DEPRESSION AFTER WIDOWHOOD OR DIVORCE IN LATER LIFE: THE MODERATING EFFECTS OF PRIOR MARITAL QUALITY AND SELF-ESTEEM

Minzhi Ye

A Thesis
Submitted to the Graduate College of Bowling Green State University in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

May 2014

Committee:

Alfred DeMaris, Committee Chair
Monica Longmore
Laura Sanchez
© 2014

Minzhi Ye

All Rights Reserved
ABSTRACT

Dr. Alfred DeMaris, Committee Chair

Although accumulated research findings point to the effect of marital termination on elders' depression, seldom research has tested the moderator effects of marital quality and personal self-esteem on the relationship between marital dissolution and depression among elders. The current study uses three waves of the National Survey of Families and Households (NSFH), a nationally representative sample of 2570 people ages 50 and above, with 368 persons who were widowed at time 2 and 73 persons who got divorced at time 2. Using fixed-effects model, the study shows that leaving a poor marriage does less harm than leaving a satisfactory marriage on individuals’ well-being. However, specific measures of things that are going on in the marriage (e.g. over-or under-benefiting) do not have an effect on the relationship between marital termination and depression. Moreover, this study demonstrated that self-esteem is related to decreased depression in later life. However, the effect of marital termination on depression does not differ by self-esteem. Further, the results showed that in terms of long-term consequences, marital status may not affect older adults’ psychological well-being very much as long as they are healthy. This research will enhance knowledge about the phenomenon of widowhood and divorce in later life.
This thesis is dedicated to my parents Luo, Feng-Chao and Ye, Lu-Hua, my grandparents Huang, Mei-Zhen and Ye, Yu-Ting. This work is also dedicated for my beloved grandma Lu, Qiong-Zhen who is happily living in the heaven.
ACKNOWLEDGMENTS

I want to extend my gratitude to the professors, staff, and students in the Department of Sociology in BGSU. There are several people I would like to acknowledge, for their contributions, advice, and support during the time I have written this thesis.

First, I would like to thank my committee members: Dr. Alfred DeMaris (Chair), Dr. Monica Longmore, and Dr. Laura Sanchez. Thank Dr. DeMaris for your advice when I was struggling with my writing and model choosing. I can’t count how many infernal re-writes you have done for me. There were times that I doubt that I couldn’t finish my thesis, but your generous patience and kindness push me walking forward. Each additional unit of my improvement is significantly positively associated with your work. Dr. Longmore, thank you for your encouragements and great suggestions on my nascent research ideas relating to this study in the second year; I also learnt many academic writing skills from your feedback. Dr. Sanchez, thank you for your great advising on my defense; I also want to extend my gratitude for your being a member of my committee in the last semester.

I would like to give a special thank for Dr. Gary R. Lee. Though you are not my committee member because of your retirement, my work could not be done without your effort. My first idea of the thesis came from your research on NSFH. Many related ideas and theories are triggered by our discussion in the class of sociology of aging. I remember the first time when I asked you to review my simple and naïve research draft in the first year, how nervous I was at that time! You gave me very serious, critical, yet helpful and detailed comments. I not only learnt how to do and write a study from your comments, but also turned my draft into a paper later based on your comments. This was
the first English journal article in my life, from which I started my career in academic
field. I wish to express my gratitude for having you as a mentor. I always remember that
you told me the secret of the difference between sociology and psychology. Psychology
tells people how to make a choice while sociology tells people how many choices they
have. If I can say that learning sociology helps me to understand the world, your work
helps me to understand the sociology.

I would especially like to thank Dr. Susan Brown for numerous reference letters
for my PhD applications. I learnt much through working with you as an RA, especially on
Stata and NSHAP dataset. I also enjoyed your class of family and demography. I’m very
pride that I can give examples of family and demography in the class’s discussion in my
new school.

My master study could not have been completed without these professors: Dr.
Steven Demuth, Dr. Kei Nomaguchi, Dr. I-fen Lin, Dr. Matthew VanEseltine, Dr. Gary
Oates, and Dr. Margaret, Weinberger. I do not know how to express my deep
appreciation for every class I’ve had during this three years. Especially thanks Dr.
Demuth for your work for graduate students.

I would like to thank Hsueh-Sheng Wu. You are incredible! Thank you so much
for data analysis coding support. I got so many brilliant ideas from discussing with you.

My colleagues and friends in the program provided me with invaluable support:
Thanks Sue Nash, Michael, Elizabeth, Saima Bashir, Esther Lamidi, and Cori Churdar,
for your time and energy in helping my writing. Thank my friend Lin Chen for bearing
my mood when I was fighting with my work. Our co-authorship is an amazing miracle!

I would like to express my appreciation to my colleagues and friends who shared
brilliant three years with me in BGSU. There are my cohort Marta Alvira-Hammond,
Sarah Burgoyne, Bart Stykes, Andrea Garber Krieg, and Jennifer Copp; my classmates Michael Castro, April Holbrook, Matthew Wright, Jessica Finkeldey, Jessica Ziegler, and Marshal Fettro. Also I want to show my gratitude to Yee Shui, Larry Gibbs, Cassady Pitt, and Holly Fee. I enjoyed our discussions in the lab.

My friends Katie Hatch, Kris Eridon, Cong-Yin-Zi Zhang, Angela Garner, and Julie George, Fan Liu, and Tian Zhuang, it was because of you, I had a wonderful life in BG. Also, anyone that I may have forgotten to list, I sincerely apologies but do know I appreciate you.
# TABLE OF CONTENTS

| INTRODUCTION | ................................................................. | 1 |
| CHAPTER I: LITERATURE REVIEW | ................................................................. | 4 |
| Widowhood and Depression in Later Life | ................................................................. | 4 |
| Divorce and Depression in Later Life | ................................................................. | 8 |
| Prior Marital Quality and Depressive Symptoms | ................................................................. | 10 |
| Four Theories about Marital Quality and Depressive Symptoms after Marital Dissolution | ................................................................. | 14 |
| Widowhood, Marital Quality, and Depression | ................................................................. | 20 |
| Divorce, Marital Quality, and Depression | ................................................................. | 21 |
| Self-Esteem and Depression | ................................................................. | 25 |
| Widowhood, Self-Esteem, and Depression | ................................................................. | 28 |
| Divorce, Self-Esteem, and Depression | ................................................................. | 29 |
| CHAPTER II: METHODOLOGY | ................................................................. | 32 |
| Sample | ................................................................. | 32 |
| Variables and Measurements | ................................................................. | 34 |
| Data Analytic Technique | ................................................................. | 41 |
| CHAPTER III: RESULTS | ................................................................. | 43 |
| CHAPTER IV: DISCUSSION AND LIMITATIONS | ................................................................. | 50 |
| Study Limitations | ................................................................. | 56 |
| REFERENCES | ................................................................. | 58 |
| APPENDIX | ................................................................. | 79 |
**LIST OF TABLES**

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Excerpts From the Person-Period Data Set ........................................ 79</td>
</tr>
<tr>
<td>2</td>
<td>Mean of Variables and Anova ............................................................... 80</td>
</tr>
<tr>
<td>3</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Depressive Symptoms by Marital Status in Time 1 ............................................... 81</td>
</tr>
<tr>
<td>4</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Depressive Symptoms by Marital Status in Time 2 ............................................... 81</td>
</tr>
<tr>
<td>5</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Self-esteem by Marital Status in Time 1 .......................................................... 81</td>
</tr>
<tr>
<td>6</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Self-esteem by Marital Status in Time 2 .......................................................... 81</td>
</tr>
<tr>
<td>7</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Marital Happiness by Marital Status in Time 1 ....................................................... 81</td>
</tr>
<tr>
<td>8</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Under-benefit by Marital Status in Time 1 ............................................................ 82</td>
</tr>
<tr>
<td>9</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Over-benefit by Marital Status in Time 1 .............................................................. 82</td>
</tr>
<tr>
<td>10</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Time-spending by Marital Status in Time 1 ........................................................... 82</td>
</tr>
<tr>
<td>11</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Sex-frequency by Marital Status in Time 1 ............................................................. 82</td>
</tr>
<tr>
<td>12</td>
<td>Post-hoc Analyses (Bonferroni) for Comparison of Disagreement by Marital Status in Time 1 ............................................................. 82</td>
</tr>
</tbody>
</table>
INTRODUCTION

The purpose of my thesis is to understand the influence of marital termination on individuals’ depression as well as the role of marital quality and self-esteem in the relationship between marital termination and depression in later life. In particular, I will test whether and how marital quality and self-esteem moderate the effects of widowhood or divorce on depression.

Individuals who experience marital termination via either divorce or widowhood report lower levels of psychological well-being and higher levels of depression than those who are married (Lee & DeMaris, 2007; Umberson & Williams, 2005). Marital termination, such as through widowhood or divorce, usually causes many problems in individuals’ lives, including increases in depressive symptoms (Lee & DeMaris, 2007; Stroebe, Schut, & Stroebe, 2007), changes in living arrangements (Choi, 1991; Kramarow, 1995; Wall, 2002), losses in social support (Lindström, 2012; Ha & Ingersoll-Dayton, 2011), and decreases in quality of life (Fry, 2001; Sheykhi, 2006).

Though the conclusion seems universal, according to life course theories (Dannefer, 1984; Elder, 1994), the time and place of such transitional events (i.e. divorce or widowhood) can also affect their influence on individuals’ well-being. “The developmental antecedents and consequences of life transitions, events, and behavioral patterns vary according to their timing in a person’s life,” as emphasized by Elder (1994, p. 12).

Thus, my study focuses on the influence of marital termination through either widowhood or divorce among older adults in America. Compared with the loss of a
spouse by widowhood, divorce is more unexpected for older adults or their family members (Aquilino, 1994). Therefore, divorce may cause more negative consequences for elders than widowhood. Studies on the comparison of divorce and widowhood later in life argue that divorce has a more negative influence on parent-adult children relationships than widowhood (Aquilino, 1994). Moreover, these studies showed that divorced parents had less financial support from their adult children than bereaved parents. Second, in the meantime, divorce has become more common than for past generations, as the Baby Boom generation enters older age (Cherlin, 2010). According to Lin and Brown’s (2012) study, one in three Baby Boomers in America is unmarried. Moreover, 10 percent of these single adults were widowed, while the rest of them were either divorced or never married. Because it is more common today, divorce in later life may bring about fewer challenges for elders than for their previous generations. Since the population of single older adults has increased in the past decades, research on widowhood and divorce has become important to both policy-makers and the general public.

What other factors can affect the influence of marital termination on elders’ well-being is also my research interest. The current study focuses on whether and how prior marital quality and self-esteem moderate the impact of widowhood or divorce on depressive symptomatology. The quality of the marital relationship can be positively associated with individuals’ psychological well-being (Umberson et al., 1998), and may also condition the effects of marital termination. It may be expected that those who experienced a bad marital relationship would report lower levels of depression
than those who had a good marriage after marital termination. Self-esteem also has been demonstrated to have a negative effect on depression; however, there is no study which directly tests whether and how does self-esteem moderate the effect of widowhood or divorce on depression. Moreover, if there is a moderating effect of self-esteem on the impact of marital termination on depression, my study also wants to test whether this effect differs for widowhood or divorce.

My thesis uses three waves of National Survey of Families and Households (NSFH), a nationally representative sample, from 1987 to 2003. Those individuals who were married at the baseline and widowed/divorced/still married to the same person from the baseline are selected for analysis. To conduct this research, individuals’ levels of marital quality, depression, and self-esteem at the baseline are collected, and then the degree of change in their depression levels and self-esteem following widowhood or divorce at Time 2 is examined. I investigate the change in depression from married to widowed or divorced and the moderating effects of previous marital quality or self-esteem on depression after marital termination.

This research interest, to examine the moderating effects of previous marital quality and self-esteem on the relationship between depression and marital termination, is generated by the lack of attention to later-life marital transitions and their influence upon depression. Moreover, this research will enhance knowledge about the phenomenon of widowhood and divorce in later life.
CHAPTER I: LITERATURE REVIEW

Widowhood and Depression in Later Life

One problem associated with losing a partner, according to life course theory (Umberson & Williams, 2005) and distress theory (Mastekaasa, 1994; Holmes & Rahe, 1967), is that changing marital status is a significant life event, which can easily cause stress in individuals’ lives. In fact, widowhood is considered to be an extremely stressful event (Folkman, 1984; Folkman et al., 1986; Kitson et al., 1989; Gove & Shinn 1989; Ross & Mirowsky, 2003; Lee & DeMaris, 2007; Stroebe, Schut, & Stroebe, 2007; ) and causes declines in well-being (Pearlin, 1999). Compared with married individuals, widowed individuals report higher distress and mental health problems (Umberson et al., 1998; Bennett, K, 1998). In addition, distress, an unpleasant emotional sense including feeling sad, can trigger depressive symptoms (Pearlin, 1999). Therefore, widowhood increases depressive symptoms later in life (Stroebe & Stroebe, 1987; Norris & Murrell, 1987; Bengtson et al., 1990; Lee et al., 1998).

Furthermore, based on work by Pearlin (1999), stressful events can cause stress proliferation, which refers to stressors beyond the original stressor, in multiple dimensions of individuals’ lives. If distress which resulted from partner loss is the ‘primary’ stressor, then losing partners’ support, such as emotional, financial, or practical support, could be considered ‘secondary’ stressors. In fact, losing such support can harm well-being.

First, emotional support provides the basic need of intimate bonds and a sense of
security, emotional stability, and a sense of mattering (Bowlby, 1979, p. 104; Ross & Mirowsky, 2003; Parkes, 1985). Also, Ross & Mirowsky (2003) demonstrated that marriage provides a sense of being cared about and loved. After losing a partner, it is hard to find another to replace the ex-partner (Parkes, 1985). Research on widowhood has found that the effects of bereavement on grieving individuals not only makes them feel sad, but also anxious and lonely (Parkes, 1985; Lee & DeMaris, 2007).

Second, the partners' economic support is a part of the loss if individuals depended on their partners financially. Studies have found that widowed individuals are more likely to report having financial problems after widowhood (Kitson et al., 1989; Umberson et al., 1992). Ross & Mirowsky (2003) demonstrated that compared to being unmarried, marriage provides social support and economic resources which improve individuals' psychological well-being. In fact, a reduction in income is one of the main burdens for widows (Kim, 2006; Jervey, 2005).

Additionally, although widowhood can cause financial challenges for either men or women, women often face more disadvantages on these problems than men (Jervey, 2005). This is partly because husbands usually provide more money than wives do (Zuo & Tang, 2000). For example, a housewife typically depends on her husband's financial resources. Often, after becoming widowed, she experiences a reduction of household income. In order to maintain her life quality, the survivor has to enter into the labor market (Bavin, 1999; Aldous, 1990). Since she likely has limited work experience, it is harder for her to find self-supporting employment after being widowed.
Moreover, widowed individuals with lower socio-economic status (SES) are more likely to face financial problems than those who have higher SES. It is expectable that individuals who experienced widowhood usually have a crisis of decreasing household income (Bavin, 1999). The lack of economic resources can easily lead to anxiety and stressful emotions (Lindström et al., 2012; Umberson, Wortman, & Kessler, 1992).

Third, losing a partner may also take away practical support, such as the performance of daily household tasks. Studies found that household chores are related to personal psychological well-being. An increase in housework chores can trigger depressive symptoms; while a decrease in housework chores can improve individuals' psychological well-being. For example, Piña and Bengtson (1995) found that husbands' support on household work helps to decrease wives' depression.

Widowed individuals have to adjust to household responsibilities that were once shared by both partners (Parkes, 1985). For example, many widowed men who practiced traditional gender roles in their previous marriages might have to learn how to manage and maintain their household tasks after widowhood (Stroebe, Schut, & Stroebe, 2007). Utz et al., (2004) investigated older adults aged 65 and above and found that the widowhood experience in later life is related to an increase in the amount of men's housework in daily life, such as cooking and cleaning. Traditionally, wives were expected to take over the majority responsibility for household chores; while today, gender roles tend to be more equal in this regard (Zuo & Tang, 2000). After becoming widowed, individuals have to take over their ex-spouses’ work. If the
survivor is not familiar with the household tasks which used to be taken care of by the ex-spouse, the poor quality of the chores he/she performs may produce distress and increase personal depression later in life (Bavin, 1999). Studies have shown that widowed individuals experience higher levels of distress because of the increase in household chores (Stroebe & Stroebe, 1987; Gove & Shinn, 1989; Umberson et al., 1992; Lee, & Seccombe., 1998).

Fourth, widowhood can also influence individuals’ physical health in later life. Marriage is associated with health benefits; and research found that widowed individuals appear to have more health problems than the still-married do (DiGiacomo et al., 2013; Das, 2013; Utz et al., 2012; Umberson & Williams, 2005). The bereavement experience is negatively related to widows' physical health. Compared with non-widowed older adults, widowed individuals reported more difficulties in physical abilities and health (Chen et al., 1999; Goldman et al., 1995; Wilcox et al., 2004; Janke et al., 2008).

Widowhood also has a negative effect on cognitive functioning (Xavier et al., 2002). Studies on cognitive and memory function showed that high levels of stress have negative effects on memory (Sapolsky et al., 2000). The bereavement experience is considered a stressful event for older adults (Ross & Mirowsky, 2003; Lee & DeMaris, 2007; Stroebe, Schut, & Stroebe, 2007). Using a longitudinal dataset, Marja et al., (2005) found that the bereavement experience gives older adults a great decline in memory function compared to still-married individuals. The study showed that the average decline in memory performance for older widowed adults was 0.46; while
still married older adults showed a decline of 0.2. Together, experiencing widowhood negatively affects individuals’ physical health.

It is also well documented that the grief experience in later life would increase the risks of mortality (Ott, 2003; Prigerson et al., 1997; Helsing & Szklo, 1981; Manzoli et al., 2007; Elwert & Christakis, 2008). Since physical health is negatively related to personal depressive symptoms, widowed individuals may increase their depression because of their health problems. Moreover, poorer physical health makes older adults insufficiently adaptable to the distress of widowhood (Telonidis et al., 2005).

Based on prior literature, I propose the following hypothesis:

**H1:** Compared with individuals who are still married, those who experienced widowhood report greater depressive symptoms at Time 2.

**Divorce and Depression in Later Life**

Divorce is also a significant life event which could damage individuals’ well-being (Umberson & Williams, 2005; Mastekaasa, 1994). Changing marital status is a significant life event, which can easily cause stress in individuals’ lives. Many studies have reported that divorced individuals have lower happiness and higher depression than still-married persons. For example, Menaghan and Lieberman (1986) used data from a large metropolitan Chicago sample and found that divorced individuals reported significantly higher depression than those who remained married. Waite et al. (2002) pointed out that the decision to divorce and the process of divorce usually involve a long time and many uncontrolled events which negatively influence
individuals’ well-being.

Like widowhood, divorce can cause other secondary stressors (Pearlin, 1999) such as economic difficulties or health problems. Lorenz et al. (2006) revealed that divorced, compared with married, individuals reported more stressful life events. Ann Carolann (2010) found that lower-income women will spend all their assets in less than five years after divorce. Divorce or widowhood may influence individuals’ physical health later in life. Lorenz et al. (2006) followed individuals over a 10-year span and found that divorce not only leads to short-term depressive symptoms, but also long-term negative consequences for physical health. Manzoli et al., (2007) found that compared with married individuals, divorced/separated individuals had a higher risk of mortality.

Further, divorce may cause more problems than widowhood for older adults. First, compared to widowhood, divorce is more unexpected for elders. With the Baby Boom generation entering into their retirement age, divorce has become more common than for past generations (Cherlin, 2010); however, it still carries a stigma for older adults (Hughes & Waite, 2009). Second, according to the law, many widowed individuals can get support such as pensions. However, divorced individuals may face more economic disadvantages, compared with widowed individuals. Third, the widowed may get more sympathy and social support from others than the divorced. For example, Aquilion (1994) also found that adult children were more likely to financially support their widowed parents than divorced parents. Later, Lin (2008) also found that adult children give more money to their widowed father than their
divorced father. Therefore I propose:

\[ H2: \text{Compared with individuals who are still married, those who have experienced divorce/separation report greater depressive symptoms at Time 2.} \]

\[ H3: \text{Divorced/separated individuals experience more depression than widowed individuals.} \]

**Prior Marital Quality and Depressive Symptoms**

Marital quality is also important, besides marital status, for individuals’ well-being. Although studies showed that married individuals have greater well-being, compared to the unmarried, this conclusion partly depends on the marital quality of the relationship (Williams, 2003). Gove et al., (1983) demonstrated that marital quality is more important than marital status for personal psychological well-being.

Research usually uses marital quality to assess the relationship between the two individuals in a marriage. Spanier and Lewis (1980) defined marital quality as “the subjective evaluation of a married couple’s relationship on a number of dimensions and evaluations”. The concept of marital quality contains both positive and negative dimensions. For example, the feeling of being cared for and satisfied with marriage can be considered a positive dimension, while marital conflict and disagreement can be treated as negative dimensions (Umberson & Williams, 2005). Burleson and Denton (1997) defined three types of marriage: close marriage, distant marriage, and conflict marriage. "Close marriage" means the couples have more positive interactions with each other. They tend to have lower levels of conflict and higher
levels of trust and spending time together. Couples who have a "distant marriage", compared with those in "close marriages", spend less time together and tend to have more independent lives. Couples in a "conflict marriage" tend to have higher levels of disagreement and more negative interactions.

Researchers also discussed what factors can influence marital quality. Studies have shown that personal demographics are related to marital quality. For example, women usually reported lower levels of marital quality than men (Umberson et al., 2006). Blacks reported more marital conflict and were more likely to get divorced than Whites (Cherlin, 1998); while Mexican Americans have more positive views toward marriage than Blacks, the two groups share a similar financial situation (Raley et al., 2004).

Moreover, education, employment, and income also have effects on marital quality (Bramlett & Mosher, 2002; Berman et al., 1975). Bramlett and Mosher (2002) found that couples who have lower levels of income and education are more likely to report marital problems and divorce. In the same vein, higher levels of marital problems and higher risks of marital dissolution have been found among higher educated dual-career couples (Berman et al., 1975). Since each individual in the higher educated dual-career marriage has his/her own career goals, responsibilities, and schedules, they sometimes need to negotiate over each other’s schedules or plans (Bramlett and Mosher, 2002). For example, if one needs to leave home for work for three months, one’s partner has to take care of the whole family by him/herself. If his/her partner also has a tight schedule, the two individuals need to find a way to
cover the family’s responsibilities. These negotiations need considerable skills; otherwise, the couple may have marital conflict (Bramlett and Mosher, 2002).

The effect of interpersonal resource exchange within a marriage has also been studied for many years. Rettig & Bubolz (1983) pointed out that exchanged resources can significantly predict marital satisfaction among couples. Culture also can be considered a factor that influences marital quality. For example, Allendorf and Ghimire (2013) found that in an arranged-marriage society like Nepal, higher levels of husband’s education, higher degrees of his involvement for the marriage arrangement process, and longer marital duration were positively associated with marital quality. On the other hand, this study found that class (caste), husband’s occupation, age at marriage, and the number of children had no relationships with marital quality.

Several variables are considered to be measurements of marital quality. Marital happiness and marital satisfaction assess the general feeling about the relationship. Many studies treated them as interchangeable measurements, since they measure a similar thing and are highly correlated with each other (Campbell, et al., 1976; Lewis & Spanier, 1979). Higher marital satisfaction is associated with higher marital happiness; moreover, they have been found to have similar relationships with other variables (Lewis & Spanier, 1979). However, Campbell et al., (1976) pointed out that though the concepts of marital happiness and marital satisfaction are close to each other, there are still some differences between them. For example, while formal education positively influences marital happiness, more-educated couples reported
lower levels of marital satisfaction than lower-educated couples. Respondents' household work also has an effect on marital happiness. For example, feeling fairness in the division of chores is positively associated with marital happiness (Umberson et al., 1998; McGarry, et al., 2011).

The quality of the marital relationship can have psychological consequences, and may also condition the effects of marital disruption. For example, studies have found that an unsatisfying marriage characterized by violence, stress, or unfairness has negative effects on well-being (Kalmijn & Monden, 2006; Umberson et al., 1998; McGarry et al., 2011; Blair, 1998; Claffey & Mickelson, 2009; Milki & Peltola, 1999; Grote & Clark, 200; Carr & Boerner, 2009). Therefore, we might expect that individuals who report having a bad marriage would report fewer depressive symptoms after the marriage has ended relative to those respondents who report having a good marriage.

However, studies have come to no consistent conclusion on the relationship between prior marital quality and personal well-being after, say, widowhood or divorce. Some studies have found that prior marital quality is associated negatively with psychological well-being after widowhood (Carr & House, 2000) or divorce (Wheaton, 1990); while some have found that negative aspects of a prior marriage might lead to more depressive symptoms after divorce (Hawkin & Booth, 2005). Still other studies have observed no relationship between previous marital quality and well-being after marital termination (Carr, 2004). Yet, these studies often have small sample sizes (e.g., Wheaton (1990) had fewer than 30 cases in widowhood and 60
cases in divorce) or are based on non-representative samples (e.g., Stroebe et al., 2007) used the Changing Lives of Older Couples (CLOC) survey, which only sampled the Detroit area. Therefore, the relationship between previous marital quality and well-being among individuals who were widowed or divorced remains obscure.

Several social psychological theories have been drawn on to understand the relationship between individuals' previous marital quality and depressive symptoms after marital dissolution. In general, cognitive theory (Folkman, 1984; Folkman et al., 1986) and escape theory (Wheaton, 1990) both argue that poor marital quality (i.e., “a bad marriage”) may result in reduced depressive symptoms when facing partner loss. Conversely, regret theory (Statman, 2003) and psychoanalytic theory (Freud, 1917) support the opposite opinion – that is, the worse the marital quality, the greater the depressive symptoms suffered after partner loss. The following section will discuss these four theories and how the effect of marital quality may differ for the widowed and the divorced.

Four Theories about Marital Quality and Depressive Symptoms after Marital Dissolution

Cognitive theory (Folkman, 1984) generally suggests that individuals who report higher marital satisfaction are more likely to have difficulties coping with stress after partner loss. The theory was first stated by Folkman (1984). It argued that distress occurs in the process of an interaction between person and environment. Different
from some studies which suggest that a stressful event itself alone would lead to an increase in depression (Holmes & Rahe, 1967), Folkman (1984) thought that stress occurs in a person-environment relationship. The stressful event itself does not make stress for individuals. Rather, stress is experienced during the interaction between the person and the environment (Folkman, 1984; Folkman et al., 1986; Gage, 1992; Ntoumanis, Edmunds, & Duda, 2009). When facing a stressful event, a person will evaluate his/her situation and resources. This cognitive appraisal can affect individuals' well-being. The model emphasizes the transaction process between person and environment and the dynamics of the nature of stress experiences.

According to cognitive theory (Folkman, 1984; Folkman et al., 1986), harm/loss and challenge are the types of cognitive appraisals. Cognitive appraisal is "a process through which the person evaluates whether a particular encounter with the environment is relevant to his or her well-being, and if so, in what ways" (Folman et al., 1986, p.992). For example, after encountering a stressful event (i.e. marital dissolution), the person determines whether there is a “harm/loss,” or that "a challenge exists" (Baldwin, 2005). Marital dissolution can be treated as a loss or harm to widowed or divorced individuals. The loss of life resources though marital termination can be a threat for individuals who want to maintain their previous life quality. Changing the living arrangement or the lifestyle makes a challenge for formerly married individuals.

On the other hand, ending a marriage could also be viewed as a beginning of a new life. Different types of appraisals have different effects on individuals’ well-being.
Individuals who experienced significant transitional events (i.e. marital dissolution) can evaluate their situation by comparison to their previous lives. For example, Carr et al., (2000) found that widowed people who had higher levels of emotional closeness and dependence on their spouses reported higher levels of depression. If a marriage lacks love, closeness, warmth, or benefits (i.e., aspects of marriage typically associated with greater satisfaction), however, the spouse may think leaving the previous life is a beginning of a better life. By extension, if a marriage provides a lower level of marital quality, ending the marriage is a beginning to the individual.

Likewise, the escape hypothesis (Wheaton, 1990) emphasizes psychological aspects of “relief” associated with individuals’ escaping from a bad situation. People seek to escape a negative situation. Although a significant transition event itself may damage individuals’ well-being, staying in a strained role may harm them more. Therefore, leaving a stressful role could improve psychological well-being for individuals (Wheaton, 1990). In his work, Wheaton (1990) suggested that exiting from stressful roles (e.g., via divorce or widowhood) can positively affect individuals' well-being. This is a self-protective action which people can take to help themselves get away from their distressed lives (Heatherton & Baumeister, 1991).

Marital termination in such cases could be argued to be a solution rather than a problem for individuals. The theory argues that escaping from stressful events can improve psychological well-being or at least decrease the damages caused by a significant life-transitional event such as ending a relationship (Wheaton, 1990; Kalmijn & Monden, 2006).
Since marital quality is positively associated with well-being, one would expect that the ending of an unhappy marriage can relieve some stress for individuals (Wheaton, 1990; Williams, 2003). Just as some people believe that remaining single is better for their lives than entering into a bad marriage, the ending of a strained marriage would be expected to have a less-negative effect on one's life and well-being than the ending of a high-quality marriage. Wheaton (1990) pointed out that a low-quality relationship can decrease the damage of terminating that relationship on individuals’ psychological well-being; moreover, there is relief from a noxious situation, which also can improve individuals’ well-being (Kalmijn & Monden, 2006). Williams (2003) argued that being in a distressed marriage undermines psychological well-being more than being divorced or widowed. For example, Parkes (1985) found that widowed individuals who had higher levels of marital conflict and lower levels of marital quality in their previous marriages reported lower levels of depression and higher levels of social participation after widowhood. Carr et al., (2000) also demonstrated that widowed persons who had conflicted relationships with their partners reported lower levels of yearning.

On the other hand, regret theory (Statman, 2003; Cameron, 2009; Michenaud & Solnik, 2008) suggests that not all individuals want to escape from a bad relationship. If someone has done something "foolish," he/she would take some actions to avoid the pain (Shiller, 1999). This pain is called an emotion of regret. The emotion of regret is a psychological experience in which people realize that they made a mistake in a past decision and have to face the bad consequences (Shefrin & Staman, 1985).
People feel regret if they make a wrong decision. When a person realizes that a
different past choice or decision would make a better result, he/she would feel
emotional regret (Shefrin & Statman, 1985). Realizing a loss damaged individuals’
mental health (Shefrin, 2008). For example, people would imagine that if they could
have made another decision instead of the erroneous one, they would have been much
better off (Tversky & Kahneman, 1986). Further, the more responsibility the person
takes when making the decision, the more regret he/she would feel when the result
turns out badly (Shefrin, 2008).

The theory has been used to explain why individuals tend to hold on to bad
investments for too long (Molden, 2011). Selling a bad stock involves admitting a
mistake. It is found that most investors do not want to sell poorly performing stocks
so that they would not feel regret and could pretend that they did not make any bad
decision (Shefrin & Staman, 1985; Shefrin, 2008).

Rationally, people buy the stock when the price is low and sell it when the price
increases. It is true that people do not want to sell stocks that have decreased in value.
However, in some situations, selling poorly performing stocks gets better than holding
them (Sung, 2007). For example, investors can reduce their tax by selling the
devalued stocks while holding the stocks is a “tax inefficient investment strategy”
(Sung, 2007). Also, if an investment does not perform well for years, the owner can
sell it and use the money to invest in other businesses.

However, investors tend to avoid the feeling of regret (Odean, 1998). If the
products or stocks lose their price, investors would regret when they realize their loss.
Then they would expect an increase in price in the future. Therefore, the investors would not want to sell their stocks. O’Curry Fogel and Berry (2006) suggested that this action of holding poorly performing products for investors is "avoiding the feeling of regret."

The theory also can aid in understanding why individuals stay in bad relationships (Molden, 2011). The fear of admission of the failure of the investment (i.e. the marriage) leads investors (i.e. couples) to postpone the loss (i.e. an unsatisfactory marriage). Therefore, he/she would experience regret when closing an investment (i.e. ending a marriage) with a loss because of the poor investment decision (i.e., being married to the wrong person) (Ackert et al., 2003). Since this theory is more suitable to apply to decision-making, it applies to divorce but not widowhood because people cannot make a decision to become widowed.

Similarly, psychoanalytic theory (Freud, 1917) has implied that individuals would feel unhappy if their prior marital quality was low (Bowlby, 1969; Mikulincer & Shaver, 2007; Weiss, 1975). Psychoanalytic theory basically argues that people's behavior is influenced by their emotions. Moreover, many of these emotions are unconscious (Santrock et al., 2003). Therefore, to better understand people's behavior, we need to analyze the meanings behind the behavior (Freud, 1917). According to Freud (1917), in order to analyze these meanings, it is important to understand people's past experiences and how the past is associated with the present. Freud studied how personal childhood events, especially negative events, could affect the mental health after the person grew up. According to his theories, psychoanalytic
theorists believe that previous stress would shape our development (Santrock et al., 2003).

According to psychoanalytic theory, previous trauma can influence a person’s life even after the person has left the stressful role. Therefore, stress triggered by a previously poor marriage can affect the individuals’ mental state even after the end of the marriage (Stroebe et al., 2010). For example, if a previous marriage involves marital conflict and hostility, individuals in the marriage usually blame the other one (Gentile, 2004). However, after ending the marriage, the direction of the emotion of hostility, which used to point to the ex-husband/wife, points to oneself and that leads to “torment and suffering” (Gentile, 2004). Other reasons could also be involved. For example, because individuals in bad relationships might have treated their partners poorly, after relationship loss they may feel guilty about what they have done to their ex-partner. Feeling guilty is associated with moral self-condemnation, such that individuals would like to seek forgiveness in order to judge themselves to be moral (Gecas, 2001). Lacking such forgiveness, they may experience depression.

**Widowhood, Marital Quality, and Depression**

There is no consistent conclusion as to how does marital quality moderate the effect of widowhood on depression. Some studies support cognitive theory. For example, Schaan (2013) analyzed two waves of "The Survey of Health, Ageing and Retirement in Europe" (SHARE) for those aged 50 and older in 11 countries and found that widowed respondents who had higher marital quality in the first wave
reported a greater increase in the level of depression after widowhood than those with lower marital quality at baseline. Carr and colleagues (Carr & Boerner, 2009; Carr et al., 2000) also demonstrated that individuals who reported higher marital quality experienced higher levels of negative psychological consequences after widowhood. Positive experiences in a marriage are considered a strong resource which provides closeness, affection, and other emotional support for spouses in the relationship (Schaan, 2013). Therefore, if a high-quality emotional tie is broken by death, survivors would face severe psychological consequences (Bowlby, 1980). Individuals would miss aspects of their marriage which led to feelings of satisfaction; they would have to work hard on re-adjustment after losing their spouses (Stroebe et al., 2010). According to this theory, we expect to see that:

\[ H4: \text{Higher marital quality strengthens the negative influence of widowhood on individuals' depressive symptoms.} \]

**Divorce, Marital Quality, and Depression**

Divorce shares some common consequences with widowhood as both of them can be considered partner loss; however, divorce sometimes can be considered a choice while widowhood is totally out of the individual’s control. In such cases, escape theory and regret theory are more suitable for discussing divorce and marital quality, because ending a marriage involves decision-making. Either escaping from an unsatisfying marriage or ending a marriage with a feeling of regret is a personal choice.
Kalmijn and Monden (2006) defined escape theory for explaining how divorce may improve individuals’ well-being or decrease the depression. Though divorce’s negative association with well-being is well documented, some studies have argued that marital quality may buffer the negative impact of divorce on depression since people may treat divorce as a solution to escape a bad situation (i.e. an unhappy marriage).

For those who had happy marriages, divorce can be a stressful event and a loss. For those who suffered a poor marriage, however, divorce provides a way to escape the stressful situation. According to Wheaton’s (1990) analysis, compared with those who reported lower levels of marital conflict, divorced individuals who reported marital problems in their previous marriage experienced significantly lower levels of depression after marital termination. In such cases, divorce can be considered a solution rather than a problem for individuals (Kalmijn & Monden, 2006). Although divorce itself would still bring some crisis such as loss of some resources, escaping from an unsatisfactory marriage can also bring relief to individuals. The positive effect of divorce on well-being may not be immediately felt; however, in the long term effect, the relief brought by divorce would help to improve individuals' well-being or decrease levels of depression (Kalmijn & Monden, 2006).

Although marriage can provide benefits for individuals and thus increase their well-being, a low-quality marriage can also reduce the positive effects of a marriage on an individual’s well-being (Cooke, 2006). Hawkins and Booth (2005) used four waves of the Marital Instability Over the Life Course Study and demonstrated that
long-term unhappy marriage damages individuals' well-being. If divorced persons reported lower levels of marital quality before divorce, they were less likely to develop a mental disorder after divorce, compared with those who had higher levels of marital quality prior to divorce (Overbeek et al., 2006). Moreover, the study found that divorce from an unhappy marriage helps individuals to increase their well-being. Amato and Hohmann-Marriott (2007) also discovered that individuals who experienced seriously strained marriages reported improvements in happiness following their divorces in a longitudinal study. Hetherington and Kelly (2002) reported that about 30 percent of divorced individuals improved their lives compared to how they had been in their previous marriage. According to this theory, we expect to see that:

\[ H6: \text{Lower marital quality weakens the negative influence of divorce on individuals' depressive symptoms.} \]

Since regret theory (Shefrin & Statman, 1985) is usually employed in financial decision-making, no previous study has used it for studying divorce and depression. However, this theory can help us understand why some couples stay in a low-quality relationship. When individuals commit to a marriage, they do not expect to fail. Therefore, loss of marital status would make individuals realize that their original decision was wrong--they married the wrong person.

According to regret theory, individuals would experience regret or shame when they realize that it was their poor decision that caused their loss (Shefrin & Statman, 1985; Gecas, 2001). Since individuals normally do not want to admit their
mistakes and want to avoid feelings of regret, they usually postpone their loss and continue to invest in hope of a recovery in the future (Shefrin & Statman, 1985). Thus, by the time they finally lose their partners, it is possible that such individuals have already invested too much to enjoy a happy escape. According to this theory, we expect to see an opposite effect from the previous hypothesis:

\[ H7 \text{ Lower marital quality strengthens the negative influence of divorce on individuals' depressive symptoms.} \]

There are some studies that have shown that divorced individuals may not benefit from their marital dissolution. For example utilizing two waves of the NSFH, Waite et al. (2002) found that compared to those who remained unhappily married, divorced individuals who experienced low marital quality did not have a significant increase in happiness and self-esteem or a decrease in depression. However, this study only asked individuals to evaluate the general “happiness” of their marriage.

Marital quality has many dimensions that include more than just a general evaluation of marital happiness. For example, unfairness in the household division of labor, a high frequency of conflict, and/or consideration of divorce would also damage marital relationships and increase the likelihood of divorce (Frisco & Williams 2003; DeMaris, 2000; Previti & Amato, 2004).

The NSFH investigates eight dimensions of marital quality, including overall marital happiness, marital benefits, time spent together, sex frequency, marital disagreement, marital aggression, and perception of marital troubles. This study will utilize all dimensions detailed above and examine each dimension and how it affects
depression of widow(er)s or divorcees in later life.

**Self-Esteem and Depression**

Self-esteem is a general feeling toward, and evaluation of, oneself (Ervin & Stryker, 2001). Self-esteem reflects a person's overall evaluation of his or her own worth (Rosenberg et al., 1995). It is an important aspect of mental health (Neff, 2011). For example, Ford and Collins (2010) demonstrated that self-esteem plays an efficient role in moderating the negative effect of daily rejection on psychosocial well-being. The study found that low self-esteem individuals tended to have more risky behaviors and reported lower levels of well-being after being rejected.

Previous studies have shown that self-esteem has a positive link with psychological health (Rosenberg & Owens, 2001). Individuals with high self-esteem tend to feel positive and good about themselves, while individuals with low self-esteem tend to feel negative and bad about themselves (Ervin & Stryker, 2001). Characteristics of personal self-esteem, such as the level of self-esteem and stability of self-esteem, are demonstrated to have effects on individuals’ thinking, feeling, and acting (Rosenberg & Owens, 2001). Low self-esteem individuals are generally described as depressed people. Studies have shown that low self-esteem and depression are strongly correlated with each other (Orth et al., 2009). In other words, when the individual’s depressive symptoms are high, the self-esteem tends to be low. Further, a high self-esteem individual is more likely to have other resources, such as high efficacy, mastery, self-confidence, economic resources (Gadalla, 2010; Dwyer et al., 2011; Pearlin, 1999) which can help to cope with stressful events in life.

The sense of self-esteem has a strong negative relationship with depression (Tafarodi & Swann, 1995). Moreover, studies suggested that such relationships exist
throughout the life course. For example, Rosenberg and Owens (2001) showed that self-esteem is negatively associated with depression even among third grade pupils. Orth et al. (2009) found that low self-esteem can predict depression in adolescence and young adulthood. The study demonstrated that this pattern, self-esteem being negatively associated with depression, existed across all age groups. These studies all pointed out that low self-esteem is injurious to psychological well-being. In addition, whatever the age of the respondents, individuals with low levels of self-esteem are generally feeling more depressed.

Some principles should be considered when discussing self-esteem (Ervin & Stryker, 2001). First, regardless of levels of self-esteem, people generally desire positive feedback from others about themselves (Pelham, 1995). Second, people tend to feel a stable rate of self-esteem (Rosenberg, 1981; Rosenberg & Owen, 2001; Pelham, 1995). Maintaining self-esteem is important for individuals’ psychological well-being (Rosenberg & Owens, 2001). If a person feels that he/she is experiencing a decrease in self-esteem, he/she will take actions to improve the self-esteem. In maintaining their self-esteem, people with low self-esteem may adopt different strategies from people with high self-esteem (Wood, et al., 1994). For example, if a student with high self-esteem notices that other students’ achievements are better than his/hers, he/she would ignore other students’ good performances in order to feel good about him/herself. However, a low self-esteem student only feels good when he/she has better achievements than other students (Peixoto, 2010). Generally, those who have high self-esteem tend to believe in their own abilities; while those with low self-esteem tend to attribute their achievements to other things such as good luck (Peixoto, 2010; Wood et al., 1994).

There are several reasons why we expect that self-esteem will decrease the
negative consequences of stressful events, such as marital dissolution in later life.

First, self-esteem itself is related to positive outcomes such as health and happiness (Gecas, 1982; Rosenberg, 1981). Adolescents who have higher levels of self-esteem have better achievement at school than those who have lower levels of self-esteem (Sancakoğlu & Sayar, 2012). Generally, higher self-esteem people are more likely to report success and happiness than lower self-esteem people (Rosenberg, 1981).

Second, Montpetit et al. (2006) found that self-esteem, environmental mastery, and optimism are highly related. People with lower levels of self-esteem generally report being more sensitive to other people’s opinions and easily feel hurt by other people (Luck & Heiss, 1972). In other words, individuals who have higher self-esteem are more likely to hold optimistic views as well as have higher mastery. Pearlin (1999) argued that individuals with higher levels of self-esteem are more optimistic and efficacious in the face of stressors compared with individuals with lower levels of self-esteem. Sowislo and Orth (2013) discovered that individuals with lower self-esteem are more likely to report higher depression than higher self-esteem individuals. The finding suggests that though lower self-esteem people may not meet more negative experiences than higher self-esteem individuals, people with lower self-esteem are affected more by the resulting emotions (e.g. humiliation) than the latter group.

Third, individuals with high self-esteem usually have other resources, which help to moderate the stress process (Pearlin, 1999; Ross & Mirowsky, 2003). For example, since low self-esteem individuals are more sensitive to other people’s actions and attitudes, they tend to avoid many social situations in their daily life, which may limit the size of their social network. In addition, Rosenberg and Owens (2001) pointed out that individuals with low self-esteem are more likely to say that they lack
self-confidence than high self-esteem people. The reason can be that low self-esteem people are less likely to have successful performances and achievements than high self-esteem people. Since personal achievement is positively associated with personal abilities, individuals who have a successful performance are more likely to see themselves as “good,” which enhances self-esteem (Ervin & Stryker, 2001).

**Widowhood, Self-Esteem, and Depression**

Some studies showed that self-esteem can buffer the negative impact of widowhood on depression (Carr et al., 2000; Carr et al., 2004; Fry, 2001; Lund et al., 1993). Carr et al., (2000) found that those who reported lower levels of self-esteem experienced higher levels of depression after widowhood than those who reported higher levels of self-esteem. Montpetit et al. (2006) also found that self-esteem was negatively related to depressive symptoms and grief for elders during their adjustment to widowhood experience.

However, many of these studies did not measure self-esteem prior to the widowhood. Other studies which did measure self-esteem before and after widowhood tended to treat self-esteem as a mediating effect between widowhood and depression. That is, experiencing stressful events such as conjugal loss is related to lower self-esteem, and lower self-esteem is associated with depression. Loss of a partner may cause social isolation, stress, or other disadvantages which may erode self-esteem (Arens, 1982). For example, Fry (1996) used a 1 year follow up study of 105 surviving spouses and found reduced self-esteem and reduced well-being after partner loss.

Some research highlighted that experiencing widowhood is not always associated with a decrease in self-esteem (Blackburn et al, 1987). For example, Carr
(2004) found that some widowed women increased their self-esteem after experiencing widowhood. She discovered that if the widowed woman had a higher emotional dependence upon her husband while married, she would report higher levels of self-esteem after the loss of her husband than those who had lower emotional dependence upon their husbands while married. Carr (2004) argued that these widowed women had found their abilities to survive after the death of their spouses, and this process helps these women gain self-esteem. Therefore, decrease in self-esteem is not a universal consequence following widowhood (Blackburn et al., 1987).

These conclusions may result from unsuitable samples. For example, the majority of Fry’s (2001) respondents were white and healthy, and Carr’s (2004) study did not use a nationally representative sample. However, no matter whether widowhood damages self-esteem or not, literature on self-esteem suggests that it helps widowed individuals to cope with stressful lives (Carr et al., 2004; Fry, 2001; Pai, 2007). Therefore, my study examines the moderating effect of self-esteem in the relationship between widowhood and depression, and I expect that:

H8: Higher self-esteem weakens the damaging effect of widowhood on individuals’ depressive symptoms.

**Divorce, Self-Esteem, and Depression**

Although there are plenty of studies on the issue of how self-esteem changes after divorce or how self-esteem affects depression after divorce (Weitzman, 1988; Briar, 1988; Brown et al., 1977), no such research directly test the moderating effect of self-esteem on the relationship between divorce and depression. For example
Brown et al. (1977) interviewed 253 women who experienced divorce and found that women who had a traditional attitude toward sex roles at home reported significantly lower self-esteem and lower levels of well-being after divorce. Other studies also demonstrated that women who had lower levels of self-esteem after divorce suffered lower well-being (Bogolub, 1991; Wallerstein, 1986). However, there is no study which tests the role of self-esteem in the relationship between divorce and depression. The self-esteem can be a mediator, for example, the divorce damages self-esteem, and lower levels of self-esteem enhance individuals’ depression. However, this study examines the moderating effects of self-esteem, that is, whether the effect of divorce on depression would be changed by the levels of self-esteem.

I expect to see that:

**H9: Higher self-esteem weakens the negative effects of divorce on individuals’ depressive symptoms.**

The reasons for this hypothesis are following: first, self-esteem itself is a resource which helps to buffer the negative effects of divorce on well-being. Generally, lower self-esteem individuals are less likely to report happiness than higher self-esteem individuals (Rosenberg, 1981). Individuals who have higher levels of self-esteem tend to have optimistic opinions when facing a negative situation than lower levels of self-esteem individuals (Luck & Heiss, 1972). Therefore, if divorce brings negative consequence, such as lower levels of income or more house chores, a person would hold different views for these challenges based on the levels of self-esteem. Individuals with lower levels of self-esteem tend to have negative feelings toward
their lives (Ervin & Stryker, 2001).

Second, individuals who have higher levels of self-esteem are more likely to have a stable view of themselves and are less likely to be influenced by external environments than individuals with lower levels of self-esteem (Luck & Heiss, 1972). Individuals with lower levels of self-esteem are more likely to be sensitive to the external environment and can easily feel hurt (Luck & Heiss, 1972). For example, Longmore and DeMaris demonstrated that self-esteem buffers the impact of feeling under-benefited on depression. Their study argued that individuals with lower levels of self-esteem tend to “rely on external cues” to evaluate their worth. Therefore, individuals with lower self-esteem are more likely to be sensitive to a negative event and feel hurt and depressed. For instance, if the ex-husband left them for younger women, some divorced women would think they are old and unattractive (Bogolub, 1991). However, it is possible that higher self-esteem women may not think this way to themselves. Individuals with lower levels of self-esteem generally report being more sensitive to other people’s opinions, while individuals who have higher self-esteem are less likely to be affected by others (Luck & Heiss, 1972).
CHAPTER II: METHODOLOGY

Sample

The dataset used in this study is the National Survey of Families and Households (NSFH). The study used three waves of the NSFH. In the first wave of the data, there were 13,007 respondents, including 9,637 households and an oversampling of minority groups (i.e., African Americans), single-parent families, cohabiting couples, and families with stepchildren. Completed in 1987 and 1988, the survey collected information about respondents' life histories, including living arrangements, union (marriages and cohabitation) history, work experiences, economic status, intergenerational relationships, social contacts, and psychological well-being. An adult in each household was randomly selected to be the main respondent, and the face-to-face interview lasted around one hour and forty minutes (NSFH, 2005).

The second wave of the NSFH, conducted from 1992 to 1994 via face-to-face interviews, obtained 10,005 main respondents from the original sample of NSFH 1. In addition, the content of the questionnaire included an updated family history since the first interview, social activities, economic situations, and health and well-being (NSFH, 2005).

The third wave of the NSFH included the main respondents of NSFH1 who were 45 and older by January 1, 2001 and those who had at least one child. The survey was completed by 2003 via computer-assisted telephone interviewing (CATI) technology; and the total sample size of the main respondents was 4,600.

The present study utilized two periods of time from the NSFH survey: the period
from wave 1 to wave 2, and the period from wave 2 to wave 3. In the period from wave 1 to wave 2, wave 1 is treated as the baseline \((\text{Time 1})\). Likewise, in the period from wave 2 to wave 3, wave 2 is treated as the baseline \((\text{Time 1})\). The study then combined these two periods together.

At the baseline, the selected respondents were the individuals who were aged at least 50 and were married at the time of the baseline. At time 2, it was determined whether the respondents were widowed, divorced (separated), or still married to the person from time 1. Those who were cohabiting or married to a different person from the previous wave were not included in this study. If someone was married to a different person from the previous wave, it indicated that he or she was divorced or widowed during the two waves. However, since the survey does not capture the information between two waves, at the second wave these people (i.e. divorced or widowed during the waves) were already re-married. Therefore, those who were married to a different person from the previous wave were dropped from the analysis.

There were 2104 respondents who were married and aged at least 50 in wave 1. Because of cohabitation or being married to a different person, six hundred and sixteen cases of these people were abandoned in wave 2 because of cohabitation or being married to a different person. There were 1843 respondents who were married and aged at least 50 in wave 2. 761 cases of these people in wave 3 were rejected because of cohabitation or being married to a different person. Therefore, there are 1488 cases in the period from wave 1 to wave 2 and 1082 cases in the period from wave 2 to wave 3. The total sample size was 2570, with 368 persons who were widowed at time 2 and 73
persons who got divorced at time 2. Data setup is shown in Table 1.

**Variables and Measurements**

The dependent variable, depressive symptoms, was measured by the Center for Epidemiologic Studies Depression Scale (Radloff, 1977), and was composed of 12 items. Respondents were asked how many days (0 to 7) in the past week they felt or experienced specific situations, such as “feel bothered by things that usually don't bother you,” or “Didn’t feel like eating; your appetite was poor.” Therefore, the scale ranged from 0 to 84, with 0 reflecting low depressive symptomatology and 84 reflecting maximum depressive symptomatology. The scale was computed as the mean of the items answered times 12. The same scale was employed at times 1 and 2. The alpha reliability for the scale was .942 in wave 1, .957 in wave 2, and .897 in wave 3. In order to get a valid score, the respondents had to answer at least 50% of the questions. Fifty-seven respondents at time 1 and 61 respondents at time 2 were missing on the measure. Therefore, 118 cases who failed the requirement are treated as missing.

The main independent variable was marital status. Marital status was composed of two dummy variables: one for those who were widowed at time 2, and one for those who divorced/separated at time 2. Those who were still married to the same person at time 2 were treated as the reference group.

The moderator variables included self-esteem at both time 1 and time 2 and marital quality at time 1. These moderator variables are interacted with marital status in the model. Our concern is not with how they affect symptoms of depression, but rather with how they influence the relationship between depression and widowhood and
The measure of self-esteem was partly drawn from Rosenberg’s self-esteem scale (Rosenberg 1989). There were four items: 1) “I feel that I’m a person of worth, at least on an equal plane with others;” 2) “On the whole, I am satisfied with myself;” 3) “I have always felt pretty sure my life would work out the way I wanted it to,” and 4) “I am able to do things as well as other people.” Each item was measured by a five-point scale ranging from “strongly agree” (5) to “strongly disagree” (1). Self-esteem was measured at both time 1 and time 2.

Generally, personal self-esteem tends to remain stable (Owens & Rosenberg, 2001). This means that an adult does not change his/her self-esteem frequently. However, studies found that stressful events such as widowhood and divorce can hurt the level of personal self-esteem (Owens & Rosenberg, 2001). In addition, self-esteem itself is supposed to have a negative effect on the level of depression. Hence, it is better to employ self-esteem as a time-varying variable. The NSFH recorded the level of self-esteem both before and after widowhood/divorce. Therefore, the present study can capture the effect of the change in self-esteem on the relationship between depression and widowhood and divorce.

The present study treats self-esteem as the moderator and it is interacted with marital status in the model. I calculated the self-esteem scale score as the mean of the items, multiplied by 4; this score ranged from 4 to 20, with 20 indicating the highest level of self-esteem and 4 indicating the lowest level of self-esteem. The alpha reliability for the scale was .65 in wave 1, .71 in wave 2, and .65 in wave 3. The score
was centered, because that makes it easier to interpret the effect of self-esteem as a moderator in regression models. Those who scored zero on the self-esteem scale indicate that they had an average level of self-esteem at that time. As with the depression score, we considered the scale to be valid for everyone who answered at least 50 percent of the items. There are 118 respondents at time 1 and 62 respondents at time 2 who were missing on this variable.

Measures of marital quality include marital happiness, over-benefit toward respondents, under-benefit toward respondents, time spent with each other, sex frequency, marital disagreement, verbal aggression, and marital trouble. These dimensions of marital quality are measured and tested separately. This strategy helps to investigate which dimensions are important for elders’ well-being after marital dissolution. Previous studies have limited evidence about how to construct a single scale for marital quality by using these dimensions. Without a pre-test, this study adopts the strategy of separately testing these dimensions. The variables of marital quality do not appear as main effects, since fixed-effects models cannot include time-invariant variables (marital quality) as independent variables. However, the items measuring marital quality are interacted with marital status in order to calculate their moderating influences on depression. Since these interaction terms involve a time-varying factor (marital status), they are also time-varying and can be included in the model.

Marital happiness was measured by a single item: "Taking all things together, how would you describe your relationship?" The answer was scored on a seven-point scale (1 = “very unhappy” and 7 = “very happy”). The score was then centered, because it is
then easier to interpret the effect of marital happiness as a moderator. Those who scored zero on the marital happiness scale were those with an average level of marital happiness at that time. There are 136 missing values.

Over-benefit and under-benefit indexes shared the same questions. Respondents were asked how they think about the fairness of their relationship in the following four domains: household chores, working for pay, spending money, and child care. The answers were measured with a five-point scale: 1 = “very unfair to me;” 2 = “somewhat unfair to me;” 3 = “fair to both;” 4 = “somewhat unfair to the partner;” and 5 = “very unfair to the partner.” For over-benefit, any score less than three on each fairness-item was coded as zero. Those who answered 4 were recoded as 1 on each item, and those who answered 5 were recoded as 2. The over-benefit scale was computed as the sum of the items. The higher the score, the more the respondent felt over-benefited in the marriage. For under-benefit, any score more than 3 on each fairness item was coded as zero. Those who answered 2 were recoded as 1 on each item, and those who answered 1 were recoded to 2. The higher the score, the more the respondent felt under-benefited in the marriage. The under-benefit scale was computed as the sum of the items. We considered the scale to be valid for everyone who answered at least 50 percent of these items. One hundred and forty two respondents were missing on over-benefit and 129 respondents were missing on under-benefit.

Time spent together was measured by one question: “During the past month, about how often did you and your partner spend time alone with each other, talking, or sharing an activity?” The answer was coded as: 1 = “never,” 2 = “less than once
month,” 3 = “several times a month,” 4 = “about once a week,” 5 = “several times a
week,” and 6 = “almost every day.” The score was then centered, because it is then
easier to interpret the effect of time spent together as a moderator. Those who scored
zero on time spent together were those who had an average level of time spent together
at that time. Eighty-seven cases have missing values on this variable.

Sex frequency was measured by how often the respondents and their partners had
sex during the past month. The NSFH uses an open-ended question for how frequently
the couples had sex during the previous month. However, some respondents gave
extremely unrealistic answers (i.e. 90 times in the past month). In order to have a
consistent scale and avoid these extremely unrealistic answers, "top coding" was used
to recode any value that was more than 30 times to 30. There are 609 missing values.

Disagreement in a marriage was measured by asking how often during the last
year the respondents and their spouses had disagreements on household tasks, money,
spending time together, sex, in-laws, and child care. Responses were measured using a
six-point scale (1 = “never,” 2 = “less than once a month,” 3 = “several times a month,”
4 = “about once a week,” 5 = “several times a week,” and 6 = “almost every day”). The
scale was computed as the mean of the items answered times 6. The total score ranged
from 6 to 36, and higher scores indicated more disagreements experienced in the
marriage. The score was then centered, because it is then easier to interpret the effect of
disagreement as a moderator. Those who scored zero on disagreement had an average
level of disagreement at that time. The alpha reliability for the scale was .991 in wave
1 and .981 in wave 2. As with the depression or self-esteem score, respondents had to
have answered at least 50 percent of the items to get a valid score. There were 205 respondents who were missing on this measure.

Marital aggression (verbal) was measured by one item. The respondents were asked how often (0 = “never” and 4 = “always”) they argued heatedly or shouted at each other during the last year. The survey also asks about the frequency of whether the couple would “discuss your disagreements calmly” and the frequency of whether “you just keep your opinions to yourself”. However, these two behaviors (“discuss calmly” and “keep opinions to oneself”) are different from “argue heatedly or shout at each other.” The later action can be considered a serious marital conflict, while the former two are just normal disagreements. The variable “disagreement” in the study has already tested the frequency of disagreement and the issues for which the respondents may have disagreements. Since the variable “verbal aggression” is designed to measure more serious marital conflict than normal disagreement, I only use “argue heatedly or shout at each other” to measure marital verbal aggression. There are no missing values on marital verbal aggression.

Though the survey asks about physical aggression between couples, the cell size is too small to use (19 respondents were physically aggressive to their partners and 12 respondents experienced physical aggression by their partners). Therefore, this study does not employ martial physical aggression in the model.

Marital trouble was based on two questions: whether the respondents thought that their marriage was in trouble during the past year and whether the respondents thought their marriage is in trouble now. Marital trouble was coded with 1 if either of the
The control variables in the study were household annual income at time 1 and time 2 and self-reported health of main respondents at time 1 and time 2. Marital termination usually causes a reduction in personal income; moreover, a decrease in income can increase individuals' depression (Umberson et al., 2006). Household annual income was measured at both time 1 and time 2 in hundred-thousands of dollars. Self-reported health scores were measured using the question: “Compared with other individuals your age, how would you describe your health?” Responses were calculated in z-scores since the NSFH changed the scale from a five-point scale (1=‘very poor’ and 5 = ‘excellent’) in wave 1 to a seven point scale (1=‘very poor’ and 7 = ‘excellent’) in both wave 2 and wave 3. The main respondents’ self-reported health scores were obtained at both time 1 and time 2, and the spouses’ self-reported health score was obtained at time 1 only. There were 405 missing values on income at time 1, 118 missing values on health at time 1 and 70 at time 2. There were no missing values on income at time 2.

Since the fixed-effects model does not include time-invariant variables (i.e. race, gender, or education), these demographic features are not in the model. However, one of the advantages of using the fixed-effects model is that this technique can control for time-invariant variables as well as unobserved variables. How this technique achieves this effect will be discussed later in the section on data-analytic techniques. Moreover, since the model has already controlled for time periods, the variable of age will not be
put in the model to avoid multicollinearity effects. Multicollinearity implies that two or more predictor variables are highly correlated with each other in a regression model. In the present study, time periods can linearly predict the change in respondents’ age. Therefore, the present study only uses time period as a control variable.

**Data Analytic Technique**

The analysis of the data will proceed along the following steps. First, the study tests for heteroskedasticity in the pooled dataset to see if there is heteroskedasticity in the regression-equation disturbance term. If there is not, then the study could use ordinary least squares to model the pooled dataset. Second, the study tests for whether there is serial correlation in the two-period dataset. If there is serial correlation, then there is an unobserved effect in the model. Third, the study uses only time-varying variables (marital status, time, income, health, and self-esteem) to run a Hausman test for a random-effects, vs. a fixed-effects, regression equation. If the result turns out to be significant, that suggests that the disturbance term is correlated with one or more equation regressors. I then use the fixed-effects model for all analyses to eliminate the fixed effect. If the Hausman test is not significant, then there is support for the error term being uncorrelated with the regressor set. In that case, I use the random-effects model, whose primary function is to eliminate the serial correlation of the errors.

The fixed-effects model has some features which are suitable for this study:

First, the equations for the two time points are:

\[ y_{it} = \mu_i + \beta x_{it} + \gamma z_i + \alpha_i + \epsilon_{it} \]
\[ y_{t2} = \mu_2 + \beta x_{t2} + \gamma z_i + \alpha_i + \epsilon_{t2} \]
\( Y_{it} \) is the dependent variable (Depression); \( i = \) respondents; \( 1 = \) time1; \( 2 = \) time2. \( \mu \) is an intercept that is allowed to vary with time. \( X \) represents the time-varying independent variable with \( \beta \) as the coefficient for the independent variable. It includes marital status, household annual income, self-reported health, and self-esteem; \( Z \) represents time-invariant variables such as race, gender, and education. \( \gamma \) is the coefficient for \( Z \). \( \alpha \) represents all differences between persons that are stable over time; \( \alpha \) is the unobserved effect, which may or may not be correlated with \( X \). \( \varepsilon \) is the error (or disturbance) term; and it is assumed to have a normal distribution.

Then, one subtracts the first equation from the second:

\[
(y_{1i} - y_{2i}) = (\mu_2 - \mu_1) + \beta(x_2 - x_1) + (\varepsilon_{1i} - \varepsilon_{2i})
\]

Therefore, both \( \gamma Z_i \) and \( \alpha_i \) are subtracted out of the final equation. This method completely controls for the effects of these variables. \( \varepsilon_{1i} \) and \( \varepsilon_{2i} \) both satisfy the assumptions of the standard linear model, since both of them are assumed to have normal distributions. Moreover, \( \varepsilon_i \) captures unmeasured time-invariant factors, which will no longer bias the estimates. Interpretation of the coefficients is unchanged from traditional regression models, and, in particular, \( \square \) is the same in all models. Therefore, the fixed-effects model allows within-person comparisons to be made (i.e. comparing how the person’s change in marital status affects the same person’s change in depression). This model also sweeps away all time-invariant unmeasured characteristics of individuals that might bias the association between widowhood or divorce/separation and depression.
CHAPTER III: RESULTS

Table 2 reports the means and standard deviations for all variables in the present study. It also presents the ANOVA F test to show whether these variables are different among the three marital statuses (still married, divorced, or widowed at time 2). Tables 3 to 19 provide the results for bonferroni post-hoc analyses, which were conducted to decompose significant main effects.

At time 1, still-married respondents had significantly lower depression scores than both widowed and divorced individuals. Depression scores at Time 1 were not significantly different for widowed and divorced individuals (Table 3). At time 2, widowed and divorced individuals were still not significantly different in their levels of depression; however, both groups had higher levels of depressive symptoms than respondents who were still married (Table 4).

At time 1, all three groups did not reveal any significant differences on self-esteem. At time 2, still-married individuals had higher scores on self-esteem than those who were widowed (Table 5). However, widowed and divorced individuals were not significantly different in their levels of self-esteem at Time 2 (Table 6), nor were the still-married and the divorced.

Compared with those who were divorced at time 2, still married and widowed individuals had higher marital happiness at time 1 (Table 7). There was no difference on over-benefit among the three groups (Table 9); however, divorced or widowed individuals felt more under-benefit than still-married persons (Table 8). Still-married individuals spent more time with each other at time 1 than widowed or divorced
individuals (Table 10). Widowed respondents had lower frequency of sex at time 1 than those who were still married; however, still married and divorced individuals had a similar and not significantly different frequency of sexual intercourse (Table 11). Divorced respondents had the highest levels of marital disagreement at time 1, followed by still married and widowed individuals (Table 12; Table 2). Divorced respondents also had a higher level of verbal aggression than still married and widowed individuals (Table 13). Moreover, divorced respondents had a higher probability of thinking that their marriage was in trouble than still married and widowed individuals (Table 14).

The average age of the group of widow/widowers was the oldest, followed by still-married and divorced (Table 15; table 2). Still-married individuals had significantly higher levels of income than widowed individuals at time 1 (Table 16). There was no difference among all three groups on income at time 2 (Table 17). There was no difference among all three groups on health at time 1 (Table 18), or at time 2 (Table 19).

I then tested for heteroskedasticity using the Breusch-Pagan test for the pooled data and results were significant at the p < 0.001 level. Heteroskedasticity means the variance of the errors is dependent on the independent variables in the model. A key assumption for some types of regression analysis is that the data do not exhibit heteroskedasticity. If this assumption is violated, coefficient standard errors may be biased and test results can be invalidated. Heteroskedasticity may exist when the error variance is linearly related to the independent variables. Another possibility is some unmeasured variables are affecting the variance of the measured variables. The results
of these tests suggest that using ordinary least square (OLS) regression is not appropriate for this study, since one assumption of OLS is that the estimated variance of the errors should not be dependent on the values of the independent variables.

Next, I tested for serial correlation using the two-period dataset. The result of this test was also significant ($p<0.001$). Regression analysis assumes that the errors of the model are independent of each other, which means the errors are uncorrelated and the expectation of each error term is zero. Serial correlation violates this assumption. The result indicates that an unmeasured characteristic of the respondent affects the response variable in the same way over time. For example, if an individual becomes angered more easily than other individuals, he/she would report higher levels of depression than others at both time 1 and time 2. These personal characteristics may not be included in the model. However, these unobserved characteristics can affect the results of regression analysis. Therefore, in the time series context, the errors for that person would be correlated over time.

I then ran a Hausman test for comparison of the random-effects regression equation and the fixed-effects regression equation. The random-effects model suggests that the unobserved effect, $\alpha$, is uncorrelated with $X$; while the fixed-effects model does not place this restrictive assumption on the relationship between $\alpha$ and $X$. The result of the Hausman test is significant ($p<.0001$), which indicates that some unobserved characteristic may be correlated with the regressors. This result suggests that the fixed-effects model is better than the random-effects model for these data. The fixed-effects model can eliminate the unobserved variable so that the results are not
Table 20 shows the results of a fixed-effects model of depression. In model 1, widowhood and divorce are explanatory variables. Widowhood significantly increases the level of depressive symptoms by 1.91 units. However, divorce appears to make no difference, compared with married individuals. Growing older (time) significantly increases depression.

Model 2 controls health, income, and self-esteem. Time is positively associated with depression. Health and self-esteem significantly decrease the levels of depressive symptoms. Income has no effect on depression when considering other variables. While compared with married individuals, widowed or divorced individuals have no significant difference on depression after controlling for other variables, for example, health status and self-esteem.

Table 21 shows the interaction effects between marital status and self-esteem on depression. The model adds two interaction effects: the interaction between widowhood and self-esteem and the interaction between divorce and self-esteem. These two interaction effects are insignificant. However, self-esteem is significantly negatively associated with the level of depressive symptoms for older adults. This suggests that self-esteem helps to decrease the level of depressive symptoms; moreover, its effect does not change by marital status.

Table 22 shows a marginally significant (p < .1) interaction effect between marital status and marital quality on depression. Model 1 shows that at an average level of marital happiness, the effect of divorce on depression is 1.73. This effect is not
significant. Increasing by one unit in marital happiness, the effect of divorce on depression becomes 3.82 (1.73 + 2.09). It appears that the higher the previous marital happiness, the stronger the positive effect of divorce on depression. The significant interaction effect means that the effect of divorce changes marginally over levels of marital happiness. However, it does not mean that the effect of divorce on depression is significant at any particular level of marital happiness. To test this, I used targeted centering. I centered marital happiness at one unit above the mean happiness by creating a variable “marital happinessc –1”. For individuals whose marital happiness is 1 unit above the mean, “marital happinessc –1” equals zero. Therefore, the effect of divorce on depression at 1 unit above mean marital happiness is just the main effect of divorce. I used this new variable in the interaction model. The effect of divorce is not significant (p=0.24) for those who had 1 unit above the mean of marital happiness. Therefore, the effect of divorce isn’t significant at either average or high happiness. In addition, growing older (time) significantly increases depression, while health and self-esteem are significantly negatively associated with depression.

Model 2 tests the interaction between marital status and under-benefit. The effect of marital status does not vary significantly by level of under-benefit.

Model 3 tests the interaction between marital status and over-benefit. At zero level of over-benefit, widowhood increases the levels of depression by 1.87 units, compared with those who still married; however, the interaction between over-benefit and widowhood is not significant. Time is positively related with depression. Health and self-esteem significantly increase depression.
Model 4 shows that time spending together has no interaction effect with marital status on depression. Growing old does increase the levels of depression. Health and self-esteem decrease the levels of depression.

Model 5 displays that at zero level of sex frequency, widowhood increase the level of depressive symptoms by 2.62 units; however, the interaction between sex frequency and widowhood is not significant. Health and self-esteem help to decrease individuals’ depression. The effect of widowhood on depression is 2.62 and significant when sex frequency is zero. This means at zero sex frequency, widowhood would elevate depression.

Model 6 shows that at the average levels of marital disagreement, widowhood increases the level of depressive symptoms by 1.74 units, although there is no significant interaction between marital disagreement and widowhood on depression. There is no interaction between marital disagreement and divorce on depression, either. Time is positively associated with depression, while health and self-esteem have negative effects on depression.

Model 7 tests the interaction effect of verbal aggression and marital status on depression. There is no significant interaction effect. Health and self-esteem have significant negative effects on depression. Time increases depression significantly.

For those who did not have marital troubles before divorce (Model 8), the effect of divorce on depression is 4.07. This effect is not significant. For those who had marital trouble before divorce, the effect of divorce on depression is -12.50 (4.07-16.57). The interaction effect, itself (-16.57), is significant (p < 0.001). I
reverse-coded the variable of marital trouble, setting those who did not have marital trouble as “1”; and setting those who had marital trouble as “0”. I then used this new variable of “non-marital trouble” to interact with marital status. According to the result, for those who had marital trouble and got divorced later, the effect of divorce on depression is -12.50, which is significant. In other words, for those who had marital trouble in their previous relationship, divorce significantly decreased depression in later life.
CHAPTER IV: DISCUSSION AND LIMITATIONS

This study focuses on the moderating effect of marital quality and self-esteem in the relationship between marital transitions and personal depressive symptoms. Some hypotheses are supported by the findings, but some are not. Several findings are highlighted here.

First, the findings of this study demonstrated that leaving a poor marriage does less harm than leaving a satisfactory marriage on individuals’ well-being. My study suggested that the respondents’ general feelings about the quality of their marriages (e.g. marital happiness or feeling the marriage is in trouble) moderate the effect of divorce on depression. This finding supports hypothesis 6 that lower marital quality weakens the negative influence of divorce on individuals’ depressive symptoms at Time 2.

The findings partially support the escape and cognitive theories: people who were unhappy with their marriages and/or felt their marriages were in trouble, are less depressed after divorce at time 2, than those who felt happier with their marriages and/or who didn’t feel their marriages were in trouble at time 1. In other words, marital happiness strengthens the relationship between divorce and depression; the more marital happiness you had before divorce, the more depression you have after divorce. On the other hand, feeling that one’s marriage is in trouble weakens the relationship between subsequent divorce and depression.

Escape theory (Wheaton, 1990) suggests that divorce can be a solution instead of a problem for a strained marriage, which emphasizes that individuals might benefit from escaping a bad marriage. Escaping from a bad situation may cause a
psychological ‘relief’ (Kalmijn & Monden, 2006). Divorce could provide a chance for those couples to leave their marriage if they had trouble in their marriage. Thus, divorce helps to fix the marital problem. Previous studies demonstrated that compared with those who did not have frustration in their previous marriage; those who had such an experience had fewer negative mental health effects after divorce (Wheaton 1990; Kalmijn & Monden, 2006). In other words, if individuals think they have a bad marriage, divorce does not lead to depression, or at least, it leads to less depression, compared with those who believe they had a happy marriage before. People can improve their well-being through divorce if they have an unhappy marriage (Hawkins & Booth, 2005).

Second, some people may treat divorce as a solution instead of a problem. If a marriage has a low quality, for example, individuals who feel stressed in a marriage may view divorce as a new beginning in life. Wheaton (1990) argued that staying in a stressful situation is more damaging to a person’s well-being than encountering a significant transition event. In fact, leaving a bad marriage can provide a sense of "relief" which helps to improve an individual’s psychological well-being. In fact, being in a distressed marriage undermines psychological well-being more than being divorced or widowed. For example, Williams (2003) found that being divorced is less harmful to psychological well-being than being in an anguished marriage. Amato and Hohmann-Marriott, (2007) later demonstrated that individuals in aversive marriages can feel relieved after divorce.

Cognitive theory (Folkman, 1984; Folkman et al., 1986) is also supported by the
data that higher marital satisfaction would make an adjustment more difficult after a marital transition. Individuals would recall their happy life in the previous marriage and have to work hard to face marital dissolution (Folman et al., 1986). Therefore, individuals would feel stressed due to having left the partner.

Moreover, those who reported higher marital happiness may not be the ones who initially asked for a divorce. Hewitt and Turrell (2011) found that who makes the decision to separate matters a lot for one’s psychological well-being. They found that among separated men, those who did not make the decision to separate had a lower score on the level of mental health than those who initially decided to separate. Among separated women, those who did not make the decision to separate also had a lower score on the level of mental health than those who initially decided to separate. An individual who feels happy in his/her marriage is usually not the one who initially asks for a divorce. If his/her partner asks for divorce first, he/she might feel betrayed or cheated, which strengthens the impact of divorce on depression as a result.

Second, specific measures of things that are going on in the marriage (e.g. over- or under-benefiting, time spent together, sex frequency, marital disagreement, verbal aggression, etc.) do not have an effect on the relationship between marital termination and depression. Previous studies demonstrated that some of these specific items may only affect individuals’ well-being during the marriage. However, this study shows that these items do not moderate the influence of marital termination on depression.

For example, neither under-benefit nor over-benefit played a role on the relationship between marital dissolution and depression. However, feeling there is
inequity in a marriage is significantly associated with well-being when people are in
the marriage. Pearlin (1999) found that married individuals feel frustrated if their
partners expect more than what they can get. Using the first wave of NSFH,
Longmore and DeMaris (1997) found that both under-benefit and over-benefit are
positively associated with depression among married individuals.

However, neither under-benefit nor over-benefit appears to affect the relationship
between marital termination and depression levels. One possible reason is that the
measurement of level of benefit pertained mostly to household tasks, such as child
care or daily chores. Although individuals may experience a reduction in benefits
following marital termination, they may also experience a reduction in daily tasks as
they only have themselves to care for. Furthermore, previous studies showed that
perceived unfairness in a relationship is highly correlated with the risk of divorce or
separation (Frisco & Williams, 2003; Kalmijn & Monden, 2006). Perceiving their
previous marriage as unfair may not strengthen the negative impact of divorce on
depressive symptoms. However, for those who did benefit from their previous
marriage, the reasons for relationship termination may be more serious and therefore
more important than the benefits gained by marriage.

Further, individuals do not always perceive unequal experiences in a marriage as
stressful events. Escape theory assumes that marital conflicts can cause divorce, since
the couple want to get rid of these conflicts. Therefore, escape theory cannot provide
an adequate explanation for relationship termination if an individual did not perceive
marital conflict as a serious concern. Similarly, if marital disagreement, verbal
aggression, and time spent apart are not perceived as concerns, then escape theory
does not necessarily apply to these relationships.

Results also demonstrated that there was no interactive effect of sexual
frequency and type of marital termination on depressive symptoms. As individuals
age, sex does not appear to have the same level of importance as when they were
young. For example, using one wave of the National Social Life, Health, and Aging
Project (NSHAP), Waite and Joyner (2001) found that though sexual activity was
positively associated with individuals’ well-being, this relationship only existed
among elders who were still sexually active. However, evidence suggests that sexual
activity generally decreases with age (Lindau, et al., 2007).

Third, this study demonstrated that self-esteem is related to decreased depression
in later life. However, the effect of marital termination on depression does not differ
by self-esteem. In other word, there is no interactive effect of self-esteem and marital
termination on depressive symptoms. Although studies showed that higher self-esteem
can assist individuals in coping with the negative consequences of stressful events
such as marital termination, this does not happen for marital termination in later life.
Self-esteem itself is found to be highly positively correlated with mental health
(Gecas, 1982), and the study echoes this finding.

Fourth, the results of my study showed that before controlling for marital quality,
compared with those who are still married, widowhood increases depression, while
divorce does not. This supports hypothesis 1 that compared with still married
individuals, experiencing widowhood increases depression. The findings support past
research on widowhood (Umberson & Williams, 2005; Ross & Mirowsky, 2003; Lee & DeMaris, 2007) that claimed that loss of a partner by death can damage psychological well-being. Contrary to some studies (Menaghan and Lieberman, 1986), hypotheses 2 and 3 are not supported by the data. Loss of a partner by divorce may not damage psychological well-being in old age.

Several reasons may be responsible for this result. First, though divorce is usually unexpected and harmful to people, its negative influence may only last for a short time. For example, Metsä-Simola and Martikainen (2013) studied the short-term and long-term effect of divorce on mortality and found that for divorced men, the risk of mortality is the highest right after divorce; and then it declined over 8 years. In fact, there is a very clear pattern of the reduction of mortality rates over 4 years after divorce. For divorced women, the risk of mortality was high only 6 months after divorce.

Moreover, individuals in their later years (i.e. older adults) have already accumulated assets and wealth so that divorce may not damage their quality of life as much as it does for people who divorce at younger ages. Couples save money and do investments together for many years. Therefore, individuals who divorce after a long-term marriage have higher amounts of money than those who divorce after a short-term marriage (Dunleavey, 2010). LaRochelle-Côté Myles, and Picot (2012) found that for women who rely on a private pension and investment income, the negative effect of divorce is the greatest; while for those who come from lower-income families, public pension income helps to reduce the damage in their lives. However, for men, divorce has little effect on income.
Fifth, the results showed that in terms of long-term consequences, marital status may not affect older adults’ psychological well-being very much as long as they are healthy. After considering other factors such as income and health, there were no differences in levels of depressive symptoms between individuals who were still married and individuals who were widowed and between individuals who were still married and individuals who were divorced/separated. Health appeared to have a negative influence on depression, which suggested that health is very important for older adults’ well-being. This result echoes the finding that good health helps individuals reduce their depression (Kasckow et al., 2013). For example, Garatachea et al., (2009) demonstrated that higher levels of physical function and physical activity are related to higher levels of psychological well-being for older adults.

**Study Limitations**

There are some limitations which may bias the results of this study. First, although the study shows that most specific measures of marital quality did not buffer the effect of marital termination on depression, the data have few individuals who experienced extreme events such as physical violence during marriage. With only a few respondents experiencing such extreme events, it may not be possible for these interaction effects to reach statistical significance. Second, some measurements may not capture the whole concept of marital quality. For example, the items which contributed to the measurement of benefits are limited and respondents may have recognized other benefits that are not captured by this measure. Therefore, these
unobserved benefits might have a greater influence on personal depressive symptoms than those that were tested. Third, the study only tests depressive symptoms, whereas marital termination may cause other long-term psychological concerns such as anger rather than depression (Carr, 2004). Future studies should examine other mental health constructs such as sadness and anger.

The appropriate conclusion here is that respondents’ level of self-esteem and general feelings about marital quality (i.e., marital happiness, perceiving the marriage is in trouble) appear to have an effect on personal depressive symptoms. Divorced individuals appeared to have more depressive symptoms if they had experienced higher marital happiness than those who had lower marital happiness in their previous marriage. Moreover, those who did not perceive their marriages to be in trouble were more likely to have higher depressive symptoms after divorce than those who did perceive this concern. These findings generally supported both cognitive and escape theory, which suggests that individuals would be adversely affected by a marital transition if they felt happy in their previous marriage and that individuals would benefit from escaping an unhappy marriage.
REFERENCES


doi:10.1111/j.1741-3737.2010.00723.x


Garatachea, N., Molinero, O., Martinez-Garcia, R., Jiménez-Jiménez, R.,
Relationship to physical activity and physical function. Archives Of Gerontology &


p1-11

elderly. Social Science and Medicine, 40, 1717–1730

122-144.

Australians. Ageing & Society, 31(3), 475-498. doi:10.1017/S0144686X10001017

Ha, J., & Ingersoll-Dayton, B. (2011). Moderators in the relationship between social
contact and psychological distress among widowed adults. Aging & Mental Health,

Low-Quality Marriages on Well-Being. Social Forces (University Of North Carolina

Heatherton, T.E. & Baumeister, R.E. (1991), Binge Eating as Escape From


doi:10.1111/j.1365-2702.2006.01892.x


doi:10.1080/07481187.2011.617489


doi:10.1080/01924780802039238


doi:10.1111/j.1741-3737.2006.00323.x


doi:10.1017/S01446866X1000142X


doi:10.1007/s11205-005-8426-7


Effects of widowhood on disabled older women. Omega: Journal of Death and Dying, 50, 217. doi:10.2190/HBMW-64C0-IVLW-QP40


Trivedi, J.K. (2009). Psychological Aspects of Widowhood and Divorce. Mens Sana Monogr. 7(1), 37-49


Wang, H., & Amato, P. R. (2000). Predictors of divorce adjustment: Stressors, resources,


Yabiki, S.T., & Constance T. G. (2009). Sexual Frequency and the Stability of Marital and


<table>
<thead>
<tr>
<th>mcaseid</th>
<th>time</th>
<th>married</th>
<th>divorced</th>
<th>widowed</th>
<th>depression</th>
<th>self-est</th>
<th>eem</th>
<th>marital</th>
<th>happiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>100003</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>17</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100003</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100029</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>18</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100029</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100117</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>58</td>
<td>14</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100117</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>44</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100125</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td>12</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100125</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100170</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>16</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100170</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100183</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>19</td>
<td>13</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100183</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>14</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100191</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>16</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100191</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>12</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100234</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>17</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100234</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100335</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>15</td>
<td>18</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100335</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>29</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

... ... ... ... ... ... ... ... ...
**Table 2: Mean of Variables and Anova**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total N=2570 M</th>
<th>SD</th>
<th>Still Married N=2129 M</th>
<th>SD</th>
<th>Widowed N=368 M</th>
<th>SD</th>
<th>Divorced/Separated N=73 M</th>
<th>SD</th>
<th>Anova F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression 1</td>
<td>11.24</td>
<td>14.88</td>
<td>10.41</td>
<td>13.86</td>
<td>15.08</td>
<td>18.78</td>
<td>16.14</td>
<td>17.77</td>
<td>19.26***</td>
</tr>
<tr>
<td>Depression2</td>
<td>12.25</td>
<td>15.05</td>
<td>11.13</td>
<td>14.04</td>
<td>17.82</td>
<td>18.17</td>
<td>16.47</td>
<td>18.63</td>
<td>34.36***</td>
</tr>
<tr>
<td>Self-esteem 1*</td>
<td>16.10</td>
<td>2.33</td>
<td>16.11</td>
<td>2.33</td>
<td>16.01</td>
<td>2.34</td>
<td>16.06</td>
<td>2.32</td>
<td>0.32</td>
</tr>
<tr>
<td>Self-esteem 2*</td>
<td>15.71</td>
<td>2.41</td>
<td>15.79</td>
<td>2.35</td>
<td>15.38</td>
<td>2.68</td>
<td>15.24</td>
<td>2.45</td>
<td>5.82*</td>
</tr>
<tr>
<td>Age</td>
<td>61.14</td>
<td>7.96</td>
<td>60.54</td>
<td>7.76</td>
<td>65.39</td>
<td>7.82</td>
<td>57.37</td>
<td>7.53</td>
<td>70.34***</td>
</tr>
<tr>
<td>Marital Happiness*</td>
<td>6.06</td>
<td>1.34</td>
<td>6.10</td>
<td>1.30</td>
<td>6.07</td>
<td>1.30</td>
<td>4.77</td>
<td>1.98</td>
<td>32.45***</td>
</tr>
<tr>
<td>Under-benefit</td>
<td>0.44</td>
<td>1.16</td>
<td>0.41</td>
<td>1.11</td>
<td>0.58</td>
<td>1.32</td>
<td>0.72</td>
<td>1.62</td>
<td>5.4*</td>
</tr>
<tr>
<td>Over-benefit</td>
<td>0.25</td>
<td>0.82</td>
<td>0.26</td>
<td>0.84</td>
<td>0.19</td>
<td>0.74</td>
<td>0.33</td>
<td>0.71</td>
<td>1.45</td>
</tr>
<tr>
<td>Time together</td>
<td>5.34</td>
<td>1.22</td>
<td>5.37</td>
<td>1.15</td>
<td>5.40</td>
<td>1.33</td>
<td>4.03</td>
<td>1.89</td>
<td>42.29***</td>
</tr>
<tr>
<td>Sex frequency</td>
<td>3.46</td>
<td>4.19</td>
<td>3.69</td>
<td>4.23</td>
<td>2.15</td>
<td>3.59</td>
<td>3.39</td>
<td>4.58</td>
<td>16.16***</td>
</tr>
<tr>
<td>Disagreement</td>
<td>9.72</td>
<td>4.20</td>
<td>9.75</td>
<td>4.19</td>
<td>9.12</td>
<td>3.92</td>
<td>11.92</td>
<td>5.10</td>
<td>12.4***</td>
</tr>
<tr>
<td>Verbal Aggression</td>
<td>1.74</td>
<td>0.88</td>
<td>1.73</td>
<td>0.87</td>
<td>1.74</td>
<td>0.92</td>
<td>2.01</td>
<td>1.12</td>
<td>3.76*</td>
</tr>
<tr>
<td>Marital Trouble</td>
<td>0.11</td>
<td>0.32</td>
<td>0.11</td>
<td>0.31</td>
<td>0.09</td>
<td>0.29</td>
<td>0.40</td>
<td>0.49</td>
<td>30.76***</td>
</tr>
<tr>
<td>Income 1</td>
<td>0.00</td>
<td>1.00</td>
<td>0.04</td>
<td>1.07</td>
<td>-0.22</td>
<td>0.57</td>
<td>-0.09</td>
<td>0.44</td>
<td>9.82**</td>
</tr>
<tr>
<td>Income 2</td>
<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.85</td>
<td>-0.03</td>
<td>1.42</td>
<td>0.24</td>
<td>2.03</td>
<td>2.31+</td>
</tr>
<tr>
<td>Health 1</td>
<td>0.00</td>
<td>1.00</td>
<td>0.00</td>
<td>0.99</td>
<td>0.01</td>
<td>1.07</td>
<td>-0.04</td>
<td>0.98</td>
<td>0.08</td>
</tr>
<tr>
<td>Health 2</td>
<td>0.00</td>
<td>1.00</td>
<td>0.02</td>
<td>0.99</td>
<td>-0.10</td>
<td>1.04</td>
<td>-0.17</td>
<td>1.03</td>
<td>1.19</td>
</tr>
</tbody>
</table>

*p≤0.1 **p≤0.05 ***p≤0.01 ****p≤0.001

* Self-esteem and marital happiness are not centered in this table. The centered variables are used in the fixed-effects model.
Table 3: Post-hoc Analyses (Bonferroni) for Comparison of Depressive Symptoms by Marital Status in Time 1

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>4.67***</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>5.73**</td>
<td>1.06</td>
</tr>
</tbody>
</table>

+p ≤ 0.1 *p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001

Table 4: Post-hoc Analyses (Bonferroni) for Comparison of Depressive Symptoms by Marital Status in Time 2

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>6.70***</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>5.34**</td>
<td>-1.35</td>
</tr>
</tbody>
</table>

+p ≤ 0.1 *p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001

Table 5: Post-hoc Analyses (Bonferroni) for Comparison of Self-esteem by Marital Status in Time 1

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.11</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-0.06</td>
<td>0.05</td>
</tr>
</tbody>
</table>

+p ≤ 0.1 *p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001

Table 6: Post-hoc Analyses (Bonferroni) for Comparison of Self-esteem by Marital Status in Time 2

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.41**</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-0.55</td>
<td>-0.14</td>
</tr>
</tbody>
</table>

+p ≤ 0.1 *p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001

Table 7: Post-hoc Analyses (Bonferroni) for Comparison of Marital Happiness by Marital Status in Time 1

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.04</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-1.33***</td>
<td>-1.30***</td>
</tr>
</tbody>
</table>

+p ≤ 0.1 *p ≤ 0.05 **p ≤ 0.01 ***p ≤ 0.001
Table 8: Post-hoc Analyses (Bonferroni) for Comparison of Under-benefit by Marital Status in Time 1

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>0.18*</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>0.31+</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001

Table 9: Post-hoc Analyses (Bonferroni) for Comparison of Over-benefit by Marital Status in Time 1

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.07</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>0.07</td>
<td>0.14</td>
</tr>
</tbody>
</table>

*p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001

Table 10: Post-hoc Analyses (Bonferroni) for Comparison of Time-spending by Marital Status in Time 1

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>0.03</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-1.34***</td>
<td>-1.37***</td>
</tr>
</tbody>
</table>

*p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001

Table 11: Post-hoc Analyses (Bonferroni) for Comparison of Sex-frequency by Marital Status in Time 1

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-1.53***</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-0.30</td>
<td>1.26</td>
</tr>
</tbody>
</table>

*p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001

Table 12: Post-hoc Analyses (Bonferroni) for Comparison of Disagreement by Marital Status in Time 1

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.63*</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>2.18***</td>
<td>2.80***</td>
</tr>
</tbody>
</table>

*p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001
Table 13: Post-hoc Analyses (Bonferroni) for Comparison of Verbal Aggression by Marital Status in Time 1

<table>
<thead>
<tr>
<th></th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>0.29*</td>
<td>0.28*</td>
</tr>
</tbody>
</table>

+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001

Table 14: Post-hoc Analyses (Bonferroni) for Comparison of Marital trouble by Marital Status in Time 1

<table>
<thead>
<tr>
<th></th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.02</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>0.29***</td>
<td>0.30***</td>
</tr>
</tbody>
</table>

+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001

Table 15: Post-hoc Analyses (Bonferroni) for Comparison of Age by Marital Status in Time 1

<table>
<thead>
<tr>
<th></th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>4.86***</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-3.17***</td>
<td>-8.02***</td>
</tr>
</tbody>
</table>

+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001

Table 16: Post-hoc Analyses (Bonferroni) for Comparison of Income by Marital Status in Time 1

<table>
<thead>
<tr>
<th></th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.27***</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-0.31</td>
<td>-0.13</td>
</tr>
</tbody>
</table>

+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001

Table 17: Post-hoc Analyses (Bonferroni) for Comparison of Income by Marital Status in Time 2

<table>
<thead>
<tr>
<th></th>
<th>Still Married</th>
<th>Widowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.03</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>0.24</td>
<td>0.27</td>
</tr>
</tbody>
</table>

+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001
Table 18. Post-hoc Analyses (Bonferroni) for Comparison of Health by Marital Status in Time 1

<table>
<thead>
<tr>
<th></th>
<th>Still Married</th>
<th>Widowed</th>
<th>+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-0.04</td>
<td>-0.05</td>
<td></td>
</tr>
</tbody>
</table>

Table 19. Post-hoc Analyses (Bonferroni) for Comparison of Health by Marital Status in Time 2

<table>
<thead>
<tr>
<th></th>
<th>Still Married</th>
<th>Widowed</th>
<th>+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Widowed</td>
<td>-0.12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>-0.20</td>
<td>-0.08</td>
<td></td>
</tr>
</tbody>
</table>
Table 20. Fixed-effects Model of Depression (Main effects).

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Divorced</td>
<td>-0.11</td>
<td>-2.39</td>
</tr>
<tr>
<td>Widowed</td>
<td>1.91*</td>
<td>1.35</td>
</tr>
<tr>
<td>Time</td>
<td>0.69+</td>
<td>0.72+</td>
</tr>
<tr>
<td>Income</td>
<td>-0.02</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td>-0.98***</td>
<td></td>
</tr>
<tr>
<td>Self-esteem^c</td>
<td>-0.85***</td>
<td></td>
</tr>
<tr>
<td>R-Sq</td>
<td>0.71</td>
<td>0.77</td>
</tr>
</tbody>
</table>

^+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001
^c centered variable

Table 21. Fixed-effects Model with Interaction between Self-esteem and Marital Status on Depression

<table>
<thead>
<tr>
<th></th>
<th>M2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>Divorced</td>
<td>-2.85</td>
</tr>
<tr>
<td>Widowed</td>
<td>1.25</td>
</tr>
<tr>
<td>Time</td>
<td>0.72+</td>
</tr>
<tr>
<td>Income</td>
<td>-0.03</td>
</tr>
<tr>
<td>Health</td>
<td>-0.97***</td>
</tr>
<tr>
<td>Self-esteem^c</td>
<td>-0.8***</td>
</tr>
<tr>
<td>Divorced*Self-esteem^c</td>
<td>-1.24</td>
</tr>
<tr>
<td>Widowed*Self-esteem^c</td>
<td>-0.28</td>
</tr>
<tr>
<td>R-Sq</td>
<td>0.77</td>
</tr>
</tbody>
</table>

^+p≤0.1 *p≤0.05 **p≤0.01 ***p≤0.001
^c centered variable
Table 22. Fixed-effects Model with Interaction between Self-esteem and Marital Status on Depression

<table>
<thead>
<tr>
<th></th>
<th>M1</th>
<th>M2</th>
<th>M3</th>
<th>M4</th>
<th>M5</th>
<th>M6</th>
<th>M7</th>
<th>M8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Divorced</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
<td>B</td>
</tr>
<tr>
<td>Widowed</td>
<td>1.20</td>
<td>1.20</td>
<td>1.87+</td>
<td>1.42</td>
<td>2.62*</td>
<td>1.74+</td>
<td>1.34</td>
<td>1.45</td>
</tr>
<tr>
<td>Time</td>
<td>0.79*</td>
<td>0.76+</td>
<td>0.79*</td>
<td>0.82*</td>
<td>0.40</td>
<td>0.66+</td>
<td>0.73+</td>
<td>0.72+</td>
</tr>
<tr>
<td>Income</td>
<td>-0.21</td>
<td>-0.03</td>
<td>-0.03</td>
<td>-0.04</td>
<td>-0.06</td>
<td>-0.11</td>
<td>-0.02</td>
<td>-0.03</td>
</tr>
<tr>
<td>Health</td>
<td>-0.91***</td>
<td>-0.98***</td>
<td>-0.96***</td>
<td>-0.93***</td>
<td>-1.23***</td>
<td>-1.04***</td>
<td>-0.98***</td>
<td>-0.99***</td>
</tr>
<tr>
<td>Self-esteem&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-0.9***</td>
<td>-0.85***</td>
<td>-0.86***</td>
<td>-0.85***</td>
<td>-0.85***</td>
<td>-0.85***</td>
<td>-0.85***</td>
<td>-0.83***</td>
</tr>
<tr>
<td>Divorced*Marital Happiness&lt;sup&gt;c&lt;/sup&gt;</td>
<td>2.09+</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed*Marital Happiness&lt;sup&gt;c&lt;/sup&gt;</td>
<td>-0.48</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced*Under-benefit</td>
<td></td>
<td>-1.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed*Under-benefit</td>
<td></td>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced*Over-benefit</td>
<td></td>
<td></td>
<td>0.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed*Over-benefit</td>
<td></td>
<td></td>
<td>-1.62</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced*Time Spending&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td>1.35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed*Time Spending&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td>-0.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced*Sex Frequency</td>
<td></td>
<td></td>
<td></td>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed*Sex Frequency</td>
<td></td>
<td></td>
<td></td>
<td>-0.21</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced*Marital Disagreement&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td>-0.56</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed*Marital Disagreement&lt;sup&gt;c&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td>-0.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced*Verbal Aggression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed*Verbal Aggression</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.51</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Divorced*Marital Trouble</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-16.57***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Widowed*Marital Trouble</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-0.88</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R-Sq</td>
<td>0.77</td>
<td>0.76</td>
<td>0.76</td>
<td>0.76</td>
<td>0.75</td>
<td>0.75</td>
<td>0.77</td>
<td>0.77</td>
</tr>
</tbody>
</table>

<sup>p≤0.1</sup> *p≤0.05  **p≤0.01  ***p≤0.001

<sup>c</sup> centered variable