45)	-.15 (45)
Cortisol AUC12	11 (41)	-.01 (47)	-.02 (47)
	12 (41)	-.20 (46)	-.10(46)
	13 (34)	-.20(45)	-.15(45)
Intrusion Avoidance IES	11 (46)	.00 (47)	-.34 * (47)
	12 (46)	-.02 (46)	-.50 ** (46)
	13 (46)	-.09(45)	-.40 ** (45)

* $p \leq .05$ (two-sided) ** $p \leq .01$ (two-sided)

Table 9.

Pearson Correlations of Spiritual Coping with Well-Being

Month (N)		Well-Being		
		Spiritual SWBS	Psychosocial LSI-A	Physical SRH
Spiritual RCAS	11 (47)	.59 * (47)	.02 (47)	.00 (47)
	12 (46)	.61* (46)	-.01 (45)	-.02 (46)
	13 (45)	.47 * (45)	.11 (45)	-.05 (45)

* $p \leq .05$ (two-sided) ** $p \leq .01$ (two-sided)

Table 10.

Pearson Correlations of Social Support Coping with Well-Being

		Well-Being		
		Spiritual SWBS	Psychosocial LSI-A	Physical SRH
Social Support	11 (47)	.24 (47)	.20 (47)	.24 (47)
	12 (46)	.26 (46)	.52 ** (45)	.19 (46)
	PRQ 2000 13 (45)	.76 ** (45)	.60 ** (45)	.34 * (45)

* $p \leq .05$ (two-sided) ** $p \leq .01$ (two-sided)

As predicted, spiritual coping was significantly related to spiritual well-being at all three measurement times ($r = .47$ to $.61$). However, spiritual coping was not related to psychosocial or physical well-being at any of the three measurement times. Although there was no relationship between social support coping and well-being at month 11, social support coping was positively related to well-being (spiritual, psychosocial, physical) at month 13 ($r = .34$ to $.76$) and to psychosocial well-being at month 12. This hypothesis was partially supported.

- **H #4:** Spousal bereavement-related stress (salivary cortisol, intrusion-avoidance) will be higher at the 12th month when compared to the 11th and 13th months following the death of the spouse.

A repeated measures (RM) ANOVA with planned comparisons using a general linear model was used to determine if spousal bereavement-related stress (morning salivary cortisol average, evening salivary cortisol average; intrusion-avoidance, IES total

score) was higher at month 12 compared to month 11 and if month 12 was higher than month 13. The effect size reported for all planned comparisons is partial eta squared (η^2). See Table 11 (Appendix U, p.187) for all RM-ANOVA cell means and standard deviations. Inspection of Table 12 (below) indicates that contrasts for the IES show no significant difference between month 11 and month 12 using alpha of .025. However, contrasts for the IES show that the month 12 mean was significantly higher than the month 13 mean. Although there were no differences in average cortisol for month 11 vs.12 or month 12 vs.13, time of day was significant as expected. The difference between morning and evening afternoon cortisol levels was the same across months in both comparisons.

Table 12.

Planned Comparisons: Psychological and Physiological Stress within Subject Contrasts

Measure	N	Month	df	t	Partial η^2	p
Cortisol	41	11 vs. 12	40	1.29	.040	.202
	41	12 vs. 13	40	2.12	.001	.833
Cortisol-Time of Day	41	ampm	40	14.65	.843	.000*
Cortisol-Month by Time of Day	41	11 vs. 12	40	.58	.008	.563
	41	12 vs. 13	40	1.31	.041	.198
IES (Intrusion-Avoidance)	44	11 vs. 12	43	1.49	.049	.144
	44	12 vs. 13	43	2.54	.131	.015 *

* $p \leq .05$

- **H #5:** Spousal bereavement-related coping (spiritually based activities subscale, RCAS; social support, PRQ2000) will differ at month 12 when compared to the 11th and 13th months following the death of the spouse.

A RM ANOVA planned comparison analyses evaluated differences in coping (spiritually based activities subscale, RCAS; social support, PRQ2000) between month 11 and month 12, and also between month 12 and month 13. Table 11 (Appendix U, p. 187) contains cell means and standard deviations. As indicated in Table 13 (below), no significant differences were found; therefore, this hypothesis was not supported.

Table 13.

Planned Comparisons: Tests of Within Subject Contrasts for Coping Measures

Measure	N	Month	df	t	Partial η^2	p
RCAS	44	11 vs. 12	43	1.88	.076	.067
		12 vs. 13	43	1.79	.070	.080
PRQ2000	42	11 vs. 12	41	.28	.002	.777
		12 vs. 13	41	1.48	.001	.885

- **H #6:** Well-being (spiritual, psychosocial, physical) will be lower at the 12th month when compared to the 11th and 13th months following the death of the spouse.

A RM ANOVA planned comparison analyses evaluated differences in well-being (spiritual, SWBS; psychosocial, LSI-A; and physical, SRH) between month 11 and month 12, and between month 12 and month 13. Again, no significant differences were found (see Table 14, p.87). This hypothesis was not supported.

Table 14.

Planned Comparisons: Tests of Within Subject Contrasts for Well-Being

Measure	N	Month	df	t	Partial η^2	p
SWBS	42	11 vs. 12	41	1.31	.040	.196
		12 vs. 13	41	1.33	.003	.746
LSI-A	44	11 vs. 12	43	1.25	.055	.123
		12 vs. 13	43	1.42	.045	.163
SRH	45	11 vs. 12	44	1.39	.042	.170
		12 vs. 13	44	.48	.005	.633

Description of PRQ85 Data

The PRQ85 was used to assess: a) who would be sought for support in the event of 9 hypothetical situations, b) whether the hypothetical situation was experienced by the widow in the previous month, and c) the widow's level of satisfaction. The frequency data from the PRQ85 is used for descriptive purposes and is not scored as a total. This tool presents nine hypothetical scenarios for which a person might require assistance. These scenarios include having urgent needs, caring for a sick family member, needing advice, feeling lonely, needing financial guidance, having trouble with a family member, experiencing sickness, needing someone to talk to, and being upset with life.

The participant was asked to choose as many as apply from 13 sources of help for each scenario. These sources included: parent, significant other, children, relative, friend, neighbor, spiritual advisor, professional, agency, self-help group, other, no-one (prefer to do it alone), or no-one available. Frequency results from the PRQ85 are found in Table 15, (p. 89) and are entered according to the number of cases responding to each scenario and the corresponding percentage. The parent choice and significant other choice were not included in the table as both were chosen only three times. The choices of no one (prefer to do it alone) and no one available are combined in Table 15.

Participants in this study consistently chose children in high percentages for all scenarios across all three months. Relative was chosen almost as consistently with the exception of the scenario describing financial difficulties. For urgent needs, needing advice, feeling lonely, being sick, needing to talk, or having a work related problem participants in this study consistently chose friend as another support source. Widows who chose spiritual advisor selected that support with more frequency for urgent needs and needing advice than for other scenarios. All other support options were chosen with less frequency and consistency in each scenario.

The other portion of the PRQ85 asks the respondent if they experienced the designated issue in the previous month, and, if so, their satisfaction with received support. Table 16 (p. 90) shows the number of those who experienced the designated issue and the corresponding frequency of satisfaction. The latter is reported as the combined frequency of those who responded with a 'little satisfied,' 'fairly satisfied', or 'very satisfied.' The highest number of cases occurred for 'felt lonely' in month 12 (n=29; 65%). Combined satisfaction was 50% or greater for all support issues experienced with the exception of needed help caring for a sick family member (0%) and needed advice (40%) both of which occurred in month 13.

Table 12.

PRO85 Possible Support Sources

Issue	Mo	N	Child *n	Relative n	Friend n	Neigh/Co n	SpirAd n	Profes. n	Agency n	Self- Help n	Other n	No One n
Urgent Needs	11	47	39	22	18	11	20	11	1	3	3	
	12	46	37	21	18	9	14	12	2	1	2	
	13	45	37	23	29	11	22	9	2	2	2	1
Help/sick family	11	44	29	19	10	4	9	17	4		3	
	12	46	29	19	11	7	4	15	5	3	1	1
	13	43	33	17	14	6	4	16	5		1	2
Need advice	11	46	33	16	16	2	18	10	1		1	2
	12	45	30	19	18	2	17	12		3	1	1
	13	45	29	19	17	2	13	10	1		1	3
Finance Problem	11	47	33	11	4		1	3	5		8	7
	12	45	29	8	5			6	3	15	5	3
	13	45	34	12	4		1	7	5		6	1
Lonely	11	47	33	21	30	7	9	7		4	1	5
	12	46	27	26	37	11	6	2		2	1	4
	13	45	27	13	19	1	16	5		3	1	2
Sickness	11	47	30	15	16	8	1	9	2		2	
	12	45	37	23	29	11	22	9	2	2	3	1
	13	44	33	18	20	5		10	4		1	1
Upset with life	11	47	29	22	21	2	15	5		2	2	3
	12	46	28	17	23	2	12	8	1	2	3	5
	13	45	27	13	19	1	16	5		5	1	5
Work Problem	11	46	34	9	23	5	4	4		1	3	5
	12	46	25	11	12	7	1	8		8	5	6
	13	45	25	14	19	4	2	8	2	2	2	3
Need to talk	11	47	32	24	26	6	11	6		2	2	3
	12	46	29	22	27	4	11	2		1	1	4
	13	44	30	20	26	4	10	6	1	5	1	4

* Respondents for each source of support

Table 16.

Respondents Who Experienced Issue and Were Satisfied with Social Support Received

Issue	Month	(N)	Experienced Issue (cases)	Support Satisfaction* (cases)
Urgent needs	11	45	13	10
	12	43	10	9
	13	43	9	8
Needed help caring for sick family member	11			
	12	43	1	1
	13	45	2	0
Needed advice	11	47	6	4
	12	42	6	6
	13	45	5	2
Financial problems	11	46	5	4
	12	44	4	3
	13	45	2	2
Felt lonely	11	46	25	17
	12	44	29	23
	13	45	18	15
Was sick	11	46	4	4
	12	43	1	1
	13	45	5	5
Upset with life	11	46	14	13
	12	43	9	7
	13	45	6	3
Work problems	11	44	3	3
	12			
	13	44	4	4
Needed to talk	11	46	19	17
	12	44	16	15
	13	45	10	7

*Frequency of those who indicated being a little satisfied, fairly satisfied, or very satisfied

Salivary Cortisol Diary Data: Daily Stress

Participants used the salivary cortisol diary each month to enter am and pm time of saliva collection for three days. Participants also were asked to respond to the following question, "What is the most stressful or upsetting thing you have had to handle during these three days?" Twelve categories of identified stress (Table 17, p. 92) emerged from the content analysis of the data.

At least one stressor was identified by 23 women in month 11, 33 in month 12, and 27 in month 13. Not surprisingly, the most frequently cited stressor occurred during month 12 and the stressor identified was the death of the spouse. Women wrote "This is the anniversary of my husband's death," or "the anniversary is near" and often included memories of the husband's failing health.

One widow used the approach of the first anniversary of the death of her second husband as time of reminiscence about the death of her first husband. Her lengthy response also included familiar themes found in most other responses, i.e., "I just wish he was here," "I feel cheated of time with him," and "I am grateful for the time I had with him."

Seven of the twelve stress categories were mentioned each month: daily life, death of friend or family member, health (personal): physical, holidays, household maintenance, study participation, and the weather. Examples of daily life stressors included completing the GED, travel plans, and dating. While personal physical health was identified as the most stressful or upsetting thing for five women in each of the three months, examination of the self rated health questionnaire indicated at least 35% of the sample had one or more doctor appointments per month. Reasons for doctor visits

included obtaining regular check-ups, chronic illness management, and treatment for an accidental (car accident, fall) or sudden illness related (heart attack) issue.

While some women identified holidays as stressful reminders of the loss of the spouse, one widow stated that the Easter vigil was a comfort as it occurred during the time of the anniversary of the death of her spouse. In the area of household maintenance there were several references made to taking on roles previously shared with or held solely by the husband. Interestingly, more women cited the stress of household maintenance issues than household financial issues.

One widow responded that the questionnaire packet did not address all she has had to learn in her husband's absence, and there were some who identified the stress of remembering saliva sampling. For all three months, women used the three categories of daily life, health (personal): physical, and household maintenance more than the other nine categories.

Table 17.

Identified Stress

Stress Identified	Month 11 (N=47)	Month 12 (N=46)	Month 13 (N=46)
	N (%)	N (%)	N (%)
Daily Life	2 (4)	4 (9)	5 (11)
Death of Husband		16 (35)	1 (2)
Death: Friend/Family	2 (4)	1 (2)	3 (6)
Health (Family)	8 (17)		1 (2)
Health (Personal): Physical	5 (11)	5 (11)	5 (11)
Health (Personal): Emotional	2 (4)		2 (4)
Holidays	3 (6)	1 (2)	2 (4)
Household: Financial		2 (4)	2 (4)
Household: Maintenance	9 (19)	5 (11)	8 (17)
Study-Related	3 (6)	1 (2)	3 (6)
War	1 (2)	1 (2)	
Weather	1 (2)	2 (4)	2 (4)

Self-Rated Health: Anniversary Remembrance Activity

In month 13 an additional statement on the self-rated health questionnaire asked for a description of any anniversary activities that occurred in month 12. Five categories of anniversary remembrance activities derived from content analysis of the data were religious/memorial, grave related, communicating with others, personal care, and communication with the husband (Table 18, below). Visiting the gravesite alone or with family members was the most commonly described remembrance activity. Other frequently described activities were communicating with the husband, having a mass said or attending a memorial service, and visiting with family. The finality of the husband's death was echoed in one widow's statement, "Now it's real," and in the recognition that, "I have to work at this everyday." One widow responded by saying, "I didn't do anything for the anniversary. I do not celebrate death, I celebrate life."

Table 18.

Anniversary Remembrance Activity

Remembrance Activity	N (%)	Remembrance Activity	N (%)
Religious/Memorial		Grave-Related	
Memorial Service/Mass	7 (14)	Visited grave	15 (32)
Candle lighting/Flower on Altar	4 (8)	Selected a headstone	1 (2)
Communicating with others		Personal Care	
Visiting with family	6 (13)	Had massage	2 (4)
Lunch with minister	1 (2)	Received flowers	1 (2)
Dinner with friends/family	2 (4)		
Wrote to friends/family	1 (2)	Communicating with husband	
Communicating with husband		Thanking him	1 (2)
Thinking/reflecting about him	4 (8)	Writing him a letter	1 (2)
Talking to him	3 (6)	Crying about him	2 (4)
Asking him for help/praying	1 (2)		

Chapter Five

Discussion

Introduction

While the bereavement process of older widows has been studied over several decades, there has been a notable gap in information regarding bereavement during the first anniversary of spousal death. This study sought to fill that gap.

The purpose of this exploratory study was to describe relationships among personal (optimism) and environmental (social network) resources, spousal bereavement-related stress (psychological, physical), coping (spiritual, social support) and well-being (spiritual, psychosocial, physical) in older women during months 11, 12, and 13 of the first year of bereavement. The secondary purpose was to examine changes, if any, among study variables between month 11 and 12 and between month 12 and 13. This chapter will present a discussion of the sample profile, results, limitations of the study, and implications for future research.

Sample Profile

The study sample comprised 47 older women in the first year of spousal bereavement, residing in independent living settings within 150 miles of Rapid City, SD. Living arrangements included independent senior residences, apartments, privately owned condominiums, houses, trailers, or ranch property. Many of the widows expressed altruistic reasons for participation, e.g. "If others (widows) can benefit from my experience, I'll help," or "I want to help you with your project." Others deemed the study topic important and worthy of their time. One widow's genuine disappointment about not being included in the study due to her temporary Arizona winter residence

provided impetus for the nurse researcher to seek IRB approval to enroll this widow. IRB granted approval.

As subject burden was a concern in this study of older bereaved women it is noteworthy that only two participants expressed frustrations with study demands. While there were no complaints during months 11 and 12, one widow verbalized anger during month 13 regarding the “irrelevant content of the questionnaire packet.” She emphasized, “This does not address anything I am going through, what it’s like to have to get a job, pay the bills, and live without my husband.”

During a follow-up visit after month 13, another widow expressed exasperation with the packet length saying, “Sometimes I felt like circling just any old thing.” None of the women complained about the saliva sampling procedure, indeed, several participants made arrangements to allow for sampling that occurred during travel and hospitalization. Overall these women were diligent and compliant in data collection.

Relationships among Study Variables

The first aim of this study was to examine relationships among study variables, i.e., optimism, social network, stress (psychological, physiological), coping (spiritual, social support), and well-being (spiritual, psychosocial, physical). It was hypothesized that optimism and social network would be inversely related to stress, but positively related to coping and well-being. It was further hypothesized that spousal bereavement-related stress would be positively related to coping, and that coping would be positively related to well-being.

Resources (Optimism and Network) with Bereavement-Related Stress

As expected, optimism was inversely related to bereavement-related stress across

all three time periods but this relationship was true only for bereavement-related psychological stress as measured by IES. This finding was not isolated to the 12th month, which demonstrates the importance of the longitudinal design and the stability of this relationship over time. Previous data support an inverse relationship between dispositional optimism and psychological stress using measures other than the IES (Atienza, Stephens, & Townsend, 2002; Cassidy, 2005), lending credence to the relevance of dispositional optimism during times of psychological stress.

Since optimists believe a desired goal is attainable, will overcome adversity to attain that goal, and expect a positive outcome for their efforts (Scheier & Carver, 1987) the variable of goal attainment within the bereavement process might further be considered. Optimism may also influence the cognitive appraisal of an event as stressful (Peterson, 2000) which points to the inclusion of appraisal as another variable associated with optimism in bereavement-related stress.

All correlation results for optimism and bereavement related stress as measured physiologically were in the expected direction, however, significance was found only for months 12 am and 13 pm cortisol as well as for AUC₁₂ at months 12 and 13. Cortisol data had incomplete and missing samples, thus affecting the sample size for each month's correlations. The significance of the cortisol AUC₁₂ in months 12 and 13 represents the averaged cortisol activity for those months.

Previous studies support the inverse relationship between dispositional optimism and salivary cortisol (Matheson & Cole, 2004; Nes, Segerstrom, & Sephton, 2005). However, these studies used salivary cortisol to measure responses in undergraduate student samples to intentionally provoked stressful stimuli while the present study used

cortisol as a measure of stress associated with a natural event, i.e., the death of a spouse. Since salivary cortisol is a general measure of stress, participants' cortisol levels also may reflect non bereavement-related stress as well as the stress associated with bereavement. In older adults, salivary cortisol is a valuable measure of stress over a long period of time but less effective as a marker of acute stress (Ice, 2005). A larger sample and prolonged data collection are needed to clarify patterns of salivary cortisol measurement throughout the bereavement process, especially during the time of the first anniversary.

Although all correlations between social network and stress were in the expected direction significance occurred at month 13 for psychological and physical stress and at month 12 for psychological stress only. The mixed results bear further investigation and may reflect the small sample size.

The literature provides no clear explanation for these results. One previous study showed no relationship between social network and psychological stress in first time mothers over a one year period (Stemp, 1986). With respect to physiologic stress, a previous study of women with breast cancer found no significance between network and salivary cortisol based on analysis of more than two daily cortisol samples (Turner-Cobb, Sephton, Koopman, Blake-Mortimer, & Spiegel, 2000). A review of the relevant literature indicates comparatively few studies that single out social network from the measurement of social support in relationship to stress. Since social network is often embedded into the measurement of social support, there is less known about the relationship between social network and stress, particularly within a longitudinal design.

Social networks are a source of positive and negative interactions. For the elderly, the negative interactions may occur less but cause more distress so as to

outweigh the benefits of positive interactions (Rook, 2003). The significance found in month 12 and 13 suggest the social networks of the widows in this sample were a source of positive, rather than exacerbating, interaction. Use of larger samples and extended longitudinal timeframes (e.g., 6 months to 18 months post loss) are indicated as is information regarding the negative and positive aspects of the widows' network, and network substitution related to spousal bereavement (Zettel & Rook, 2004).

Resources (Optimism and Network) with Coping

Optimism was positively related to spiritual coping in month 12 but not in months 11 and 13. The hypothesized relationship between optimism and social support coping was supported for months 12 and 13 only. While these inconclusive findings about the relationship between optimism and coping with spousal bereavement-related stress require further study, some preliminary observations can be made keeping in mind the common overlap of spiritual/religious terms.

Previous results have shown that optimism was positively related to positive religious coping (Ai, Peterson, & Huang, 2003) and that private prayer predicted optimism and older age in those awaiting cardiac surgery (N= 246) although type of prayer and general measures of religiosity were unrelated to optimism (Ai, Peterson, Bolling, & Koenig, 2002). The separate measurement of positive and negative religious coping actions (Tarakeshwar, Vanderwerker, Paulk, Pearce, Kasl, & Prigerson, 2006) and the consideration of optimism as a characteristic of strong religious beliefs (Koenig, 1995) provide reason to further study the relationship of optimism with spiritual coping in older widows.

The positive relationship between optimism and social support is congruent with McNicholas (2002) who found a positive relationship between social support and optimism, measured by the PRQ2000 and LOT-R, in men and women (N=206, mean age 49, SD=5.94) using a mediational model ($\beta=.51$, $p<.001$). Moreover, in adult women (N=101, mean age=30.96, SD= 6.68) a positive relationship was reported between dispositional optimism and satisfaction with social support (Fontaine & Seale, 1997). Social support is an essential component to spousal bereavement adjustment (Michael, Crowther, Schmid, & Allen, 2003), however, prolonged grief can be viewed negatively by the potential support network and widows may receive less support over time (Moss, Moss, & Hansson, 2001). Optimism may be a factor in maintaining social connection throughout the anniversary period and into the next phase of the spousal bereavement process.

Social network was unrelated to spiritual coping and no other literature was found to refute or support this finding. Despite mounting evidence of the importance of social support in coping with bereavement, there is still much to learn about issues relating to network (Stelle & Uchida, 2004). While social network substitution occurs in response to losses (Antonucci, 1985), and widows vary in their forms of substitution, the benefits of substitute ties are elusive (Zettel & Rook, 2004). Knowledge of pre-widowhood network status would also lend understanding to network rebuilding following spousal loss. Further studies might include the use of additional RCAS subscales or the use of the Many Methods of Religious Coping (RCOPE) (Pargament, Koenig, & Perez, 2000) which specifies key religious functions that positively and/or negatively affect the outcomes of major life stressors (Stroebe, 2004).

The positive relationship found between social network and social support coping occurred for all three months. This finding supports previous evidence of high social support efficacy and resources in widows (Fry, 2001b). It is also suggestive of social networks that are responsive to the dynamic nature of need following spousal bereavement (Stelle & Uchida, 2004). As a point of contrast, network size was unrelated to differences in social support in early (less than 500 days) and later (more than 500 days) bereaved widowers (Balaswamy, Richardson, & Price, 2004). A comparison of these results with the conclusions reached by Fry suggests gender differences within the spousal bereavement process (Stelle & Uchida).

Resources (Optimism and Network) with Well-Being

Optimism showed significant correlations with all well-being as hypothesized. This supports previous findings (Fry, 2001b) that optimism is a predictor of psychological well-being in older widows, and strongly supports the role of optimism in overall well-being with the additional information about spiritual and physical well-being. No other literature has been found that includes spiritual and physical well-being as measured in this study. However, optimism was related to health enhancing behavior in college students (Mulkana & Hailey, (2001) and with higher levels of pulmonary functioning (independent of smoking) in older men (Kubzansky, Wright, Cohen, Weiss, Rosner, & Sparrow, 2002).

Social network correlated in the expected direction with spiritual well-being only at month 13 and with psychosocial well-being at month 12 and 13. There was no relationship between social network and physical well-being. The latter finding is not surprising given the brief 3 item tool used to assess perceived health. However this does

warrant clarification with the use of a more extensive instrument given documentation of the significant inverse relationship between social network and specific health outcomes such as coronary artery disease (Rutledge et al., 2004), physical symptoms in the elderly (Cohen, Terisi, & Holmes, 1986), and hospitalization risk for recently (2 years or less) widowed older women (Laditka & Laditka, 2003).

Although a growing data base exists regarding the influence of faith based/church based networks on health and well-being (Peterson, Yates, & Atwood, 2002), no previous studies were found regarding a relationship between social network and spiritual well-being. The significant relationship between social network and spiritual well-being found only during month 13 in this study warrants further examination with a larger sample to determine if this finding indicates an important role for social network following the anniversary of spousal death.

Network characteristics of size, density, geographic dispersion, and reciprocal support were not related to psychological well-being (Israel & Antonucci, 1987). However, the type of support was a mechanism by which network types (family or friends) affected mental health in older adults, i.e., the absence of family in the context of friends was less detrimental than the absence of friends in the context of family (Fiori, Antonucci, & Cortina, 2006). The significant relationship between social network and psychosocial well-being during the anniversary month and following may suggest effective network quality in this sample.

Stress with Coping

All correlations of physiologic bereavement-related stress with spiritual coping and social support coping were not significant. While previous evidence supports an

inverse relationship between self-reported spirituality/religiosity and cortisol (Ironson et al., 2002; Tartaro, Luecken, & Gunn, 2005), the absence of such a relationship in the widowhood data could be reflective of the small sample size or the use of only one RCAS subscale to assess spiritual coping. The absence of a relationship between social support and physiological stress in the present study is similar to previous data from a health maintenance organization (HMO) (Rosal, King, Ma, & Reed, 2004). However, evidence of an inverse relationship between salivary cortisol and perceived social support was reported in women with metastatic breast cancer (Turner-Cobb et al., 2000).

Although psychological bereavement-related stress was unrelated to spiritual coping, it was inversely related to social support coping at all three time periods. No previous research was found related to a direct relationship between spiritual coping and psychological stress in older women. However, in a sample of HIV positive mothers (N=252, mean age 35.34, SD= 8.5) a direct relationship was reported between religious involvement (four religious activity items gleaned from coping tools) and stress specific to low income, inner city women (Prado, Feaster, Schwartz, Pratt, Smith, & Szapocznik, 2004) using a structural equation model. Furthermore, greater religious involvement was related to lower psychological distress (measured by the Brief Symptom Inventory) with social support as a mediator in this relationship. Further examination of the relationship between spiritual/religious coping and psychological stress in older widows is warranted.

While psychological stress was predicted to be positively related to social support, findings indicated an inverse relationship at all three time periods. This finding is consistent with inverse relationships reported in Israeli women with breast cancer (N=64, mean age of 51.39 years, range 30-66) (Gilbar, 2005), in women with rheumatoid

arthritis (N=52, mean age 60 years) (Curtis, Groarke, Coughlan, & Gsel, 2004) and in veterans with spinal cord injury (N=165, mean age 55 years) (Rintala, Robinson-Whelen, Matamoros, 2005). These data suggest the important role of perceived social support as a coping resource (Prado et al., 2004) during life transition and chronic illness in varied samples, including older widows.

The lack of support for the hypothesized relationship between bereavement-related stress (physiological and psychological) and social support coping in older widows deserves further discussion. The hypothesized relationship between stress and social support coping in older widows was exploratory based on a) a combined stress/coping/ life transitions framework wherein coping is an effort to manage psychological stress (Lazarus, 2001; Schaeffer & Moos, 2001), b) inconclusive literature regarding the association between stress and social support in bereavement, and c) no existing studies on cortisol in older widows found during dissertation proposal development. Higher levels of stress were thought to be related to higher levels of perceived social support based on widows strengthening old ties, finding new sources of support as a result of bereavement, and reaching out more to perceived sources during bereavement-related stress (Schaeffer & Moos). Clearly, this was unfounded based on the findings with older widows, and literature regarding the relationship between social support and stress in other samples. More study is needed to identify and confirm the relationships among social support coping, bereavement-related stress and other sources of stress in older widows during the anniversary period and throughout the bereavement process.

Coping with Well-Being

The relationships between coping and well-being in this sample of older widows were mixed. While spiritual coping was related to spiritual well-being at all three time points it was not related to psychosocial or physical well-being. Social support coping was related to all of well-being during month 13 only and to psychosocial well-being at month 12. No significant differences in coping were found across the three months.

Strong relationships between coping strategies and well-being have been reported in older women (Downe-Wamboldt, & Melanson, 1998; Fehring, Miller, & Shaw, 1997; Kling, Seltzer, & Ryff, 1998). There were no previous findings linking spiritual and social support coping with three aspects of well-being as in the present study. The use of only one RCAS subscale to assess spiritual coping and the brevity of the Self-Rated Health instrument as a measure of physical well-being may have influenced the results. However, there was a consistent relationship between spiritual coping and spiritual well-being. It is possible that the relationship between spiritual coping and spiritual well-being was sufficiently robust to counteract the limitations of the small sample size and the spiritual coping measure. These data underscore the relevance of further investigation of aspects of well-being in older widows during the anniversary period and throughout the bereavement process.

Stress, Coping, and Well-Being Across Three Months

There were no differences in coping and well-being during the three months of the anniversary period. The only difference for stress was for month 12, which was higher, when compared with month 13 as measured by the IES. The fact that month 12 was not significantly higher than month 11 suggests that the time preceding the anniversary may be as stressful as the actual month of the anniversary. These results

could be clarified with a larger sample and a longer data collection before and after the anniversary. Since the IES appears to tap into the intrusive-avoidant thought processes specific to the death of the spouse, this instrument is an appropriate gauge throughout the bereavement process to determine periods that may be more stressful for older widows.

Although there was limited significance found through planned comparison analyses and the correlation results in this study, there is an interesting pattern with respect to the bereavement-related stress variable. All statistical findings that were significant for stress as measured by cortisol were also significant for stress as measured by IES; however, the reverse was not true. That is, there were significant findings when stress was measured by IES but those findings were not always significant when stress was measured by cortisol. When compared to cortisol, IES is the more bereavement-specific measure in this study since participants were asked to respond to the questionnaire with respect to the death of the spouse. While salivary cortisol appears to offer less interpretive significance as a bereavement-specific measure of stress as does the IES, it remains a viable option as a biomarker for daily stress in older individuals (Ice, 2005).

Limitations of the Study

The primary limitation in this study was related to sample. The sample size of 47 was less than the 62 participants needed to fully power this study. A larger sample size would likely detect relationships and differences that were insufficiently robust to be detected with a smaller sample size. Another limiting factor related to sample was homogeneity of ethnicity. Despite an absence of sampling restrictions based on ethnicity, only Caucasian women participated in the study. There is a large Lakota Sioux Indian

population in Western South Dakota, however, the few potential participants of this ethnic background found through obituary notices resided outside the 150 mile radius designated in the study inclusion criteria. Overall, the geographic area from which the sample was recruited is ethnically homogenous.

The sample represented a self-select group since widows invited to participate had a choice about responding. There was a limited response to the large number of recruitment invitation letters sent to potential participants over a 2 ½ year period which indicates that a significant number of potential subjects elected not to participate. Few widows who met inclusion criteria declined after sending in the response card and receiving a follow-up phone call. Although the geographic area from which the sample was recruited was extended from a 60-mile radius to a 150-mile radius midway through this study, this geographical area is not densely populated. The use of a larger metropolitan area or multiple sites may have produced a larger and more diverse sample, thereby contributing to generalizability of findings.

A second limitation was the length of the study. The three month longitudinal design for this study was indicated based on previous bereavement, stress, and coping research findings. However, added months of data collection would present a more comprehensive picture of the patterns of relationships among variables and detect differences which might clarify the impact of the first anniversary period and as well as other times throughout the bereavement process.

The number of daily cortisol samples may have been a limitation in the study findings. There is a reported range of three to nine daily salivary samples in studies using cortisol as a biomarker of stress. These multiple daily samples were conducted within a

data collection period comprising days rather than months. Subject burden remains a concern, however, with an elderly sample and a longitudinal design spanning many months. The widows in this study did not complain about two daily samples for three days in a row. Nevertheless, rather than increasing the number of salivary cortisol samples per day, more information about daily stress responses may be gained by adding at least one or two sampling days per month.

Implications for Future Research

The exploratory nature of this study lends itself to a wide range of implications for further research particularly given the small sample. While a replication of the present study might be useful, it seems more pertinent to select aspects of the results as a basis for extended research. Three areas of future study are addressed according to implications for optimism, stress, and social support. These implications are made with an overall goal of data which will serve to educate health professionals about the bereavement process as well as provide information for the development of interventions.

Given the consistent relationships found between optimism and stress and well-being, the role of this personal resource should be substantiated with a larger sample and a longer data collection period throughout the bereavement process. Based on previous research supporting optimism as a predictor variable in health outcomes it may be important to assess this personal resource early in the bereavement process of widows. The role of optimism needs more study to determine if those who are not optimistic are at higher risk for health outcomes related to spousal-bereavement related stress. A contrast with a widower sample would ascertain influence of gender.

The present but inconsistent relationship between optimism and coping should be addressed in more depth. It could be that optimists are more likely to reach out for help because they have an expectation that people will be there for them, and because they are more confident in the support they perceive is available. Those with high optimism may place higher value on perceived social support. The association between spiritual coping and optimism deserves more study either with more RCAS subscales or another tool such as the RCOPE. Since only two types of coping were assessed in this study it is necessary to further examine the relationship of optimism to other types of coping throughout the bereavement process. The relationships found between optimism and the variables of stress, coping, and well-being support the need for further research into the mechanisms by which optimism influences these variables. This information would provide the foundation for intervention development and testing.

Bereavement-related psychological stress as measured with the IES was consistently related to optimism and social support coping. Since intrusive-avoidant thoughts were higher for month 12 than month 13 but not different from month 11, further study should ascertain patterns of intrusive-avoidant thoughts throughout other periods of the bereavement process. Additional data would clarify not only the impact of the first anniversary, but also many other types of 'anniversaries', i.e., holidays, birthdays, and each yearly anniversary date of the death of the spouse. It is necessary to sift out the influences of bereavement-related stress and normative age-related stress. The present study did not address age-related stress as a variable, but clearly there were physical symptoms in this sample which were reflective of the aging process and not necessarily defined by widowhood.

When widows were asked to identify something stressful or upsetting during each month the issue of appraisal was indirectly implied. There are other ways to measure appraisal and perceived stress which could yield data that better delineate the presence of bereavement-related stress versus other-related stress, and how it is perceived, i.e., as a loss, a threat, or a challenge. A combination of quantitative and qualitative methods in longitudinal designs could be used to identify the presence of stress, clarify the sources of stress, and determine the effectiveness of strategies used to cope with that stress.

Based on the results of this study, more focus is needed on the various components of social support, including social network. The core of bereavement adjustment revolves around transitions in social connectedness related to spousal bereavement and the aging process. A more comprehensive social support instrument would reflect social support changes throughout the bereavement process in the areas of network composition, network burden, informational, emotional, and instrumental needs, and reciprocity.

In summary, the multifaceted landscape of individual challenges and responses comprising the spousal bereavement process of older widows requires further study. Designs which analyze selected variables of the First Anniversary of Spousal Bereavement Conceptual Framework could more effectively determine the degree of influence of each variable throughout the process as well as during critical remembrance times. This knowledge is pertinent for education and intervention development, and should be applied towards understanding the personal growth outcomes of spousal bereavement as an extension of the present conceptual framework.

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Appendix A

Data Collection Schedule

	Time 1, Month 11	Time 2, Month 12	Time 3, Month 13
Demographic Data	X		
LOT-R	X	X	X
LSNS	X	X	X
Salivary Cortisol	6 samples	6 samples	6 samples
IES	X	X	X
RCAS	X	X	X
PRQ85/2000	X	X	X
SWBS	X	X	X
LSI-A	X	X	X
Self Rated Health	X	X	X

Appendix B

LOT-R (Life Orientation Test-Revised)

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer. For each item, **CIRCLE THE NUMBER** that best reflects how you feel according to the following key:

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

1. In uncertain times, I usually expect the best.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

2. It's easy for me to relax.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

3. If something can go wrong for me, it will.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

4. I'm always optimistic about my future.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

5. I enjoy my friends a lot.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

6. It's important for me to keep busy.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

7. I hardly ever expect things to go my way.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

8. I don't get upset too easily.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

9. I rarely count on good things happening to me.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

10. Overall, I expect more good things to happen to me than bad.

1- Agree a lot 2- Agree a little 3- Neither agree nor disagree 4 -Disagree a little 5- Disagree a lot

Appendix C

Lubben Social Network Scale

Directions: Please **CIRCLE** one response for each item.

1. How many relatives do you see or hear from at least once a month? (Include in-laws with relatives)

0-zero 1-one 2-two 3-three or four 4-five to eight 5-nine or more
2. Tell me about the relative with whom you have the most contact. How often do you see or hear from that person?

1- less than monthly 2- monthly 3- a few times a month 4- weekly
5 a few times a week 6- daily
3. How many relatives do you feel close to? That is, how many of them do you feel at ease with and can talk to about private matters, or can call on for help?

0-zero 1-one 2-two 3-three to four 4-five to eight 5-nine or more
4. Do you have any close friends? That is, do you have any friends with who you feel at ease, can talk to about private matters, or can call on for help? If so, how many?

0-zero 1-one 2-two 3-three or four 4-five to eight 5-nine or more
5. How many of these friends do you see or hear from at least once a month?

0-zero 1-one 2-two 3-three or four 4-five to eight 5-nine or more
6. Tell me about the friend with whom you have the most contact. How often do you see or hear from that person?

1- less than monthly 2- monthly 3- a few times a month 4-weekly
5- a few times a week 6- daily
7. When you have an important decision to make, do you have someone you can talk to about it?

0-Never 1-Seldom 2- Sometimes 3- Often 4- Very Often 5-Always
8. When other people you know have an important decision to make, do they talk to you about it?

0-Never 1-Seldom 2-Sometimes 3-Often 4-Very Often 5-Always

9a. Does anybody rely on you to do something for them each day? For example:
shopping, cooking dinner, doing repairs, cleaning house, providing child care, etc.

____ YES →

#10. Do you live alone or with other people?
(Include in-laws with relatives.)

0-Live alone

1-Live with other unrelated individuals (e.g., paid help)

4-Live with other relatives or friend

____ NO →

#9b. Do you help anybody with things like shopping, filling out
forms, doing repairs, providing childcare, etc.?

0-Never

1-Seldom

2-Sometimes

3-Often

4-Very Often

Appendix D

The Impact of Event Scale

Below is a list of comments made by people after stressful life events (such as loss of a loved one). Using the following scale, please indicate how frequently each of these comments were true for you **DURING THE PAST SEVEN DAYS** by **CIRCLING** one response for each item.

1. I thought about it when I didn't mean to

0-Not at all 1-Rarely 3-Sometimes 5-Often

2. I avoided letting myself get upset when I thought about it or was reminded of it

0-Not at all 1-Rarely 3-Sometimes 5-Often

3. I tried to remove it from memory

0-Not at all 1-Rarely 3-Sometimes 5-Often

4. I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my mind.

0-Not at all 1-Rarely 3-Sometimes 5-Often

5. I had waves of strong feelings about it.

0-Not at all 1-Rarely 3-Sometimes 5-Often

6. I had dreams about it.

0-Not at all 1-Rarely 3-Sometimes 5-Often

7. I stayed away from reminders of it.

0-Not at all 1-Rarely 3-Sometimes 5-Often

8. I felt as if it hadn't happened or wasn't real.

0-Not at all 1-Rarely 3-Sometimes 5-Often

9. I tried not to talk about it.

0-Not at all 1-Rarely 3-Sometimes 5-Often

10. Pictures about it popped into my mind.

0-Not at all 1-Rarely 3-Sometimes 5-Often

11. Other things kept making me think about it.

0-Not at all 1-Rarely 3-Sometimes 5-Often

12. I was aware that I still had a lot of feelings about it, but I didn't deal with them.

0-Not at all 1-Rarely 3-Sometimes 5-Often

13. I tried not to think about it.

0-Not at all 1-Rarely 3-Sometimes 5-Often

14. Any reminder brought back feelings about it.

0-Not at all 1-Rarely 3-Sometimes 5-Often

15. My feelings about it were kind of numb.

0-Not at all 1-Rarely 3-Sometimes 5-Often

Appendix E

Religious Coping Activities Scale

Please read the statements listed below. For each statement please **CIRCLE THE RESPONSE** that best represents to what extent the activity was involved in your coping with widowhood.

	Not at all	Somewhat	Quite a bit	A great deal
1. Trusted that God would not let anything terrible happen to me.	1	2	3	4
2. Experienced God's love and care..	1	2	3	4
3. Realized that God was trying to strengthen me.	1	2	3	4
4. In dealing with the problem, I was guided by God.	1	2	3	4
5. Realized that I didn't have to suffer since God suffered for me.	1	2	3	4
6. Used God as an example of how I should live.	1	2	3	4
7. Took control over what I could and gave the rest to God.	1	2	3	4
8. My faith showed me different ways to handle the problem.	1	2	3	4
9. Accepted the situation was not in my hands but in the hands of God.	1	2	3	4
10. Found the lesson from God in the event.	1	2	3	4
11. God showed me how to deal with the situation.	1	2	3	4
12. Used my faith to help me decide how to cope with the situation.	1	2	3	4
13. Tried to be less sinful.	1	2	3	4
14. Confessed my sins.	1	2	3	4
15. Led a more loving life.	1	2	3	4

	Not at all	Somewhat	Quite a bit	A great deal
16. Attended religious services or participated in religious rituals.	1	2	3	4
17. Participated in church groups (support groups, prayer groups, Bible studies).	1	2	3	4
18. Provided help to other church members.	1	2	3	4
19. Felt angry with or distant from God.	1	2	3	4
20. Felt angry with or distant from the members of the church.	1	2	3	4
21. Questioned my religious beliefs and faith.	1	2	3	4
22. Received support from the clergy.	1	2	3	4
23. Received support from other members of the church.	1	2	3	4
24. Asked for a miracle.	1	2	3	4
25. Bargained with God to make things better.	1	2	3	4
26. Asked God why it happened.	1	2	3	4
27. Focused on the world-to-come rather than the problems of this world.	1	2	3	4
28. I let God solve my problems for me.	1	2	3	4
29. Prayed or read the Bible to keep my mind off my problems.	1	2	3	4

Appendix F

Personal Resource Questionnaire (PRQ 85)

In our everyday lives there are personal and family situations that we must deal with. Some of these are listed below. Please consider each statement in light of your own situation. **CIRCLE** the number before the person(s) that you could count on most in each situation that is described. You may circle more than one number if there is more than one source of help that you count on. In addition, I would like to know if you have had this situation or a similar one currently this month and how satisfied you are with the help you received.

Q-1a. If you were to experience urgent needs (crisis), who would you turn to for help? (Please **CIRCLE** all that apply).

1. Parent 2. Child or children 3. Significant other 4. A relative or family member 5. Friend
6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc.)
8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency
10. Self-help group 11. No one (No one available) 12. No one (Prefer to handle it alone)
13. Other (Please explain) _____

Q-1b. Have you had urgent needs (crisis) this month?

1. YES  go to 1c. If you have experienced urgent needs (crisis) this month, to what extent do you feel satisfied with the help you received?

1. Very dissatisfied	4. A little satisfied
2. Fairly dissatisfied	5. Fairly satisfied
3. A little dissatisfied	6. Very satisfied
2. NO  go to Q-2a

Q-2a. If you needed help for an extended period of time in caring for a family member who is sick or handicapped, whom would you turn to for help? (Please **CIRCLE** all that apply.)

1. Parent 2. Child or children 3. Significant other 4. A relative or family member 5. Friend
6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc.)
8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency
10. Self-help group 11. No one (No one available) 12. No one (Prefer to handle it alone)
13. Other (Please explain) _____

Q-2b. Have you needed help in caring for a sick or handicapped family member this month?

1. YES  go to Q-2c. If you have needed help in caring for a sick or handicapped family member this month, to what extent do you feel satisfied with the help you received?

1. Very dissatisfied	4. A little satisfied
2. Fairly dissatisfied	5. Fairly satisfied
3. A little dissatisfied	6. Very satisfied

2. NO → go to Q-3a

Q-3a. If you needed help or advice for a problem with a family member or friend who would you turn to for help? (Please **CIRCLE** all that apply.)

1. Parent 2. Child or children 3. Significant other 4. A relative or family member 5. Friend
6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc)
8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency
10. Self-help group 11. No one (No one available) 12. No one (Prefer to handle it alone)
13. Other (Please explain) _____

Q-3b. Have you needed help or advice this month regarding a problem with a family member or friend?

1. YES → go to Q-3c. If you have needed help or advice this month regarding a problem with a family member or friend, to what extent do you feel satisfied with the help you received?

1. Very dissatisfied 4. A little satisfied
2. Fairly dissatisfied 5. Fairly satisfied
3. A little dissatisfied 6. Very satisfied

2. NO → go to Q-4a.

Q-4a. If you were having financial problems, whom would you turn to for help? (Please **CIRCLE** all that apply.)

1. Parent 2. Child or children 3. Significant other 4. A relative or family member 5. Friend
6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc.)
8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency
10. Self-help group 11. No one (No one available) 12. No one (Prefer to handle it alone)
13. Other (Please explain) _____

Q-4b. Have you had financial problems this month?

1. YES → go to Q-4c. If you have had financial problems this month to what extent do you feel satisfied with the help you received

1. Very dissatisfied 4. A little satisfied
2. Fairly dissatisfied 5. Fairly satisfied
3. A little dissatisfied 6. Very satisfied

2. NO → go to Q-5a

Q-5a. If you felt lonely, who would you turn to? (Please **CIRCLE** all that apply).

1. Parent 2. Child or children 3. Significant other 4. A relative or family member 5. Friend
6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc.)

8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency 10. Self-help group

11. No one (No one available) 12. No one (Prefer to handle it alone) 13. Other _____

Q-5b. Have you felt lonely this month

1. YES → go to Q-5c. If you have felt lonely this month, to what extent do you feel satisfied with the help you received?

- | | |
|--------------------------|-----------------------|
| 1. Very dissatisfied | 4. A little satisfied |
| 2. Fairly dissatisfied | 5. Fairly satisfied |
| 3. A little dissatisfied | 6. Very satisfied |

2. NO → go to Q-6a

Q-6a. If you were sick and not able to carry out your usual activities for a week or so, who would you turn to for help? (Please **CIRCLE** all that apply.)

1. Parent 2. Child or children 3. Significant other 4. A relative or family member 5. Friend

6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc.)

8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency

10. Self-help group 11. No one (No one available) 12. No one (Prefer to handle it alone)

13. Other (Please explain) _____

Q-6b. During this month have you been sick for a week and not able to carry out your usual activities?

1. YES → go to Q-6c If you have been sick this month to what extent do you feel satisfied with the help you received?

- | | |
|--------------------------|-----------------------|
| 1. Very dissatisfied | 4. A little satisfied |
| 2. Fairly dissatisfied | 5. Fairly satisfied |
| 3. A little dissatisfied | 6. Very satisfied |

2. NO → go to Q-7a.

Q-7a. If you were upset and frustrated with the conditions of your life, who would you turn to for help? (Please **CIRCLE** all that apply.)

1. Parent 2. Child or children 3. Significant other 4. A relative or family member 5. Friend

6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc.)

8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency

10. Self-help group 11. No one (No one available) 12. No one (Prefer to handle it alone)

13. Other (Please explain) _____

Q-7 b. Have you been upset and frustrated with the conditions of your life this month?

1. YES → go to Q-7c If you have been upset and frustrated with the conditions of your life this month, to what extent do you feel satisfied with the help you received?

1. Very dissatisfied 4. A little satisfied
2. Fairly dissatisfied 5. Fairly satisfied
3. A little dissatisfied 6. Very satisfied

2. NO → go to Q-8a

Q-8a. If you were having problems with your work at home or at your place of employment, who would you turn to for help? (Please CIRCLE all that apply)

1. Parent 2. Child or children 3. Significant other 4. A relative or family member 5. Friend
6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc.)
8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency
10. Self-help group 11. No one (No one available) 12. No one (Prefer to handle it alone)
13. Other (Please explain) _____

Q-8 b. Have you had problems related to your work this month?

1. YES → go to Q-8c. If you have had problems with your work situation this month, to what extent do you feel satisfied with the help you received?

1. Very dissatisfied 4. A little satisfied
2. Fairly dissatisfied 5. Fairly satisfied
3. A little dissatisfied 6. Very satisfied

2. NO → go to Q-9a

Q-9a. If you needed someone to talk to about your day-to-day personal concerns, who would you turn to for help? (Please CIRCLE all that apply).

1. Parent 2. Child or children 3. Significant other 4. A relative or family member
5. Friend 6. Neighbor or co-worker 7. Spiritual advisor (minister, priest, etc.)
8. Professional (nurse, counselor, social worker, employer, etc) 9. Agency
10. Self-help group 11. No one (No one available) 12. No one (Prefer to handle it alone)
13. Other (Please explain) _____

Q-9b. Have you needed someone to talk to about day- to-day personal concerns this month?

1. YES → go to Q-9c. If you have needed someone to talk to about day-to-day concerns this month, to what to what extent do you feel satisfied with the help you received?

1. Very dissatisfied 4. A little satisfied
2. Fairly dissatisfied 5. Fairly satisfied
3. A little dissatisfied 6. Very satisfied

2. NO

Appendix G

Personal Resource Questionnaire 2000 (PRQ2000)

Below are some statements with which some people agree and others disagree. There is no right or wrong answer. Please read each statement and **CIRCLE** the response most appropriate for you according to the following key:

1-Strongly Disagree 2- Disagree 3-Somewhat Disagree 4-Neutral
5- Somewhat Agree 6-Agree 7-Strongly Agree

- | | |
|--|---------------|
| 1. There is someone I feel close to who makes me feel secure | 1 2 3 4 5 6 7 |
| 2. I belong to a group in which I feel important. | 1 2 3 4 5 6 7 |
| 3. People let me know that I do well at my work.
(job, homemaking) | 1 2 3 4 5 6 7 |
| 4. I have enough contact with the person who makes me
feel special | 1 2 3 4 5 6 7 |
| 5. I spend time with others who have the same interests that I do. | 1 2 3 4 5 6 7 |
| 6. Others let me know that they enjoy working with me
(job, committees, projects) | 1 2 3 4 5 6 7 |
| 7. There are people who are available if I need help over an
extended period of time. | 1 2 3 4 5 6 7 |
| 8. Among my group of friends we do favors for each other. | 1 2 3 4 5 6 7 |
| 9. I have the opportunity to encourage others to develop
their interests and skills. | 1 2 3 4 5 6 7 |
| 10. I have relatives or friends that will help me out even if
I can't pay them back. | 1 2 3 4 5 6 7 |
| 11. When I am upset, there is someone I can be with
who lets me be myself. | 1 2 3 4 5 6 7 |
| 12. I know that others appreciate me as a person. | 1 2 3 4 5 6 7 |
| 13. There is someone who loves and cares about me. | 1 2 3 4 5 6 7 |
| 14. I have people to share social events and fun activities with. | 1 2 3 4 5 6 7 |
| 15. I have a sense of being needed by another person. | 1 2 3 4 5 6 7 |

Appendix H

SPIRITUAL WELL-BEING SCALE

Instructions: In the following section a variety of experiences are described. Please indicate how closely these experiences define your own personal religious experiences and attitudes by **CIRCLING** the appropriate number.

1 -Strongly Disagree 2 – Disagree 3- Somewhat Disagree
4-Somewhat Agree 5- Agree 6 -Strongly Agree

1. I don't find much satisfaction in private prayer with God.	1	2	3	4	5	6
2. I feel that life is a positive experience.	1	2	3	4	5	6
3. I believe that God loves me and cares about me.	1	2	3	4	5	6
4. I don't know who I am, where I come from, or where I'm going.	1	2	3	4	5	6
5. I believe that God is impersonal and not interested in my daily situation.	1	2	3	4	5	6
6. I don't enjoy much about life	1	2	3	4	5	6
7. I have a personally meaningful relationship with God.	1	2	3	4	5	6
8. I feel unsettled about my future.	1	2	3	4	5	6
9. I don't get much personal strength and support from God.	1	2	3	4	5	6
10. I feel that life is full of conflict and unhappiness.	1	2	3	4	5	6
11. I believe that God is concerned about my problems.	1	2	3	4	5	6
12. I feel very fulfilled and satisfied with my life.	1	2	3	4	5	6
13. I don't have a personally satisfying relationship with God.	1	2	3	4	5	6
14. Life doesn't have much meaning.	1	2	3	4	5	6
15. My relationship with God helps me not to feel lonely.	1	2	3	4	5	6

- | | | | | | | |
|--|---|---|---|---|---|---|
| 16. I feel a sense of well being about the direction my life is headed in. | 1 | 2 | 3 | 4 | 5 | 6 |
| 17. I feel most fulfilled when I am in close communion with God. | 1 | 2 | 3 | 4 | 5 | 6 |
| 18. I believe there is some real purpose in life. | 1 | 2 | 3 | 4 | 5 | 6 |
| 19. I feel good about my future. | 1 | 2 | 3 | 4 | 5 | 6 |
| 20. My relationship with God contributes to my sense of well being. | 1 | 2 | 3 | 4 | 5 | 6 |

Appendix I

Life Satisfaction Index-A

Here are some statements about life in general that people feel differently about. Would you read each statement on the list and if you agree with it put a **CHECK MARK** in the space by "**AGREE**". If you do not agree with a statement put a check mark in the space by "**DISAGREE**". If you are not sure one way or the other put a check mark in the space by "?". Please answer every question.

1. As I grow older things seem better than I thought they would be.
Agree ____ Disagree ____ ? ____
2. I have gotten more of the breaks in life than most of the people I know.
Agree ____ Disagree ____ ? ____
3. This is the dreariest time of my life.
Agree ____ Disagree ____ ? ____
4. I am just as happy as when I was younger.
Agree ____ Disagree ____ ? ____
5. My life could be happier than it is now.
Agree ____ Disagree ____ ? ____
6. These are the best years of my life.
Agree ____ Disagree ____ ? ____
7. Most of the things I do are boring or monotonous.
Agree ____ Disagree ____ ? ____
8. I expect some interesting and pleasant things to happen to me in the future.
Agree ____ Disagree ____ ? ____
9. The things I do are as interesting to me as they ever were.
Agree ____ Disagree ____ ? ____
10. I feel old and somewhat tired.
Agree ____ Disagree ____ ? ____
11. I feel my age but it does not bother me.
Agree ____ Disagree ____ ? ____
12. As I look back on my life I am fairly well satisfied.
Agree ____ Disagree ____ ? ____

13. I would not change my past life even if I could.
Agree ____ Disagree ____ ? ____
14. Compared to other people my age I've made a lot of foolish decisions in my life.
Agree ____ Disagree ____ ? ____
15. Compared to other people my age I make a good appearance.
Agree ____ Disagree ____ ? ____
16. I have made plans for things I'll be doing a month or a year from now.
Agree ____ Disagree ____ ? ____
17. When I think back over my life I didn't get most of the important things I wanted.
Agree ____ Disagree ____ ? ____
18. Compared to other people I get down in the dumps too often.
Agree ____ Disagree ____ ? ____
19. I've gotten pretty much what I expected out of life.
Agree ____ Disagree ____ ? ____
20. In spite of what people say the lot of the average man is getting worse not better.
Agree ____ Disagree ____ ? ____

Appendix J

Self-Rated Health

1. Compared to others your age, how would you describe your health?
 - 1- Excellent
 - 2- Good
 - 3- Fair
 - 4- Poor

2. How often does your health get in the way of things you want to do?
 - 1- Never
 - 2- Rarely
 - 3- Some of the time
 - 4- Most of the time
 - 5- All the time

3. To what extent, if any, are health worries a concern?
 - 1- Not at all
 - 2- Rarely
 - 3- Moderately
 - 4- Extremely

4. Have you visited the doctor this month? YES NO
 - a). If you visited the doctor, how many appointments did you have?
 1 2 3 4 5 or more
 - b). What were your symptoms or reasons for going to the doctor?

 - c). Who made the appointment?
 - 1- I made the appointment
 - 2- A friend made the appointment
 - 3- A family member made the appointment
 - 4- The doctor's office reminded me I needed an appointment

(For month 13 the following question was added to the self-rated health questionnaire)

Please describe any tradition, ritual, or remembrance activity you participated in last month in commemoration of the anniversary of your husband's death:

Appendix K

WIDOWHOOD: THE FIRST ANNIVERSARY

DEMOGRAPHIC DATA FORM

CODE # _____ DATE _____

1. Age _____

2. What is your husband's birth date (Month/Day/Year) _____

3. When were you married? (Month/Day/Year) _____

4. Was this your first marriage? Yes _____ No _____

If this wasn't your first marriage,

a). How many times have you been married before? _____

For each previous marriage:

1) Month/year of previous marriage _____

2) Month/year previous marriage ended _____

3) What was the reason the previous marriage (s) ended?

_____ Divorce

_____ Death

_____ Other

5. What was the cause of your husband's death? _____

6. How would you characterize your husband's death? Would you say it was:

a) _____ Anticipated _____ Unanticipated (sudden)

b) _____ Accidental _____ Not Accidental

7. Where was your husband when he died (e.g., home, hospital, hospice)?

_____ Home _____ Hospital _____ Nursing Home _____ Hospice _____ Other

8. Were you present when your husband died? _____ Yes _____ No

9. What is your religious affiliation? _____

10. How would you characterize your racial/ethnic origin?

American Indian or Alaskan Native _____

Asian or Pacific Islander _____

Black, not of Hispanic origin _____

Hispanic _____

White, not of Hispanic origin _____

Appendix L

Scoring Instructions

LOT-R: Items 2, 5, 6, and 8 are fillers and are non-scored. Remaining responses are recoded from the 1-5 scale to a 0-4 scale (1=4, 2=3, 3=2, 4=1, 5=0). Responses are coded so that high values imply optimism, therefore, positively worded items 1,4,and 10 are coded as appears in the tool, while negatively worded items 3,7, and 9 are reverse coded (1=0, 2=1, 3=2, 4=3, 5=4). Six items derive an overall optimism score ranging from 0-24; higher scores indicate higher levels of optimism, lower scores indicate pessimism. In this study the total score is reported.

LSNS: The LSNS score is obtained by adding the scores from each of the items. If each question is answered, the total score will be 0 to 50. Scores on each item are anchored from 0 to 5 to permit equal weighting of the ten items. For this study items 2, 6, and 9 were recoded and explained as follows. Item 2 was reproduced incorrectly in the copies of tools given to the participants. Choices for item 2 went from 1-5 instead of from 0-5 and one option was omitted, i.e., what should have been choice #3 and which would have read 'a few times a month.' Since it was decided that 'a few times a month' could also fall into the category of 'weekly' this item was recoded as follows: 1=0, 2=1, 3=3, 4=4, 5=5. Choices for item 6 ran from 1-6 instead of 0-5; therefore, this item was recoded as follows: 1=0, 2=1, 3=2, 4=3, 5=4, 6=5. Finally, the yes/no option for item 9 was coded 1=5 for a yes response and 2=0 for a no response.

IES: Total the scores (not at all= 0, rarely = 1, sometimes =3, often = 5) with higher scores reflecting more stressful impact. The scores for the intrusive subscale range from 0 to 35 and represent the sum of the scores for items 1, 4, 5, 6, 10, 11 and 14. The scores for the avoidance subscale range from 0 to 40 and represent the sum of the scores for items 2, 3, 7, 8, 9, 12, 13, and 15. The sum of the two subscales is the total stress score reported in this study.

PRQ 85/2000: Information for the PRQ 85 is not scored as a total but is used to interpret the widow's usage of and satisfaction with the social network. For this study the percentage of the

sample that chose each source of help for each hypothetical situation was reported based on creating variables that allowed for the calculation of multiple responses. The PRQ 2000 produces a total score ranging from 15-105 with higher scores indicative of higher perceived social support. No recoding was necessary.

RCAS: Items are summed for each subscale, which then provides several subscale scores for further analyses. Items 1-12 are spiritually based activities, items 13-18 are good deeds, items 19-21 are discontent, items 22-23 are interpersonal religious support, items 24-26 are plead, and items 27-29 are religious avoidance. In this study only the spiritually based activities subscale score was used.

SWBS Instrument: This tool is scored with a Likert type format, ranging from 1-6, with a higher number representing greater well-being. Negatively worded items should be reverse scored. Negatively worded items are: 1, 2, 5, 6, 9, 12, 13, 16, 18, and positively worded items are: 3, 4, 7, 8, 10, 11, 14, 15, 17, 19, 20. The negatively worded items were summed without recoding (strongly agree=1, etc), while the positively worded items were recoded before summing (strongly agree=6, etc. The sum of the ten even numbered items assesses existential well-being (EWB) while the sum of the ten odd numbered items assesses religious well-being (RWB). The score reported in this study was the overall SWB score, the summed response of all 20 items.

LSI-A: The total scale score is based on number of subject agreements with a possible total score of 0-20. Positively worded items 1,2,4,6,8,9,11,12,13,15,16,and 19 were given a point each for answering agree; negatively worded items 3,5,7,10,14,17,and 18 were given a point each if answering disagree. Recoded items were summed for a total LSI-A score.

Self- Rated Health: This 3 item Likert style tool has a total score ranging from 3-12 with a lower score indicating a higher perception of personal health. For this study, total scores were recoded (3=12, 4=11, 5=10, 6=9, 7=8, 8=7, 9=6, 10=5, 11=4, 12=3) so that a higher score indicated a higher perception of personal health.

NEBRASKA'S HEALTH SCIENCE CENTER
A Partner with Nebraska Health System

College of Nursing

IRB # 354-03-FB

ADULT INFORMED CONSENT FORM

TITLE OF THE RESEARCH STUDY

WIDOWHOOD: THE FIRST ANNIVERSARY: SPOUSAL-BEREAVEMENT-RELATED STRESS, COPING AND WELL-BEING IN OLDER WOMEN

INVITATION

You are invited to participate in this research study. The information in this consent form is provided to help you decide whether to participate. If you have any questions, please do not hesitate to ask.

WHY ARE YOU ELIGIBLE?

You are eligible to participate because you are a woman, 65 years of age or older, who has experienced the death of your spouse within the last 10 months and you live in your own home or retirement setting within a 150 mile radius of Rapid City, SD. In addition you are not remarried, do not take cortisone based medications, are not currently facing a terminal illness, and you have access to a telephone.

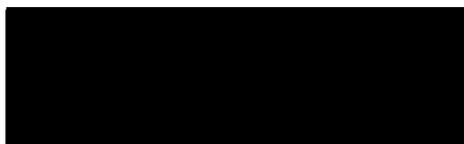
WHAT IS THE PURPOSE OF THIS STUDY?

The purpose of this study is to learn more about stress, coping and well-being in older widows during the time of the first anniversary of the death of the spouse, specifically during months 11, 12, and 13 following the death of the spouse.

WHAT DOES THE STUDY INVOLVE?

11th Month: The first interview will take place during the 11th month following your husband's death. You will be asked to fill out a packet of questionnaires, and will be shown how to collect a saliva sample. You will be given materials for saliva sample collection. You will be asked to collect morning and evening saliva samples for three consecutive days and will be instructed on how to store the saliva samples. You will also be given a calendar that highlights the days on which you will collect saliva samples and complete questionnaires during the 12th and 13th months.

_____ Participant's Initials



95330 Nebraska Medical Center/Omaha, NE 68198-5330/FAX:402-559-7570/www.unmc.edu

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12th and 13th Months: During each of these two months, you will be mailed questionnaire packets to complete. You also will receive a stamped addressed envelope for return of the completed questionnaires. You will again collect morning and evening saliva samples for three consecutive days during each of these two months. The investigator will pick up all saliva samples from your home at a mutually agreed upon time. The investigator will send you postcards reminding you about when to collect saliva samples, and will also telephone you to ensure continued contact with you and to answer any questions or concerns you may have during the study. During your participation in this study you have the option of not answering any questions which you do not feel comfortable answering.

WHAT ARE THE POSSIBLE RISKS AND DISCOMFORTS YOU COULD EXPERIENCE?

It is possible that you may experience some discomfort related to questions about the stress of and coping with your husband's death.

WHAT ARE THE POSSIBLE BENEFITS TO YOU?

It is possible that you may experience some comfort related to sharing your thoughts and feelings about the stress of and coping with your husband's death.

WHAT ARE THE POSSIBLE BENEFITS TO SOCIETY?

Results from this study may better inform health care professionals about stress and coping at the time of the first anniversary of the death of a spouse.

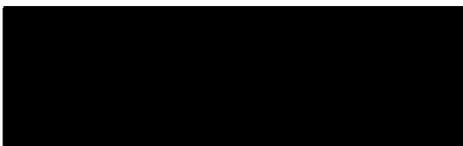
WHAT SHOULD YOU DO IN CASE OF AN EMERGENCY?

If you have a research related injury or problem, you should immediately contact the principal investigator listed at the end of this consent form.

HOW WILL YOUR CONFIDENTIALITY BE PROTECTED?

You have rights regarding the privacy of your health information collected in the course of this research. This information, called "protected health information" (PHI), includes demographic information, the results of physical exams, blood tests and other health assessment procedures, as well as your medical history. You have the right to limit the use and sharing of your PHI.

_____ Participant's Initials



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You have the right to review your PHI that you provide for the research record and to know who else may see this information.

By signing this consent form, you are allowing the research team to have access to your PHI that you provide. The research team includes the investigators listed on this consent form and other personnel involved in this specific study at UNMC.

Your PHI will be used only for the purpose described in the section "What is the Purpose of this Study?".

Your PHI will be shared, as necessary, with the Institutional Review Board (IRB) and with any person or agency required by law.

You are authorizing us to use and disclose your PHI for as long as the research study is being conducted.

You may revoke this authorization to use and share your PHI at any time by contacting the principal investigator in writing. If you revoke this authorization, you may no longer participate in this research. If you revoke this authorization, collection of further PHI from you will be stopped. The PHI that has already been collected may still be used.

The information from this study may be published in scientific journals or presented at scientific meetings but your identity will be kept strictly confidential.

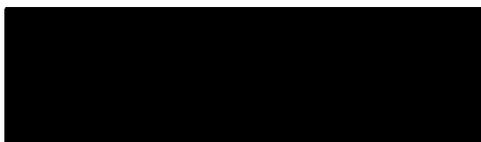
WHAT ARE YOUR RIGHTS AS A RESEARCH PARTICIPANT?

You have rights as a research participant. These rights are explained in the Rights of Research Participants which you have been given. If you have any questions concerning your rights, you may contact the Institutional Review Board (IRB), telephone 

WHAT WILL HAPPEN IF YOU DECIDE NOT TO PARTICIPATE?

You can decide not to participate in this study or you can withdraw from this study at any time. Your decision will not affect your care or your relationship with the investigator or the University of Nebraska Medical Center. Your decision will not result in any loss of benefits to which you are entitled. If any new information develops during the course of this study that may affect your willingness to continue participating, you will be informed immediately.

_____ Participant's Initials



Appendix N

**Are you a woman whose husband
died within the past 9 months
and are you:**

- * 65 years of age or older**
- * living in your home or independent retirement setting**
- * with access to a telephone ?**

If you meet the above criteria you may be eligible to participate in the *Widowhood: The First Anniversary* study.

If you are interested in learning more about the study, please contact:

Mary Minton, RN

[REDACTED] (home)

[REDACTED] (work)

or by e mail:

[REDACTED].com

IRB-354-03-FB





NEBRASKA'S HEALTH SCIENCE CENTER
A Partner with Nebraska Health System

IRB # 354-03-FB

Dear :

My name is Mary Minton and I am a nurse who lives in South Dakota and is studying for an advanced degree at the University of Nebraska Medical Center in Omaha, Nebraska. As part of my program of study, I am interested in learning more about how older women cope with the death of their spouse. From reviewing the obituaries, I am aware that your husband, Charles, died in June. Let me extend my sincerest condolences to you during this time of loss and grief. You are no doubt facing many challenges in his absence.

I would like to invite you to consider participating in a study which looks at how older women cope with their husband's death, especially around the first year anniversary of the death-- specifically at the 11th (May), 12th (June), and 13th (July) months following the death. This project may help health care professionals better understand the health needs of widows during this period of time. You will not need to leave your home to participate.

If you would like to learn more about this study, please return the response card in the stamped, self addressed envelope. Return of the response card indicates that you give me permission to telephone you so that I can explain the study to you in greater detail. The returned response card does not obligate you in any way to participate in this study. You can also telephone me directly at home ([REDACTED]) or at work ([REDACTED]) or contact me via e-mail at [REDACTED].com.

I look forward to hearing from you and hope that you would consider sharing your experiences with me.

Sincerely,

Mary E. Minton

[REDACTED]

Appendix P

Salivary Cortisol Diary

Day #1 Date _____ Time you woke up today _____
Time you collected morning sample _____
(45 minutes after awakening)
Time you collected evening sample _____
(12 hours after awakening)

Day #2 Date _____ Time you woke up today _____
Time you collected morning sample _____
(45 minutes after awakening)
Time you collected evening sample _____
(12 hours after awakening)

Day #3 Date _____ Time you woke up today _____
Time you collected morning sample _____
(45 minutes after awakening)
Time you collected evening sample _____
(12 hours after awakening)

What is the most stressful or upsetting thing you have had to handle during these three days?

Appendix Q

Salivary Sampling Instructions

- 1. Refrain from smoking or exercising for at least 30 minutes before you do your saliva sample.**
- 2. Do not drink anything for at least 5 minutes before you do your saliva sample.**
- 3. Sit upright while you are doing your saliva sample.**
- 4. Try to chew the cotton plug for at least 1-2 minutes and put back into the tube.**
- 5. Put the tube samples in the baggies provided and place in the freezer.**

THANK YOU !

Appendix R

Month 12



Dear ,

This packet contains the questionnaires you will complete for this second month that you are participating in the *Widowhood: The First Anniversary* study. I will be calling you to see if you have received the packet and to address any questions or concerns you may have. Please use the enclosed stamped envelope to return the completed packet to me. Also, please remember to complete the three days of salivary cortisol collection according to the schedule previously set up on the calendar I gave you at our first meeting. I will contact you about picking up the salivary cortisol samples.

I am available by phone or e mail if you have any questions or concerns. You may call me directly at my home: [REDACTED] or office: [REDACTED]. My e mail address is [REDACTED].com. Thank you for your continued participation in this project. I sincerely appreciate your time and valuable input.

Sincerely,

Mary E. Minton, RN

Appendix R
Month 13



Dear ,

Thank you for your ongoing participation in *Widowhood: The First Anniversary* study. Enclosed in this mailing you will find the final set of questionnaires to complete for this third month of participation in the study. I will be calling you to see if you have received the packet and to address any questions or concerns you may have. An enclosed stamped envelope is provided to return the completed packet to me. Also, please remember to complete the three days of salivary cortisol collection according to the schedule previously set up on the calendar I gave you at our first meeting. I will contact you about picking up the salivary cortisol samples. Your time and effort with the questionnaires and salivary samples are of great value to this study and I appreciate your involvement.

I am available by phone or e mail if you have any questions or concerns. You may call me directly at my home: [REDACTED] or office: [REDACTED]. My e mail address is [REDACTED].com. Thank you once again for your commitment to participate in this project and your valuable contributions.

Sincerely,

Mary E. Minton, RN

Table 2 **Appendix S**
Descriptive Statistics for Study Tools

Tool	Month	N	Min-Max Score	Mean	SD	Skewness	Kurtosis	Reliability
IES	11	46	0-56	26.57	13.41	.21	-.63	.86
	12	46	*2.33-60	29.03	13.79	.17	-.72	.87
	13	46	0-52	25.20	12.86	.11	-.70	.86
LOT-R	11	47	6-24	18.13	4.58	-.50	-.26	.82
	12	47	4-24	17.72	5.03	-.70	.06	.87
	13	47	5-24	18.61	4.89	-.98	.49	.88
LSI-A	11	47	3-20	12.31	4.36	-.59	-.46	.83
	12	45	2-19	11.59	4.51	-.38	-.75	.84
	13	46	0-19	12.35	5.04	-.69	-.32	.88
LSNS	11	47	11-44	28.26	6.84	.03	.15	.69
	12	46	14-41	29.70	5.82	-.34	.20	.62
	13	46	12.5-44	29.36	6.59	.04	.33	.68
PRQ 2000	11	47	29-105	85.27	13.51	-1.90	5.97	.90
	12	46	25-105	84.50	12.99	-2.10	8.75	.91
	13	45	59-105	85.43	10.73	-.43	.04	.84
RCAS	11	47	21-48	40.24	7.60	-.96	.37	.93
	12	46	17-48	38.80	7.82	-1.02	.43	.96
	13	45	16-48	39.67	8.64	-.90	-.13	.93
SRH	11	47	5-11	8.42	1.47	-.70	-.04	.61
	12	46	4-12	8.30	1.88	-.36	-.12	.76
	13	46	4-12	8.52	1.97	-.08	.31	.81
SWBS	11	47	57-120	102.93	13.64	-1.01	1.55	.92
	12	46	63-120	101.04	13.47	-.78	.09	.90
	13	45	64-120	100.69	15.97	-.35	-.95	.93

* 80% of items were completed, averaged and substituted for incomplete items resulting in score of 2.33.

Appendix T

Table 3.
Logarithm Cortisol and Raw Cortisol Descriptives

Log10 Cortisol	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Month 11 am average	45	.58	1.42	1.05	.19	-.37	-.12
Month 11 pm average	45	.01	1.27	.47	.27	1.17	1.33
Month 12 am average	44	.50	2.06	1.09	.27	.725	2.63
Month 12 pm average	44	-.17	1.91	.48	.36	1.61	4.90
Month 13 am average	42	.49	1.48	1.08	.21	-.73	1.16
Month 13 pm average	42	-.16	1.46	.53	.31	.56	1.53
Raw Cortisol							
Month 11 am average	45	3.83	26.08	12.27	5.15	.69	.27
Month 11 pm average	45	1.02	18.62	3.75	3.49	2.81	8.40
Month 12 am average	44	3.16	113.92	15.61	16.68	5.0	29.17
Month 12 pm average	44	.68	80.53	5.32	12.01	6.0	37.96
Month 13 am average	42	3.06	30.20	13.24	5.89	.86	1.02
Month 13 pm average	42	.70	29.00	4.54	4.80	3.76	16.93

Appendix U

Table 11.

RM-ANOVA: Means and Standard Deviations for Stress, Coping, and Well-Being

Tool	N	Month 11 Mean (SD)	Month 12 Mean (SD)	Month 13 Mean (SD)
IES	44	26.6 (13.2)	28.4 (13.8)	25.4 (12.4)
RCAS	44	39.8 (7.6)	38.4 (7.8)	39.4 (8.6)
PRQ2000	42	85.5 (10.6)	85.1 (9.4)	85.0 (11.0)
SWBS	42	102.6 (14.2)	100.9 (13.7)	100.5 (16.2)
LSI-A	44	12.3 (4.3)	11.6 (4.5)	12.2 (5.1)
SRH	45	9.2 (.85)	9.6 (1.9)	9.7 (1.9)
Morning Salivary Cortisol	41	1.06 (.18)	1.12 (.25)	1.07 (.21)
Evening Salivary Cortisol	41	0.49 (.27)	.52 (.34)	.55 (.29)