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Stressful Life Events and their Trajectories among Midlife Women:
Observations from the Seattle Midlife Women's Health Study

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Abstract

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Observations from the Seattle Midlife Women's Health Study

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Purpose: This dissertation examines the challenges and stressful life events of women during their years of midlife characterizing women using age, menopausal transition status, ethnicity, income, education, marital status, parental status, and employment.

Background: Midlife is a time of increased responsibilities for women concerning multiple roles such as taking care of children, caring for elderly parents, managing households, and working outside the home. These multiple roles put midlife women at risk for increased stress with little time for themselves in order to relieve stress.

Methods: The sample used in this study is part of a larger study, The Seattle Midlife Women's Health Study, a longitudinal study spanning 23 years. This dissertation employed a summative content analysis using data which examined challenges of midlife women over 15 years of

participating in the study and a growth curve model centered at age modeling total, undesirable, and desirable stressful life events data over the past ten years. The growth curves were characterized using the following demographic variables as predictors: education, gross family income, employment, race/ethnicity, marital status, being a parent and menopausal transition stage in a multiple logistic regression.

Results: Summative content analysis of the most challenging aspects of midlife revealed the ten most frequently reported challenges as Multiple Co-Occurring Stressors, Divorce/Breaking up with a partner, Health problems of self, Death of Parents, Partner's Health, Parenting Challenges, Marriage/New Partner, Stressful Job/Career, Financial Challenges, and Existential Issues. The best predictor for the Growth Mixture Model of the Mean Undesirable Impact Scores was education, so that women with more years of education rated the impact of stressful life events lower than did women who had less education. Ratings of impact scores decreased over time, until the age of 50-55 years. Demographic variables, including education, gross family income, employment, race/ethnicity, marital status, being a parent and menopausal transition stage were not significant predictors for the Mean Impact of Total Life Event Stress or Desirable Life Event Stress.

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Chapter 1. INTRODUCTION

Midlife, the period of the lifespan between younger and older adulthood, has been described as a period of transition in women's lives. Investigators studying midlife have focused on women 40 to 65 years of age, who typically experience multiple social, psychological and biological challenges. Among these challenges are children leaving the household and the menopausal transition. Although midlife women bear multiple responsibilities such as employment, maintaining a household, parenting, caring for children and older family members during this period, there has been little research about the unique stressors women experience during this period of their lives and their ratings of stress.

Chapter 2. CHALLENGING EXPERIENCES OF WOMEN IN MIDLIFE: OBSERVATIONS FROM THE SEATTLE MIDLIFE WOMEN'S HEALTH STUDY

2.1 INTRODUCTION

“Challenges” refer to those experiences that require full use of one's abilities or resources. Some examples of challenges have been described as accidents, financial strain, and interpersonal relationships (Woods-Giscombé and Lobel, 2008); derogatory remarks and discriminatory actions (Woods-Giscombé and Lobel, 2008); and, forgetfulness or difficulty concentrating (cognitive function), mood disturbances, and sleeping problems (Woods et al., 2009).

One investigation reported a diverse array of stressful events, for example, health problems, family problems, work-related issues, deaths, frustrated goal attainment, and financial concerns (Woods & Mitchell, 1997). Another study described the changes in the level of perceived stress related to menopausal transition factors, aging, and psychosocial factors; employment, a history of sexual abuse, and depressed mood were associated with significantly higher levels of perceived stress; and, negative appraisal of aging changes and perceived poorer health were associated with significantly higher perceived stress levels and depressed mood (Woods, Mitchell, et al., 2009). While the investigators used perceived stress, rated as 1 (no stress) to 4 (a lot of stress) on health, job/student roles, personal life, and family/parenting over the past month in their annual questionnaire, they did not determine the most challenging event these midlife women experienced.

Other challenges include multiple responsibilities. Midlife women have multiple responsibilities due to many different roles. During this part of life many women have been married or partnered, have already had children (some are young, others are leaving for college or jobs), have jobs of their own, manage their household with or without any additional help, and care for their aging parents. Kenny (2000) studied stressors by age group in 299 women aged 18 – 66 years and found that midlife women had more stressors than younger or older women and that midlife women identified roles involving family, work, and eldercare as sources of stress (Kenny, 2000), but did not identify which of these sources of stress was the most salient.

During midlife, some women experience breaking up with a long term partner. In addition to being emotionally wounded, the break up could substantially reduce a household income. Women in midlife tend to experience higher rates of loneliness and distress post divorce

than younger divorced women in addition to adjusting to single parenthood and a reduced household income (Sakraida, 2005).

Women in midlife begin to experience health problems of their own. This is the time where some women experience cardiac problems (Stevens & Thomas, 2012) and sleeping difficulties. In one study of midlife women in the Study of Women's Health Across the Nation (SWAN) sleep study, very stressful life events were examined using an 18 item version of the Psychiatric Epidemiology Research Interview Life Events Scale (PERI), which evaluated eight areas: school, work, romantic relationships, children, family, criminal and legal matters, finances and health. Women who had high chronic stress had lower subjective sleep quality, more waking after sleep onset (WASO) and were more likely to report insomnia compared to women who had low to moderate chronic stress profiles (Hall et al., 2014). Some events in daily life can create chronic stress resulting in "wear and tear" on a woman's body, what is referred to as allostatic load (McEwen, 2007). The body releases chemical mediators in response to the stressors; these mediators elevate heart rate and blood pressure. Constant elevation of these mediators over time can result in atherosclerosis increasing the risk for myocardial infarction and stroke (McEwen, 2007). Health problems and allostatic load may be a result of chronic stressors or challenges.

Some of the questions that remain unanswered about midlife women's experiences of stress include: *Which life events do midlife women experience as the most stressful? Which of these life events are rated as the most challenging by midlife women?*

Given the limited knowledge of the stressors midlife women find most salient, it is important to explore what aspects of life midlife women find most challenging. Since midlife women have more stressors than younger or older women (Kenny, 2000), identifying the most

commonly reported challenges may aid providers who take care of midlife women in determining risk factors as well as resources for this specific span of life to more accurately provide preventative care.

The purpose of this study was to identify the experiences that midlife women find the most challenging as described by the women themselves looking back over 15 years of being in the Seattle Midlife Women's Health Study. Specifically, content analysis will be used to analyze the following question from the 2006 Health Questionnaire: "Since you have been in this study, what has been the most challenging part of life for you?"

2.2 METHODS

2.2.1 *Study design and population*

Data reported here were collected as part of a longitudinal study, the Seattle Midlife Women's Health Study (SMWHS). Women entered the study between 1990 and the early part of 1992 when most were in the early stages of the menopausal transition (MT) or not yet in the transition. All households within census tracts with a wide income range and mixed ethnicity were contacted by telephone for interested and eligible women. Women who were eligible were between 33 and 55 years of age, had at least one menstrual period within the last year, had a uterus and at least one ovary, were not pregnant, and could read and understand English. Out of 11,222 telephone contacts, 820 women were eligible, and 508 women entered the study (Mitchell and Woods, 1996).

Women completed an initial in-person interview administered by a trained registered nurse interviewer. A subset of the 508 women kept a health diary and from 1995 to 2005 provided urine samples. All women were mailed a yearly Health Questionnaire and kept a menstrual calendar.

2.2.2 *Sample*

Eligible participants for this study (N=81) were in either the later reproductive (LR), early or late menopausal transition (ET, LT) stages, or within five years of the final menstrual period (FMP) during the course of the study and who provided data from the 2006 Health Questionnaire answering specifically the following question: “Since you have been in our study (since 1990 or 1991), what has been the most challenging part of life for you?” A total of 83 women responded to the 2006 Health Questionnaire. Two women did not answer this specific question leaving 81 women’s answers for analysis.

Women not eligible for this study either did not answer the 2006 Health Questionnaire, did not keep a daily diary, or were not able to be classified into one of the eligible stages due to hormone use, inadequate menstrual calendar data, or hysterectomy, radiation therapy or chemotherapy.

Women who were eligible for inclusion were midlife women with a mean age of 39.3 years (SD 3.0 years), an education of 16.6 years (SD 2.7 years), and mean family income of \$38,320 (SD \$14,782). Most (86%) were employed. Eligible women described themselves as African American (3.6%), Asian/Pacific Islander (8.3%), or White (88.1%). Women eligible for this study were never married or never partnered (6%), married or partnered (76.2%), divorced or separated (16.7%) and widowed (1.2%). Most (67%) of the eligible women were parents.

As seen in Table 2.1, women included in the current study compared to those who were ineligible were similar with respect to family income, employment status, women who identified themselves as Asian/Pacific Islanders or Other, and marital status. They differed significantly by age, years of education, ethnicity (African American and White women), and less women were parents.

Table 2.1 Sample Characteristics of Ineligible and Eligible Women for Content Analysis of Challenging Experiences.

Characteristic	Ineligible 1990-1991 N=427	Eligible 2005-2006 N=81	<i>p</i> value
	Mean (SD)	Mean (SD)	
Age (years)	42.2 (4.7)	39.3 (3.0)	< .0001
Years of Education	15.5 (2.9)	16.6 (2.7)	< .0017
Gross Family Income	35,460 (15,258)	38,320 (14,782)	= .1210
	%	%	
Currently Employed	86.3%	86%	= .9428
Race/ Ethnicity % (N)			
African American	13% (55)	3.6% (3)	= .0152
Asian/Pacific Islander	8.5% (36)	8.3% (7)	= .9528
White	74.8% (317)	88.1% (74)	= .0093
Other	3.8% (16)		= .0749
Latina/Hispanic			
Mixed/Native American			
Marital status % (N)			
Never married/partnered	7.1% (30)	6% (5)	= .7211
Married/partnered	67.0% (284)	76.2% (64)	= .1028
Divorced/separated	24.1% (102)	16.7% (14)	= .1469
Widowed	1.9% (8)	1.2% (1)	= .6634
Ever a parent?			
Yes	72.9%	60.7%	0.0268
No	27.1%	26.2%	0.8673

2.2.3 Measures

Content analysis was used to identify life experiences that women described as challenges looking back over 15 years of being in the SMWHS. Content analysis is a method that researchers use to interpret the content of data through coding in order to identify themes or categories (Hsieh & Shannon, 2005). There are 3 approaches to content analysis: conventional, directed, and summative. The difference between the 3 approaches is mainly in the coding

schemes. In conventional content analysis, codes are defined during data analysis and derived from the data. Investigators capture a richer understanding of the phenomena in question. Directed content analysis begins with existing theory or prior research and codes are defined before as well as during analysis. Directed content analysis is used to efficiently extend or refine an existing theory. Finally, in summative content analysis, coding starts with keywords that are identified before and during analysis. Keywords are acquired from the interest of researchers or from a review of the literature. Summative content analysis, the method used in this paper, assists investigators in the interpretation of contextual meaning of specific terms or content, such as salient stressors or the most challenging part of midlife.

Some of the key words and categories that were identified prior to analysis were derived from the categories of the Life Event Scale (LES: Norbeck, 1984). For example, the Life Event Scale (LES: Norbeck, 1984) includes 10 categories of concern for pregnant women and young mothers: health, work, school, residence, love & marriage, family & close friends, parenting, personal & social, financial, and crime & legal matters. In addition to these, additional categories were identified through inclusion of unique codes derived from the women's data.

2.2.4 *Analyses*

Each response was read over initially for a first impression. Subsequent readings included circling of key words or phrases in the women's answers in order to develop a coding scheme. The women's responses were divided into five categories with sub-categories listed under each main category. The responses were listed under the appropriate sub-category and ranged from one sub-category to five sub-categories, meaning that the women identified from one to five challenges. Reliability was established by selecting ten percent of the transcripts for coding by one of the investigators (Nancy Woods) for agreement. All questions about what challenges

were grouped under a particular sub-code were discussed among the investigators until a resolution was found.

2.3 RESULTS

The women's challenges were grouped into 5 categories: 1) Family relationships, 2) Work, 3) Self, 4) Material Resources, and 5) Multiple Co-Occurring Stressors. Each category was further divided into sub-categories. (See Table 2.) For each response, the challenges were tallied for individual challenges, such as a parent's death. If a response contained more than 1 challenge, the challenges were each counted individually as well as placed into the Multiple Co-Occurring Stressor category. For example, if a response conveyed parenting a teenager, husband's health, and a parent's death, there would be 3 separate challenges as well as the Multiple Co-Occurring Stressor challenge.

2.3.1 *Family Relationships*

Family Relationships

The category of *Family Relationships* included 6 sub-categories based on the relationships that women have with different family members: Husband/Partner, Children, Parents, Siblings, and In-Laws. Each of these sub-categories had further divisions based on the challenges that the women indicated. The following paragraphs explain each sub-category and challenges the women revealed.

Partner/Husband

The first sub-category was Partner/Husband, which consisted of divorce/breaking up with partner, partner's health, caretaking of partner, marriage/ new partner, death of partner. Eleven women identified divorce/breaking up with partner as a challenging experience.

Four women reported only divorce/breaking up with partner as the most challenging experience of midlife. Some women who reported divorce/breaking up with partner, reported more than one challenge. For example, one woman answered, "my divorce, my children leaving home & my parents dying all in the same 2-year period" as the most challenging part of midlife. Another woman wrote, "The death of my brother in [year] & my divorce the same year."

Nine women reported their partner's health as a challenge during midlife. Challenges disclosed were partner's heart attacks, depression, disability, surgery, high blood pressure, reluctance to be more active, and alcoholism. One woman explained, "The most challenging has been watching my husband sink more and more into alcoholism and not being able to stop him." Another woman shared, "The challenges have changed from year to year- [year] I had an ectopic pregnancy- and infertility before/after- 0 kids. [years]- Graduate school & full time work was challenging. [year]- present- Husband's health problems & disability are challenges." Caretaking of a partner with brain cancer was also cited as a challenge.

Seven women cited that the most challenging experiences were marriage and a new partner. An example from one participant described the most challenging part of midlife, "Losses & transitions –death of both parents, divorce from long term partner, beginning a new life with new partner and his child." Another woman mentioned, "Challenges in my marriage; questions & insecurities." Two women cited the death of their partners as the most challenging part of midlife.

Children

The Children sub-category of Family Relationships included parenting challenges, foster-parenting, parenting step-children, leaving children, children moving back in, children moving out (Empty Nest), death of a child, and infertility. Parenting challenges (9 responses) was the sub-category with the most responses in the Children category. One example was “Parenting two teenagers.” Many answers consisted of more than one challenge, for example, “My current job, my daughter from age 15-18, my mother’s death, my husband’s unemployment.” Another woman added, “Foster-parenting teens, most often teens who have been victims of abuse.” One woman described parenting step-children as, “Dealing with being a blended family. Trying to parent stepchildren who would rather not have me around...” One woman wrote, “Leaving my boys behind when I left my husband” for the *Leaving Children* sub-category.

Children leaving home and children moving back home were challenges for some women. One woman explained, “Family life – Change from having little children to them all growing up & leaving – changing relationship with husband because of that & personal changes.” A woman whose child came back home said, “getting older, stiffer, clumsier. Seeing my finances shift, caring for 2 elderly parents & having a grown child move home w/ no finances.” One woman shared, “My son dying in [year] from suicide” in the *Death of a Child* sub-category.

Infertility was also listed as one of the most challenging aspects of midlife. This quote was also used in an earlier example, revealing that many of these women had multiple challenges over the course of midlife. “The challenges have changed from year to year – [year] I had an ectopic pregnancy – and infertility before/after – 0 kids. [years]– Graduate school & full time work was challenging. [year] – present – Husband’s health problems & disability are challenges” were examples from one woman. Another woman stated, “accepting that I would never be a

biological parent, never have my “own” kids, and possibly never become ‘important’ to my two step-children (now grown and living away). Everyone else’s pregnancies, baby showers, and ‘kid talk’ were a challenge.”

Parents

Caregiving of parents, death of parents, parents’ health, and relationship with parents encompassed the sub-category of parents. “Caregiving parents – Losing father [year], father-in-law [year], mother-in-law [year], mother still living” was what one woman wrote. Ten women reported Death of Parents as the most challenging. Some examples were, “the declines and deaths of my parents,” “Losing my Dad to brain cancer,” and “Experiencing my parents’ death.” Within four months, my mother had a severe stroke, my father died and a month later (to the day) my mother passed away.” Two women included parents’ health, “Dad’s health” and “parents getting old,” as part of their challenges in midlife. Last, relationship with parents was a challenge where women had to deal with family issues that included their parents; one woman reported not getting support from her mother when the woman had relationship difficulties with her sister.

Siblings

The Family Relationship of Siblings consisted of two sub-categories, death of a sibling and relationship problems with siblings. One woman had to deal with the death of her brother and her divorce the same year while another woman reported not having a harmonious relationship with her sister.

In-Laws

There were two challenges for In-Laws. One challenge for one woman was the death of her In-Laws. Another woman listed “Moving in and living with all of my In-Laws” as most challenging.

2.3.2 Work

A woman’s relationship with her work included 7 sub-categories: stressful job/career, overworked/ balancing multiple roles, job change/ career change, job loss/ unemployment, finding a job with health benefits, retirement, and job transfer.

Stressful job, career

Three women cited only their job as the most challenging part of midlife. The other four women cited the job in addition to other challenges. For example, “Divorce in [year], stressful job in [years].”

Job change, career change

“Starting my career as a public school teacher,” “Working in different areas of real estate to extend & enhance & change where income comes from,” and “Getting into a more interesting career” were examples from women in this area. Most of these women also listed other challenges; one woman was also dealing with a breast cancer diagnosis, another was going through a divorce, and one lost her partner.

Job loss, unemployment

“Being fired” was the most challenging part of midlife for one woman.

Finding a job with health benefits

One woman explained that her challenge of midlife was “Finding and sustaining suitable employment with health care benefits. Having intermittent medical coverage caused me to postpone a surgery (hyperparathyroid) for 3 years.”

Retirement and job transfer

One woman was “adjusting to retirement...” during this time while another was being transferred to another job site “Getting to know the customers, co-workers & supervisors.”

2.3.3 *Self*

Health problems, existential issues, self-esteem/ self-acceptance, returning to school, the menopausal transition, and personal changes were the sub-categories related to the self.

Most of the responses in the Self category listed *Health Problems* as the most challenging aspect of midlife. Health problems included heart surgery, arthritis, physical disability due to arthritic pains, chronic pain, breast cancer, motor vehicle accident resulting in the diminished use of the woman’s right hand, blot clot in the leg, and “getting older, stiffer, clumsier.”

Existential issues comprised four percent of the women’s total responses. Some of these responses included accepting not being able to achieve one’s goals in life, realizing that the number of active years is limited, and being single and lonely.

“Becoming more comfortable with myself. Accepting myself & having better self-esteem...” is what one woman wrote for *Self-Esteem, comfort with self, self-acceptance*.

Returning to school revealed challenges such as women going to graduate school, going back to school to get a degree, and a commitment to study.

Only four women communicated *Menopausal Transition symptoms* as challenges. The symptoms were hot flashes, mood swings, remembering things, and excessive uterine bleeding. One woman revealed *Personal changes* as a challenge.

2.3.4 *Material Resources*

Material Resources had three sub-categories, which were financial challenges, partner's unemployment, and lack of health insurance. Social Stress rounded out the fifth category.

Seven women revealed *financial challenges* such as children in private schools with a partner's sporadic job situation, financing college, and becoming financially secure. One woman wrote, "I have to work 2 jobs and long hours to support my children, but never seem to get ahead..." Another woman explained, "having to close a business, including laying off people, not paying business debts, selling off furniture, etc., and then having to sell our home to pay off a bank loan" as most challenging.

Three women cited their *partner's unemployment* as most challenging. One example was "...Constant threat of strikes or job lay off for my husband and eventually job loss." Another woman explained that "Finding and sustaining suitable employment with health care benefits" and "Having intermittent medical coverage" as examples of *Lack of health insurance*.

2.3.5 *Multiple Co-occurring Stressors*

Multiple kinds of stressors were reported. In fact, thirty-six percent of women identified multiple co-occurring stressors as they described their most challenging experiences. (See Table 2.4). One woman commented, "Dealing with stress – job stress, health stress, social stress, family stress, etc. For a time, it seemed to snowball with no end in site." Some women explained that being overworked and balancing multiple roles were the most challenging part of midlife. Two examples were, "Fulfilling obligations of work and family" and "Balancing all

aspects of my life - as a mother, as a wife, as a teacher & as a woman and as the major head of the household (cooking, cleaning, etc.).”

The previous examples and others can be seen on Table 2.3. Table 2.3 shows the categories and subcategories of challenges and their frequency of reporting them.

Figure 2.1 illustrates the ten most commonly reported challenges described by midlife women in the Seattle Midlife Women’s Health Study (SMWHS). By far, the most commonly reported challenge was Multiple Co-Occurring Stressors as indicated by 29 women. When all categories were examined, Divorce/Breaking up with a Partner and Health Problems of Self, were reported by 11 women each. Death of Parents was reported by 10 women; Partner’s Health and Parenting challenges followed with nine women each disclosing these topics. Each of the following challenges was reported by seven women: Marriage/New Partner, Stressful job/Career, and Financial Challenges. Finally, Existential Issues were revealed by five women. (See Figure 2.1.)

2.4 DISCUSSION

Types of stressors midlife women found most challenging spanned five categories: Family Relationships, Work, Self, Material Resources, and Multiple Co-occurring stressors. Two of the categories revealed the types of relationships in which women were involved, a third focused on the self, one reflected challenges related to material resources and another identified multiple co-occurring stressors.

Research about self-in-relation to others provides a useful framework for understanding the salience of the first three categories of challenging experiences. Miller and Stiver (1997), asserted that a woman’s sense of self and self-worth is often grounded in her ability to make and maintain relationships, and that these connections, not separations, can lead to strong, healthy

development (p3.). As far as family is concerned, women's affiliations are organized around being able to make and maintain relationships with others. Taking care of *family members* with whom women have affiliations or connections is central to their lives. Taking care of others (partners, children, parents) is one way of describing how women's connections are formed. For many women, the threat of terminating a connection is viewed not only as a loss of connection, but as a total loss of self (Miller & Stiver, 1997).

Some women feel that what they accomplish has meaning if another person is there to give credibility to them or a sense of accomplishment (Miller & Stiver, 1997). This sense of accomplishment is often seen at *work* and the relationships that women have made at work with their co-workers. A co-worker can often be encouraging in the event of a job change or career change. If women have a stressful job or career, they may rely on their co-workers for advice or for listening when being told about a bad interaction.

Self-in-relation (Miller & Stiver, 1997) suggests that individual development, seen in the category of *Self*, proceeds by means of connection. Women do this by finding relationships that foster mutual growth or mutuality. Mutuality benefits both people to grow and develop in and as a result of the relationship. This mutuality may manifest itself in connecting with a breast cancer support group or with others who have a similar health problem. Women may develop further by questioning their existence, their purpose, or other existential questions that surface in midlife and relating these questions to someone with whom they share mutuality. According to Miller and Stiver (1997), the inclination toward connection that women feel in themselves is a strength. Any matter in question in relation to the self may enable women to develop further themselves by sharing with another person; this forwardness of mutuality increases the strength of the

relationship. Often before a woman has the opportunity for self introspection, there is concern of material resources, such as financial worries, employment and health insurance.

Although the majority of women in this study were not living in poverty, women experience disproportionately lower incomes than men. In 2015, the unadjusted annual weekly median earnings for women who were employed full-time were \$726.00 compared to \$895.00 for men according to the Bureau of Labor Statistics (retrieved @www.data.bls.gov). For the first quarter of 2016, the Bureau of Labor Statistics reported \$912.00 median weekly income for men who were employed full-time, salary and wage unadjusted, compared to \$750.00 for women. During midlife, both men and women reach their peak earning capacity. Women who leave the labor force to raise their children or those women who have been laid off, struggle with access to benefits from employment, such as healthcare and often lag behind in their cumulative retirement benefits in comparison to men. A woman's exposure to *material stressors* is also impacted by her partner's employment status. For example, when a woman's partner faces unemployment, the family experiences the consequences, especially if the benefits are from the partner's employer. If a woman's income is the primary household income, job loss can also result in loss of healthcare if the healthcare benefits are from her employer.

The most commonly experienced Challenges for Midlife Women across all categories were identified. From most to least common, they were Multiple Co-Occurring Stressors (29 women), Divorce/Breaking Up with a partner (11 women), Health Problems of Self (11 women), Death of Parents (10 women), Partner's Health (9 women), Parenting (9 women), Marriage/New Partner (7 women), Stressful Job/Career (7 women), Financial Challenges (7 women), and Existential Issues (5 women). After the category of Multiple Co-Occurring Stressors, the six most common challenges are related to relationships, and many of the exemplars convey losses,

such as loss of a partner through divorce and the death of parents. One ethnographic qualitative research study from Australia (Dare, 2011) found that while many midlife women cope with the menopausal transition and their children leaving the house, the aging and death of their parents (Perrig-Chiello & Hopflinger, 2005) and the effect of divorce (Sakraida, 2005) present more serious long-term challenges to these women.

Parents of midlife women would be in their 70s or 80s. Midlife women may be taking care of their young children and caring for their elderly parents at the same time. This phenomenon is known as the “sandwich effect” (Raphael & Schlessinger, 1993). As their parents age, midlife women will often experience their parents’ death as exhibited by these data.

One striking point from the data is that some of these midlife women were parenting teenagers. Teenagers may be learning to drive, studying to be able to attend college, working at a job, involved in after-school activities (clubs, athletics) and dating. Parenting teenagers on top of a stressful job or going back to school can “up the ante” on stress levels. Women in this study reported family stress, job stress, health stress, and social stress.

Only four women (4/81=5%) reported the menopausal transition as being part of the most challenging aspects of midlife identifying hot flashes, mood swings, remembering things, and excessive uterine bleeding. (See Table 3.2.) This finding is surprising given that 85% of women report more than one symptom, such as hot flashes, depressed mood, and/or sleep disturbances (Woods & Mitchell, 2005). In the Penn Ovarian Aging Study, twenty-six percent of women disclosed moderate to severe hot flashes and 9% revealed having daily hot flashes (Freeman et al., 2001). Also, The Study of Women’s Health Across the Nation (SWAN) identified 60-80% of women experienced hot flashes at some point during the menopausal transition (Gold et al., 2006).

Midlife women reported multiple co-occurring stressors when asked what was the most challenging for them during the past 15 years. Midlife is marked by women who are overworked with multiple roles and responsibilities. One study investigated role stress, role reward and mental health in a cross-sectional sample of 2549 women who were 45 - 55 years with roles such as being employed, married, a mother, and/or a caregiver revealing 34% of the sample were involved in 2 roles and 50% of the sample were involved in 3 roles (Lanza di Scalea et al., 2012). The roles that Lanza di Scalea et al. reported were similar to what we reported as challenges in a woman's job, married/partnered, being a parent, and taking care of elderly parents.

This study has several limitations. First, the sample size consisted of only 81 women and most of these women were white, employed, and married or partnered. The average age was 39 years with an average of 17 years of education and 61% were parents. The sample used in this investigation differed from the parent study. In the parent study, women were older, made less money, had more ethnic diversity, less were married, more were divorced, and more were parents.

The current investigation had several strengths. This study is the first to examine midlife women's challenges over the past 15 years while participating in the Seattle Midlife Women's Health Study. This study also identified the ten most frequently reported challenges over the past 15 years of midlife explained by the women themselves. These findings are important as they help providers to identify women at high risk for allostatic overload, which may lead to heart disease, depression, and sleeping problems. Further, providers will find these results informative, so that they can determine resources to help this specific age group of women who have so many roles and responsibilities.

2.5 CONCLUSION

The most frequently reported challenges identified were multiple co-occurring stressors. Further study of multiple co-occurring stressors is warranted. Perhaps a single stressor, e.g., divorce, precipitates several related stressors. For example, loss of life partner precipitates loss of income, loss of children and separation from a relational network of mutual friends of the couple. Also, experience of a single stressor, such as development of a chronic illness, may precede other stressors such as job loss, a need to relocate living arrangements and the financial stressors of paying for medications. Inquiring about a focal stressor and its consequences may help women elaborate a series of stressors that more fully illuminates midlife women's experiences.

Chapter 3. STRESSFUL LIFE EVENTS AND

TRAJECTORIES: OBSERVATIONS FROM THE SEATTLE MIDLIFE WOMEN'S HEALTH STUDY

3.1 INTRODUCTION

Although stressful life events have been the focus of research for a variety of populations, there has been little attention paid to understanding the stressful aspects of midlife women's lives. Woods and colleagues (2009) examined the relationship of menopausal transition (MT)-related factors (MT stage, urinary estrone glucuronide, follicle-stimulating hormone, aging), psychosocial factors (income adequacy, role burden, social support, parenting, employment, history of sexual abuse, depressed mood) on perceived stress recorded by Seattle Midlife Women's Health Study (SMWHS) participants in a daily health diary. They found that perceived stress ratings were unrelated to the menopausal transition stage; however, improvement in role burden, social support, and income adequacy was associated with significantly lower levels of perceived stress. Kendler and associates (2010) reported a 10-fold increase of major depression among women who reported four severe stressful life events, such as death of a close relative, serious marital problems, assault, relationship break up) in one month. To date, few studies have focused on the nature of stressful life events midlife women experience, how they view these events, e.g., as undesirable or desirable, and their impact over time as women age. As the menopausal transition is a major biological transition during this period of the lifespan, the stages of the menopausal transition were also important to consider.

Norbeck (1984) is one of the few investigators to have studied stressful life events among women having focused on a population of single and married adult women of childbearing age, interviewing them about major events or disruptions that occurred in their lives during the past year and during their preschool child's first year of life. Norbeck (1984) identified contraception, parenting, single-parenting, custody, being the victim of assaultive acts, and difficulty obtaining employment as salient concerns of these women. These salient concerns were not reflected in any of the earlier stressful life events scales because women were not included in their development. Furthermore, the original life events scale was developed and used with male naval shipyard personnel (Holmes & Rahe, 1967). Norbeck created the Life Events Questionnaire (LEQ), a 77-item self-rated scale that is composed of 10 sections: Health, Work, School, Residence, Love & Marriage, Family & Close Friends, Parenting, Personal & Social, Financial, and Crime & Legal Matters. Each question asks whether or not an event occurred, if it was evaluated as positive or negative, and what kind of impact the event had, meaning no effect, small effect, moderate effect, or great effect. In addition to women of childbearing age, midlife women have unique concerns, which may or may not differ from those they had during their childbearing years. To date, there have been limited reports of life events experienced by midlife women and how they are appraised.

The Seattle Midlife Women's Health Study (SMWHS) provides a unique data source that allows for characterizing the patterns of stressful life events examined on four occasions over a ten-year period. These data allow exploration of whether certain types of stressful life events, for example, those related to finances, remain highly stressful or decrease over time or whether relationship stressors change or remain the same over time. Chronic stress, or the high impact of

stress over time, has several worrisome implications. To explain why chronic stress is important to investigate, first allostatic load and allostatic overload must be explained.

The theoretical framework for this investigation is informed by McEwen's Theory of Allostasis. Allostasis is a state where the body maintains homeostasis and adaptation with the use of biological mediators (neurotransmitters, immune system messengers, and the hormones cortisol and epinephrine) that are activated by stressors to the body. Problems occur when the mediators are 1) not activated by stressors or 2) not turned off after they have been activated. Over time, this continuation of constant stressors results in allostatic load. Allostatic load is a term that is used to describe the weight of chronic stress and resulting lifestyle choices or behaviors. Allostatic overload refers to the pathophysiology that occurs when negative experiences accumulate over time and are repeated over and over again (McEwen, 2009).

Some examples of the pathophysiology that may result from allostatic overload are diabetes mellitus, stroke, and myocardial infarction. One study (Fang et al., 2015) investigated Chinese immigrant women in the United States and found that a greater number of negative life events and life event impact scores was associated with insulin resistance in multivariate models; the number of positive life events and positive life event impact scores were not associated with insulin resistance in their analyses. Work stress was associated with diabetes type two and a moderately elevated risk of cardiovascular disease in another study (Kivimaki and Kawachi, 2015). A recent meta-analysis (Virtanen et al., 2013) based on 17 cohort studies found that the association between job security and coronary heart disease was partly explained by poorer socioeconomic status. In a similar line of thought, Tako-Tsubo cardiomyopathy (TCC) is a condition that imitates the signs and symptoms of acute myocardial infarction. A recent investigation from the Netherlands of older women (mean age was 68 years, 78% women)

showed that catecholamine levels, elevated normally during the stress response, were hyper-elevated during mental stress in TCC patients compared to controls (Smeijers et al., 2015). A Portuguese study of middle aged women found that health status, recent life events, income level and menopausal transition stage (pre to peri and peri to post) were significantly associated with frequency of stress and depressive symptoms; and, education level and parity were significant predictors for depressed mood (Pimenta et al., 2016). Another meta-analysis (Booth et al., 2015) of 14 studies concluded that perceived psychological stress was associated with increased risk of fatal stroke, total ischemic stroke and total hemorrhagic stroke. The previous examples along with the Allostatic load theory suggest that stressful life events and demographic variables of midlife women are important to investigate.

The overall goal of this study was to describe the stressful life events midlife women experience, whether they rate them as most desirable or undesirable, and their impact over time. The specific aims were 1) to determine which life events midlife women reported most frequently; 2) to determine which life events women were rated as most undesirable or desirable; and 3) to determine if age, years of education, income, employment, race/ethnicity, marital status, and being a parent were associated with the undesirable and desirable impact scores of the life event categories. In addition, to date there have been few studies of the patterns over time (growth curves) of life events for midlife women. Additional aims were 4) to create a growth model curve of stressful life events for midlife women over a decade, consisting of total, undesirable and desirable events, and 5) to characterize the growth curves by using the predictors of age, menopausal transition stage, years of education, family income, employment, race/ethnicity, marital status, and being a parent.

3.2 METHODS

3.2.1 *Study Design and population*

Data reported here were from the Seattle Midlife Women's Health Study (SMWHS), an observational, longitudinal study of approximately 23 years, from 1990 to 2013. Women entered the study between 1990 and the early part of 1992 when most were in the early stages of the menopausal transition (MT) or not yet in the transition. All households within census tracts with a wide income range and mixed ethnicity were contacted by telephone for interested and eligible women. Women who were eligible were between 33 and 55 years of age, had at least one menstrual period within the last year, had a uterus and at least one ovary, were not pregnant, and could read and understand English. Out of 11,222 telephone contacts, 820 women were eligible, and 508 women entered the study (Mitchell and Woods, 1996).

Women completed an initial in-person interview administered by a trained registered nurse interviewer. A subset of the 508 women kept a health diary and from 1995 to 2005 provided urine samples. All women were mailed a yearly Health Questionnaire and kept a menstrual calendar.

3.2.2 *Sample*

Participants of the current study were those women who provided at least one and up to four Life Event Scale (LES) questionnaires beginning in 1990 and who were in either the late reproductive (LR), early transition (ET), late transition (LT) or post-menopause (PM) sometime during the course of the study.

When the women started the study, they were on average 42 years, well-educated (16 years of education), earning a gross family income of \$35, 740 (SD \$15, 440), most were

employed (86%), and married (71%). Women identified themselves as African American (12%), Asian/Pacific Islander (9%), white (76%), Latina (1%), and Mixed/Native American (3%). Seventy-five percent of the women were parents.

Table 3.1. Demographic Characteristics of Participants Providing Data for the Life Events Scale for Four Occasions: 1990, 1993, 1997 and 2000.

Characteristic	1990 N=380	1993 N=233	1997 N=220	2000 N=191
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age	42 (5)	44 (5)	47 (4)	50 (4)
Years of Education	16 (3)	16 (3)	16 (3)	16 (3)
Gross Family Income	35,740 (15,440)	No Data	40,920 (15,042)	43,580 (14,478)
Currently Employed	86%	97%	89%	90%
Race/Ethnicity				
African American	12%	8%	7%	7%
Asian/Pacific Islander	9%	9%	9%	9%
White	76%	81%	84%	84%
Latina	1%	1.5%	1%	0
Mixed/Native Amer.	3%	1.5%	0	0
Marital Status				
Never married/partnered	6%	6%	6%	4%
Married/partnered	71%	65%	68%	65%
Divorced/separated	22%	28%	25%	30%
Widowed	2%	1%	2%	1%
If a parent?				
Yes	75%	67%	70%	68%
No	25%	33%	30%	32%
Menopausal Transition Stage (MTS), % (N)				
Late Reproduction (LR)	70% (N=142)	58% (100)	43% (66)	38% (47)
Early Transition (ET)	22% (45)	33% (57)	37% (57)	25% (31)
Late Transition (LT)	5% (11)	5% (8)	13% (20)	22% (27)
Post Menopause (PM)	2% (4)	4% (7)	7% (10)	16% (20)

The Life Event Scale (LES) was administered on four occasions: 1990, 1993, 1997, and 2000.

Attrition rates after the initial LES in 1990 were that 67 women were unable to be contacted, five women became ineligible, and 64 left the study for personal reasons. After the 2nd occasion (1992), thirty-six women were unable to be contacted, a total of 18 women became ineligible, and 32 left for personal reasons. Eighteen women were unable to be contacted, ten became

ineligible, and 15 left for personal reasons after the third occasion (1997). For the fourth and final occasion (2000), nineteen women were unable to be contacted, 138 women became ineligible, and 34 left for personal reasons. As seen in Table 1, ages of the women increased at each testing occasion; analysis of variance (ANOVA) was significant ($F = 169, df = 3, p < .001$) confirmed by significant mean differences between all categories ($p < .001$ for all). Initially, ANOVA was significant for education ($F = 2.748, df = 3, p = .042$) but post hoc analyses showed the mean differences between all categories were not significant. For the three occasions that data were available for gross family income, there were significant differences ($F = 18.602, df = 2, p < .001$). In income post hoc analysis tests, significant differences were between 1990 and 1997 (mean difference = $-2.586, SE = .647, p < .001$), and between 1990 and 2000 (mean difference = $-3.913, SE = .687, p < .001$) suggested that income decreased over time. Pearson's Chi Square was significant for employment (Chi Square = $18.864, df = 3, p < .001$) as more women were employed over time, and ethnicity (Chi Square = $18.907, df = 9, p = .026$) resulting in a higher proportion of white women over time, but there were no significant differences between occasions for marital status (Pearson's Chi Square = $7.221, df = 9, p = .614$) or being a parent (Pearson's Chi Square = $5.161, df = 3, p = .160$). Cross tabulation indicated that there were significant differences among the menopausal transition stages across all occasions (Chi square = $81.440, df = 9, p < .001$) with women progressing from the late reproductive (LR) to early (ET) and late (LT) transition and to post-menopause, as expected.

3.2.3 *Measures*

The measures used in this analysis included the Life Events Scale and Menopausal Transition Stage. Demographic characteristics that were used were age, years of education, income, employment, race/ethnicity, marital status, and being a parent.

The Life Events Scale

The Life Events Scale (LES) is an adaptation of Norbeck's Life Events Questionnaire (1984; LEQ) created for use with midlife women by the investigators of The Seattle Midlife Women's Health Study (SMWHS). The LES is a 77-item, self-rated scale that was given four times during the course of the SMWHS: Occasion 1 (1990), Occasion 2 (1992), Occasion 3 (1997), and Occasion 4 (2000). The LES has the same sections as the LEQ: Health, Work, Residence, Love & Marriage, Family & Close Friends, Parenting, Personal & Social, Financial, and Crime & Legal Matters.

The LES differs from the LEQ in the categories of Work, Family and Close Friends and Personal and Social. In the Work category, one item, "job changed," was added. For Family and Close Friends, "death of parents," was added; "birth of a grandchild" and "acquired or lost a pet" were omitted; the meanings were changed in 5a to include "grandchild" and in 5g to include "other family members (than a parent)." In the Personal and Social category, one item was added, "lost a friend for other reasons;" change in personal habits (life style, hobbies, dress) was in Occasion 1 and 2 but omitted in Occasions 3 and 4; and, the meaning was change from "scope of item" to "conflict." In summary, 3 questions were added, 3 were omitted, and 3 meanings were changed totaling 77 items in both the LEQ and the LES.

Women were asked to indicate whether or not a life event had occurred (yes/no); to evaluate if the event was undesirable, neutral or desirable; and, to rate the impact of the event as 1) no effect, 2) some effect, 3) moderate effect, or 4) great effect. For this investigation, total scores, total impact scores, undesirable total scores, undesirable total impact scores, desirable total scores and desirable impact scores were reported for all 9 sections as well as the totals for the individual items over 4 separate occasions spanning 10 years.

Menopausal Transition Stages

Menopausal Transition Stages (MTS) were classified according to the stages of reproductive aging developed by Mitchell, Woods, and Mariella (2000): Late reproductive stage (LR), early menopausal transition (ET), late menopausal transition (LT), or post-menopause (PM), and match those recommended at the Stages of Reproductive Aging Workshop (STRAW; Soule et al., 2001), and STRAW +10 (Harlow et al., 2012, 2008, 2006). The data were obtained from menstrual calendars and coded as LR, ET, LT, or PM based on criteria developed by the Seattle Midlife Women's Health Study (SMWHS; Mitchell et al., 2000) and validated by Harlow and colleagues (Harlow et al., 2006, 2007). The late reproductive (LR) stage includes the time in midlife before the onset of persistent menstrual cycle irregularity when cycles are regular; Early transition (ET) stage is defined as persistent irregularity of more than 6 days of absolute difference between any two consecutive menstrual cycles during the year, with no skipped periods; Late transition (LT) is defined as persistent skipping of one or more menstrual periods. A skipped period was defined as 60 or more consecutive days of amenorrhea during the calendar year (Harlow et al., 2007). Persistence indicated the irregular cycle or skipped period took place one or more times in the ensuing 12 months. The final menstrual period (FMP) is retrospective, i.e., one year of amenorrhea with the date being synonymous with the word menopause. Early post menopause (PM) was the time frame within five years of the FMP.

Demographic characteristics

Age was measured in years, as was education. Income was measured as gross family monthly pay in dollars. Current employment (part time or full time) was assessed using employed or not employed. Ethnicity was self-reported as African American, Asian/Pacific Islander, White, Latina, or Mixed/Native American. Marital status was self-reported as never married/never

partnered, married/partnered, divorced/separated, or widowed. Parental status was assessed by asking women whether or not they were parents, including adopted and foster children. (See Table 1).

3.3 DATA ANALYSIS

Descriptive statistics (mean, standard deviation) were used to describe the individual items of the Life Event Scale (LES), scale scores, estimates of undesirable and desirable impact of the LES and demographic variables by occasion when the questionnaires were administered. To assess the relationship between demographics (age, years of education, gross family income, employment, race/ethnicity, marital status, being a parent) and life event stress, Pearson's r was used for continuous variables and analysis of variance was used for categorical variables (menopausal transition stage, race/ethnicity). Descriptive statistics, Pearson's r , and analyses of variance were performed using SPSS v23.

Growth Mixture Model

Growth Mixture Modeling (GMM) was used to identify homogeneous subpopulations within the larger heterogeneous population of women in order to determine a mean developmental trajectory of life event stress over the stages of the menopausal transition. Age was set at zero. A set of model parameters (random intercept and slope since women entered the study at different ages) was estimated for each of the growth curve models based on maximum likelihood estimation (MLE). Three growth curves were identified: the mean total impact scores of the LES, the mean undesirable scores and the mean desirable scores. The ages of the women ranges from 34 years to 62 years. Analyses were conducted with STATA v14.1 software. Multinomial logistic regression identified predictors (obtained at baseline) of the LES growth curves. Predictors for each growth curve included menopausal transition stage, years of

education, family income, employment, race/ethnicity, marital status, and being a parent. For the growth curve model, answers that were zero were set to missing, so that the number of variables specified were divided by the number of questions answered.

Missing Data

The total value of the responses for each category of the LES was divided by the number of questions answered. For example, if a participant answered two out of seven parts of the Health portion of the LES and rated their impact as a 3 and a 4, the total (3+4=7) would be divided by 2, so 3.5 would be the average impact score for the Health category of the LES for that year. The growth curve models used maximum likelihood estimation and all available information. On average, each woman contributed data at 2.2 assessments per ages.

3.4 RESULTS

3.4.1 *Total Scores, Undesirable Events*

Table 3.2 includes the total scores (number of items reported, standard deviation, N, adjusted Total) of undesirable events for each category of the Life Event Scale over the past year.

Unadjusted means represent the simple average number of items for each of the subscales, e.g., health, work, etc. Adjusted total scores were calculated by dividing the total by the total number of items in each subscale to enable comparison across subscales, e.g., health vs. work.

For 1990, the largest adjusted total number of stressful events for the following categories were: financial (.10), family and close friends (.09), health (.08), and parenting (.08). For 1993 the largest adjusted total number of stressful events were in the categories of love and marriage (.11), financial (.06), crime/legal (.06). For 1997 the largest adjusted total number of stressful events were in the categories of family and friends (.06) and financial (.06) and for 2000, the largest adjusted total number of events were in the categories of family and friends (.06) and

Health, personal/social, financial, and crime/legal (.05 each). Over the four occasions, the adjusted total for the financial category was among the highest, followed by family and friends for three of the four occasions. Health and crime/legal categories were among the highest means for two occasions (1990 and 1993). To summarize, the categories that had the highest total scores for Undesirable events were: Financial, Family and Close Friends, Health, Crime and Legal Matters.

3.4.2 *Mean Impact Scores, Undesirable Events*

Table 3.3 provides the mean impact scores of undesirable events for each category of the Life Event Scale (LES). As seen in Table 3.3, the LES categories with the highest mean impact scores for 1990 included Family & Close Friends (1.75), Personal and Social (1.49), Health (1.41), Work (1.31) and Love & Marriage (1.30). The lowest impact scores for 1990 were in the category of Residence (0.50). The categories of Family and Close Friends (1.65), Work (1.29), Personal and Social (1.28) and Health (1.05) had the highest impact scores for 1993. The lowest score for 1993 was Residence (.28).

In a similar fashion, the categories of Family and Close Friends (1.32), Personal and Social (1.12), Work (.96), and Health (.92) were the highest scores in 1997 with the lowest score in the Residence (.16) category. In 2000, the highest impact scores were Family and Close Friends (1.36), Personal and Social (1.21), and Work (1.03); the lowest score was Residence (.21). In summary, the categories of Undesirable Impact scores that were the highest rated were Family and Close Friends, Personal and Social, Health and Work.

3.4.3 *Total Scores, Desirable Events*

Table 3.4 indicates the total number of desirable events for the categories in the LES for each of the 4 occasions in the SMWHS. Using the adjusted total scores for the individual categories, the highest scores for desirable life events across all occasions were in the categories of Personal and Social (.20, .19, .19, .16). Financial (.11, .11, .08, .09) and Work (.09, .06, .06, .05) categories were also rated as most commonly experienced. The least commonly reported desirable life event categories were Crime and Legal Matters (.01, .01, .01, .01) followed by Parenting (.03, .02, .01, .01). Overall, the categories with the highest total scores were Personal and Social, Financial and Work.

3.4.4 *Mean Impact Scores, Desirable Events*

Table 3.5 shows the mean Impact scores of Desirable Events for each category in the LES. For 1990, the highest rated impact scores were in the categories of Personal and Social (2.73), Work (1.82), Financial (1.27), and Love and Marriage (1.26). The lowest desirable impact scores were Parenting (.40) and Crime and Legal Matters (.06). The highest desirable impact score for 1993 was in the category of Personal and Social (2.65), followed by Work (1.47) and Financial (1.44). The lowest desirable impact score for 1993 was Crime and Legal Matters (.08). The highest impact scores for 1997 were Personal and Social (2.73), Work (1.10), and Financial (.99) categories. The lowest impact score for 1997 was in the category of Crime and Legal Matters. The highest desirable impact scores for 2000 were Personal and Social (2.33) followed by Work (1.10) and Financial (.99). The lowest impact score from 2000 was .07 in Crime and Legal Matters.

Overall, the highest desirable life event impact scores over all four occasions were in the categories of Personal and Social, Work, and Financial. The lowest overall desirable impact scores were in the category of Crime and Legal Matters.

3.4.5 *Individual Items of the Life Event Scale for each Category*

Analysis of individual items (see Appendix A) provided further clarification of which specific items of the categories of life events were most commonly rated and viewed as having the most undesirable or most desirable impact. The impact scores were rated as 1) no impact, 2) small impact, 3) moderate impact or 4) great impact. The impact scores were totaled for each item and divided by the number of women who reported the items to give the average impact score. The percentage calculated was the total number of women who reported the event, divided by the number of women for that particular occasion. For example, to calculate the percentage for a major personal illness or injury for 1990, there were 83 women who reported a major personal illness or injury divided by 381 (the number of women in the first occasion, 1990) equals 22%.

The Health category showed the most frequently reported individual items included a major change in eating habits (29% for 1990, 21% for 1997, 20% for 2000) or major dental work (31% for 1992). Women rated these items as not desirable to moderately desirable and greatly undesirable.

The most frequently reported Work items were having changed work hours or conditions (42% for 1990, 39% for 1992, 35% for 1997, 33% for 2000), changed responsibilities at work (36%, 41%, 30%, 28%) and had troubles at work with an employer or co-worker (34%, 29%, 28%, 21%). The undesirable impact of these work items was rated as a moderate to great effect (3-4) while the desirable impact was rated as small to great.

Although Residence was the category with the lowest score totals for Undesirable events (see Table 3.2 and 3.3), the most frequently reported individual item was having had a major change in living conditions, such as a home improvement or a decline in home or neighborhood. Women rated this item as both an undesirable or desirable moderate (3) impact score.

There were two most frequently reported items in the Love and Marriage category. These items included having had a change in closeness with a husband or life partner and having had a change in a husband or partner's work outside the home. Both undesirable and desirable impact scores were greater than three (moderate).

The most frequently reported Family and Close Friends items included having gained a new family member (29%, 22%, 18%, 25%) with both undesirable and desirable impact scores greater than three (moderate amount), a major change in the health or behavior of a family member or close friend (43%, 43%, 34%, 41%) with both undesirable and desirable impact scores greater than three, and death of a family member or close friend (27%, 26%, 20%, 18%) again with an undesirable or desirable moderate impact score.

Personal and Social events that were most frequently reported consisted of having had a vacation (61%, 64%, 74%, 65%) with both undesirable and desirable impact scores between moderate and great (3-4), had a trip, not a vacation (45%, 42%, 48%, 50%) with small to moderate impact scores (2-3), and made a new friend (61%, 52%, 45%, 50%) with small to great impact scores.

The most frequently reported Financial concerns involved having a major change in financial status, improved or worsened, (44%, 39%, 36%, 36%) followed by taken on a moderate purchase, such as a car or major appliance (41%, 36%, 32%, 31%). The impact that these items had ranged from small to moderate.

The lowest total number of Desirable events (from Table 4 and 5) involved Crime and Legal Matters, such as being involved in a minor violation of the law, traffic tickets or disturbing the peace (20%, 16%, 14%, 12%), being robbed (13%, 12%), or involved in a car accident (13%, 12%, 15%). The impact scores for these individual items were small (2) to moderate (3).

The last category, Parenting, had two items that were most frequently reported. These items were conflicts with a husband or partner about parenting (34%, 22%, 17%, 14%) and a change in childcare arrangements (23%, 15%, 10%, 9%); both had small to moderate undesirable and desirable impact scores.

3.4.6 *Correlations of the Undesirable Impact Scores with Demographic Characteristics*

Table 3.6 includes the correlations among the Undesirable Impact Scores of the LES with baseline measures (1990) of demographic characteristics. Age was significantly correlated with Undesirable impact scores for health ($r = 0.103, p = .046$), meaning older women had higher Undesirable impact scores for health-related events. Those women with higher income had lower undesirable health events ($r = -.133, p = .010$), lower undesirable events concerning residence ($r = -.115, p = .025$), less impact of undesirable events in love and marriage ($r = -.133, p = .010$) and lower impact of financial matters ($r = -.192, p < .001$). Being a parent indicated more undesirable financial impact reports of stressful events ($r = .102, p = .046$) as well as parenting life event stress ($r = .259, p < .001$). Years of education and employment status were not significantly correlated with any of the undesirable impact scores for the LES categories.

3.4.7 *Analysis of Variance of Undesirable Impact Scores and Marital Status, Race/Ethnicity, and Menopausal Transition Stages*

Marital status, race/ethnicity, and menopausal transition stages were examined for their association with Undesirable total impact scores for LES categories (see Tables 3.7, 3.8 and 3.9, respectively). The analysis of variance (ANOVA) identified that marital status was associated with Health ($F = 3.109$; 3, 376 df; $p = .026$), Love and Marriage ($F = 6.979$; 3, 376 df; $p < .001$), and Personal and Social ($F = 3.920$; 3, 376 df; $p < .001$) for 1990. For 1992, Love and Marriage ($F = 7.430$; 3, 229 df; $p < .001$) as well as Personal and Social ($F = 2.770$; 3, 229 df; $p = .042$) were associated with marital status. Marital status was not significant for the LES Undesirable total impact scores for 1997. In 2000, four categories were associated with marital status: Work ($F = 4.231$; 3, 187 df; $p = .006$), Residence ($F = 3.209$; 3, 187 df; $p = .024$), Personal and Social ($F = 3.417$; 3, 187 df; $p = .019$), and Financial and Legal Matters ($F = 2.971$; 3, 187 df; $p = .033$).

Regarding Table 3.7, Post Hoc analysis identified a significant negative mean difference between Married/Partnered and Divorced women related to Undesirable Health impact scores for 1990 suggesting that being married was associated with less impact of stressful health events than being divorced. Being married was associated with lesser impact of stressful events in Love and Marriage compared to women who were never married and to women who were divorced. Married women had less impact of Personal and Social stressful life events than women who were divorced.

In 1992, married women had significantly more impact of undesirable stressful life events in Love and Marriage than divorced women, while divorced women had more impact of stressful life events in Love and Marriage than women who had never been married. Married women had more undesirable impact in the Personal and Social Category than women who were

widowed. The Personal and Social category revealed significant differences between women who were married and women who were widowed, suggesting that married women had a higher impact of undesirable stressful life events in the Personal and Social category than women were widowed.

For the last occasion (2000), women who were never married rated the impact of Work stress and Personal and Social stress significantly higher than married women. Married women rated impact scores significantly higher than divorced women for Work, Residence, Personal and Social and Financial stress. Married women had significantly higher impact scores of Financial stress than women who were widowed.

ANOVA for the LES Undesirable categories and ethnicity (See Table 3.8) revealed significant associations for the Financial category for 1992 ($F= 3.879$; 4, 228 df; $p = .005$) and 1997 ($F= 7.772$; 3, 216 df; $p < .001$). All categories and ethnicity were not significant for 1990 and 2000. In 1992, there were significant differences between Hispanic/Latina women and all other ethnicities suggesting that Hispanic/Latina women rated the impact of Financial stress higher than women who were Asian/Pacific Islander, African American, White and Mixed/Native American; however, there were only 3 women who identified themselves as Hispanic/Latina. Post hoc analyses were not performed for 1997 because at least one group had fewer than two cases. One woman identified herself as Hispanic/Latina in 1997 and no women identified themselves as Mixed/Native American.

Health was significantly associated with menopausal transition stages in the analysis of variance (ANOVA) for the total impact scores for Undesirable Events ($F =3.700$; 3, 198 df; $p = .013$) for 1990, and was not significant for all other occasions. Table 3.9 identifies the significant mean differences from the Post Hoc analysis tests from the analysis of variance for

the LES category impact scores for Undesirable stressful life events and the menopausal transition stages (LR= Late Reproductive, ET= Early Transition, LT= Late Transition, PM= Post menopausal) for 1990. In 1990, LR, ET, and LT each significantly and negatively differed from the PM stage ($p < .001$, $.001$, and $.008$) in the Health category meaning that the impact scores of Undesirable Health events decrease as women transition through the menopausal stages; however, there were only four women in the post menopausal stage during the first occasion.

3.4.8 *Correlations of the Desirable Impact Scores with Demographic Characteristics*

Table 3.10 shows a correlation matrix of impact scores of the categories of the LES for Desirable events with baseline (1990) demographic data. Years of education were significantly negatively correlated with desirable impact of events in the category of Family/Close Friends ($r = -.130$, $p = .011$), indicating that women with more education reported less desirable impact in these events, and significantly greater desirable impact of events in the Personal/Social category ($r = .143$, $P = .005$). Income was negatively correlated with the desirable impact of Love and Marriage ($r = -.160$, $p = .002$) suggesting women with more income reported a less desirable impact of these events. Women who were employed had more desirable impact scores for work ($r = .102$, $p = .048$) and less desirable impact scores with Family/Close Friends ($r = -.109$, $p = .033$). Women who were parents had significantly higher impact scores with Family/Close Friends ($r = .135$, $p = .009$), significantly lower impact scores with Personal/Social ($r = -.112$, $p = .028$), and significantly higher impact of Parenting ($r = .167$, $p < .001$).

3.4.9 *Analysis of Variance of Desirable Impact Scores and Marital Status, Race/Ethnicity, and Menopausal Transition Stages*

Analysis of variance of total impact scores for Desirable events and marital status had significant associations for all occasions except for 1992. In 1990, desirable impact scores for Work ($F = 3.146$; 3, 376 df; $p = .025$) and Crime and Legal Matters ($F = 5.488$; 3, 376 df; $p = .001$) were associated with marital status. Love and Marriage ($F = 3.309$; 3, 216 df; $p = .021$) and Personal and Social ($F = 4.042$; 3, 188 df; $p = .008$) impact scores were associated with marital status for 1997. In 2000, marital status was associated with Health ($F = 2.794$; 3, 187 df; $p = .042$).

In post hoc analyses for 1990 (see Table 3.11), divorced/separated women rated significantly lower desirable impact scores for Work stress and Crime stress compared to married/partnered women. Women who were widowed had significantly lower desirable impact scores for Crime stress compared to women who never married, to women who were married and to women who were divorced.

Women who were divorced or separated had a significantly lower desirable impact scores for Love and Marriage as well as for Personal and Social stress compared to women who were never married and to women who were married or partnered in 1997. The Health category in 2000 resulted in significantly higher desirable impact scores for women who were never married compared to women who were married and to women who were divorced or separated.

Analysis of variance total impact scores for Desirable events and ethnicity resulted in significant associations for Health ($F = 3.907$; 4, 375 df; $p = .004$), Love and Marriage ($F = 2.435$; 4, 375 df; $p = .047$), Family and Close Friends ($F = 2.742$; 4, 375 df; $p = .028$), and Financial ($F = 3.267$; 4, 374 df; $p = .012$) categories for 1990. There were no significant associations between total impact scores for Desirable events and ethnicity for 1992 and 2000. Desirable impact scores of Family and Close Friends ($F = 2.818$; 3, 216 df; $p = .040$) were

significantly associated with ethnicity for 1997; however, post hoc tests were not performed for 1997 because at least one group had fewer than 2 cases.

Post hoc tests for 1990 revealed that Mixed/Native American women rated desirable impact scores for Health stress significantly lower compared to women who identified as Asian/Pacific Islander, African American, and White (see Table 3.12). Hispanic/Latina women had significantly lower desirable impact scores in Love and Marriage, Family and Close Friends, and Financial stress compared to women who were Asian/Pacific Islander, African American and White. Analysis of variance of Desirable impact scores of stressful life events and menopausal transition stages was not significant for 1990.

3.4.10 *Growth Curve Model of Mean Total Impact Scores*

The histogram of the Mean Total Impact Scores was approximately normally distributed (see Figure 3.1); therefore, no transformation was needed. The Total Mean Impact Score plotted by Age was graphed and revealed the curve to be linear until age 55 (See Figure 3.2). For this reason, a quadratic term was also used (Age^2) to estimate the model. The coefficient of Age ($\beta^1 = -.015, SE .003, p < .001$) and Age^2 ($\beta^2 = .0014, SE .0004, p = .002$) were both significant; the negative coefficient of Age suggested that the Mean Total Impact score decreased over time; and, the positive coefficient of Age^2 suggested that the curve changed at age 55 and increased. Likelihood Ratio tests based on comparing models with and without the quadratic term indicated that a non-linear growth curve was significant (Likelihood Ratio Chi Square = 9.88, $p = .0017$) concluding that a non-linear model was the best fit. There were 264 women who reported a mean total impact score and a total of 712 observations. The intercept/constant (β_0) was 2.8, the predicted mean total impact score for a woman who was 45 years (age was centered at the mean age). The mean total impact score equation for the growth curve was $2.8 - .015\beta^1 + .0014\beta^2 +$

ϵ . The variance of the random intercept was .00073, significant because it was twice the size of the standard error ($SE = .00031$). The variance for the random slope for age was also significant (.08, $SE = .0114$) illustrating that women had different initial levels (intercept) of Mean Total Impact Scores and they changed at different rates (slope). There was a positive and significant covariance (.002, $SE .0012$) between the mean impact score (random intercept) and random slope, indicating that women with a higher intercept also have a higher slope. See the Growth Curve Model for Mean Total Impact Scores of the Life Event Scale (LES) in Figure 3.3 and Table 3.13.

Using Mixed Effects Multinomial Logistic Regression, the following demographic predictors were added: White vs. Non-White, partnered vs. not partnered, income (less than \$39,000 vs. greater than \$39,000), education, and menopausal transition stage (LR, ET, LT/PM). The only significant predictor was late transition/early postmenopausal (LT/PM) ($\beta_l = .254$, $SE = .121$, $p = .035$). When placed in the model alone, the stages of the menopausal transition were not significant (Chi Square = 4.72, $df = 2$, $p = .09$).

3.4.11 *Growth Curve Model of Mean Undesirable Impact Scores*

The growth curve model for the Mean Undesirable Impact Scores was similar to the model for the Mean Total Impact scores. There were 260 women in this group with 647 observations. The age ranged from 35 years to 62 years and the mean age was 45 years. The data were not transformed as the sample was approximately normally distributed. The Mean Undesirable Impact Scores were plotted by Age. The curve decreased until age 50, and then increased. As the graph was not linear, a quadratic term was used to estimate a better fit for the model. The coefficient of Age ($\beta^l = -.0031$, $SE = .0006$, $z = -.76$, $p = .447$, CI -.0111, .0049) was not significant, the coefficient for the quadratic term, Age² ($\beta^2 = .0012$, $SE = .0006$, $z = 2.04$,

$p = .041$, CI .0001, .0024), was significant. The equation for the Mean Undesirable Impact Scores was $3.02 - .0031\beta^1 + .0012\beta^2 + \epsilon$. A random intercept and random slope were used in the model suggesting that women entered the study at different times and changed at different rates. (See Figure 3.4).

Mixed effects multilevel regression identified education ($\beta^1 = -.047$, $SE = .0115$, $p < .001$) as the only significant predictor of the growth curve model. Figure 3.5 illustrates that women who have more education rate the impact of undesirable life events lower than those that have less education.

3.4.12 *Growth Curve Model of Mean Desirable Impact Scores*

There were 263 women with 694 observations for the Mean Desirable Impact Scores. The average rating was 2.6 (from 1 to 4). The age range of the women were from 35 years to 62 years with an average age of 44 years. As in the previous two growth curve models, the histograms for the Mean Desirable Impact scores were approximately normal and no transformations improved the curve. The Mean Desirable Impact scores were plotted by age indicating that the curve was nonlinear; therefore, a quadratic term for age was used. The coefficients for Age ($\beta^1 = -.022$, $SE = .0041$, $z = -5.31$, $p < .001$, CI -.0296, -.0136) and Age² ($\beta^2 = .0013$, $SE = .0006$, $z = 2.29$, $p = .022$, CI .0002, .0022) were both significant. The variance of the random slope for Age was significant (.1126, $SE = .0197$, CI .0799, .1587) since it was two times the standard error (SE) indicating that the impact scores changed at different rates. The negative coefficient of Age indicated that the curve decreased and the positive coefficient of Age² indicated that the curve increased beginning at 55 years. Likelihood Ratio tests compared models assuming that the linear model was nested in the quadratic model and was significant

($\text{Chi}^2 = 5.21, p = .02$). The Mean Desirable Impact Score equation for the growth curve model was $2.89 - .022\beta^1 + .0013\beta^2 + \varepsilon$.

Mixed effects multilevel regression initially identified the Late Transition/Post Menopausal (LT/PM) stage (Coefficient = .3502, $SE = .1385, p = .011$) as a significant predictor. However, contrast analyses indicated that none of the comparisons was significant. See Figure 3.6 and Table 3.13.

3.5 DISCUSSION

The overall goal of this study was to describe the undesirable and desirable life events midlife women experience, the impact these life events had on them, and to characterize growth curve models of the impact scores of these life events. Each specific aim will be addressed and explained in the order of undesirable followed by desirable life events.

The first two aims were to determine which life events midlife women reported most frequently and which life events they rated as most undesirable or desirable. Over the four occasions, the adjusted total score of Undesirable Life Events in the Financial category was among the highest, followed by Family and Close Friends for three of the four occasions. Health and Crime/Legal categories were among the highest adjusted total scores for two occasions. The highest impact scores for Undesirable Life Events over all four occasions were in the category of Family and Close Friends. The most commonly reported undesirable life events may not have had the greatest impact for these women.

The most commonly reported adjusted total scores of Desirable Life Events were in the category of Personal and Social. Work and Financial categories of the adjusted total scores were also rated as commonly experienced. The highest Desirable Life Event Impact scores over all

four occasions were in the category of Personal and Social followed by Work. The most commonly reported desirable life events were also those that had the greatest impact.

Because of the current results, one can begin to see women's social roles and their connections as shaping the kinds of stressful life events they experience, reflected in the categories with the highest impact scores of Family and Close Friends, Personal and Social, and Work. Woods-Giscombé et al. (2015) investigated self-stress and network-stress among African American women aged 21 to 78 years. Self-stress was explained as stressful events happening to oneself whereas network-stress referred to stressful events happening to family, friends and loved ones, which could indirectly affect the woman herself. Women reported significantly more network-stress than self-stress. Self-stress was correlated with distress, age, education and income, while Network-stress was correlated with distress and age (Woods-Giscombé et al.). Certainly the categories of Family and Close Friends as well as Personal and Social could account for network-stress; Work stress may be from a partner's job (network-stress) or one's own job (self-stress). Midlife women's social roles and connections may place them at risk for a greater number of stressors altogether (indirectly and directly) than what they would experience directly.

The third aim was to determine if demographic variables were correlated or associated with the Undesirable and Desirable Impact Scores of the LES. Correlations of impact scores for Undesirable Stressful Life Events indicated age was associated with Undesirable Stressful Life Events in Health; this result was not surprising given that one of the categories with the largest number of Undesirable Stressful Life Events in 1990 was Health, although it was not the highest adjusted total. In fact, women reported a major change in eating habits (29%), a major change in recreation (25%), a major change in sleeping habits (23%), and a major personal illness or injury

(22%), all with a moderate to great impact score (See Appendix A). Correlations of the Undesirable Impact scores also indicated that women with more family income had lower impacts of Health, Residence, Love and Marriage and Financial life event stress than women with less family income. Although education was not correlated with Undesirable Impact scores, the current results are similar to what others have found. McDonough et al. (2002) investigated how social structure is linked to health in midlife and younger women aged 25 to 64 years and found that chronic stressors (social life, financial, relationship, child, environment, and family health stress) were significantly and positively related to women's levels of distress and that health status improved as education and household income increased (McDonough et al., 2002). Furthermore, in the current study, post hoc analyses revealed that married women reported lower impacts of Health stress than did women who were divorced; results that were supported by McDonough et al. (2002) revealing that married women reported the best health results while formerly married women reported the worst. Newton et al. (2014) investigated midlife women aged 51 to 60 years and found that married women were associated with fewer functional limitations and fewer risks of chronic diseases (hypertension, diabetes, heart attacks, chronic heart failure, coronary heart disease, angina, stroke and rheumatoid arthritis) compared to women who were divorced/separated, widowed and never married. Post hoc results from the analyses of variance indicated that married women reported lower impact ratings of Undesirable events for Love and Marriage and Personal and Social categories than divorced women.

Often having an income provides health insurance, which would pay for treatment for health problems. Less income influences the amount of money spent on a residence and the ability to pay for repairs to that residence. Lower income may place a strain on Love and Marriage; one of the most frequently reported Love and Marriage items was had a change in

husband or partner's work outside the home (26%). See Appendix A. As expected, less income was associated with Stressful Life Events in the Financial category. For example, if a woman lost her job, she would have difficulty paying for food, bills, or a mortgage.

Whether a woman was a parent was associated with more Financial stress, such as paying for a child's food and clothing, as well as Parenting stress. Women most frequently reported having a change in childcare arrangements (23%) and conflicts with their husband or partner about parenting (31%).

Correlations of the Desirable stressful life event categories and the continuous demographic variables identified different significant results from the Undesirable categories as would be expected. For example, women with more education rated lower impact scores of desirable stressful events for Family and Close Friends and higher impact scores for desirable stressful life events for Personal and Social categories. Women with more income had a lower impact of desirable stressful life events for Love and Marriage. As expected, employment was associated with working more and with lower impact scores for Desirable Stressful Life Events with Family and Friends. Being a parent was associated with higher impact scores of Desirable Stressful Life Events for Family and Friends, lower impact scores for desirable Personal and Social events, and higher impact scores for desirable stressful life Parenting events.

In addition, to date there have been few studies of growth curve models of Stressful Life Events over time for midlife women. The fourth and fifth aims were to create growth curve models of Stressful Life Events for midlife women over a decade, including Total impact scores of Undesirable, Desirable and Neutral events, Undesirable Impact Scores, and Desirable Impact Scores and to characterize the curves with the following predictors: menopausal transition stage,

years of education, family income, employment, race/ethnicity, marital status, and being a parent.

The growth curve for the Total Impact Scores of the Life Event Scale (LES) started with a mean impact score of 2.8 (on a scale of 1 to 4) and decreased as women grew older and continued through the menopausal transition until age 55 years, and then the mean impact scores increased. A similar pattern was seen on the growth curve for Undesirable Impact Scores of the LES where the impact scores started with a mean impact score of 3 and decreased until 55 years and then increased afterwards.

The growth curves for total, undesirable and desirable impact scores for the LES each decreased over time until the age of 50 – 55 years, suggesting that as women age, they experience a lower impact of stressful life events. Adaptation to stressors is a significant component of development. As women experienced similar events over many years, it is likely that they learned new strategies to manage these stressful life events or they were able to minimize the level of their impact by controlling their emotional responses to them. Folkman and Lazarus (1984) proposed that coping with stressors involved both problem-focused efforts, such as learning new skills, or emotion-focused responses, such as managing feelings, e.g., anxiety. There are no direct data that would inform us about the women's coping strategies related to the LES events reported here; however, the predictor of education for both the total and undesirable impact scores would be consistent with the explanation that women learned to lessen the impact of events over time.

The undesirable impact growth curve had one significant predictor, education. These data support others who have studied chronic life event stress and education. One study (Tschanz et al., 2013) examined older men and women over a period of seven years and found

that years of education modified the impact of the number of stressful life events (SLE) on cognitive decline suggesting that those with fewer years of education and a greater number of SLE anticipated faster decline. Women with more years of education may have access to more financial or psychosocial resources that may mitigate the impact of SLE. The growth curves of the Total Impact Scores and the Desirable Impact Scores had the same pattern as the growth curve for the Undesirable Impact Scores, but none of the demographic variables were significant predictors.

This study has limitations. First, other non-demographic variables were not included, such as depression. In a longitudinal study of Women's Health Across the Nation (SWAN), women who were going through the menopausal transition and who were early post-menopause were 2-4 times more likely to suffer a major depressive episode (Bromberger et al., 2011) and another study (Bromberger et al., 2007) found that the odds of increased depressive symptoms were significantly greater as women in the SWAN cohort moved through the menopausal transition. Future studies of LES of midlife women should include variables such as depression as a causal factor to identify whether women with depressed mood identify more stressful life events or whether the LES scores predict depressed mood. Another limitation is the normal attrition that occurs during longitudinal studies. The upward curve of the growth curve models after age 50 may reflect differential attrition and the smaller numbers of women responding to the final occasion of the LES may provide an unstable estimate.

One of the strengths of this study is that chronic Life Event Stress was investigated in midlife women repeatedly over a decade. The growth curve models indicated that the total, undesirable and desirable impact of life event stressors decreased over time, suggesting that women adapted to these events. Further research focusing on the strategies women used for

adaptation to stressful life events would help to clarify the mechanisms involved in shaping the growth curves.

Life Event Stress may reflect the impact of the chronic activation (stress arousal) of the hypothalamic-pituitary-adrenal (HPA) axis. Future investigations may consider how, and if, desirable or positive life events buffer the effects of negative or undesirable stressful life events on HPA axis responses, such as cortisol levels.

Overall, the stressful life events that women experienced and the impact of the undesirable and desirable life events were related to women's roles as employee, parent, partner and to social advantages, such as education and income. In addition, the dominant pattern in all the growth curve analyses was a decrease in the impact of total life events, undesirable life events and desirable life events as women age, at least until age 50 or 55 years. The slight rise in impact scores noted at ages 50 and 55 years may be a function of small numbers of women who reached this age during the course of the study and merits further evaluation.

3.6 CONCLUSION

In conclusion, midlife women experience a variety of stressful life events with a range of both undesirable and desirable impact of these. The types of events and their impact were related to women's roles as well as to factors that afforded them social advantage, such as education and income. In addition, there were uniform patterns of decline of the impact of life event stress, for total impact scores, undesirable impact scores and desirable impact scores, over time suggesting that adaptation occurs over time.

Two important messages from these results follow. First, practitioners will benefit from knowing the type of stressful life events occurring for women, especially those related to their

roles and social advantage during midlife, a time of many different responsibilities. Second, many women have multiple co-occurring stressors, potentially related to an initiating event, such as divorce. Divorce may propagate additional stressful events, such as loss of income and/or insurance, the need to increase hours worked, difficulty with childcare arrangements, as well as loss of a partner. Undesirable stressful life events that continue over time may place women at risk for development of pathologies such as hypertension, diabetes, heart disease, arthritis, and obesity. More research is need to understand the potential consequences of this snowball effect that often happens in women's lives.

References (Chapter 2)

- Dare, J.S. (2011). Transitions in midlife: Contemporary experiences. *Health Care for Women International*, 32, 111-133.
- Freeman, E.W., Grisso, J.A., Berlin, J., et al. (2001). Symptom reports from a cohort of African American and white women in the late reproductive years. *Menopause*, 8(1), 33–42.
- Gold, E., Colvin, A., Avis N., et al. (2006). Longitudinal analysis of vasomotor symptoms and race/ethnicity across the menopausal transition: Study of Women’s Health Across the Nation (SWAN). *Am J Public Health*, 96(7), 1226–1235.
- Hall, M.H., Casement, M.D., Troxel, W.M., et al. (2014). Chronic stress is prospectively associated with sleep in midlife women: The SWAN sleep study. *Sleep*, 10(38), 1645-1655.
- Hsieh, H.-F. & Shannon, S. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277-1288.
- Kenny, J. (2000). Women’s inner balance: A comparison of stressors, personality traits and health problems by age groups. *Journal of Advanced Nursing*, 31, 639-650.
- Kendler, K., Kessler, R., Walters, E., et al. (2010). Stressful life events, genetic liability, and onset of an episode of major depression in women. *Journal of Lifelong Learning Psychiatry*, 8(3), 459-470.
- Lanza di Scalea, T., Matthews, K.A., Avis, N.E., et al. (2012). Role stress, role reward, and mental health in a multiethnic sample of midlife women: Results from the

- Study of Women's Health Across the Nation (SWAN). *Journal of Women's Health*, 21(5), 481-489.
- McEwen, B.S. (2007). Physiology and neurobiology of stress and adaptation: Central role of the brain. *Physiol. Rev.*, 87, 873-904.
- Miller, J.B. & Stiver, I.P. (1997). *The healing connection: How women form connections in therapy and in life*. Boston, Mass.: Beacon Press.
- Mitchell, E.S. and Woods, N.F. (1996). Symptom experiences of midlife women: Observations from the Seattle midlife women's health study. *Maturitas*, 25, 1-10.
- Norbeck, J.S. (1984). Modification of life event questionnaires with female respondents. *Research in Nursing and Health*, 7(1), 61-71.
- Perrig-Chiello, P & Hopflinger, F. (2005). Aging parents and their middle-aged children: Demographic and psychosocial challenges. *European Journal of Aging*, 2, 183-191.
- Raphael, D. & Schlesinger, B. (1993). Caring for elderly parents and adult children being at home. Interactions of the sandwich generation family. *Social Work Research & Abstracts*, 29(1), 1-10.
- Sakraida, T.J. (2005). Common themes in the divorce transition experience of midlife women. *Journal of Divorce & Remarriage*, 43 (1, 2), 69-88.
- Stevens, S. & Thomas, S.P. (2012). Recovery of midlife women from myocardial infarction. *Health Care for Women International*, 33(12), 1096-1113.
- Woods-Giscombé, C.L. & Lobel, M. (2008). Race and gender matter: A multidimensional approach to conceptualizing and measuring stress in African American women. *Cultural Diversity and Ethnic Minority Psychology*, 14(3), 173-182.

- Woods, N.F., Mitchell, E.S., Percival, D.B., & Smith-Dejulio, K. (2009). Is the menopausal transition stressful? Observations of perceived stress from the Seattle Midlife Women's Health Study. *Menopause*, 16(1), 90-97.
- Woods, N.F. & Mitchell, E.S. (2005). Symptoms during the perimenopause: Prevalence, severity, trajectory and significance in women's lives. Proceeding of the NIH State-of-the-Science Conference on management of menopause-related symptoms. *Am J Med*, 118, suppl 2, 14-24.
- Woods, N.F. & Mitchell, E.S. (1997). Women's images of midlife: Observations from the Seattle Midlife Women's Health Study. *Health Care Women International*, 18, 439-453.

References (Chapter 3)

- Bromberger, J.T., Kravitz, H.M., Chang, Y.-F., et al. (2011). Major depression during and after the menopausal transition: Study of Women's Health Across the Nation (SWAN). *Psychological Medicine*, 1-10.
- Bromberger, J.T., Matthews, K.A., Schott, L.L., et al. (2007). Depression symptoms during the menopausal transition: The Study of Women's Health Across the Nation (SWAN). *Journal of Affective Disorders*, 103, 267-272.
- Booth, J., Connelly, L., Lawrence, M., et al. (2015). Evidence of perceived psychological stress as a risk factor for stroke in adults: a meta analysis. *BMC Neurology*, 12, 233-248.
- Fang, C.T., Boden, G., Sui, P.T. and Teng, M. (2015). Stressful life events are associated with insulin resistance among Chinese immigrant women in the United States. *Prev. Med. Rep.*, 2, 563-567.
- Harlow, S.D., Cain, K., Crawford, S., et al. (2006). Evaluation of four proposed bleeding criteria for the onset of late menopausal transition. *Journal of Clinical Endocrinological Metabolism*, 91, 3432-3438.
- Harlow, S.D., Crawford, S., Dennerstein, L., Bulger, H.G., Mitchell, E.S. & Sowers, M.F. (2007). ReSTAGE Collaboration. Recommendations from a multi-study evaluation of proposed criteria for staging reproductive aging. *Climacteric*, 10, 112-119.
- Harlow, S.D., Gass, M., Hall, J.E., et al. (2012). Executive summary of the stages of reproductive aging workshop +10: Addressing the unfinished agenda of staging reproductive aging. *Menopause*, 19(4), 387-395.
- Harlow, S.D., Mitchell, E.S., Crawford, S., et al. (2008). The reSTAGE collaboration:

Defining optimal bleeding criteria for onset of early menopausal transition.
Fertil Steril, 89, 129-140.

Holmes, T.H. & Rahe, R.H. (1967). The Social Readjustment Rating Scale. *J Psychosom Res*, 11(2), 213–218.

Kivimaki, M. & Kawachi, I. (2015). Work stress is a risk factor for cardiovascular disease.
Current Cardiol. Resp., 17(9), 73-82.

Lazarus, R.S. and Folkman, S. (1984). *Stress, Appraisal, and Coping*. New York: Springer.

McDonough, P., Walter, V. and Strohschein, L. (2002). Chronic stress and the social patterning of women's health in Canada. *Social Science and Medicine*, 54, 767-782.

McEwen, B.S. (2009). *The stress response*. In Committee on Gulf War and Health, Physiologic, psychologic, and psychosocial effects of deployment-related stress, v6 (pp. 49-74). National Academy of Sciences: Washington, D.C.

McEwen, B.S. (2006). Sleep deprivation as a neurobiologic and physiologic stressor: Allostasis and allostatic load. *Metabolism*, 55(10 Suppl 2): S20-S23.

Mitchell, E.S. and Woods, N.F. (1996). Symptom experiences of midlife women: Observations from the Seattle midlife women's health study. *Maturitas*, 25, 1-10.

Mitchell, E.S., Woods, N.F., & Mariella, A. (2000). Three stages of the menopausal transition: Toward a more precise definition. *Menopause*, 7, 334-339.

Newton, N.J., Ryan, L.H., King, R.T. and Smith, J. (2014). Cohort differences in the marriage-health relationship for midlife women. *Social Sciences and Medicine*, 116, 64-72.

Norbeck, J.S. (1984). Modification of life event questionnaires with female respondents.

- Research in Nursing and Health*, 7(1), 61-71.
- Pimental, F., Maroco, J., Leitao, M. and Leal, I. (2016). Predictors of stress and depressive mood in Portuguese middle aged women. *Journal of Women & Aging*, 1-10.
- Smeijers, L., Szabo, B.M., van Dammen, L., et al. (2015). Emotional, neurohormonal and hemodynamic responses to mental stress in Tako-Tsubo cardiomyopathy. *American Journal of Cardiology*, 1580-1586.
- Soules, M.R., Sherman, S., Parrott, E., et al. (2001). Executive summary: Stages of Reproductive Aging Workshop (STRAW). *Fertil. Steril.*, 76, 874-878.
- Tschanz, J.T., Pfister, R., Wanzek, J., et al. (2013). Stressful life events and cognitive decline in late life: moderation by education and age. The Cache County Study. *International Journal of Geriatric Psychiatry*, 28(8), 821-830.
- Virtanen, M., Nyberg, S.T., Batty, G.D., et al. (2013). Perceived job security as a risk factor for incident coronary heart disease: systematic review and meta-analysis. *BMJ*, 347-362.
- Woods-Giscomé, C.L., Lobel, M., Zimmer, C., et al. (2015). Whose stress is making me sick? Network-stress and emotional distress in African American women. *Issues in Mental Health Nursing*, 36(9), 710-717.
- Woods, N.F., Mitchell, E.S., Percival, D.B., & Smith-Dejulio, K. (2009). Is the menopausal transition stressful? Observations of perceived stress from the Seattle Midlife Women's Health Study. *Menopause*, 16(1), 90-97.
- Woods, N.F. & Mitchell, E.S. (1997). Women's images of midlife: Observations from the Seattle Midlife Women's Health Study. *Health Care Women International*, 18, 439-453.

FIGURES

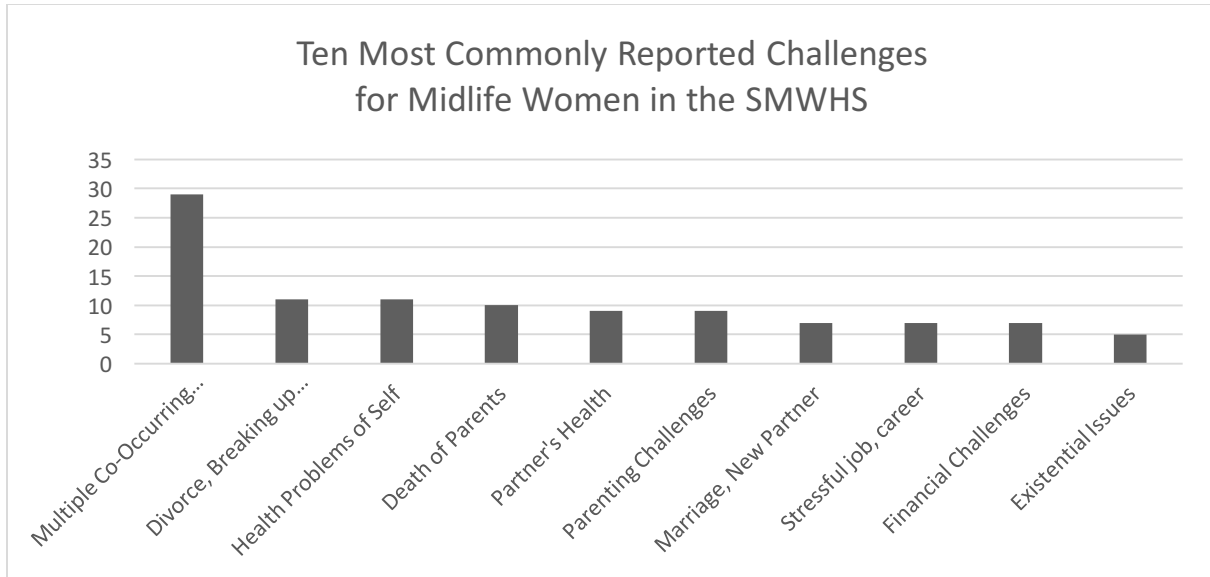


Figure 2.1. Ten most commonly reported Challenges for Midlife Women.

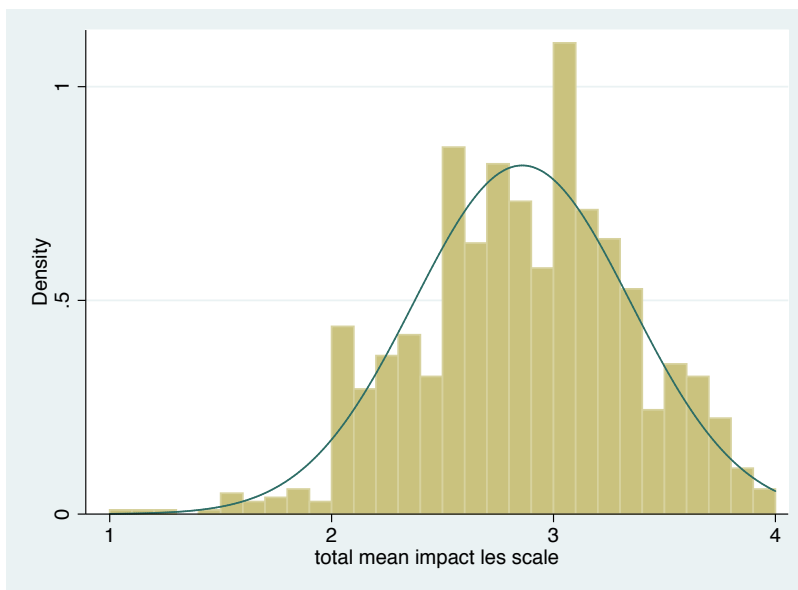


Figure 3.1. Histogram of Mean Total Impact Scores of the Life Event Survey

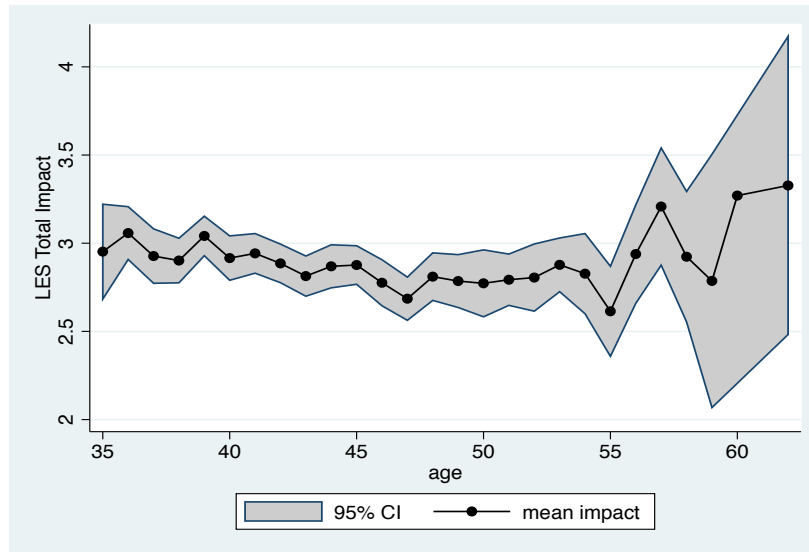


Figure 3.2. Mean Total Impact Scores of the LES by Age

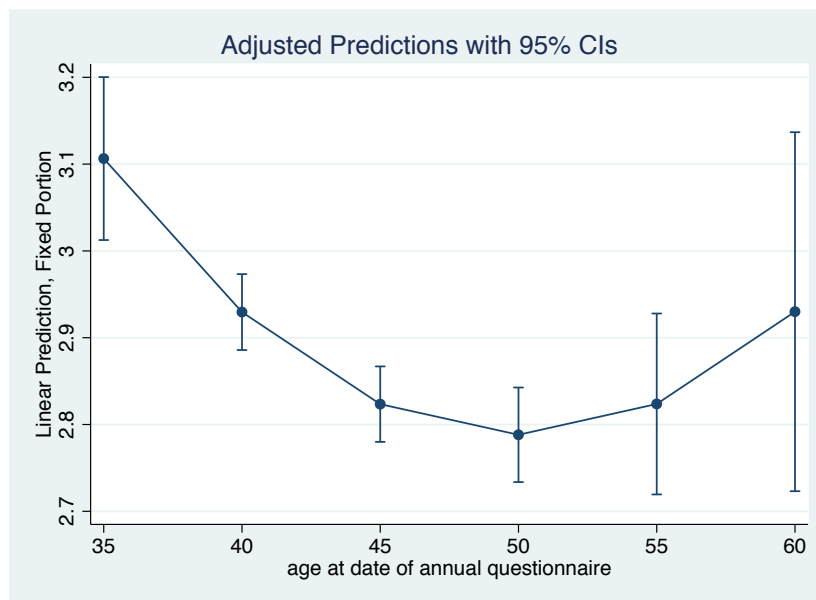


Figure 3.3. Growth Curve Model of the Mean Total Impact Scores of the LES

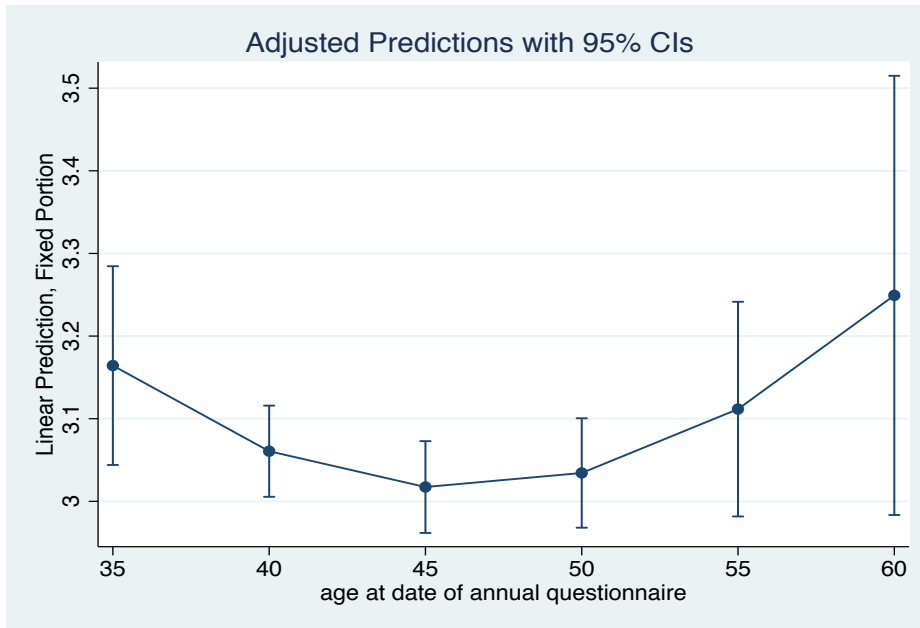


Figure 3.4. Growth Curve Model of the Mean Undesirable Impact Scores of the LES

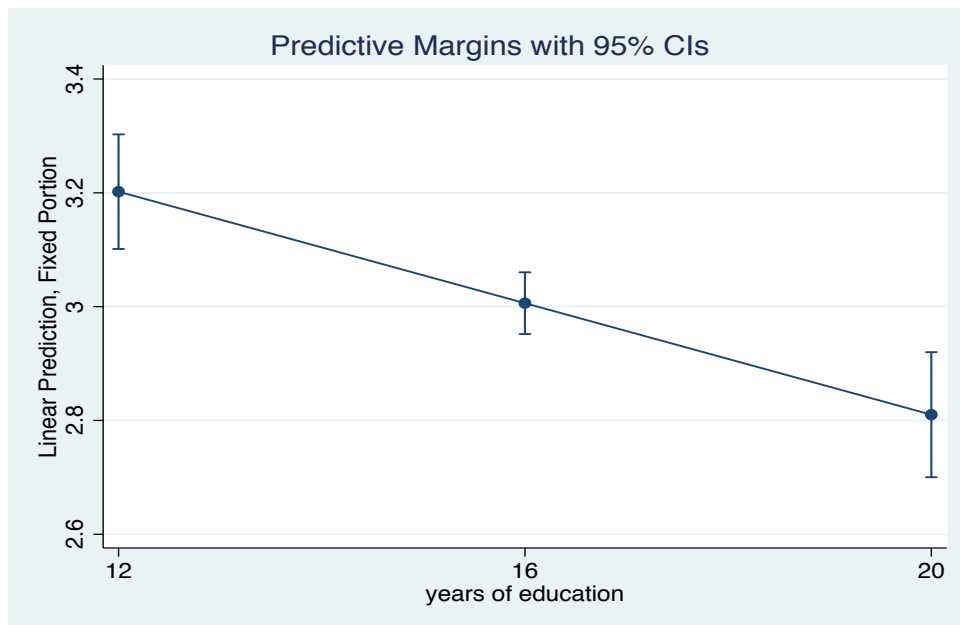


Figure 3.5. Mean Undesirable Impact Scores Predicted by Years of Education

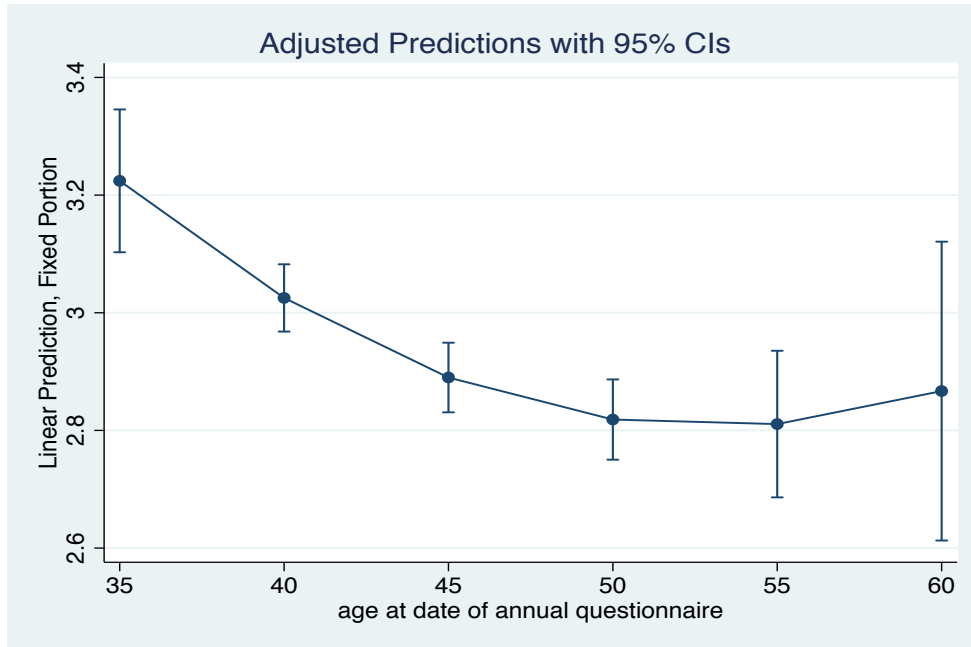


Figure 3.6. Growth Curve Model of the Mean Desirable Impact Scores of the LES

TABLES

Table 2.2. Frequency and Percentages in the Categories and Sub-Categories of Challenges experienced by Participants in a subset (N=81) of the Seattle Midlife Women’s Health Study.

Category			Frequency	% Total Sample ^a	% Total Responses ^b
Family Relationships					
	Partner/Husband		30	37%	23%
		Divorce, Breaking up with partner	11	14%	8%
		Partner’s Health	9	11%	7%
		Caretaking of Partner	1	1%	1%
		Marriage, New Partner	7	9%	5%
		Death of Partner	2	3%	2%
	Children		22	27%	17%
		Parenting	9	11%	7%
		Foster-Parenting	1	1%	1%
		Parenting Step-Children	2	3%	2%
		Leaving Children	1	1%	1%
		Moving Back In	2	3%	2%
		Moving Out	4	5%	3%
		Death of a Child	1	1%	1%
		Infertility	2	3%	2%
	Parents		18	22%	14%
		Caregiving of Parents	4	5%	3%
		Death of Parents	10	12%	8%
		Parent’s Health	2	3%	2%
		Relationship with Parents	2	3%	2%
	Siblings		2	3%	2%
		Death of a Sibling	1	1%	1%
		Relationship problems	1	1%	1%
	In-Laws		2	3%	2%
		Death of In-Laws	1	1%	
		Living with In-Laws	1	1%	
	Family Stress		1	1%	1%
Work			20	25%	15%
	Stressful job, career		7	9%	5%
	Overworked, balancing multiple roles		5	6%	4%
	Job change, career change		4	5%	3%
	Job loss, unemployment		1	1%	1%

	Finding a job with health benefits		1	1%	1%
	Retirement		1	1%	1%
	Job Transfer		1	1%	1%
Category			Frequency	% Total Sample ^a	% Total Responses ^b
Self			25	31%	19%
	Health Problems		11	14%	8%
	Existential Issues		5	6%	4%
	Self-Esteem, Self-Acceptance		1	1%	1%
	Returning to School		3	4%	2%
	Menopausal Transition		4	5%	3%
	Personal Changes		1	1%	1%
Material Resources			11	14%	8%
	Financial Challenges		7	9%	5%
	Partner's Unemployment		3	4%	2%
	Lack of Health Insurance		1	1%	1%
Multiple Co-Occurring Stressors	Two or more of the above challenges happening at the same time, given in one response.		29	36%	22%

(Note: X^a: N = 81; X^b: N = 132)

Table 2.3. Categories and Sub-Categories of Challenges and Frequency of Reporting

Categories			Examples ^c	No. of responses
Family Relationships				74
	Partner/Husband			30
		Divorce/Breaking up with Partner	“Divorce.” “2 major events- Breaking up with partner of nearly 10 years ('97)- Then helping my parents (in Wenatchee) stay in their own home till father died (2004)- now Mother in assist. living there.”	11
		Partner's Health	“husband's surgery; excessive uterine bleeding; blood clot in	9

			leg; husband losing job.” “Dealing with an alcoholic partner.”	
		Caretaking of Partner	“Care of my husband- he has brain tumor.”	1
		Marriage/New Partner	“Challenges in my marriage; questions & insecurities.” “getting married.”	7
		Death of Partner	“When my husband died.”	2
	Children			22
		Parenting	“Parenting two teenagers.” “My current job, my daughter from age 15-18, my mother’s death, my husband’s unemployment.”	9
		Foster-Parenting	“Foster parenting teens, most often teens who have been victims of abuse.”	1
		Parenting Step Children	“Dealing with being a blended family. Trying to parent stepchildren who would rather not have me around. My own two children were not very happy about arrangement either.”	2
		Leaving Children	“Leaving my boys behind when I left my husband.”	1
		Moving Back In	“getting older, stiffer, clumsier. Seeing my finances shift, caring for 2 elderly parents & having grown child move home w/ no finances.”	2
		Moving Out	“Kids moving out.” “my divorce, my children leaving home & my parents dying all in the same 2-year period.”	4
		Death of a Child	“My son dying in 2001 from suicide.”	1

		Infertility	“accepting that I would never be a biological parent, never have my ‘own’ kids, and possibly never become ‘important’ to my two stepchildren (Now grown and living away). Everyone else’s pregnancies, baby showers, and ‘kid talk’ were a challenge.”	2
	Parents			18
		Caregiving of Parents	“caring for my elderly parents- both aged 93.”	4
		Death of Parents	“the declines and deaths of my parents.” “When my Father died of cancer.” “Experiencing my parents’ death. Within 4 months my mother had a severe stroke, my father died and a month later (to the day) my mother passed away.”	10
		Parent’s Health	“Parents getting old.” “Dad’s health.”	2
		Relationship with Parents	“Dealing with family issues (kids, parents, husband’s heart attacks).”	2
	Siblings			2
		Death of a Sibling	“The death of my brother in 1996 & my divorce the same year.”	1
		Relationship Problems	“Dealing with not getting along w/ my older sister. My mother, who lives with the sister, sides w/ her.”	1
	In-Laws			2
		Death of In-Laws	“Caregiving parents- Losing father 1996, father-in-law 1999, mother-in-law 2004, mother still living.”	1
		Living with In-Laws	“Moving in and living with all of my in-laws.”	1
Work				15

	Stressful job/ Career		<p>“Divorce in ’94, stressful job in ’95-’98.”</p> <p>“Balancing the amount of stress created from my job.”</p> <p>“Work. I never know how challenging my students will be. This year, I have a large class w/ lots of behavior problems.”</p>	7
	Job Change/Career Change		<p>“Raising my teenagers while going through a divorce. Starting my career as a public school teacher.”</p> <p>“Getting into a more interesting career.”</p>	4
	Job Loss/Unemployment		“Being fired.”	1
	Finding a Job with Health Benefits		“Finding and sustaining suitable employment with health care benefits. Having intermittent medical coverage caused me to postpone a surgery (hyper-parathyroid) for 3 years.”	1
	Retirement		“adjusting to retirement in 2001.”	1
	Job Transfer		“Being transferred to a new location for work. Getting to know the customers, co-workers & supervisors.”	1
Self				25
	Health Problems		<p>“My heart surgery.”</p> <p>“Physical disability-arthritic pain.”</p> <p>“Change w/ heart surgery, menopause, arthritis limiting me at a time when I have more money & time to do stuff w/ no kids at home. Also my partner’s increasing</p>	11

			reluctance to be more active.” “Working in different areas of real estate to extend & enhance & change where income comes from. Presently dealing with breast cancer diagnosis.”	
	Existential Issues		“accepting the fact that I will never achieve what I set out to do in life.” “Realization that the number of active, quality years is limited.”	5
	Self-Esteem/Self-Acceptance		“Becoming more comfortable with myself. Accepting myself & having better self-esteem. Raising my children. Very proud.”	1
	Returning to School		“The challenges have changed from year to year- 1992 I had an ectopic pregnancy- and infertility before/after- 0 kids. 1998-2000- Graduate school & full time work was challenging. 2003-present- Husband’s health problems & disability are challenges.”	3
	Menopausal Transition		“Remembering things.” “Hot flashes, mood swings, health issues, grown son living with us. Dad’s health.”	4
	Personal Changes		“Family life- Change from having little children to them all growing up & leaving- changing relationship with husband because of that & personal changes.”	1
Material Resources				11

	Financial Challenges		<p>“Parenting, financing college.”</p> <p>“I have to work 2 jobs and long hours to support my children, but never seem to get ahead. I don’t feel supported.”</p> <p>“having to close a business, including laying off people, not paying business debts, selling off furniture, etc., and then having to sell our home to pay off a band loan.”</p>	7
	Partner’s Unemployment		“Financial stability. Constant threat of strikes or job lay off for my husband and eventually job loss.”	3
	Lack of Health Insurance		“Finding and sustaining suitable employment with health care benefits. Having intermittent medical coverage caused me to postpone a surgery (hyper-parathyroid) for 3 years.”	1
Multiple Co-Occurring Stressors	Two or more challenges happening at the same time.		<p>“Dealing with stress- job stress, health stress, social stress, family stress, etc. for a time, it seemed to snowball with no end in sight.”</p> <p>“Balancing all aspects of my life- as a mother, as a wife, as a teacher & as a woman and as the major head of the household (cooking, cleaning, etc.)”</p> <p>“Fulfilling obligations of work and family.”</p> <p>My current job, my daughter from age 15-18, my mother’s death, my husband’s unemployment.”</p>	29

			<p>“Balancing all aspects of my life- as a mother, as a wife, as a teacher & as a woman and as the major head of the household (cooking, cleaning, etc.)”</p> <p>“Working in different areas of real estate to extend & enhance & change where income comes from. Presently dealing with breast cancer diagnosis.”</p>	
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(Please note: examples for one sub-category may include more than one challenge.)

Table 2.4. Number of Challenges Reported: N and Percent of Sample.

Number of Challenges	No. of Women (N=81)	% of Sample
1	52	64%
2	15	18%
3	8	11%
4	6	7%

Table 3.2. Total Number of all *Undesirable* Events by LES Categories by Occasion: 1990, 1993, 1997, 2000 (Total (SD), Adjusted Total)

Category (Number of Items)	1990 (N=381)	1993 (N=235)	1997 (N=221)	2000 (N=192)
Health (9)	.73 (.99) .08	.48 (.79) .05	.42 (.73) .05	.42 (.76) .05
Work (15)	.64 (1.00) .04	.69 (1.00).05	.48 (.92) .03	.54 (.95) .04
Residence (4)	.18 (.46) .05	.09 (.31) .02	.05 (.22) .01	.07 (.31) .02
Love & Marriage (13)	.71 (1.20) .05	.50 (.98) .11	.38 (.86) .03	.31 (.70) .02
Family & Close Friends (8)	.72 (.82) .09	.69 (.81) .04	.49 (.71) .06	.51 (.72) .06
Personal & Social (12)	.75 (1.03) .06	.60 (.81) .05	.56 (.84) .05	.58 (.88) .05
Financial (5)	.48 (.72) .10	.29 (.55) .06	.32 (.66) .06	.25 (.49) .05
Crime & Legal Matters (6)	.42 (.65) .07	.37 (.63) .06	.29 (.59) .05	.30 (.59) .05
Parenting (5)	.40 (.69) .08	.26 (.54) .05	.18 (.50) .04	.15 (.44) .04
Total Number of Undesirable Events	5.02 (3.82)	3.98 (2.71)	3.18 (2.97)	3.13 (3.01)

Table 3.3. Mean Impact Scores of *Undesirable* Events by LES Categories by Occasion: 1990, 1993, 1997, 2000 (Mean impact score [SD])

Category (No. items)	1990 (N=381)	1993 (N=235)	1997 (N=221)	2000 (N=192)
Health (9)	1.41 (1.63)	1.05 (1.49)	.92 (1.45)	.88 (1.43)
Work (15)	1.31 (1.66)	1.29 (1.58)	.96 (1.50)	1.03 (1.50)
Residence (4)	.50 (1.23)	.28 (.91)	.16 (.70)	.21 (.86)
Love & Marriage (13)	1.30 (1.67)	.96 (1.52)	.75 (1.41)	.69 (1.37)
Family & Friends (8)	1.75 (1.76)	1.65 (1.73)	1.32 (1.72)	1.36 (1.74)
Personal & Social (12)	1.49 (1.64)	1.28 (1.52)	1.12 (1.49)	1.21 (1.56)
Financial (5)	1.20 (1.66)	.77 (1.38)	.77 (1.44)	.70 (1.36)
Crime & Legal Matters (6)	.96 (1.41)	.86 (1.41)	.66 (1.27)	.63 (1.21)
Parenting (5)	.90 (1.45)	.59 (1.20)	.42 (1.08)	.36 (1.00)

Table 3.4. Total Number of all *Desirable* Events by LES Categories by Occasion: 1990, 1993, 1997, 2000 (Total (SD) and Adjusted Total for Number of Items for each Category)

Category (Number of Items)	1990 (N=381)	1993 (N=235)	1997 (N=221)	2000 (N=192)
Health (9)	.39 (.66) .04	.34 (.60) .04	.42 (.74) .05	.33 (.62) .04
Work (15)	1.31 (1.50) .09	.95 (1.37) .06	.88 (1.33) .06	.81 (1.37) .05
Residence (4)	.27 (.54) .07	.24 (.53) .06	.17 (.43) .04	.16 (.43) .04
Love & Marriage (13)	.64 (1.06) .05	.45 (.87) .04	.38 (.81) .03	.34 (.73) .03
Family & Friends (8)	.27 (.53) .03	.23 (.42) .03	.20 (.44) .03	.24 (.49) .03
Personal & Social (12)	2.33 (1.62) .20	2.24 (1.60) .19	2.23 (1.56) .19	1.95 (1.46) .16
Financial (5)	.57 (.78) .11	.57 (.71) .11	.39 (.65) .08	.45 (.68) .09
Crime & Legal Matters (6)	.02 (.13) .01	.03 (.17) .01	.05 (.26) .01	.03 (.16) .01
Parenting (5)	.14 (.39) .03	.09 (.28) .02	.06 (.25) .01	.05 (.25) .01

Total Number of Desirable Events	5.96 (3.54)	5.14 (3.57)	4.77 (3.68)	4.37 (3.23)
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Table 3.5. Mean Impact Scores of *Desirable* Events for the LES Categories by Occasion: 1990, 1993, 1997, 2000 (Mean and [SD])

Category	1990 (N=381)	1993 (N=235)	1997 (N=221)	2000 (N=192)
Health	.92 (1.47)	.86 (1.42)	.73 (1.26)	.77 (1.36)
Work	1.82 (1.63)	1.47 (1.64)	1.15 (1.47)	1.10 (1.55)
Residence	.74 (1.43)	.68 (1.42)	.44 (1.13)	.46 (1.19)
Love & Marriage	1.26 (1.70)	.97 (1.59)	.82 (1.45)	.78 (1.44)
Family & Close Friends	.73 (1.39)	.68 (1.34)	.51 (1.16)	.62 (1.23)
Personal & Social	2.73 (1.25)	2.65 (1.18)	2.73 (.78)	2.33 (1.21)
Financial	1.27 (1.60)	1.44 (1.66)	.79 (1.26)	.99 (1.44)
Crime & Legal Matters	.06 (.47)	.08 (.47)	.10 (.54)	.07 (.44)
Parenting	.40 (1.08)	.24 (.84)	.15 (.64)	.15 (.71)

Table 3.6. Correlation Matrix of Impact Scores of Undesirable Events at Baseline 1990 and Demographic Categories (Pearson's *r*, *p* value, and N for each)

LES subscale/ correlate	Health	Work	Residence	Love and Marriage	Family and Close Friends	Personal and Social	Financial	Crime and Legal Matters	Parenting
Age	0.103* .046 (380)	-.058 .258 (380)	.004 .943 (380)	.003 .946 (380)	.033 .515 (380)	.060 .244 (380)	-.064 .217 (379)	.074 .151 (380)	-.063 .224 (380)
Years of Education	-.072 .163 (380)	.086 .095 (380)	-.027 .602 (380)	.007 .889 (380)	-.063 .222 (380)	-.010 .854 (380)	-.023 .655 (379)	.066 .200 (380)	-.013 .795 (380)
Income	-.133** .010 (375)	-.027 .608 (375)	-.115* .025 (375)	-.133** .010 (375)	-.097 .060 (375)	-.087 .094 (375)	-.192** .000 (374)	-.035 .500 (375)	-.082 .115 (375)
Employment	-.081 .114 (380)	.044 .391 (380)	-.041 .421 (380)	-.087 .089 (380)	.017 .746 (380)	-.066 .196 (380)	-.050 .336 (379)	-.041 .430 (380)	-.028 .583 (380)
If a parent	.046 .368 (380)	-.041 .420 (380)	.018 .727 (380)	-.010 .841 (380)	.009 .859 (380)	.014 .786 (380)	.102* .046 (379)	-.031 .542 (380)	.259** .000 (380)

r = Pearson's Correlation, *p* is significant if *: $\alpha < .05$ or **: $\alpha < .001$, N = Number of women

Table 3.7. Differences between Impact Scores for Significant Undesirable Events and Marital Status: ANOVA Post Hoc using LSD for Multiple Comparisons

Occasion	Category	Comparison	Mean Difference	Std. Error	P value	N
1990	Health	Married/Partnered > Divorced	-1.09	.42	.009	269, 83
1990	Love/Marr.	Married > Never	-2.15	.97	.026	22, 269
1990	Love/Marr.	Married > Divorced	-2.33	.55	<.001	269, 83
1990	Pers/Social	Married > Divorced	-1.44	.42	<.001	269, 83
1992	Love/Marr.	Married > Divorced	2.13	.50	<.001	152, 65
1992	Love/Marr.	Divorced > Never married/part.	3.23	1.00	<.001	65, 14
1992	Pers/Social	Married > Widowed	4.01	1.74	.022	152, 2
2000	Work	Never married > Married/Part.	3.51	1.23	.005	7, 125
2000	Work	Married/Partnered > Divorced	1.26	.51	.014	125, 57
2000	Residence	Married > Divorced	.56	.19	.003	125, 57
2000	Pers/Social	Never married > Married	2.40	1.17	.041	7, 125
2000	Pers/Social	Married > Divorced	1.28	.48	.008	125, 57
2000	Financial	Married > Divorced	.56	.26	.034	125, 57
2000	Financial	Married > Widowed	2.42	1.16	.039	125, 2

Table 3.8. Impact Scores for Significant Undesirable Events and Ethnicity: ANOVA Post Hoc using LSD for Multiple Comparisons

Occasion	Category	Comparison	Mean Difference	Std. Error	p value	N
1992	Financial	His./Latina > Asian Pac. Isl	3.87	1.10	<.001	3, 20
		His./Latina > Afr. Amer.	3.30	1.10	.003	3, 19
		His./Latina > White	3.86	1.03	<.001	3, 188
		His./Latina > Mixed/Nat. Am.	3.67	1.45	.012	3, 3

Table 3.9. Total Impact Scores for Significant Undesirable Events and Menopausal Transition: ANOVA Post Hoc using LSD for Multiple Comparisons

Occasion	Category	Comparison	Mean Difference	Std. Error	Sig.	Confidence Interval	
						Lower	Upper
1990	Health	LR > PM	-4.93310*	1.50232	.001	-7.8957	-1.9705
		ET > PM	-5.06111*	1.54604	.001	-8.1099	-2.0123
		LT > PM	-4.65909*	1.73013	.008	-8.0709	-1.2472

*significant <.05, Number of women in each stage: LR = 142, ET = 45, LT = 11, PM = 4.

Table 3.10. Correlation matrix: Impact Scores of Desirable events (*r*, *p* value, N) for Baseline (1990) and Demographic Categories

LES subscale/ correlate	Health	Work	Residence	Love and Marriage	Family and Close Friends	Personal and Social	Financial	Crime and Legal Matters	Parenting
Age	.008 .884 (380)	-.015 .769 (380)	-.022 .667 (380)	-.072 .163 (380)	-.045 .384 (380)	-.060 .240 (380)	.074 .149 (379)	-.009 .864 (380)	-.083 .106 (380)
Years of Education	-.032 .535 (380)	.095 .065 (380)	.020 .692 (380)	.031 .544 (380)	-.130* .011 (380)	.143** .005 (380)	.015 .770 (379)	-.068 .189 (380)	.046 .371 (380)
Income	-.069 .182 (375)	-.037 .479 (375)	-.036 .486 (375)	-.160** .002 (375)	-.090 .080 (375)	-.016 .751 (375)	.088 .088 (374)	-.055 .286 (375)	.039 .453 (375)
Employment	-.035 .497 (380)	.102* .048 (380)	-.027 .601 (380)	-.060 .243 (380)	-.109* .033 (380)	.026 .612 (380)	.043 .402 (379)	-.016 .751 (380)	.054 .291 (380)
If a parent	.033 .525 (380)	.020 .693 (380)	-.087 .091 (380)	-.080 .119 (380)	.135* * .009 (380)	-.112* .028 (380)	-.044 .391 (379)	.032 .538 (380)	.167* * .001 (380)

*significant $p < .05$, ** $p < .001$

Table 3.11. Total Impact Scores for Significant Desirable Events and Marital Status: ANOVA Post Hoc using LSD for Multiple Comparisons

Occasion	Category	Comparison	Mean Difference	Std. Error	<i>p</i> value	N
1990	Work	Married/Part > Div./Sep.	1.81	.64	.005	269, 83
1990	Crime	Married/Part > Div./Sep.	.11	.05	.044	269, 83
1990	Crime	Never married > Widowed	.67	.20	<.001	22, 6
1990	Crime	Married > Widowed	.64	.18	<.001	269, 6
1990	Crime	Div./Sep > Widowed	.53	.18	.004	83, 6
1997	Love/Marr.	Never married > Div./Sep.	1.96	.86	.023	12, 55
1997	Love/Marr.	Married/Part > Div./Sep.	1.13	.43	.008	149, 55
1997	Personal/Soc.	Never married > Div./Sep.	4.03	1.66	.016	10, 48
1997	Personal/Soc.	Married/Part > Div./Sep.	2.45	.80	.003	130, 48
2000	Health	Never married > Married	1.95	.74	.009	7, 125
2000	Health	Never married > Div./Sep.	1.56	.76	.043	7, 57

Table 3.12. Total Impact Scores for Significant Desirable Events and Ethnicity: ANOVA Post Hoc using LSD for Multiple Comparisons

Occasion	Category	Comparison	Mean Difference	Std. Error	<i>p</i> value	N
1990	Health	Asian Pac.Is > Mixed/Nat.Am.	2.05	.77	.008	34, 10
		Afr.Amer > Mixed/Nat.Amer.	2.74	.75	<.001	44, 10
		White > Mixed/Nat.Amer.	2.21	.69	<.001	288, 10
1990	Love/Mar.	Asian/Pac.Isl > Hisp/Latina	5.15	2.06	.013	34, 4
		Afr.Amer > Hisp/Latina	5.73	2.03	.005	44, 4
		White > Hisp./Latina	4.64	1.96	.018	288, 4
		Mixed/Nat.Amer > Hisp/Latina	5.60	2.30	.016	10, 4
1990	Family/Fr.	Asian/Pac.Isl > Hisp./Latina	2.78	.85	<.001	34, 4
		Afr.Amer > Hisp./Latina	2.34	.84	.006	44, 4
		White > Hisp./Latina	2.44	.81	.003	288, 4
		Mixed/Nat.Amer >Hisp./Latina	2.25	.95	.019	10, 4
1990	Financial	Asian/Pac.Is > Hisp./Latina	3.90	1.33	.004	34, 4
		Afr.Amer > Hisp./Latina	4.48	1.31	<.001	44, 4

		White > Hisp./Latina	3.93	1.27	.002	287, 4
		Mixed/Nat.Amer > Hisp./Latina	4.85	1.49	<.001	10, 4

Table 3.13. Growth Curve Analysis Results for LES Mean Total Impact Scores, LES Mean Undesirable Impact Scores, and LES Mean Desirable Impact Scores

Scales	Model 1 (Null) Beta (SE)	Model 2 (Age) Beta (SE)	Model 3 (Covariates) Beta (SE)
Mean Total Impact Scores			
Fixed effects			
Intercept	2.873 (.019) ***	2.826 (.022) ***	2.772 (.094) ***
Age		-.015 (.003) ***	-.016 (.0042) ***
Age ²		.001 (.00045) **	.002 (.0006) **
Demographic characteristics:			
Education			-.017 (.009)
Income: >=39K			.032 (.048)
If employed: yes			-.109 (.064)
Race/Ethnicity			
White/not			.044 (.059)
Marital Status			
Partnered/not			.050 (.059)
If parent: yes			-.010 (.049)
Menopausal Transition Stages:			
ET			.043 (.054)
LT/PM			.254 (.121) *
Random effects			
Intercept	.083 (.011) *	.079 (.0007) *	.063 (.012) *
Slope		.001 (.0003) *	.001 (.0004) *
Covariance		.002 (.001) *	.004 (.001) *
Residual	.157 (.009) *	.138 (.009) *	.135 (.010) *
AIC	1356.4	1316.7	895.9
BIC	1371.2	1351.2	964.4

Mean Undesirable Impact Scores	Model 1 (Null)	Model 2 (Age)	Model 3 (Covariates)
Fixed effects			
Intercept	3.054 (.023) ^{***}	3.018 (.028) ^{***}	3.204 (.120) ^{***}
Age		-.003 (.004)	-.003 (.005)
Age ²		.0012 (.0006) [*]	.001 (.001)
Demographic characteristics:			
Education			-.047 (.012) ^{***}
Income: >=39K			.037 (.061)
If employed: yes			-.119 (.082)
Race/Ethnicity			
White/not			-.099 (.073)
Marital Status			
Partnered/not			.009 (.068)
If parent: yes			-.043 (.063)
Menopausal Transition Stages:			
ET			.021 (.068)
LT/PM			.096 (.131)
Random Effects			
Intercept	.096 (.018) [*]	.093 (.018) [*]	.078 (.018)
Slope		.001 (.001)	.00003 (.00002) [*]
Covariance		.001 (.004)	.0002 (.0018)
Residual	.272 (.017) [*]		.270 (.019) [*]
AIC	1703.3	1695.6	1157.7
BIC	1717.8	1729.5	1224.8
Mean Desirable Impact Scores	Model 1 (Null) Beta (SE)	Model 2 (Age) Beta (SE)	Model 3 (Covariates) Beta (SD)
Fixed effects			
Intercept	2.939 (.020) ^{***}	2.894 (.030) ^{***}	2.727 (.125) ^{***}
Age		-.021 (.004) ^{***}	-.022 (.005) ^{***}
Age ²		.0013 (.0006) [*]	.002 (.0007) [*]
Demographic characteristics:			
Education			-.011 (.012)
Income: >=39K			.023 (.064)
If employed: yes			-.088 (.086)
Race/Ethnicity			
White/not			.141 (.078)
Marital Status			
Partnered/not			.085 (.071)
If parent: yes			-.055 (.066)
Menopausal Transition Stages:			

ET			.028 (.070)
LT/PM			.347 (.138)*
Random Effects			
Intercept	.111 (.020)*	.111 (SE failed)	.089 (.021)*
Slope		.0001 (SE failed)	.001 (.001)
Covariance		.003 (SE failed)	.003 (.002)
Residual	.320 (.019)*	.308 (SE failed)	.312 (.021)*
AIC	1936.6	1899.7	1331.6
BIC	1951.3	1914.4	1390.6

Values denote mean (standard error = SE).

* p < .05, ** p < .01, *** p < .001

APPENDIX A

Number of Women (And Percent of Total for each Occasion) Reporting Individual LES Items, Desirable (D) and Undesirable (U) Impact Scores (Mean, SD) in 1990, 1992, 1997 and 2000.

Item	1990 (% of total)	D	U	1992	D	U	1997	D	U	2000	D	U
Health subscale	N=381	N=235			N=221			N=192				
a. major personal illness or injury	83 (22%)	3.4 (.89)	3.33 (.83)	36 (15%)	2.86 (.90)	3.5 (.72)	43 (20%)	2.67 (1.37)	3.5 (.76)	31 (16%)	3.25 (.96)	3.25 (.74)
b. major change in eating habits	111 (29%)	2.5 (.71)	4.0 (.00)	56 (24%)	4.0 (ND)	3.0 (1.00)	46 (21%)	1.00 (1.00)	4.00 (ND)	38 (20%)	3.00 (ND)	4.00 (ND)
c. major change in sleeping habits	89 (23%)	4.0 (ND)	3.8 (.45)	32 (14%)	3.0 (ND)	3.4 (.55)	45 (20%)	4.0 (ND)	3.0 (ND)	32 (17%)	4.0 (ND)	2.0 (ND)
d. major change in usual type and/or amount of recreation	94 (25%)	3.0 (ND)	4.0 (0.00)	56 (24%)	3.0 (ND)	3.5 (.71)	42 (19%)	3.0 (ND)	3.5 (.71)	29 (15%)	3.0 (ND)	3.0 (ND)
e. Major dental work	65 (17%)	2.0 (ND)	3.0 (ND)	72 (31%)	3.0 (ND)	4.0 (ND)	24 (11%)	3.0 (ND)	3.0 (ND)	17 (9%)	1.0 (ND)	4.0 (ND)
f. Major difficulty with birth control pills or devices	12 (3%)	ND	4.0 (ND)	3 (1%)	ND	4.0 (ND)	5 (2%)	2.0 (ND)	2.0 (ND)	4 (2%)	ND	3.0 (ND)
g. Pregnancy	21 (6%)	4.0 (ND)	4.0 (ND)	7 (3%)	4.0 (ND)	ND	2 (1%)	4.0 (ND)	ND	0 (0%)	ND	ND
h. miscarriage or abortion	8 (2%)	3.0 (ND)	3.0 (ND)	4 (2%)	ND	4.0 (ND)	0 (0%)	ND	ND	0 (0%)	ND	ND
i. started menopause	47 (12%)	4.0 (ND)	3.0 (ND)	26 (11%)	3.0 (ND)	4.0 (ND)	31 (14%)	3.0 (ND)	4.0 (ND)	35 (18%)	4.0 (ND)	4.0 (ND)
Work												
a. had difficulty finding a job	36 (9%)	3.0 (ND)	4.0 (ND)	27 (12%)	3.0 (ND)	4.0 (ND)	13 (6%)	2.0 (ND)	3.0 (ND)	8 (4%)	ND	4.0 (ND)
b. begun work outside the home	62 (16%)	2.5 (2.12)	4.0 (ND)	15 (6%)	4.0 (ND)	3.0 (ND)	15 (7%)	4.0 (ND)	4.0 (ND)	8 (4%)	4.0 (ND)	4.0 (ND)
c. changed job setting, but continued the same kind of work	97 (26%)	2.5 (2.12)	4.0 (ND)	47 (20%)	4.0 (ND)	2.0 (ND)	37 (17%)	3.5 (.71)	3.0 (ND)	43 (22%)	3.0 (ND)	3.0 (ND)
d. changed to a new type of work	72 (19%)	4.0 (ND)	4.0 (ND)	35 (15%)	4.0 (ND)	4.0 (ND)	32 (15%)	2.0 (ND)	4.0 (ND)	27 (14%)	2.0 (ND)	4.0 (ND)
e. changed work hours or conditions	161 (42%)	3.0 (ND)	3.5 (.71)	91 (39%)	4.0 (ND)	3.0 (ND)	78 (35%)	4.0 (ND)	4.0 (0.00)	63 (33%)	3.0 (ND)	2.0 (ND)
f. changed responsibilities at work.	138 (36%)	4.0 (0.00)	4.0 (ND)	96 (41%)	4.0 (ND)	4.0 (ND)	67 (30%)	3.0 (ND)	4.0 (ND)	53 (28%)	3.0 (0.00)	4.0 (ND)

g. had troubles at work with employer or co-workers	128 (34%)	2.0 (ND)	3.5 (.58)	69 (29%)	4.0 (ND)	4.0 (ND)	61 (28%)	4.0 (ND)	4.0 (ND)	40 (21%)	4.0 (ND)	3.0 (ND)
h. had a major business readjustment	46 (12%)	3.0 (1.41) (ND)	4.0 (ND)	27 (12%)	4.0 (ND)	4.0 (ND)	24 (11%)	3.0 (ND)	4.0 (ND)	14 (7%)	4.0 (ND)	4.0 (ND)
i. been fired or laid off from work	26 (7%)	4.0 (ND)	4.0 (ND)	20 (9%)	3.0 (ND)	4.0	8 (4%)	ND	4.0	10 (5%)	4.0 (ND)	4.0 (ND)
j. retired from work	5 (1%)	4.0 (ND)	4.0 (ND)	3 (1%)	4.0 (ND)	ND	0	ND	ND	3 (2%)	4.0 (ND)	ND
k. started courses by mail or studying at home to help with work	41 (11%)	3.0 (ND)	4.0 (ND)	13 (6%)	3.0 (ND)	ND (ND)	14 (6%)	2.0 (ND)	3.0 (ND)	6 (3%)	4.0 (ND)	3.0 (ND)
l. begun or ended school, college, or training program	65 (17%)	4.0 (ND)	3.0 (ND)	32 (14%)	4.0 (ND)	4.0 (ND)	19 (9%)	2.0 (ND)	ND	12 (6%)	4.0 (ND)	4.0 (ND)
m. changed career goal or academic major	54 (14%)	4.0 (ND)	4.0 (ND)	19 (8%)	3.5 (.71)	ND	25 (11%)	4.0 (ND)	3.0 (ND)	12 (6%)	2.0 (ND)	4.0 (ND)
n. changed school, college or training program	10 (3%)	4.0 (ND)	ND	6 (3%)	4.0 (ND)	2.0 (ND)	4 (2%)	2.0 (ND)	4.0 (ND)	3 (2%)	4.0 (ND)	4.0 (ND)
o. had problems in school, college or training program	9 (2%)	ND	4.0 (ND)	10 (4%)	3.0 (ND)	4.0 (ND)	3 (1%)	ND	2.0 (ND)	1 (<1%)	ND	3.0 (ND)
Residence												
a. had difficulty finding a home	18 (5%)	3.0 (1.0)	3.58 (.67)	3 (1%)	2.0 (ND)	2.5 (.71)	3 (1%)	ND	3.0 (ND)	3 (2%)	ND	3.67 (.58)
b. changed residences within the same town or city	39 (10%)	3.84 (.37)	3.13 (1.13))	14 (6%)	3.42 (.67)	4.0 (0.00)	6 (3%)	3.4 (.89)	ND	9 (5%)	3.5 (.84)	4.0 (ND)
c. moved to a different town, city, state, or country	15 (4%)	3.38 (.74)	2.67 (1.21))	14 (6%)	3.82 (.41)	4.0 (0.00)	6 (3%)	3.33 (1.16)	ND	4 (2%)	4.0 (0.00))	ND
d. had a major change in living conditions (home improvements or a decline in home or neighborhood)	121 (32%)	3.24 (.77)	3.26 (.85)	55 (23%)	3.5 (.72)	2.94 (.77)	44 (20%)	2.97 (.91)	3.10 (.88)	34 (18%)	3.33 (.80)	3.67 (.50)

Love and Marriage												
a. begun a new, close personal, romantic relationship	40 (11%)	3.61 (.72)	3.33 (.58)	23 (10%)	3.53 (.77)	3.50 (.71)	22 (10%)	3.53 (.64)	4.0 (ND)	17 (9%)	3.64 (.50)	4.0 (ND)
b. become engaged	20 (5%)	3.68 (.67)	ND	7 (3%)	3.86 (.38)	ND	4 (2%)	4.0 (0.00)	ND	4 (2%)	3.33 (1.16)	4.0 (ND)
c. had girlfriend or boyfriend problems (not just friends)(not husband/partner)	48 (13%)	3.6 (.55)	3.43 (.69)	28 (12%)	3.5 (.71)	3.55 (.67)	19 (9%)	2.0 (0.00)	3.13 (.83)	12 (6%)	ND	3.33 (.87)
d. broken up with a boyfriend (or girlfriend) or broken an engagement	46 (12%)	3.6 (.74)	3.52 (.80)	20 (9%)	3.4 (.89)	3.58 (.52)	16 (7%)	3.0 (ND)	3.18 (.87)	5 (3%)	3.5 (.71)	4.0 (0.00)
e. gotten married or begun to live with someone (roommate OK)	37 (10%)	3.62 (.78)	3.5 (.58)	15 (6%)	3.57 (.85)	ND	11 (5%)	3.0 (.89)	3.5 (.58)	12 (6%)	3.44 (.73)	ND
f. had change in closeness with husband or life partner	140 (37%)	3.47 (.72)	3.36 (.73)	63 (27%)	3.56 (.58)	3.27 (.83)	42 (19%)	3.0 (.94)	3.28 (.90)	37 (19%)	3.38 (.50)	3.13 (.89)
g. experienced infidelity, (cheating on husband/partner)(either party)	33 (9%)	2.75 (.96)	3.48 (.73)	16 (7%)	3.0 (.00)	3.55 (.69)	12 (5%)	3.0 (1.0)	3.83 (.41)	8 (4%)	ND	3.2 (1.30)
h. had trouble with in-laws	36 (9%)	3.33 (1.16)	3.07 (.73)	11 (5%)	ND	2.6 (.84)	14 (6%)	ND	2.73 (.91)	8 (4%)	ND	3.25 (.89)
i. separated from husband or life partner due to conflict	29 (7%)	3.56 (.88)	3.67 (.77)	10 (4%)	3.75 (.50)	3.50 (.84)	11 (5%)	3.80 (.45)	4.0 (0.00)	8 (4%)	3.5 (1.00)	4.0 (0.00)
j. separated from husband or life partner due to work, travel, school, etc.	36 (9%)	2.25 (1.50)	3.17 (.99)	15 (6%)	2.25 (1.26)	3.0 (0.00)	10 (5%)	2.50 (1.29)	3.25 (.96)	4 (2%)	ND	3.33 (1.16)
k. had a reconciliation with spouse or partner	25 (7%)	3.63 (.60)	ND	10 (4%)	3.50 (.55)	3.50 (.71)	11 (5%)	3.20 (1.03)	ND	4 (2%)	2.33 (1.53)	ND
l. had a legal divorce	12 (3%)	3.29 (.95)	4.0 (0.00)	3 (1%)	3.67 (.58)	ND	2 (<1%)	4.0 (ND)	ND	3 (2%)	ND	4.0 (0.00)
m. had a change in husband's or	100 (26%)	3.28 (.72)	3.48 (.72)	43 (18%)	2.92 (1.00)	3.35 (.70)	36 (16%)	3.25 (.68)	3.46 (.69)	35 (18%)	3.07 (.80)	3.00 (.54)

partner's work outside the home (beginning work, ceasing work, changing jobs, retirement, etc.)												
5. Family and Close Friends												
a. gained a new family member (through birth, adoption, relative moving in, includes extended family)	109 (29%)	3.02 (.99)	2.8 (1.03)	51 (22%)	2.88 (1.13)	3.67 (.52)	40 (18%)	2.92 (1.02)	3.00 (.82)	47 (25%)	2.92 (.98)	3.0 (1.00)
b. had a child or family member leave home (due to marriage, to attend college, or for some other reason)	59 (16%)	3.0 (.88)	3.48 (.81)	27 (12%)	2.91 (.94)	3.9 (.32)	37 (17%)	2.64 (.93)	3.63 (.74)	28 (15%)	2.79 (.80)	3.75 (.50)
c. had a major change in the health or behavior of a family member or close friend (illness, accidents, drug or disciplinary problems, etc.)	165 (43%)	3.5 (.71)	3.41 (.75)	100 (43%)	3.5 (.58)	3.28 (.80)	75 (34%)	2.5 (.71)	3.42 (.72)	79 (41%)	3.0 (.71)	3.55 (.59)
d. had the death of a husband or partner	4 (1%)	4.0 (ND)	4.0 (0.00)	1 (<1%)	ND	4.0 (ND)	1 (<1%)	ND	4.0 (ND)	2 (1%)	ND	2.0 (ND)
e. had the death of a child	1 (<1%)	ND	4.0 (ND)	1 (<1%)	ND	ND	0	ND	ND	1 (<1%)	ND	ND
f. had the death of a parent	36 (9%)	3.0 (1.41)	3.92 (.27)	19 (8%)	ND	3.79 (.43)	13 (6%)	2.0 (ND)	3.4 (.70)	8 (4%)	ND	3.67 (.82)
g. had the death of another family member or close friend	103 (27%)	2.33 (.58)	3.30 (.78)	60 (26%)	3.40 (.89)	3.22 (.76)	44 (20%)	ND	3.2 (.76)	35 (18%)	3.0 (ND)	3.29 (.64)

h. had a change in the marital status of your parents	8 (2%)	2.5 (.71)	3.5 (.58)	5 (2%)	2.0 (0.00)	3.5 (.71)	4 (2%)	3.0 (ND)	4.0 (0.00)	1 (<1%)	1.0 (ND)	ND
6. Personal and Social												
a. major personal achievement	139 (37%)	3.54 (.69)	3.0 (1.41)	70 (30%)	3.52 (.64)	ND	52 (24%)	2.88 (.94)	4.0 (ND)	48 (25%)	3.26 (.73)	3.0 (1.41)
b. had a major decision regarding the immediate future	154 (40%)	3.46 (.73)	3.62 (.51)	70 (30%)	3.22 (.81)	3.56 (.88)	67 (30%)	3.20 (.89)	3.40 (.89)	55 (29%)	3.25 (.74)	3.88 (.35)
c.												
d. had a change in political beliefs	8 (2%)	2.75 (.96)	3.50 (.71)	5 (2%)	3.0 (ND)	ND	5 (2%)	3.50 (1.00)	ND	3 (2%)	3.50 (.71)	ND
e. had a change in religious beliefs	20 (5%)	3.21 (.70)	3.50 (.71)	10 (4%)	3.40 (.52)	ND	15 (7%)	3.42 (.79)	ND	4 (2%)	3.67 (.58)	ND
f. had a loss or damage of personal property	75 (20%)	4.0 (ND)	3.12 (.83)	41 (17%)	4.0 (0.00)	2.97 (.81)	49 (22%)	3.00 (1.00)	2.81 (.83)	24 (13%)	ND	3.00 (.79)
g. had a vacation	231 (61%)	3.81 (.82)	3.55 (.69)	151 (64%)	3.16 (.81)	3.00 (ND)	163 (74%)	2.85 (.91)	3.00 (1.00)	125 (65%)	2.85 (.86)	4.00 (0.00)
h. had a trip; not a vacation	171 (45%)	3.06 (.82)	3.15 (.99)	98 (42%)	2.83 (.89)	2.72 (.91)	107 (48%)	2.67 (.87)	3.11 (.93)	96 (50%)	2.70 (.85)	3.00 (.82)
i. had a change in family get-togethers	91 (24%)	3.13 (.85)	3.17 (.80)	60 (26%)	2.66 (.90)	2.80 (.78)	75 (34%)	2.86 (.88)	3.04 (.77)	54 (28%)	2.82 (.95)	3.09 (.81)
j. had a change in social activities (clubs, movies, visiting)	102 (27%)	3.27 (.73)	2.76 (.74)	66 (28%)	3.10 (.87)	2.84 (.60)	56 (25%)	3.04 (.73)	2.78 (.81)	43 (22%)	2.53 (.64)	3.07 (.73)
k. made a new friend	231 (61%)	2.99 (.77)	2.25 (.50)	123 (52%)	2.84 (.79)	4.0 (ND)	100 (45%)	2.59 (.87)	ND	95 (50%)	2.57 (.75)	3.50 (.71)
l. broken up with a friend due to conflict	66 (17%)	2.56 (1.24)	3.18 (.83)	30 (13%)	2.11 (.93)	2.93 (.70)	28 (13%)	2.80 (1.30)	3.20 (.78)	21 (11%)	2.33 (.58)	3.33 (.72)
m. lost a friend for other reasons (death, moving)	72 (19%)	3.00 (1.00)	3.30 (.79)	47 (20%)	4.00 (ND)	2.94 (.69)	25 (11%)	2.0 (ND)	2.80 (.86)	35 (18%)	ND	2.75 (.85)
7. Financial												
a. had a major change in financial status (improved or worsened)	168 (44%)	3.35 (.75)	3.53 (.68)	92 (39%)	3.26 (.71)	3.33 (.76)	79 (36%)	2.89 (.83)	3.58 (.50)	69 (36%)	3.0 (.85)	3.20 (.76)
b. taken on a moderate purchase	157 (41%)	2.86 (.83)	2.79 (.98)	85 (36%)	3.10 (.79)	2.92 (.90)	70 (32%)	2.37 (.73)	3.0 (.93)	59 (31%)	2.61 (.87)	2.75 (.96)

such as a car, major appliance, etc.												
c. taken on a major purchase or a mortgage loan, such as a home, business, property, etc.	67 (18%)	3.30 (.99)	3.29 (.83)	40 (17%)	3.32 (.86)	2.50 (.71)	39 (18%)	2.78 (.94)	3.0 (.78)	30 (16%)	3.13 (.89)	3.40 (.55)
d. experienced a foreclosure on a mortgage or loan	7 (2%)	1.0 (ND)	3.17 (.98)	0	ND	ND	1 (<1%)	ND	4.0 (ND)	1 (<1%)	ND	3.0 (ND)
e. had credit rating difficulties	75 (20%)	ND	3.26 (.70)	23 (10%)	2.0 (ND)	2.84 (.69)	19 (9%)	ND	3.38 (.89)	10 (5%)	ND	3.25 (.71)
8. Crime and Legal Matters												
a.robbed	49 (13%)	4.0 (ND)	3.22 (.84)	22 (9%)	3.00 (1.41)	3.28 (.75)	26 (12%)	4.0 (ND)	2.82 (.67)	11 (6%)	ND	2.64 (.51)
b. a victim of a violent act (rape, assault, etc.)	3 (1%)	ND	4.0 (0.00)	4 (2%)	ND	3.75 (.50)	4 (2%)	4.0 (ND)	3.33 (1.16)	2 (1%)	ND	3.0 (ND)
c. involved in a car accident	45 (12%)	3.0 (ND)	2.74 (.91)	31 (13%)	4.0 (ND)	2.89 (.97)	27 (12%)	2.0 (0.00)	2.90 (.79)	29 (15%)	2.0 (ND)	2.77 (.87)
d. involved in a law suit	35 (9%)	3.40 (.55)	3.05 (.83)	14 (6%)	2.0 (0.00)	2.73 (1.01)	16 (7%)	2.75 (.96)	3.80 (.45)	15 (8%)	3.0 (1.00)	3.0 (1.00)
e. involved in a minor violation of the law (traffic tickets, disturbing the peace, etc.)	75 (20%)	ND	2.15 (.69)	37 (16%)	2.0 (0.00)	2.40 (.91)	30 (14%)	2.50 (2.12)	2.54 (.78)	23 (12%)	2.0 (ND)	2.21 (1.12)
f. involved in legal troubles resulting in your being arrested or held in jail	0	ND	ND	2 (1%)	ND	4.0 (ND)	1 (<1%)	ND	3.0 (ND)	0	ND	ND
9. Parenting												
a.had a change in child care arrangements	88 (23%)	3.0 (.95)	3.11 (.90)	34 (15%)	3.0 (.87)	3.60 (.89)	23 (10%)	2.80 (.92)	2.86 (.90)	17 (9%)	3.13 (.84)	3.0 (.82)
b. had conflicts with husband or partner about parenting	119 (31%)	3.0 (.87)	3.13 (.84)	51 (22%)	ND	2.68 (.85)	37 (17%)	ND	2.86 (.83)	26 (14%)	ND	2.74 (.87)
c. had conflicts with child's	40 (11%)	4.0 (ND)	2.87 (.78)	17 (7%)	ND	2.46 (.82)	10 (5%)	ND	3.29 (.76)	5 (3%)	ND	4.0 (0.00)

grandparents (or other important person) about parenting												
d. taken on full responsibility for parenting as a single parent	37 (10%)	3.33 (.82)	3.0 (.93)	10 (4%)	2.0 (1.00)	3.67 (.58)	8 (4%)	2.67 (1.53)	4.0 (ND)	9 (5%)	3.50 (.71)	4.0 (0.00)
e. custody battles with former husband or partner	6 (2%)	ND	3.60 (.89)	2 (1%)	ND	3.0 (ND)	3 (1%)	ND	3.0 (1.41)	1 (<1%)	ND	4.0 (ND)

VITA

Annette Thomas was born in McConnellsburg, Pennsylvania on November 13, 1965. After graduating from Lock Haven High School, Annette attended Lock Haven University where she received a Bachelor of Science Degree in Biology. Annette continued in the realm of clinical bench work at Danville Medical Center in the Immunopathology lab as a student for one year and became certified as an Immunopathology Technologist by the American Society of Clinical Pathologists, I(ASCP). After working in the field as a medical technologist, Annette attended Millersville University where she received a Master of Science degree in Biology.

Annette was accepted into the Biology PhD program at Kent State University. Realizing that she had always wanted to be a nurse, Annette enrolled in the nursing program at Kent State University where she received her Bachelor of Science in Nursing. Annette moved to Seattle to live with her sister, Kathy, and worked as a Registered Nurse at Harborview Medical Center. Annette was accepted into the Intensive Care Unit consortium in 2000 and worked in the Burn and Pediatric Intensive Care Units. Annette received her Critical Care Registered Nurse certification (CCRN) in 2006 and became a Stat RN in 2007.

With the academic goal of wanting to teach and do research, Annette was accepted into the University of Washington Nursing PhD program and received her degree in August of 2016. While at the University of Washington, Annette was awarded a Biobehavioral and Nurse Health Systems T32 and an Aging and Informatics T32, and became active in the Western Institute for Nursing Research and Sigma Theta Tau International Nursing Society. During this time, Annette was part of a systematic review team who published four papers on Alternative Therapies for the menopausal transition and was first author on “Effects of Isoflavone and Amino Acid Therapies for Hot Flashes and Co-occurring Symptoms: A Systematic Review”. Her current research interests are psychological and physiological stress in midlife women and secondary traumatic stress in trauma nurses.