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THE INFLUENCE OF WIDOWED STATUS AND TASK COMPLEXITY ON DECISION MAKING

Courtney L. Ortz
University of Kentucky, clortz12@gmail.com

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Courtney L. Ortz, Student

Dr. Joy M. Jacobs-Lawson, Major Professor

Dr. John F. Watkins, Director of Graduate Studies

THE INFLUENCE OF WIDOWED STATUS AND TASK COMPLEXITY ON DECISION MAKING

DISSERTATION

A dissertation submitted in partial fulfillment of the

requirements for the degree of Doctor of Philosophy in Gerontology

at the University of Kentucky

By
Courtney LeeAnn Ortz

Lexington, Kentucky

Co-Directors: Dr. Joy M. Jacobs-Lawson, Assistant Professor of Gerontology
and Dr. Mitzi M. Schumacher, Professor of Gerontology

Lexington, Kentucky

ABSTRACT OF DISSERTATION

THE INFLUENCE OF WIDOWED STATUS, AND TASK COMPLEXITY ON DECISION MAKING

Widowhood is a stressful life event that can impact an individual's everyday life, including her decision making abilities. The complexity of the decision is also likely to influence the decision making abilities of these widows. The purpose of this dissertation was to better understand widows' decision making processes, their preferences for collaboration when making decisions, and their satisfaction with the decision outcomes. Data analysis consisted of a series of 3 (widowed status) x 2 (task complexity) ANOVAS and ANCOVAS which found that both complexity and widowed status influence decision making processes. Higher complexity led to less overall satisfaction, but none of the other satisfaction variables yielded significant results. In addition, there were no significant findings with regard to preferences for collaboration. Multiple linear regressions were conducted to better understand individual difference variables on decision processing. Restoration orientation coping, loss orientation coping, and task complexity were found to be significant for decision processing and satisfaction measures. Future studies should aim to develop decision aids for this particular population so that they are able to make better decisions.

KEYWORDS: Widowhood, decision making process, decision making satisfaction, task complexity, age, preferences for collaboration.

Courtney LeeAnn Ortz

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THE INFLUENCE OF AGE, WIDOWED STATUS, AND TASK COMPLEXITY ON DECISION MAKING

By

Courtney LeeAnn Ortz

Joy M. Jacobs-Lawson
Co-Director of Dissertation

Mitzi Schumacher
Co-Director of Dissertation

John Watkins
Director of Graduate Studies

11/18/13

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Chapter 1: Introduction

Imagine waking up to find that your spouse or partner, the one person with whom you have spent many years of your adult life with, has died. Feelings of shock, sadness, and disbelief may overwhelm you, and everyday life is disrupted. In addition, there are tasks that were managed by your spouse that you will have to learn to do. Widowhood is a stressful life event that many older adults will experience; it can significantly affect a widow or widower's psychological, social, and financial well-being (United States Census Bureau, 2008).

Strough, Patrick, Swenson, Cheng, and Barnes (2003) reported that the vast majority of married individuals indicated that when making decisions they preferred to collaborate with their spouse. But widows no longer can rely on their spouse and primary collaborator, the person with whom they have learned to make decisions with throughout their lives and in some instances relied on to make decisions. Upon the death of the spouse, the widow/widower is faced with the dilemma of whether to find another collaborator or to make decisions on her/his own. Most widowed men remarry; and they again collaborate with a spouse, albeit a new collaborator (Davidson, 2001). Women, however, are less likely to remarry and thus are left to often make decision on their own or with another collaborator.

This research focused on women only because older cohorts of women often rely on their husbands as the breadwinners of the family (Walsh, 2010). As a result, older women's adjustment involves becoming the breadwinner, which adds tasks and responsibilities to their everyday lives, such as learning how to manage the finances. The roles that are added to older women's lives after experiencing widowhood can have more

detrimental effects on their lives if not managed appropriately (financial difficulties) than the roles that men gain after being widowed (housekeeper). Older single never married women as well as older divorced women who never married again were not included because research has shown that these groups are able to compensate for the absence of a spouse and improve their health, whereas widows cannot (Goldman, Korenman, & Weinstein, 1995).

The purpose of this research was to examine the factors that influence how older widowed women make decisions. Specifically, this dissertation focused on differences in how widowed status, task complexity, and individual differences influence information processing when making decisions and preferences for collaboration. For the purpose of this dissertation, widowed status was defined as not widowed (still married), recent widow (two years or less), or long-term widow (greater than 2 years). Task complexity was defined by the number of options available in a multi-attribute multi-choice decision, with three options for the simple task and six options for the complex task. Information processing was defined as the time it took to make the decision, the amount of time allocated to viewing each piece of information, the total percentage of information examined, the organization of the information search patterns, and the strategies used to make the decision. Preferences for collaboration were examined by asking participants to choose to what extent they preferred to make this kind of decision alone, in collaboration with another person, or to have someone else make the decision (Degner, 1998). In the study, 148 50 - 90 years-old widowed and married women made a hypothetical medical decision with either 3 or 6 treatment options using a touch-screen tablet computer and completed a questionnaire assessing their decision satisfaction, preferences for involving

others when making decisions, relationship status, and demographic information. Examining the influences on how widows make decisions will enable the development of decision aids in the future.

Significance

Not only do widows and widowers no longer have their spouse with whom to collaborate with when making decisions, widowhood is also a time of increased stress and vulnerability (Stroebe, Stroebe, & Hansson, 1993). This additional stress can cause widows to cope poorly and make suboptimal decisions (Janis & Mann, 1977). Furthermore, it is well documented that making decisions becomes more difficult when the decision maker is stressed (Brand, Heinze, Labudda, & Markowitsch, 2008; Garvey & Klein, 1993; Starcke & Brand, 2012). Consequently, decision makers are dissatisfied with the process and/or make poor choices (Haynes, 2009). This increases stress levels which may lead to poor outcomes in health, life satisfaction, and well-being. For example, compared to married, single, or divorced older adults, widowed individuals have poorer mental and physical health (Goldman, Korenman, & Weinstein, 1995; Lee & Carr, 2007; Onrust & Cuijpers, 2006; Wilcox, Evenson, Aragaki, Wassertheil-Smoller, Mouton, & Loevinger, 2003) and lower psychological well-being (Wilcox et al., 2003).

Cognitive decline associated with aging has a deleterious effect on decision making (Boyle, Yu, Wilson, Gamble, Buchman, & Bennett, 2012) and when combined with widowhood, may further impair cognitive functioning and decision making capabilities. Compared to married individuals, widowed individuals display higher declines in memory (Aartsen, Van Tilburg, Smits, Comijs, & Knipscheer, 2005). If the widow experiences memory declines, she may have access to the relevant information

but be unable to process it as she cannot remember all the relevant information when it is needed (Henninger, Madden, & Huettel, 2010). Taken together, these declines in physical health, mental well-being, and cognitive functioning impair decision making (Rafaely, Dror, & Remington, 2006; Raue & Sirey, 2011) and limit a widowed individual's ability to make informed decisions (Goldman, Korenman, & Weinstein, 1995; Haynes, 2009).

Additional decision making impairment may be domain specific. For example, a husband and wife may have divided the household chores based on each of their strengths and weaknesses, which may be related to their traditional gender roles (Utz et al., 2004). If so, when the husband dies, these household chores still have to be accomplished, and it is the widow's responsibility to do them, regardless of her capabilities and experience.

From a gerontological perspective, the significance of this problem is further emphasized by the demographics of aging. For older women who are 65 years of age or older, 66.4% of them became widowed in 2009 (Census, 2008). The number of widowed women will increase with the aging of the baby boomers. When they are required to make important decisions such as relocation or retirement decisions, the demand for clinicians will be high due to the large number of widows, but the supply will remain the same.

Few studies have examined specific decisions regarding relationships after widowhood (Moorman, Booth, & Fingerman, 2006), the decision to stay alive (Bennett, 2005) and the decision to relocate (Gardner, 1994). However, these studies have focused on the outcome and not the process of decision making. Only one study was found that explores widowhood and the decision making process, a qualitative dissertation that

examined how widows learn to make decisions after widowhood (Greaves, 1993). Clearly, there is still much to learn about decision making in widowhood. Insight and research as to how stressful events influence decision processes and outcomes will allow decision scientists and clinicians to develop and implement effective aids to facilitate older widowed women's decision making.

The remainder of this dissertation is organized as follows. Chapter 2 examines the literature on the theoretical background, the factors associated with widowhood, the factors that influence the decision making process and satisfaction with decision making, and women's preferences for collaborating with others when making decisions. Chapter 3 presents the specific aims and hypotheses for the study. In Chapter 4 details of methodology i.e., study design, sample characteristics, decision task, and measures are presented. Chapter 5 describes the analyses and findings of the study. Finally, Chapter 6 discusses the relevance and implications of the findings, strengths and limitations of the study, and future research directions.

Chapter 2: Literature Review

This chapter reviews the relevant literature addressing the effects of widowhood, decision making, and collaboration. Specifically, the chapter addresses (a) the theoretical foundation for examining decision making after widowhood, (b) factors associated with widowhood, (c) factors influencing decision making processes and satisfaction, and (d) older women's preferences for collaborating with others when making decisions.

Theoretical Foundation

Four theories contribute to the understanding of decision making in widowhood: the conflict model of decision making, the dual process model of bereavement, systems theory, and selective optimization with compensation. The conflict model of decision making is relevant to this dissertation because it explains how individuals make decisions under stress and widowhood is a stressful event (Janis & Mann, 1977). The dual process model of bereavement is relevant to this dissertation because it focuses on the coping processes that occur after the death of a spouse (Caserta & Lund, 2007). Family systems theory is relevant to this dissertation because it explains why widows might rely on other family members to help them make decisions (Meegan & Berg, 2002). The family system may affect the widow's decision making ability by either inhibiting her from making a decision or encouraging her to make poor decisions if there is dysfunction in the family. Conversely, the family system may encourage or facilitate a widow's decision-making process if it is a well functioning family. Selective optimization with compensation is relevant to this dissertation because it allows us to understand how individuals cope with losses in late life (Baltes & Carstensen, 1999). Each of these theories focuses on coping patterns and is explained below.

The conflict model of decision making. The conflict model of decision making explicates how individuals make decisions under stress. Decisional conflicts are defined as simultaneous opposing tendencies within an individual to accept or reject a choice (Janis & Mann, 1977). Conflict occurs when the decision maker perceives positive and negative outcomes associated with decision alternatives. For instance, an individual may be struggling to make a decision because what he or she *wants* to choose is not what he or she *should* choose. Indicators of such conflict include hesitation, feelings of uncertainty, and acute emotional stress when faced with the decision (Janis & Mann, 1977).

According to the conflict model of decision making there are five patterns characterizing coping with stress: unconflicted adherence, unconflicted change, defensive avoidance, hypervigilance, and vigilance (Janis & Mann, 1977). While an optimal amount of stress is good for individuals to make decisions; too little or too much stress is detrimental (Janis & Mann, 1977). Under situations with too little stress, a decision maker will not be sufficiently motivated to make a decision. Too much stress overwhelms individuals, and they will be unable to make a decision. An optimal amount of stress allows the decision maker to evaluate the information effectively and make the best decision.

Two patterns characterize insufficient stress during decision making. Unconflicted adherence occurs when the decision maker chooses an option and sticks with it while ignoring any risks that may be present. The decision maker believes there is little or no risk with continuing, which leads to no decisional conflict and little to no stress. For example, a woman recently diagnosed with lung cancer may decide to continue smoking and refuse treatment while ignoring the risks that are associated with

these behaviors. Unconflicted change occurs when the decision maker reacts to a decision by accepting an alternative without thoroughly examining the alternatives (Janis & Mann, 1977). With unconflicted change, stress is minimal as the decision maker does not experience decisional conflict; they simply accept an alternative. For example, a woman recently diagnosed with lung cancer may decide that chemotherapy is the appropriate treatment choice because her doctor stated that he thought it was the best choice.

Two patterns characterize overwhelming stress that interferes with decision making. Defensive avoidance occurs when all alternatives are unacceptable to the decision maker creating a state of conflict and extreme stress within the decision maker (Janis & Mann, 1977). To reduce the stress, the decision maker may (a) procrastinate and delay making a decision, or (b) shift the responsibility of making the decision onto someone else, or (c) selectively attend to the positive aspects of an alternative and ignore the negative aspects. For example, a woman recently diagnosed with lung cancer may delay making a decision because she does not want to accept her diagnosis, decide that someone else should make the decision for her, because she does not like the alternatives and does not want to make the decision at all, or pay attention to only the success of treatment alternatives rather than both risks and side effects. Hypervigilance occurs when a decision maker recognizes the risks associated with the alternatives and believes there is not enough time to evaluate the potential solutions (Janis & Mann, 1977). The decision maker becomes anxious and unable to choose an alternative. For instance, a woman recently diagnosed with lung cancer may shift back and forth between treatment alternatives and be very stressed and anxious to find a treatment solution.

The optimal coping pattern when faced with a stressful decision is vigilance (Janis & Mann, 1977). Vigilance occurs when the stress and conflict the decision maker experience is moderate, which allows the decision maker to gather and evaluate information, and feel confident in his or her ability to find a solution. For example, a woman recently diagnosed with lung cancer may gather information from the web asks her physician questions and combines the two sources of information to select the best treatment option for her. Clearly, the woman is experiencing stress; however, it does not overwhelm her and prevent her from making a rational decision.

Widowed women may have difficulty making decisions because the death of their spouses deprives them of their primary collaborator during a period of added stress (Stroebe, Stroebe, & Hansson, 1993). Furthermore, women who have recently been widowed are often inexperienced in making some decisions (Greaves, 1993) and may be prone to a hypervigilance or defensive avoidance decision coping pattern. One way to reduce this stress may be to collaborate with others, such as adult children, siblings, friends, and professionals. The relationship the widow has with her collaborator may facilitate or impede her decision making depending on the dynamics of the family system.

Dual process model of bereavement. Although several theories of bereavement have been proposed (Stroebe, Hansson, Schut, Stroebe, & Van den Blink, 2008; Stroebe, Schut, & Boerner, 2010), the dual process model of bereavement is most relevant to this dissertation because it explains the coping patterns of individuals who experience the death of a loved one. The dual process model describes coping with bereavement as an oscillation between loss-oriented and restoration-oriented coping (Stroebe & Schut,

1999). Loss orientation occurs when individuals focus on processing the death of their spouse. They are likely to experience emotions such as shock, anger, sadness, fear, and relief. The restoration orientation describes how the widow adjusts to her new role, responsibilities and skills (Stroebe & Schut, 1999). For instance, a woman who has recently been widowed may long for her spouse and cling to the past (i.e., loss orientation), but sometimes she continues on with her life, engaging in new activities and creating new roles and identities for herself (i.e. restoration). Loss orientation is the emotional response to the spouse's death whereas restoration orientation is how the widow incorporates the death, change in roles, and new responsibilities and skills in her daily life (Stroebe & Schut, 1999). Oscillating between these two patterns allows widows to cope more effectively and adapt to the death of their spouse. Similar to the conflict model, too much or too little loss orientation may hinder widows' abilities to integrate the death in her life, whereas some emotional response is necessary, and lessens over time as widows adapt to their life changes.

Family systems theory. The third theory relevant to this dissertation is family systems theory. This theory explains why individuals rely on other family members to help them make decisions. Family systems theory posits that family is dynamic, its members are interdependent, and the family evolves both in terms of structure and function (Walsh, 2010). A key aspect of family systems theory is a focus on how groups (i.e. families) and members within the group function rather than focusing solely on the individual (Fingerman & Bermann, 2000). Family systems have interconnected members; each member has characteristics that influence other members. In addition, every family system has boundaries demarcating who has access to information

pertaining to the functioning of the system. Some families' boundaries are more open than others. For instance, some families' problems are well known to many people in the community characterizing very open boundaries, whereas other families prefer to keep their problems private within the immediate family characterizing a closed boundary.

There are predictable patterns of interaction that emerge in a family system and this predictability maintains the family's equilibrium. Each member in the family system has several roles. A rule, that is proscriptive ways of behaving, shapes individual members roles and functions and the functioning of the family as a whole (Fingerman & Bermann, 2000; Walsh, 2010). Families contain subsystems, such as those defined by mother-daughter, father-daughter, and the sibling relationships; each subsystem has its own rules and boundaries.

One characteristic of family systems is that the system adapts (Fingerman & Bermann, 2000; Walsh, 2010). A marriage, birth of child, divorce or death disrupts the systems equilibrium as individuals' roles change within the larger family system as well as sub-systems. For example, when a husband dies, the spousal, father-child(ren), grandfather-grandchildren subsystems no longer exist. Remaining system members assume new roles and may adopt the roles and devise new roles to incorporate important functions to re-establish equilibrium (Zettel & Rook, 2004). For the surviving spouse, this may mean taking on addition household responsibilities such as arranging household repairs, removing the trash, handling the finances, and other tasks previously performed by her deceased spouse. The flexibility of family members' previous roles affects adjustment to their new roles after the death of a member. In addition, the centrality of the role function for the system is important. If the deceased member played a vital role

and that major function is disrupted, adjustment is more difficult than when an individual dies who did not play a vital role in the functioning of the system.

The death of a family member has long-lasting effects on the family system. Other family members may have to intervene and complete tasks that they were not previously responsible for completing (Utz et al., 2004) such as children caring for mothers who were reliant on husbands. Enmeshment describes a family system in which members are extremely close to one another and overly dependent upon one another. How the family responds to a death is influenced by how enmeshed the family is, the quality of their communication, and their effectiveness at resolving conflict, as well as the importance of the dead member to maintaining equilibrium (Fingerman & Bermann, 2000; Walsh, 2010). If the family is appropriately enmeshed but not too enmeshed and can communicate and resolve conflict effectively, then the family's adjustment to the death should be a smooth one. The functioning of the system before a traumatic event occurs is indicative of how the system will respond to the event and function after it. For example, suppose an important role of the deceased was being a peace keeper between mother and daughter. With a death of the peace keeper, conflict is likely to rise between mother and daughter, which is deleterious to the functioning of the family system.

One important function that may be affected by the death of a spouse is decision making. The changes in roles (i.e., now the primary and only decision maker) may lead to a decrease in the widow's ability to make decisions on one's own, especially when they relied on their spouses to make household decisions (Greaves, 1993). The daily decisions that older adults often make such as which household chores, cooking, cleaning, volunteering, working, and spending time with family or friends, as well as

larger decisions such as selling a home, relocating, managing investments and household budgets that have to be made may be difficult for widows, when they have little or no experience with the decisions. Thus, as the widow adjusts and becomes more accustom to making all the household decisions, they should become more comfortable in their roles and more apt at making the decision.

Selective optimization with compensation. One of the primary and most commonly used theories in gerontology is Baltes theory of selective, optimization with compensation. The theory is relevant to this dissertation because it attempts to explain how individuals adapt to losses as they age through selection, optimization and compensation (Baltes & Carstensen, 1999). Recall, that in the present dissertation, the purpose is to examine how older widows and older married women make complex decisions. As individuals age they experience psychological declines in health status, mobility, sensory and cognitive functioning, as well as slowing of reflexes. In addition, they also experience declines in their social network as friends and family die (Hoyer & Roodin, 2009). These losses often lead them to reflect on their situation and reevaluate their goals and priorities through the process of selection, optimization and compensation. Selection refers to restricting involvement to fewer domains of functioning as a consequence of new demands or anticipation of losses in resources (Baltes & Carstensen, 1999). For example, when widowhood occurs, the widow may decide to only focus on activities that she enjoys and can do alone. Optimization refers to finding ways to successfully complete the domains of functioning that have been selected (Baltes & Carstensen, 1999). For example, the widow will optimize by making sure she has the skills and resources needed to do the activities she enjoys. If optimization is not

successful, individuals may utilize compensation. Compensation is the act of finding another way to complete a task as a result of losses that have occurred that made it impossible to complete the task successfully (Baltes & Carstensen, 1999). For example, the widow may find that she needs help in some of the activities and rather than try to do them alone or give them up, she may compensate by getting help from other family members or other widows.

Marriage and Widowhood

Marriage is the legal union of two people and is changing in many ways (Amato, Booth, Johnson, & Rogers, 2007). For instance, in the past, individuals married at a fairly young age and stayed married often times for 50 or 60 years until one of them died However, recent cohorts are delaying marriage. Specifically, in 2008, the median age at first marriage was 28.2 years for men and 26.1 years for women whereas the median age for men was 26.1 years and for women 22 years in 1890 (US Census Bureau, 2008). The highest marriage rate was 12.1 marriages per 1000 population in 1940 with a gradual decrease since then with a marriage rate of 6.8 in 2009. Divorce rates have changed too, with increases from 1900 to 1981, with the highest rate being 5.3 divorces per 1000 population in 1981; a gradual decrease has occurred since then with a divorce rate of 3.5 divorces per 1000 population in 2009 (US Department of Health and Human Services, 2013). These changes in the divorce rate means that as these cohorts age, more older adults will be single due to divorce or remarried and thus not have been with their current spouse for as long of a period of time. In addition, more than 56 million American adults are electing to remain single throughout life (US Census Bureau, 2008).

As a result of these changes in marriage, widowhood may become easier to adapt to because individuals are experiencing more changes in their relationships throughout life and are better able to cope when death occurs. In addition, decision making in widowhood may become easier because these individuals are likely to have experienced making decisions on their own when being single or divorced. As these changes in marriage continue to occur, it seems as if future generations may not have as much difficulty making decisions when becoming widowed because they are likely to have stayed single longer and perhaps experienced multiple marriages and divorces. However, widowhood will still be a stressful event and require the person to adjust.

Adjustment to the death of one's spouse is influenced by whether the death was expected or unexpected (Bisconti, Bergeman, & Boker, 2004). It is well known that age is positively correlated with death, women are likely to live longer than men, and spouses rarely die at the same time (Hoyer & Roodin, 2009). Thus, becoming a widow in later life is expected, whereas, becoming widowed at a young age is largely unexpected. In this dissertation, the focus will be on older women's experience of widowhood in which becoming a widow is expected.

The death of a spouse is one of the most stressful events married people experience in their life time (Stroebe & Schut, 1999). The stress associated with widowhood decreases over time such that recent widows (those widowed less than two years) are less stable with respect to mental health (Wilcox, Evenson, Aragaki, Wassertheil-Smoller, Mouton, & Loevinger, 2003) and emotional well-being (Bisconti, Bergeman, & Boker, 2004) when compared to those that have been widowed longer. Similarly, Hagedoorn et al. (2006) reported that compared to married individuals, widows

experience higher levels of stress in the first two years following the death of their spouse. Differences in stress levels and mental health among recent and long-term widows may be associated with differences in how they approach decision making (Janis & Mann, 1977; Raue & Sirey, 2011). Conflict theory posits that higher stress and emotional distress associated with recent widowhood affects the processing of available information when making decisions. However, long-term widows (widowed for longer than two years) are likely to resemble married women because they have had time to adjust to the death of their spouses and the family system is likely to have returned to equilibrium.

Time widowed also influences the number, types, and quality of relationships that are maintained or developed. Zettel and Rook (2004) found that long-term widows had more new relationships, such as new friends, than those who were widowed recently. Ha (2008) found that recent widows are more likely to report support from their children, and over time, friends are reported to be more important for support. For example, a recent widow may initially prefer to consult with her adult children about decisions; however, a long-term widow may prefer to make decisions on her own or may consult her friends rather than children.

In summary, recently widowed individuals reported higher levels of stress and have lower mental health and emotional well-being when compared to long-term widows (Bisconti, Bergeman, & Boker, 2004; Wilcox, Evenson, Aragaki, Wassertheil-Smoller, Mouton, & Loevinger, 2003). Higher stress levels and emotional instability are likely to negatively influence widows' abilities to make good decisions (Janis & Mann, 1977; Raue & Sirey, 2011). Furthermore, recent and long-term widows also differ in terms of

the types of relationships they have with others (Zettel & Rook, 2004), and as such who they will collaborate with when making decisions. Most individuals adjust to the death of their spouse within two years (Stroebe et al., 1993). Because differences in adjustment are associated with the amount of time an individual is widowed, it is likely that the amount of time an individual has been widowed is associated with decision making abilities. Long-term widows and married women will likely similar in their decision making whereas recent widows will differ from both in that they will have more difficulty making decisions spending more time and evaluating a smaller percentage of information. Understanding these differences is important in order to help all widows, regardless of years of widowhood, make the best decisions possible.

Collaborative Decision Making and Preferences for Collaboration

Collaborative decision making is defined as working with one or more members of one's social network to make a decision, whereas shared decision making refers to physician-patient interactions when making decisions (Meegan & Berg, 2002). Individuals who collaborate with others often perform better on everyday problem solving tasks (Cheng & Strough, 2004) and it has been suggested that collaboration can help compensate for cognitive declines that occur with increased age (Meegan & Berg, 2002). Thus, collaboration can be very beneficial to older adults and may help widows make better decisions by decreasing the stress associated with widowhood even if they dislike it and discontinue collaboration (Guianx, Van Tilburg, & Van Groenou, 2007; Wilby, 2011).

Engaging in collaborative decision making can be very difficult for women whose spouses have died. When examining who older adults would like to collaborate with,

Strough, Patrick, Swenson, Cheng, and Barnes (2003) found that married older adults most frequently chose their spouses; whereas, unmarried older adults chose adult children as the most frequent and preferred collaborative partners. Older widows often want to collaborate with an adult daughter, or if they do not have an adult daughter, an adult son (Goldman, Korenman, & Weinstein, 1995). If there are no adult children, siblings are the most preferred collaborator. When comparing recent widows and long-term widows, it was found that recent widows preferred to collaborate with an adult child or sibling, whereas, long-term widows preferred to work alone or collaborate with an adult child or close friend (Strough, Cheng, & Swenson, 2002). Married individuals preferred to collaborate with their spouse, regardless of the number of years they have been married (Strough, Cheng, & Swenson, 2002). With the death of a spouse, other relationships may also be lost, such as those with step-children, step-grandchildren, and in-laws; this further limits the widow's options for potential collaborators (Ha, 2008). One of the goals of this research was to examine how age, complexity, and widowed status are related to older women's preferences for collaborative decision making.

Age is important to consider when examining preferences for collaborative decision making. Strough, Cheng, and Swenson (2002) found that older adults preferred to solve problems alone more often than with others. These authors also found that women preferred to complete meal preparation and medication problems alone but preferred to assemble products and complete home maintenance and repair with others, which may suggest that experience or complexity plays a role in preferences for collaboration. Research on complexity and preferences for collaborative decision making is sparse. However, based on the findings from Strough et al. (2002), perhaps women

will prefer to collaborate on the complex decision more than the simple decision or would want to collaborate because they lack experience with the type of decision task. One of the purposes of this dissertation is to better understand how complexity influences ones preferences for collaborative decision making.

Widowed status can affect preferences for collaborative decision making. For widows, the death of their spouse, role changes, and adjustment to these changes may lead to a decrease in the ability to make decisions on one's own, especially when they relied on their spouses to make such decisions (Greaves, 1993). Widows may also have negative perceptions of their lives (Wilcox et al., 2003) and thus perceive that working with others is important when making decisions (Strough, Cheng, & Swenson, 2002). This is especially true for individuals who have been recently widowed, who experience higher stress and mental health issues, they may perceive themselves as unable to make decisions alone and prefer to collaborate with others including family members (Strough, Cheng, & Swenson, 2002). Married women will likely prefer to collaborate with their spouse when making decisions.

In summary, collaboration may help older adults make better decisions. There are many variables that can influence one's preferences for collaborative decision making including age, complexity, and widowed status. These three factors are the focus of the present study.

Factors that Influence Older Adults' Decision Making Process

Decision making can be examined in terms of outcome or process. Research on outcome focuses on the decision that was made and the accuracy of that decision. When examining decision making as a process, researchers are interested in *how* a decision is

made, or decision processing (Abelson & Levi, 1985). This dissertation research primarily focused on decision processing because cognitive processes are important for understanding decision processing and stressful events such as widowhood are likely to influence cognitive abilities and therefore decision processes. For the purposes of this dissertation, decision processing is defined as the time it takes to make the decision, the mean time per piece of information viewed, the total proportion of information examined and the proportion of information examined within alternatives common to both the simple and complex tasks.

This section describes some factors that influence the above measures of decision-making processes, including age (Onken, Hastie, & Revelle, 1985), task complexity (Finucane, Mertz, Slovic & Schmidt, 2005; Wood, Hanoch, Barnes, Liu, Cummings, Bhattacharya, & Rice, 2011) and widowed status (Brand, Heinze, Labudda, & Markowitsch, 2008; Garvey & Klein, 1993; Starcke & Brand, 2012). Task complexity was defined by the number of options available, three for the simple task and six for the complex task whereas widowed status is defined as not widowed (married), recent widow (two years or less), or long-term widow (greater than 2 years). Each of these variables will be examined with respect to decision time and information use. Table 2.1 provides a summary of previous research.

Decision time

Two measures of decision time were examined in this dissertation. The total time spent making the decision and the mean time spent per each piece of information viewed. Time on task is an indicator of decision processing speed. Mean time spent per each piece of information indicates how quickly an individual processes individual details

when making a decision. Researchers have shown that age and task complexity are related to both these measures of time. This section examines the literature that shows that age and task complexity influences these decision time measures. In addition, the ways that widowed status may impact decision time is posited.

Age. Although numerous studies have examined age differences in time-related measures of information processing, the results have been equivocal. Some studies reported no age differences in total time to reach a decision (Johnson, 1990; Johnson & Drungle, 2000), whereas others found that older individuals make decisions faster (Meyer, Russo, & Talbot, 1995; Meyer, Talbot, & Ranalli, 2007). However, research has consistently shown that older adults spend more time viewing each piece of the available information (Johnson, 1990; Johnson & Drungle, 2000; Meyer, Talbot, & Ranalli, 2007).

Task complexity. Conceptually, task complexity is the difficulty level of the decision task. In terms of research on the effects of task complexity, Onken et al. (1985) reported that as task complexity increased decision time decreased. Complexity was manipulated by having two, four, eight, or 12 options. Thus, harder decisions were made faster. However, Onken et al.'s sample only included undergraduate students. In another study, Tun and Lachman (2008) had participants complete speeded auditory complex and simple tasks and found that increased complexity was associated with slower responses for older adults compared to younger adults. In the study, complexity was manipulated by having a single task or alternating between two tasks. In a study on choosing the right Medicare prescription drug plan, Hanoch, Wood, Barnes, Liu, and Rice (2011) found that as the number of options increased, older adults spent less time reviewing information than younger adults. As can been seen from the literature above, the relationship between

task complexity and decision time measures is not clear. Therefore, additional research is needed for us to best understand how difficulty influences how older adults make decisions.

Widowed status. To date, little to no research has examined decision making processing differences associated with widowhood, specifically the amount of time needed to make a decision or time per piece of information examined. However, widowhood is an extremely stressful life event (Stroebe, Stroebe, and Hansson, 1993); such stress has been shown to have detrimental effects on decision making (Garvey & Klein, 1993). Thus, when widowhood first occurs, there is likely to be too much stress to make a decision (Brand, Heinze, Labudda, & Markowitsch, 2008; Garvey & Klein, 1993; Starcke & Brand, 2012). Because the time widowed is associated with improvements in adjustment, stress declines. Thus, recent widows are likely to spend less time making the decision and less time per piece of information than long-term widows. Married women are likely to take less time also due to the fact that they are making the decision alone, but their performance will still likely be better than recent widows.

In summary, research has shown that older adults spend more time viewing available information when making decisions (Johnson, 1990); however, the impact of age on total decision time is much less consistent. It appears that as task complexity increases, decision time decreases (Hanoch, Wood, Barnes, Liu, & Rice, 2011), perhaps because individuals become overwhelmed and give up. Finally, research on the effect widowed status has on decision time is limited and is a focus of this dissertation.

Information Use

The amount of information individuals' use when making decisions is often measured in terms of the percentage of total information and the percentage of information examined within treatments. This section of the dissertation focuses on how task complexity influences the amount of information examined and how widow status may also play a role.

Age. Numerous researchers have found that older adults used less information and examined fewer pieces of information than younger adults (Johnson, 1990; Mata, Schooler, & Rieskamp, 2007; Mather, 2006). In addition, in a study examining over-the-counter medications, no age differences in amount of information used were reported for decisions regarding pain relievers, but age differences were found when examining information use regarding cold/allergy, heartburn, or constipation medications suggesting the type of decision may influence the amount of information used (Johnson & Drungle, 2000). In another study, older women sought less information when making treatment decisions about breast cancer; however, the outcome of those decisions was equivalent to younger adults (Meyer, Russo, & Talbot, 1995). Finally, Rafaely, Dror, and Remington (2006) found that older adults based their decisions on fewer amounts of information than young adults.

Task complexity. Several studies have explored the impact of task complexity on the amount of information examined. Task complexity can be manipulated by increasing the number of available alternatives or increasing the number of details about the alternatives. For instance, Hanoch, Wood, Barnes, Liu, and Rice (2011) had participants choose a Medicare Part D plan and found that older adults searched a larger proportion of information and reacquired more information than younger adults but still

had difficulty identifying the lowest cost Medicare Part D plan. This difficulty was exacerbated when the number of plans increased from three to nine. In contrast, Wood, Shinogle, and Mcinnes (2010) found that older adults do not have as much difficulty with choice abundance and complex information when making medical decisions.

Widowed status. Widowed status may also influence information use. Recent widows are likely to experience high levels of stress and examine a smaller percentage of information than women who have been widowed longer than 2 years and have adjusted (Janis & Mann, 1977). Alternatively, women who have been widowed longer than 2 years are more likely to focus less on loss orientation coping and more on restoration orientation coping. Married women will perform more like long-term widows as they are not experiencing the stress associated with the death.

In summary, research addressing the influence of age on information use is equivocal (Johnson, 1990; Johnson & Drungle, 2000). With respect to complexity and information use, the research is inconsistent (Hanoch et al., 2011; Wood et al., 2010). Although the literature is lacking, widowed status may influence information use.

Decision Satisfaction, Age, Complexity, and Widowed Status

Decision satisfaction is one way to assess the quality of decision processes or the decision (Abelson & Levi, 1985). Age, complexity, and widowed status can all influence how satisfied an older woman is with her decision. This section addresses research that shows how each of these variables is associated with decision satisfaction. One factor we know that influences decision satisfaction is age.

Age. Increased age has resulted in higher satisfaction with the decision when participants were required to evaluate the alternatives by listing positive and negative

attributes before making the decision (Kim, Healey, Goldstein, Hasher, & Wiprzycka, 2008). Thus, being older may lead to higher satisfaction with decisions overall.

Task Complexity. Task complexity can influence how satisfied individuals are with the decisions they make. Iyengar and Lepper (2000) conducted a series of studies using jams and gourmet chocolates to examine the influence of the number of alternatives on decision making and found that participants who chose from the six alternatives of gourmet chocolates were much more satisfied than those who chose from the 30 alternatives. Thus, a smaller, less complex set of decision alternatives lead to higher satisfaction with the decision than a larger, more complex set of alternatives. In another study, Haynes (2009) examined the influence of the number of alternatives on participants' satisfaction with their decisions. Participants were presented with descriptions of three or ten prizes, instructed to choose one that they would be entered into a drawing to win the prize. Results showed that the larger set of alternatives led to less satisfaction with decisions. Thus, higher complexity manipulated by varying the number of options results in less satisfaction with one's decisions, than when presented with a smaller set of items. However, this research was conducted on young adults and findings may differ with older adults.

Widowed Status. One of the goals of this dissertation is to gain a greater understanding of how widowed status influences women's satisfaction with decisions. The research addressing this issue is scarce and largely overlooked. However, based on the literature on widowhood, several hypotheses can be made. Perhaps the experience of widowhood will lead to less satisfaction due to the stress that is associated with becoming widowed (Janis & Mann, 1977). Recent widows may focus on tasks they enjoy, try to

optimize those tasks, and seek help from others when they realize they cannot do it alone. This compensation of seeking help from others may lead to less satisfaction (Baltes & Carstensen, 1999). Married women may be less satisfied with their decision than long-term widows because they were asked to make the decision alone where they would have preferred to make the decision with their spouse.

In summary, research to date shows that age is positively associated with satisfaction with decisions (Kim et al., 2008). In addition, higher complexity is negatively associated with satisfaction (Haynes, 2009). Finally, empirical evidence establishing the association between widowhood and satisfaction appears to be absent.

Conclusion

In conclusion, it is critical that we understand how widowed status impacts decision making. Widowhood is associated with many negative effects, such as depression, anxiety, and extra stress that could have an impact on many aspects of individuals' lives including their social, physical, and mental well-being. These negative effects can also influence widows' decision making abilities. It is very important to understand the factors affecting decision making in widowhood so that this transition can be made smoother through development of potential interventions aimed at collaboration or consulting newly widowed women. These vulnerable widows do not need to be under additional stress because they cannot make decisions effectively.

Table 2.1

Summary of Previous Research

Variable	Effects of Being Older in Age	Effects of Higher Complexity	Effects of Widowed Status
Time	Equivocal	Decreased decision time	Research is sparse
Information Use	Equivocal	Equivocal	Research is sparse
Satisfaction	Higher satisfaction	Lower satisfaction	Research is sparse

Chapter 3: Specific Aims and Hypotheses

As can be seen from Chapter two, theoretically and empirically, age, task complexity, and widowed status are associated with decision processes, specifically time and information use, satisfaction, and preferences for collaboration. The nature of that association, however, is not well understood. Based on the literature regarding widowhood and decision making processes separately, hypotheses will be made addressing the effects of widowed status and decision making. The overall objective of this study was to better understand how older women adjust to life changes associated with the death of a spouse to make complex real-world decisions. This study sought to address the following question: How do task complexity and widowed status influence the decision making processes and preferences for collaboration of older adult women? Widowed status was operationalized as not widowed (married), recently widowed (less than 2 years), and widowed for a longer period of time (greater than 2 years), and task complexity was operationalized as simple (three treatment options) or complex (six treatment options). The dependent variables of decision processing were total time on task (measured in minutes) and mean time spent per piece of information viewed (measured in seconds), the proportion of total information examined and the proportion of information examined within treatments common to both the simple and complex tasks (surgery and chemotherapy, surgery and chemoradiotherapy, and palliative care). The dependent variables of decision satisfaction were overall satisfaction with the decision, satisfaction with the degree of difficulty, available information, and their role in the decision. Preferences for collaboration were measured by asking participants to choose the statement that best described them--whether they prefer to make the decision alone, to

collaborate, or to have someone else make the decision, using a five point scale (Degner, 1998). The first specific aim focuses on effects on decision processes; the second specific aim focuses on the effects of decision satisfaction; the third specific aim focuses on effects of individual differences influencing decision processes and satisfaction; and the fourth specific aim focuses on preferences for collaboration.

Specific Aim I: Age, Widowhood, Task Complexity and Decision Processing

Specific Aim I examined the extent to which task complexity, widowed status, and the interaction between them affected the decision-making process.

Task complexity hypotheses. It was predicted that in the high complexity task women would use less time to make the decision (Tun and Lachman, 2008) and spend less time per piece of information examined (Hanoch, Wood, Barnes, Liu, & Rice, 2011) regardless of widowed status. It was predicted that in the high complexity decision task women would examine a higher proportion of total information and information across choices (Hanoch, Wood, Barnes, Liu, & Rice, 2011), as compared to those in low complexity condition.

Widowed status hypotheses. Widowed status can influence decision making processes (Greaves, 1993). It was hypothesized that overall recent widows would take less time to make the decision, spend less time examining pieces of information, and examine a smaller proportion of information overall and information within treatment choices than married women or long-term widows (Wilcox et al., 2003). Because married women may experience some additional stress due to being asked to make the decision alone when they usually collaborate with their spouse, it was hypothesized they would take less time to make the decision, examine pieces of information, and examine a

smaller proportion of information and information within treatment choices than long-term widows (Meyer, Talbot, & Ranalli, 2007; Strough, Cheng, & Swenson, 2002).

Interactions between complexity and widowed status. With respect to complexity and widow status, it was hypothesized that significant interactions between widowed status and task complexity would show an exacerbation of the effects for recently widowed women making complex decisions. When completing the simple task, it was hypothesized that recent widows would take less time and examine a smaller proportion of information than long-term widows, whereas married women would fall somewhere in between but would not be different from the other two (Finucane et al., 2005; Wilcox et al., 2003).

It was anticipated that when completing the complex decision, recent widows would take less time and examine a smaller proportion of information than married women (Finucane et al., 2005; Wilcox et al., 2003). Recent widows were also expected to take less time and examine a smaller proportion of information than long-term widows. Furthermore, married women, who are accustomed to making decisions with their spouse, would take less time and examine a smaller proportion of information than long-term widows (Hanoch, Wood, Barnes, Liu, & Rice, 2011; Meyer, Russo, & Talbot, 1995; Meyer, Talbot, & Ranalli, 2007; Strough, Cheng, & Swenson, 2002).

Specific Aim II

Specific Aim II examined the extent to which widowed status and task complexity influence older women's satisfaction with their overall decision, with the degree of difficulty, with available information, and with their role in the decision. It was expected that age would be inversely associated with overall satisfaction, with the degree of

difficulty, with the available information, and with the role in the decision (Henninger, Madden, & Huettel, 2010).

Complexity hypotheses. Complexity has been shown to influence satisfaction with decisions. For this dissertation research, it was hypothesized that there would be a main effect for complexity such that older women would experience greater satisfaction in the simple rather than complex task conditions (Haynes, 2009; Stalmeier et al., 2005).

Widowed status hypotheses. Although little research has examined the effect of widowhood on decision making, several hypotheses are proposed based on theory and research. It was anticipated that there would be a main effect for widowed status such that recently widowed women would be less satisfied with the degree of difficulty, the available information, and their role in the decision, as well as the overall decision than married women or long-term widows (Stalmeier et al., 2005). In addition, married women would be less satisfied with the decision than long-term widows (Strough, Cheng, & Swenson, 2002).

Complexity and widowed status hypotheses. Widowed status and complexity combined are likely to influence overall satisfaction, satisfaction with the degree of difficulty, the available information, and their role in the decision. Specifically, it was expected that there would be a significant interaction such that for the complex task, recently widowed women would be less satisfied overall, less satisfied with the degree of difficulty, the available information, and their role in the decision than married women or long-term widows (Stalmeier et al., 2005). However, widowed status would not be associated with satisfaction for the simple task.

Specific Aim III

Specific Aim III focused on widowed women only and examined the factors that influence widowed women's decision processing when making the decision and their satisfaction with decision making. Age, complexity, loss orientation, and restoration orientation, as well as the interactions between complexity and age, complexity and loss orientation, and complexity and restoration orientation were entered as predictors.

Age hypotheses. It was anticipated that widowed women's age would influence the total time and mean time spent per piece of information viewed (Johnson, 1990; Johnson & Drungle, 2000). In addition, it was hypothesized that being older would influence the information examined (Johnson, 1990; Mather, 2006; Mata, Schooler, & Rieskamp, 2007 and the satisfaction measures with older adults examining a smaller proportion of information and being less satisfied with their decision.

Loss and restoration orientation hypotheses. Loss orientation occurs when individuals focus on processing the death of their spouse; whereas restoration orientation describes how the widow adjusts to her new role, responsibilities and skills (Stroebe & Schut, 1999). It was expected that the degree to which these women were experiencing loss orientation and restoration orientation would predict their decision-making processes and satisfaction. Specifically, it was hypothesized that higher loss orientation would be associated with less time to make the decision, lower mean time spent per piece of information viewed, a smaller proportion of total information examined and information within alternatives, and less overall satisfaction, less satisfaction with degree of difficulty, available information, and role in the decision compared to lower loss-orientation (Stroebe & Schut, 1999; Meyer, Russo, & Talbot, 1995; Meyer, Talbot, & Ranalli, 2007). It was also anticipated that decision time, mean time spent per piece of information

viewed, proportion of total information examined and information within alternatives would increase as restoration increased. It was also anticipated that increased restoration would be associated with increased overall satisfaction, higher satisfaction with degree of difficulty, available information, and role in the decision (Stroebe & Schut, 1999; Meyer, Russo, & Talbot, 1995; Meyer, Talbot, & Ranalli, 2007).

Interactions between age, complexity, and loss and restoration orientation. It was anticipated that independent variables in the study would interact. It was hypothesized that- complexity and age would interact such that for low complexity, older women would take less time and examine fewer pieces of information than young-old women for the complex task (Finucane, Mertz, Slovic, & Schmidt, 2005). Older women would be less satisfied with the degree of difficulty, the available information, and their role in the decision as well as less satisfied with the overall decision than younger women for the complex task (Finucane, Mertz, Slovic, & Schmidt, 2005; Stalmeier et al., 2005). As the simple task reduced demands on cognitive resources, it was anticipated that age would not be associated with satisfaction for the simple decision task.

Interactions between complexity and loss orientation were expected for decision processing and satisfaction only. It was expected that for low complexity, loss orientation would not influence the decision processing measures of time or information use or decision satisfaction measures. However, for high complexity, higher loss orientation would be associated with less time to make the decision, less mean time spent per piece of information viewed, and a smaller proportion of total information examined and information within alternatives (Stroebe & Schut, 1999; Meyer, Russo, & Talbot, 1995; Meyer, Talbot, & Ranalli, 2007). It was also hypothesized that higher loss

orientation would be associated with lower satisfaction overall, lower satisfaction with the degree of difficulty, with the available information, and with their role in the complex decision (Stroebe & Schut, 1999).

Interactions between complexity and restoration orientation were also expected. A significant interaction between complexity and restoration orientation was expected such that for low complexity, restoration orientation would not influence the decision processing measures of time or information use or decision satisfaction measures (Hanoch, Wood, Barnes, Liu, & Rice, 2011; Haynes, 2009; Stroebe & Schut, 1999). For the complex task, a positive correlation was predicted between restoration orientation and time to make the decision, mean time spent per piece of information viewed, and the proportion of total information examined and information within alternatives (Hanoch, Wood, Barnes, Liu, & Rice, 2011; Haynes, 2009; Stroebe & Schut, 1999). Restoration orientation should also predict satisfaction with the overall decision, with the degree of difficulty, with the available information, and with their role in the decision (Hanoch, Wood, Barnes, Liu, & Rice, 2011; Haynes, 2009; Stroebe & Schut, 1999).

Specific Aim IV

Specific Aim IV examined the factors that predict preferences for collaboration. Participants were asked to indicate their preferences for collaboration for the hypothetical medical decision in which they had just made and also their preferences for making their own medical decisions such as a cancer treatment decision.

Age, complexity, and widowed status hypotheses. It was hypothesized that predictors of preferences for collaboration would include age, complexity, and years married/widowed, as well as interactions between age and complexity, and age and years

married/widowed. Age was expected to be positively associated with preferences for collaboration for all participants. In addition, complexity was positively associated with preferences for collaboration for all participants (Meegan & Berg, 2002). It was also hypothesized that there would be no association between years married and preferences for collaboration, but there would be a negative association between years widowed and preferences for collaboration (Strough, Cheng, & Swenson, 2002).

Interactions between age, complexity, and widowed status and preferences for collaboration. Age, complexity and widowed status were expected to interact when examining preferences for collaboration. It was hypothesized that a significant interaction between age and complexity for the married women would occur such that for high complexity, older women would prefer to collaborate more than younger women; however, for low complexity, age was not expected to be significant (Finucane, Mertz, Slovic, & Schmidt, 2005; Strough, Cheng, & Swenson, 2002). In addition, a significant interaction between age and years married was expected. Specifically, for older women, it was expected that that those who had been married longer would prefer to collaborate with others more so than those who had been married for fewer years. For younger women, years married would not influence preferences for collaboration (Strough, Cheng, & Swenson, 2002; Zettel & Rook, 2004).

In addition, it was hypothesized that there would also be an interaction between years married and complexity. Specifically, women who had been married longer would want to collaborate in both tasks whereas women who had been married for a short period of time would only prefer to collaborate in the complex task (Finucane et al., 2005).

Similar to the hypotheses for married women, it was hypothesized that age and complexity would interact for the widowed women. Older widowed women would prefer to collaborate more than younger widowed women for high complexity (Finucane, Mertz, Slovic, & Schmidt, 2005). Age was not expected to make a difference for in the low complexity condition.

A significant interaction between age and years widowed was also hypothesized. Specifically, for long-term widows, those who are older will prefer to collaborate more than the young-old (Greaves, 1993; Strough, Cheng, & Swenson, 2002; Wilcox et al., 2003). However for recent widows, age was not expected to influence preferences for collaboration for recent widows.

In addition, it was predicted that there would be a significant interaction between years widowed and task complexity. It was anticipated that increases in the amount of time widowed and low complexity would be negatively associated with preferences for collaboration. Specifically, recent widows would prefer to make decisions collaboratively regardless of task complexity (Zettel & Rook, 2004; Wilcox et al., 2003), whereas long-term widows would only prefer to collaborate with others when making high complexity decisions.

Chapter 4: Study Design and Methods

Design Overview

This dissertation utilized quantitative methods to examine the effects of widowed status and task complexity on decision making in a 3 (married, recently widowed, long-term widows) by 2 (3 choices, 6 choices) quasi-experimental design. Participants completed a medical treatment decision task and a questionnaire that included demographic questions as well as decision satisfaction and preferences for collaboration measures. Measures yielded interval data. ANOVAS and ANCOVAS were conducted to examine the main effects and interactions of widowed status and task complexity on decision-making processing and decision satisfaction. Multiple regression analyses were conducted to examine additional factors that influence widowed women's decision processing and satisfaction and preferences for collaboration in decision making.

Participants

A total of 148 women between the ages of 50 and 90 were recruited for this study. Inclusion criteria were that the women had to be married or widowed and between the ages of 50 and 90 years old. Women who met these inclusion criteria were excluded if they had experience making cancer treatment decisions in the past for themselves or for someone close to them, because if they had previous experience with cancer decisions, their decision making abilities are likely to be better than women who had no experience making this type of decision. Two groups of widows were recruited: recent and long-term. Recent widows were women who had been widowed for two years or less and long-term widows were widowed for more than two years. Two years was used as the

cut-off for recent widows because research shows that women typically adjust to the death of their spouse within one to two years (Stroebe, Stroebe, & Hansson, 1993).

Participants were recruited from Central Kentucky and surrounding areas as well as in Northwestern Pennsylvania through obituaries in local papers, flyers placed in areas frequented by older adults, and in person recruitment from support groups for widowed persons, civic groups, and churches. A $10 honorarium was given to each participant for completion of the study.

Sixty of the women were married, thirty-two were widowed in the last two years (recent widows) and fifty-six were widowed for more than two years (long-term widows). Twelve of the thirty-two recent widows were widowed for less than one year. Women were randomly assigned to the simple or complex tasks.

Table 4.1 contains descriptive information for each of the three groups, married women, recent widows, and long-term widows. The mean age of the married women was 68.82 years old (SD = 8.03), recent widows were 72.72 years old (SD = 9.66), and long-term widows were 77.21 years old (SD = 6.55). A t-test was conducted to probe for age differences with respect to widowed status. These analyses revealed that married women were significantly younger than widowed women, $t(146) = 5.015$, $p = .001$. The majority of the participants were Caucasian. With respect to education, 37.3% of the married women, 37.5% of the recent widows and 14.3% of the long-term widows had a bachelor's degree or higher. Chi Squares were conducted to probe for differences in education ($\chi^2(6, N = 147) = 7.818$, $p = .252$) and race ($\chi^2(2, N = 148) = 1.397$, $p = .497$) among married and widowed women and were found. A column for combined group

(recent and long-term widows) was included in Table 4.1 since Specific Aim IV focused on these two groups.

Decision Making Task

The decision making task used in this dissertation consisted of making a medical treatment recommendation for a hypothetical individual diagnosis with lung cancer. Participants completed the task using a tablet PC (touch screen) that recorded the time and information used as well as their final choice. Participants were randomly assigned to either a complex decision with 6 treatment alternatives or a simple decision with 3 treatment alternatives; otherwise all task-related information was the same. Using a computerized decision-making task has become a widely acceptable way to understand decision processing (Johnson, 1990; Johnson & Drungle, 2000; Meyer, Russo, & Talbot, 1995; Meyer, Talbot, & Ranalli, 2007; Mata, Schooler, & Rieskamp, 2007; Mather, 2006) as it allows researchers to obtain quantitative measures of data that can be analyzed. The decision-making task is described in detail below.

Task instructions. The instructions given for the complex and simple decision was exactly the same, except for the number of treatment alternatives listed, which included three for the simple task and six for the complex task. The scenario for the task was:

> Mr. Gilcrest is a 53 year old male who works in a small factory and has smoked one and a half packs of cigarettes a day for the past 35 years. He is married with four grown children and six grandchildren. He has been diagnosed with stage-two lung cancer. Mr. Gilcrest is in good health otherwise and has private insurance through his former employer.

> Based on the stage and location of his cancer as well as his overall health, his physician has determined that he has the following treatment alternatives available: surgery, radiation, surgery with chemoradiotherapy, surgery with chemotherapy, radiation with chemotherapy, or palliative care. He has asked you for advice as to what you think he should do. On the next screen, you will see a table with information about the various treatments he has available. To see the information about the treatments, simply touch on the box. Once you review the information in a box, you will be asked to rate the information as acceptable, neutral or unacceptable. You can use any of the information that is available to make your recommendation for Mr. Gilcrest.

Complexity manipulation. When manipulating complexity, one can increase or decrease the number of alternatives or the number of features. For example, when purchasing a new car, a simple task might have four models available whereas a complex task may have nine models. Alternatively, the number of alternatives could remain at four and task complexity could be increased by changing the number of features, such as gas mileage, roominess, color, etc., from four (simple task) to nine (complex task). Most studies involving older adults increase complexity by increasing the number of alternatives (Iyengar & Lepper, 2000). It is likely this is done because research shows that older adults prefer fewer alternatives when making decisions as compared to young adults (Reed, Mikels, & Simon, 2008). In this study, task complexity was manipulated by modifying the number of treatment alternatives. The simple decision consisted of three treatment alternatives, whereas the complex decision had six treatment alternatives.

The alternatives for the complex task were chosen because they were the most appropriate treatment options for the hypothetical cancer patient's stage and type of cancer. The alternatives included for the simple task were based on the results of a previous study (Jacobs-Lawson, Schumacher, Ortz, & Arnold, 2010) that revealed (a) surgery and chemotherapy, (b) surgery and chemoradiotherapy, and (c) palliative care were chosen most often. Individuals were randomly assigned to the simple or complex task.

Information display. Information regarding treatment for the hypothetical individual was presented on a touch screen tablet computer. The information display for the complex decision task was presented in a 6 X 6 table with the columns labeled with the treatment alternatives and rows contained the information available on the treatments (see Figure 4.1). The six treatment alternatives were surgery, surgery and radiation, radiation and chemotherapy, surgery and chemotherapy, surgery and chemoradiotherapy, and palliative care/no treatment. The information display for the simple decision task took the form of a 3 X 6 table with columns labeled with the treatment alternatives (surgery and chemotherapy, surgery and chemoradiotherapy, and palliative care/no treatment) and rows labeled with the information available on the treatments. Thus, it looked exactly the same as Figure 4.1 except that it only had the three treatment alternatives described above. Features for both the simple and complex tasks included potential side effects early in treatment, potential complications after treatment, 5 year survival rates, length and number of treatments, how treatments are administered, and patient stamina. The information about the treatment alternatives was the same in the two conditions.

Process tracing. In order to track information use, participants were only able to view one piece of information at a time. But they could view each piece of information as many times and for as long as they wanted. The computer recorded (a) the amount of time it took to make the decision, (b) the information viewed when making the decision, (c) the amount of time spent viewing the information, (d) the order in which information was viewed, and (e) the final choice. These decision processing measures were used because they are the most commonly used measures that enable researchers to better understand decision processing (Johnson, 1990; Johnson & Drungle, 1995).

Decision Processing Measures

Decision processing measures focused on time and information use. For time two measures were used. With respect to information use, four measures were used. Each of these measures is described below.

Time. Two measures of time were analyzed. Total time on the decision was the amount of time it took to make the decision and it was measured in minutes. Mean time spent per each piece of information viewed was calculated by summing the amount of time (in seconds) allocated to viewing information and dividing that by the total number of pieces of information used.

Information use. Information use was measured using two indicators. First, the proportion of information that each participant examined was calculated by dividing the amount of information used (i.e., the number of cells of the table examined) by the amount of information available (i.e., 36 in the complex condition and 18 in the simple condition). The proportion of information within each treatment was examined for the three treatments that were common to the simple and complex tasks, surgery with

chemotherapy, surgery with chemoradiotherapy, and palliative care. These proportions were calculated by dividing the amount of information used pertaining to each of the three treatments (i.e., the number of cells within each of the treatments examined) by the amount of information available (i.e., 6).

Questionnaire Based Measures

Following completion of the decision task, participants were asked to complete a questionnaire. The questionnaire contained several measurement instruments including Stalmeier, et al.'s (2005) decision evaluation scale, Degner's (1998) scale assessing preferences for collaborative decision making, the Inventory of Daily Widowed Life (IDWL) measure assessing bereavement (Caserta & Lund, 2007), and demographic information. These measures are described in detail below.

Decision satisfaction. Stalmeier, et al.'s (2005) decision evaluation scale was used to assess women's satisfaction with their decisions. Specifically, their overall satisfaction with the decision was measured with the statement, "I am satisfied with the decision." Satisfaction with the degree of difficulty on the decision was measured with the statement, "I found it hard to make the choice." This item was reverse coded for analyses purposes. Satisfaction with the available information was measured by the following statement, "I am satisfied with the information I received." Finally, satisfaction with one's role in the decision was measured by "I wished someone else would decide for me," and this item was reverse coded. These variables were rated on a likert scale from 1 (strongly disagree) to 5 (strongly agree). Higher scores for satisfaction with the overall decision and the available information indicated that the women were more satisfied with their decision and with the available information, respectively.

Higher scores on satisfaction with the degree of difficulty indicated that women did not think the decision was difficult. Higher scores on satisfaction with their role in the decision indicated they would rather make the decision alone.

Preferences for collaborative decision making. Participants were asked about their preferences for collaborating with others when making the simple or complex decision using a scale developed by Degner (1998). Participants chose a statement from five possible statements that most closely applies to their preferred role in making treatment decisions. The statements were (a) "I prefer to make the final selection about which treatment I will receive," (b) "I prefer to make the final selection of my treatment after seriously considering a member of my social network's opinion," (c) "I prefer that my member of my social network and I share responsibility for deciding which treatment is best for me," (d) "I prefer that my member of my social network makes the final decision about which treatment will be used, but seriously considers my opinion," and (e) "I prefer to leave all decisions regarding my treatment to my member of my social network." Participants were asked to answer this question for the hypothetical decision in which they had just made and also their preferences for making their own medical decisions such as a cancer treatment decision. Options were assigned values as follows: (a) -2, (b) -1, (c) 0, (d) 1, and (e) 2. Thus, a participant who chose a zero was more accepting of a collaborative role, whereas a participant who chose a negative two preferred to make the decision alone and a participant who chose a two would rather let someone else decide.

Bereavement. One measure on the instrument was only given to the widows. They were asked to complete the 22 item Inventory of Daily Widowed Life (IDWL)

measure (Caserta & Lund, 2007). Widowed women noted the frequency with which they experienced the statements from 1 (rarely or not at all) to 4 (almost always). Eleven of the questions represented the loss-orientation subscale whereas the other eleven represented restoration-orientation. Scores for each of the subscales were obtained by summing the items that correspond to the subscales. An example statement from the loss orientation scale is "Thinking about how much I miss my spouse," whereas "Engaging in leisure activities (hobbies, recreation, physical activity etc.)" is an example statement for restoration orientation. Scores on each scale ranged from 11- 44, and higher scores reflected more loss or restoration orientation coping. The coefficient alpha level was .90 for the loss orientation scale and .81 for the restoration orientation scale (n = 88, widowed women only).

Demographics. At the end of the questionnaire, participants were asked to provide demographic information including years married for all participants and years widowed for the widowed women, age, race, and education.

Procedure

Participants were recruited through obituaries in local papers, flyers placed in areas frequented by older adults, and in-person recruitment at support groups for widowed persons, civic groups, and churches. Participation took place in an area and time convenient for the participant. Upon meeting with participants, they were given a copy of the informed consent to sign and allowed to ask questions about the dissertation. After they gave informed consent, participants completed a practice session on the computer in which they chose a rental car in order to familiarize them with the task and the computer. The practice session consisted of choosing a rental car from four available

options described on four dimensions in a table format. Then, they were randomly assigned to the simple or complex decision task and completed the medical decision task on the computer. After the decision task, participants completed the questionnaire. Finally, participants were debriefed and given a $10 honorarium.

Data Analyses

Data were entered into SPSS 18 twice and were then compared in SAS in order to check for any data entry errors. Discrepancies were corrected. Once the data set was finalized, descriptive statistics were calculated to determine the characteristics of the sample and to look for normality. ANOVAS, ANCOVAS, and several regression analyses were then conducted.

ANOVAS and ANCOVAS addressed Specific Aim I and II. Complexity (high versus low), and widowed status (recent widow, long-term widows, not widowed i.e., married) were the independent variables for Specific Aim I and II. Age was used as a covariate when it correlated with the dependent variables.

For Specific Aim I, the decision processing measures (total time to make the decision, mean time spent per piece of information viewed, proportion of information examined, and information examined within surgery and chemotherapy, surgery and chemoradiotherapy, and palliative care) were used as dependent variables. To address Specific Aim II, the same independent variables were included and participants' satisfaction with their overall decision, with the degree of difficulty, with their satisfaction with the available information, and with their role in the decision were the dependent variables.

Specific Aim III focused solely on the data obtained from widows and utilized regression analyses. Age, loss orientation, restoration orientation, task complexity, and the interactions between complexity and age, complexity and loss orientation, and complexity and restoration orientation were entered as predictor variables. The criterion measures were the same as the dependent variables from Specific Aim I and Specific Aim II (i.e.; total time on decision, mean time spent per piece of information viewed, proportion of total information examined, proportion of information regarding surgery and chemotherapy, proportion of information regarding surgery and chemoradiotherapy, proportion of information regarding palliative care, satisfaction with the overall decision, satisfaction with the degree of difficulty, satisfaction with the available information, and satisfaction with their role in the decision. Age was centered before the analyses were conducted. Predictor variables have a mean of zero when they are centered and centering variables helps to reduce multicollinearity issues.

Specific Aim IV also used regression analyses to examine preferences for collaboration. Regressions for this specific aim were conducted separately for married and widowed women (recent and long-term widows combined). The two dependent variables examined were hypothetical collaborative decision making preference and collaborative decision making preference for self. Age and years married or years widowed were centered before analyses, reducing multicollinearity issues. Complexity was dichotomized as low complexity (three alternatives) and high complexity (six alternatives) before calculating interaction term predictors. For married women, the predictors were age, complexity, number of years married, the interactions between age and complexity, age and years married, complexity and years married, and age,

complexity, and years married. Similarly, for widowed women, the predictors were age, complexity, number of years widowed, the interactions between age and complexity, age and years widowed, complexity and years widowed, and age, complexity, and years widowed.

Summary

In summary, 148 older women who were married or widowed were recruited for this study. They completed a decision making task on a touch screen computer. Participants were randomly assigned to either a complex decision with 6 treatment alternatives or a simple decision with 3 treatment alternatives. After completing the decision task, they completed a questionnaire assessing decision satisfaction, preferences for collaboration, bereavement (widows only), and demographic information. Data were entered into SPSS 18 and checked for data entry errors. ANOVAS, ANCOVAS, and regression analyses were then conducted.

Table 4.1

Comparison of Married, Recent Widows, and Long-Term Widows

	Married *N* = 60	Recent Widows *N* = 32	Long-Term Widows *N* = 56	Combined Widows N = 88
Age				
M	68.82	72.72	77.21	75.58
SD	8.03	9.66	6.55	8.07
Marital Status (Years)				
M	42.63	1.36	11.95	8.10
SD	13.68	.53	6.97	7.56
Race				
White	57 (95.0%)	26 (81.3%)	53 (94.6%)	79 (89.8%)
African American	1 (1.7%)	4(12.5%)	---	4 (4.5%)
Native American	2 (3.3%)	2 (6.3%)	3 (5.4%)	5 (5.7%)
Education				
Less than high school	5 (8.5%)	2 (6.3%)	10 (17.9%)	12 (13.6%)
High School/GED	15 (25.4%)	8 (25%)	22 (39.3%)	30 (34.1%)
Some College	17 (28.8%)	8 (25%)	15 (26.8%)	23 (26.1%)
Bachelors Degree +	22 (37.3%)	12 (37.5%)	8 (14.3%)	20 (22.7%)

Figure 4.1


University of Kentucky
Below are the treatments available for Mr. Gilcrest. To see the details about the treatments, simply touch on the box. You can give each detail one of three ratings: Unacceptable (-), Not Sure (?) or Acceptable (+). When you are ready to choose a treatment for Mr. Gilcrest, touch the red "Done" button.
Done
Surgery
Surgery & Chemotherapy
Surgery & Chemoradio therapy
Radiation
Radiation & Chemotherapy
Palliative Care/ No Treatment
Potential Side Effects Early in Treatment
Potential Complications After Treatment
5 Year Survival Rates
Length & Number of Treatments
How Administered
Patient Stamina
Click to Evaluate

Chapter 5: Results

This chapter describes findings from the statistical analyses performed on the data. Results for Specific Aims I-IV are detailed individually below. For all analyses, p = .05, two-tailed to denote significance.

Specific Aim I

Specific Aim I focused on the impact of widowed status and task complexity on the decision making process. A 3 (widowed status: not widowed/married, recent widows, and long-term widows) by 2 (complexity: simple versus complex) between subjects ANOVA, examined the significance of the main effects of widowed status and complexity and the interaction between them. Separate ANOVAS were performed for each dependent variable: total time, mean time spent per each piece of information viewed, proportion of total information examined, proportion of information examined pertaining to surgery and chemotherapy, proportion of information examined regarding surgery and chemoradiotherapy, and the proportion of information examined regarding palliative care. Prior to conducting the analyses, correlations were examined between age and each dependent variable. In cases where the correlation was significant, a 3 (widowed status: not widowed/married, recent widows, and long-term widows) by 2 (complexity: simple versus complex) ANCOVA with age as a covariate was conducted. This occurred for mean time spent per each piece of information viewed, proportion of total information examined, proportion of information examined pertaining to surgery and chemotherapy, proportion of information examined regarding surgery and chemoradiotherapy, and the proportion of information examined regarding palliative care. When widowed status was significant, post-hoc tests examined differences between

groups and if interactions were significant, simple main effect analyses were conducted. Analyses were conducted independently for each dependent variable.

Decision time. Analyses of two measures of time, mean time spent per each piece of information viewed and the total time to make the decision partially supported the hypotheses of this specific aim. Mean time spent per each piece of information viewed was measured in seconds and the total time to make the decision was measured in minutes.

Mean time spent per each piece of information viewed. Age was significantly correlated with mean time spent per each piece of information viewed (r = .400, p = .001, n = 148). The 3 (widowed status) X 2 (complexity) ANCOVA revealed one significant main effect and no significant interactions (see Table 5.1). The main effect of widowed status was not significant (recent: M = 14.986; SD = 7.777, long-term: M = 21.187, SD = 10.947, married: M = 14.091, SD = 10.406; p = .118), and the interaction of widowed status and complexity was also not significant (p = .412). The main effect of complexity was significant (p = .015), with women completing the simple task spending more time examining information (M = 18.649, SD = 9.871) than women completing the complex task (M = 15.290, SD = 11.068).

Total time. When conducting analyses on the effects of complexity and widowed status in terms of total time, age was not used as a covariate, because it did not correlate with this measure. Thus, a 3 (widowed status) by 2 (complexity) between subjects ANOVA was conducted on this variable. There were no main effects of complexity (simple: M = 5.096; SD = 2.147, complex: M = 5.828, SD = 3.505; p = .209), or widowed status (recent: M = 5.520; SD = 2.510, long-term: M = 5.228, SD = 2.765, married: M =

5.650, *SD* = 3.272; *p* = .754) when examining the total time to make the decision (see Table 5.2). The interaction between widowed status and complexity was also not significant (*p* = .809).

Measures of information use. The measures of information use that were examined included the proportion of total information examined and the proportion of information examined within each treatment for the three treatments that were common to the simple and complex tasks: surgery and chemotherapy, surgery and chemoradiotherapy, and palliative care.

Proportion of total information used. Analyses showed that age was significantly correlated with proportion of total information examined (*r* = -.391, *p* = .001, n = 148), therefore age was entered as a covariate in these analyses. The 3 (widowed status) X 2 (complexity) ANCOVA revealed two significant main effects and no interactions (see Table 5.3). A main effect of complexity for the proportion of total information used (*p* = .001) was found, with women completing the simple task examining a larger proportion of total information (*M* = .537, *SD* = .293) than women completing the complex task (*M* = .363, *SD* = .292). The main effect of widowed status was also significant (*p* = .032). Post hoc analyses revealed that there was no difference between recent widows (*M* = .455, *SD* =.278) and long-term widows (*M* = .332, *SD* = .252; *p* = .133) or recent widows (*M* = .455, *SD* =.278) and married women (*M* = .557, *SD* =.326; *p* = .316) in terms of the proportion of total information examined. However, there was a significant difference between married women (*M* = .557, *SD* =.326) and long-term widows (*M* = .332, *SD* = .252; *p* = .006), with married women examining a

larger proportion of information. The interaction between widowed status and complexity was not significant (p = .524).

Information use for surgery with chemotherapy. Age was significantly correlated with the proportion of information used for the surgery and chemotherapy alternative (r = -.274, p = .001, n = 148), therefore an ANOVA was used to examine information use for surgery with chemotherapy. The 3 (widowed status) X 2 (complexity) ANCOVA with age as a covariate revealed one significant main effect and no interactions (see Table 5.4). There was a significant main effect of complexity for the proportion of information examined pertaining to surgery and chemotherapy (p = .001), with women in the simple condition examining a larger proportion of information (M = .705, SD = .331) than women completing the complex task, (M = .460, SD = .395). The main effect of widowed status (recent: M = .589; SD = .402, long-term: M = .509, SD = .364, married: M = .647, SD = .385; p = .675) as well as the interaction between widowed status and complexity were not significant (p = .974).

Information use for surgery and chemoradiotherapy. There was a significant correlation between age and the proportion of information examined for the surgery and chemoradiotherapy alternative (r = -.365, p = .001, n = 148) so age was used as a covariate. The 3 (widowed status) X 2 (complexity) ANCOVA revealed two significant main effects and no interactions (see Table 5.5). The main effects of complexity (p = .001) and widowed status (p = .002) for the proportion of information examined pertaining to surgery and chemoradiotherapy were significant. The main effect of complexity showed that women completing the simple task examined a larger proportion of information (M = .610, SD = .389) than women completing the complex task, (M =

.347, *SD* = .367). Post hoc analyses revealed that there was no difference between recent widows (*M* = .469, *SD* = .398) and long-term widows (*M* = .310, *SD* = .337; *p* = .093) or recent widows (*M* = .469, *SD* = .398) and married women (*M* = .642, *SD* = .393; *p* = .095) in terms of the proportion of information examined regarding surgery and chemoradiotherapy. However, there was a significant difference between married women (*M* = .642, *SD* = .393) and long-term widows (*M* = .310, *SD* = .337; *p* = .001), with married women examining a greater proportion of information. The interaction between widowed status and complexity was not significant (*p* = .400).

Information Use for Palliative care. Age was significantly correlated with the dependent variable (*r* = -.319, *p* = .001, n = 148), necessitating its use as a covariate. The 3 (widowed status) X 2 (complexity) ANCOVA revealed no significant main effects or interactions (see Table 5.6). There were no main effects of complexity (simple: *M* = .295; *SD* = .380, complex: *M* = .241, *SD* = .337; *p* = .608) or widowed status (recent: *M* = .292; *SD* = .352, long-term: *M* = .164, *SD* = .301, married: *M* = .353, *SD* = .392; *p* = .366) for the proportion of information examined pertaining to palliative care. In addition, the interaction between widowed status and complexity was not significant (*p* = .230).

Specific Aim II

Specific Aim II focused on the impact of widowed status and task complexity on decision satisfaction and was analyzed using a 3 (widowed status) by 2 (complexity) between subjects ANOVA. The dependent variables were satisfaction with (a) their overall decision, (b) degree of difficulty with the decision, and (c) available information, and their role in the decision. Age was not correlated with these dependent variables and was not used as a covariate. When widowed status was significant, post-hoc tests were

used to see which groups differed and if the interaction was significant, simple main effect analyses were conducted. Analyses were conducted for each dependent variable separately.

Overall satisfaction with the decision. The 3 (widowed status) X 2 (complexity) ANOVA revealed one significant main effect and no interactions (see Table 5.7) for overall decision satisfaction. There was a main effect of complexity (p = .030) with women who completed the low complexity task (M = 4.31, SD = .66) being more satisfied with the decision than those who completed the high complexity task (M = 3.99, SD = .88). There was no main effect of widowed status (recent: M = 4.219; SD = .553, long-term: M = 4.125, SD = .935, married: M = 4.133, SD = .769; p = .821) and no complexity by widowed status interaction (p = .424).

Satisfaction with degree of difficulty. The 3 (widowed status) X 2 (complexity) ANOVA revealed no significant main effects and no interactions (see Table 5.8). There were no significant main effects of complexity (simple: M = 2.595; SD = 1.313, complex: M = 2.216, SD = 1.150; p = .060) or widowed status (recent: M = 2.438; SD = 1.243, long-term: M = 2.304, SD = 1.174, married: M = 2.483, SD = 1.321; p = .715) when examining women's satisfaction with degree of difficulty. The interaction between widowed status and complexity was not significant (p = .528).

Satisfaction with available information. The 3 (widowed status) X 2 (complexity) ANOVA revealed no main effects and no interactions (see Table 5.9). There was no significant main effect of task complexity (simple: M = 4.331; SD = .853, complex: M = 4.014; SD = .972; p = .087) or widowed status (recent: M = 4.000; SD = .803, long-term: M = 4.250, SD = .977, married: M = 4.192, SD = .939; p = .485) when

examining how satisfied women were with the available information when making the hypothetical decision. There was also no significant interaction between widowed status and complexity (p = .241).

Satisfaction with role in decision. The 3 (widowed status) X 2 (complexity) ANOVA revealed no significant main effects or interactions (see Table 5.10). There were no significant main effects for complexity (simple: M = 3.514; SD = 1.455, complex: M = 3.480, SD =1.425; p = .858) or widowed status (recent: M = 3.563; SD =1.501, long-term: M = 3.455, SD = 1.438, married: M = 3.500, SD = 1.420; p = .954) when examining satisfaction with their role in the decision. There was also no significant interaction between complexity and widowed status (p = .106).

Specific Aim III

Specific Aim III focused only on the widowed women. Specifically, it examined the influence of age, task complexity, bereavement in terms of loss orientation and restoration orientation, and the interactions between task complexity and age, task complexity and loss orientation, and task complexity and restoration orientation on information processing in widowhood. For this aim a series of multiple regression analyses were conducted. The criterion variables included: mean time spent per each piece of information viewed; total time to make the decision; proportion of total information; proportion of information regarding surgery and chemotherapy, surgery and chemoradiotherapy, no treatment or palliative care; overall satisfaction with the decision, with the degree of difficulty, with available information, and with their role in the decision.

Measures of time. The measures of time used included mean time spent per each piece of information viewed and the total time it took widowed women to make the decision. The mean time spent per each piece of information viewed was measured in seconds and the total time it took widowed women to make the decision was measured in minutes. For the mean time spent per each piece of information viewed, the model was significant, (F (7, 80) = 4.167, p = .001, R^2 = .267). The regression coefficients for task complexity (p = .005), age (p = .045), and restoration orientation (p = .024) were significant (see Table 5.11). Higher complexity was associated with a decrease in the mean time spent per each piece of information viewed, and being older was associated with an increase in the mean time spent per each piece of information viewed. Increased restoration orientation or the ability of widows to incorporate the death into their lives, was associated with a decrease in the mean time spent per each piece of information viewed. In addition, the interaction between task complexity and restoration orientation (p = .035) was also significant.

For the interaction between complexity and restoration orientation, simple slope analyses revealed that restoration orientation was significantly related to mean time spent per each piece of information viewed for high complexity (β = -.586, t (84) = -2.130, p =.036) and low complexity (β = -1.073, t (84) = -2.201, p =.030, see Figure 5.1). This suggests that for both high and low complexity, as restoration orientation increased, the mean time spent per each piece of information viewed decreased, with this effect being stronger for low complexity.

Analyses involving the examination of the total time it took widowed women to make the decision indicated that the model was not significant, (F (7, 80) = .333, p = .937, R^2 = .028, see Table 5.12).

Measures of information use. Information use was evaluated by calculating the proportion of total information examined when making the decision. The proportion of information examined within each treatment was also examined for the three treatments that were common to the simple and complex tasks: surgery and chemotherapy, surgery and chemoradiotherapy, and palliative care. The predictor variables were age, complexity, loss orientation, restoration orientation, and the interactions between complexity and age, complexity and loss orientation, and complexity and restoration orientation.

Analyses indicated that the regression model was significant for the proportion of total information examined, (F (7, 80) = 2.984, p = .008, R^2 = .207). However, none of the regression coefficients were significant (see Table 5.13). With respect to the proportion of information used regarding surgery and chemotherapy, the regression model was significant, (F (7, 80) = 3.153, p = .005, R^2 = .216). However, none of the regression coefficients were significant, see Table 5.14. Similarly, the model for the proportion of information examined about surgery followed by chemoradiotherapy was significant but the predictors were not, (F (7, 80) = 2.950, p = .008, R^2 = .205, see Table 5.15). With respect to widowed women and the proportion of information examined regarding palliative care, the model was not significant, (F (7, 80) = 1.617, p = .143, R^2 = .124, see Table 5.16).

Decision satisfaction. Four separate regression models were run for widowed women only for each of the decision satisfaction measures. The decision satisfaction measures were overall satisfaction with the decision, with the degree of difficulty, with the available information, and with their role in the decision. In each of the regression models, age, complexity, loss orientation, restoration orientation, and the interactions between complexity and each of these variables were entered as the predictor variables. For overall satisfaction with the decision, the regression model was significant, (F (7, 80) = 2.959, p = .008, R^2 = .206). None of the regression coefficients were significant, see Table 5.17.

For widowed women's satisfaction with the degree of difficulty, the model was not significant, (F (7, 80) = .781, p = .605, R^2 = .064, see Table 5.18).

For the degree to which widowed women were satisfied with available information, the regression model was significant, (F (7, 80) = 2.897, p = .009, R^2 = .202). The regression coefficient for the interaction between task complexity and loss orientation was significant, β = -1.026, t (80) = -1.963, p = .053, see Table 5.19. For the interaction between complexity and loss orientation, simple slopes analyses revealed that loss orientation was not significantly related to the degree to which widowed women were satisfied with the available information for high complexity (β = .192, t (84) = .850, p =.398) or low complexity (β = .559, t (84) =1.319, p =.191, see Figure 5.2).

Analyses involving satisfaction with their role in the decision revealed that the model was significant, (F (7, 80) = 2.451, p = .025, R^2 = .178). Specifically, the regression coefficients for task complexity (p = .006), loss orientation (p = .024), and the interaction between task complexity and loss orientation (p = .003, see Table 5.20) were

significant. An increase in complexity or loss orientation, where widowed women focus on the death of their spouse, was associated with an increase in satisfaction with their role in the decision.

For the interaction between complexity and loss orientation, simple slopes analyses revealed that loss orientation was not significantly related to satisfaction with their role in the decision for high complexity (β = .381, t (83) = 1.698, p =.093), but it was related to satisfaction with their role in the decision for low complexity (β = .974, t (83) = 2.315, p =.023, see Figure 5.3). This suggests that for low complexity, as loss orientation coping increased their satisfaction with their role in the decision increased.

Specific Aim IV

Specific Aim IV examined the impact of age, widowed status, and task complexity on preferences for collaborative decision making. Multiple linear regression models were conducted separately for married and widowed women in order to compare the results for the two groups. Age, years widowed for widowed women, and years married for married women were all centered before analyses. Predictor variables for the married older women included age and task complexity, years married, and the interactions between these variables. For the widowed older women, the predictor variables were age, task complexity, years widowed, and the interactions between these variables. None of the hypotheses for this aim were supported.

Hypothetical collaborative decision making preference. Neither of the regression models tested was significant when examining the influence of age, complexity, years married, and the interactions between these variables on collaborative preferences on the hypothetical decision task. The regression model for married women,

(F (7, 52) = 1.837, p = .100, R^2 = .198, see Table 5.21), as well as the regression model for widowed women were not significant, (F (7, 80) = .251, p = .971, R^2 = .021, see Table 5.21).

Collaborative decision making preference. The regression models tested were not significant when examining the influence of age, complexity, years married or widowed, and the interactions between these variables on collaborative preferences for oneself. The regression model was not significant, (F (7, 52) = 1.121, p = .364, R^2 = .131, see Table 5.22) when examining married women's collaborative decision making preference for themselves. Examining these same variables for widowed women revealed that the overall model was also not significant, (F (7, 80) = .252, p = .970, R^2 = .022; see Table 5.22).

Summary

In summary, complexity is an important variable to consider when examining women's decision making processes. Specifically, low complexity resulted in a higher mean time spent per piece of information viewed and a larger proportion of total information examined, surgery and chemotherapy information, and surgery and chemoradiotherapy information examined than high complexity. Low complexity resulted in participants being more satisfied with the overall decision than high complexity too. Widowed status was significant for the proportion of total information and the proportion of information examined regarding surgery and chemoradiotherapy. When examining only widows, restoration and loss orientations along with complexity seem to provide valuable information pertaining to decision-making processes and satisfaction. Specifically, task complexity and restoration orientation interacted for the

mean time spent per piece of information viewed. Task complexity and loss orientation interacted for satisfaction with their role in the decision.

Table 5.1

Effects of Complexity and Widowed Status on the Mean Time Spent Per Each Piece of Information Viewed

Variable	*df*	*F*	*p*	*η*
Age (A)	1	18.325	.001	.115
Complexity (C)	1	6.097	.015*	.041
Widow Status (WS)	2	2.170	.118	.030
C x WS	2	.892	.412	.012
Error	141	(89.724)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.2

Effects of Complexity and Widowed Status on the Total Time to Make the Decision

Variable	*df*	*F*	*p*	*η*
Complexity (C)	1	1.593	.209	.011
Widow Status (WS)	2	.282	.754	.004
C x WS	2	.212	.809	.003
Error	142	(517333.333)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.3

Effects of Complexity and Widowed Status on the Proportion of Information Examined

Variable	*df*	*F*	*p*	*η*
Age (A)	1	11.264	.001*	.074
Complexity (C)	1	12.519	.001*	.082
Widow Status (WS)	2	3.518	.032*	.048
C x WS	2	650	.524	.009
Error	141	(.071)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.4

Effects of Complexity and Widowed Status on the Proportion of Surgery and Chemotherapy Information Examined.

Variable	*df*	*F*	*p*	*η*
Age (A)	1	6.126	.015	.042
Complexity (C)	1	14.736	.001*	.095
Widow Status (WS)	2	.395	.675	.006
C x WS	2	.026	.974	.001
Error	141	(.127)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.5

Effects of Complexity and Widowed Status on the Proportion of Surgery and Chemoradiotherapy Information Examined.

Variable	*df*	*F*	*p*	*η*
Age (A)	1	7.009	.009	.047
Complexity (C)	1	19.357	.001*	.121
Widow Status (WS)	2	6.464	.002*	.084
C x WS	2	.922	.400	.013
Error	141	(.117)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.6

Effects of Complexity and Widowed Status on the Proportion of Palliative Care Information Examined.

Variable	*df*	*F*	*p*	*η*
Age (A)	1	9.061	.003	.060
Complexity (C)	1	.264	.608	.002
Widow Status (WS)	2	1.014	.366	.014
C x WS	2	1.487	.230	.021
Error	141	(.116)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.7

Effects of Complexity and Widowed Status on Overall Satisfaction with the Decision.

Variable	*df*	*F*	*p*	*η*
Complexity (C)	1	4.813	.030*	.033
Widow Status (WS)	2	.197	.821	.003
C x WS	2	.863	.424	.012
Error	142	(.616)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.8

Effects of Complexity and Widowed Status on Women's Satisfaction with the Degree of Difficulty

Variable	*df*	*F*	*p*	*η*
Complexity (C)	1	3.590	.060	.025
Widow Status (WS)	2	.336	.715	.005
C x WS	2	.642	.528	.009
Error	142	(1.544)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.9

Effects of Complexity and Widowed Status on Satisfaction with Available Information

Variable	*df*	*F*	*p*	*η*
Complexity (C)	1	2.974	.087	.021
Widow Status (WS)	2	.727	.485	.010
C x WS	2	1.438	.241	.020
Error	142	(.835)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.10

Effects of Complexity and Widowed Status on Satisfaction with Their Role in the Decision

Variable	*df*	*F*	*p*	*Ŋ*
Complexity (C)	1	.032	.858	.001
Widow Status (WS)	2	.047	.954	.001
C x WS	2	2.278	.106	.031
Error	141	(2.064)		

* = $p < .05$; Values in parentheses represent mean square error.

Table 5.11

Predictors of Widowed Women's Mean Time Spent per each Piece of Information Viewed *When Making the Decision*

Variable	*β*	*t*	*p*
Age (A)	.663	2.034	.045*
Complexity (C)	-2.259	-2.895	.005*
Loss Orientation (LO)	-.450	-1.475	.144
Restoration Orientation (RO)	-.824	-2.295	.024*
C x A	-.324	-.988	.326
C x LO	.779	1.555	.124
C x RO	1.504	2.150	.035*

* = $p < .05$; Standardized Coefficients are reported.

Table 5.12

Predictors of Widowed Women's Total Time to Make the Decision

Variable	β	*t*	*p*
Age (A)	.240	.639	.525
Complexity (C)	.380	.422	.674
Loss Orientation (LO)	.228	.649	.518
Restoration Orientation (RO)	.003	.007	.994
C x A	-.152	-.403	.688
C x LO	-.369	-.640	.524
C x RO	-.015	-.018	.985

* = $p < .05$; Standardized Coefficients are reported.

Table 5.13

Predictors of Widowed Women's Proportion of Information Examined when Making the Decision

Variable	*β*	*t*	*p*
Age (A)	-.292	-.860	.392
Complexity (C)	1.008	1.242	.218
Loss Orientation (LO)	.369	1.163	.248
Restoration Orientation (RO)	.589	1.578	.119
C x A	.000	.000	1.000
C x LO	-.609	-1.168	.246
C x RO	-.838	-1.152	.253

* = $p < .05$; Standardized Coefficients are reported.

Table 5.14

Predictors of Widowed Women's Proportion of Information Examined Regarding Surgery and Chemotherapy When Making the Decision

Variable	*β*	*t*	*p*
Age (A)	-.383	-1.135	.260
Complexity (C)	.410	.508	.613
Loss Orientation (LO)	.467	1.481	.143
Restoration Orientation (RO)	.171	.461	.646
C x A	.144	.424	.673
C x LO	-.847	-1.635	.106
C x RO	-.095	-.131	.896

* = $p < .05$; Standardized Coefficients are reported.

Table 5.15

Predictors of Widowed Women's Proportion of Information Examined Regarding Surgery and Chemoradiotherapy When Making the Decision

Variable	*β*	*t*	*p*
Age (A)	.150	.441	.661
Complexity (C)	.597	.735	.465
Loss Orientation (LO)	.309	.974	.333
Restoration Orientation (RO)	.528	1.412	.162
C x A	-.387	-1.132	.261
C x LO	-.253	-.485	.629
C x RO	-.750	-1.030	.306

* = $p < .05$; Standardized Coefficients are reported.

Table 5.16

Predictors of Widowed Women's Proportion of Information Examined Regarding Palliative Care When Making the Decision

Variable	*β*	*t*	*p*
Age (A)	-.308	-.865	.389
Complexity (C)	1.366	1.601	.113
Loss Orientation (LO)	.003	.009	.993
Restoration Orientation (RO)	.689	1.756	.083
C x A	.048	.134	.894
C x LO	-.193	-.353	.725
C x RO	-1.215	-1.589	.116

* = $p < .05$; Standardized Coefficients are reported.

Table 5.17

Predictors of the Degree to Which Widowed Women Were Satisfied Overall With the Decision They Made

Variable	*β*	*t*	*p*
Age (A)	.227	.667	.507
Complexity (C)	-.142	-.175	.861
Loss Orientation (LO)	.527	1.659	.101
Restoration Orientation (RO)	.097	.261	.795
C x A	-.244	-.714	.478
C x LO	-.771	-1.478	.143
C x RO	.551	.756	.452

* = $p < .05$; Standardized Coefficients are reported.

Table 5.18

Predictors of Widowed Women's Satisfaction with Degree of Difficulty

Variable	β	*t*	*p*
Age (A)	-.213	-.579	.564
Complexity (C)	.886	1.004	.318
Loss Orientation (LO)	-.009	-.026	.979
Restoration Orientation (RO)	.412	1.015	.313
C x A	.286	.771	.443
C x LO	.077	.136	.892
C x RO	-1.159	-1.465	.147

* = $p < .05$; Standardized Coefficients are reported.

Table 5.19

Predictors of Widowed Women's Satisfaction with Available Information

Variable	*β*	*t*	*p*
Age (A)	.388	1.141	.257
Complexity (C)	.242	.297	.767
Loss Orientation (LO)	.454	1.428	.157
Restoration Orientation (RO)	.122	.325	.746
C x A	-.465	-1.358	.178
C x LO	-1.026	-1.963	.053*
C x RO	.366	.501	.618

* = $p < .05$; Standardized Coefficients are reported.

Table 5.20

Predictors of Widowed Women's Satisfaction with their Role in the Decision

Variable	*β*	*t*	*p*
Age (A)	-.323	-.933	.354
Complexity (C)	2.344	2.834	.006*
Loss Orientation (LO)	.749	2.306	.024*
Restoration Orientation (RO)	.598	1.567	.121
C x A	.444	1.278	.205
C x LO	-1.606	-3.018	.003*
C x RO	-1.133	-1.535	.129

* = $p < .05$; Standardized Coefficients are reported.

Table 5.21

Predictors of Women's Hypothetical Collaborative Decision Making Preference

	Married			Widowed		
Variable	*B*	*t*	*p*	*β*	*t*	*p*
Age (A)	1.579	2.807	.007*	.168	.393	.695
Complexity (C)	-.291	-1.769	.083	-.005	-.042	.966
Widow Status (WS)	-.834	-1.480	.145	.103	.272	.787
A x C	-2.039	-2.882	.006*	-.272	-.648	.519
A x WS	.045	.097	.923	.032	.083	.934
C x WS	1.219	1.772	.082	-.163	-.444	.658
A x C x WS	.161	.300	.765	-.090	-.234	.816

* = $p < .05$; Standardized Coefficients are reported.

Table 5.22

Predictors of Women's Collaborative Decision Making Preference

	Married			Widowed		
Variable	*β*	*t*	*P*	*β*	*t*	*p*
Age (A)	.927	1.582	.120	.441	1.030	.306
Complexity (C)	-.096	-.559	.579	.013	.109	.914
Widow Status (WS)	-1.302	-2.220	.031*	-.216	-.572	.569
A x C	-1.289	-1.749	.086	-.471	-1.121	.266
A x WS	-.507	-1.042	.302	.387	1.000	.320
C x WS	1.398	1.952	.056	.206	.562	.575
A x C x WS	.714	1.279	.207	-.406	-1.057	.294

* = $p < .05$; Standardized Coefficients are reported.

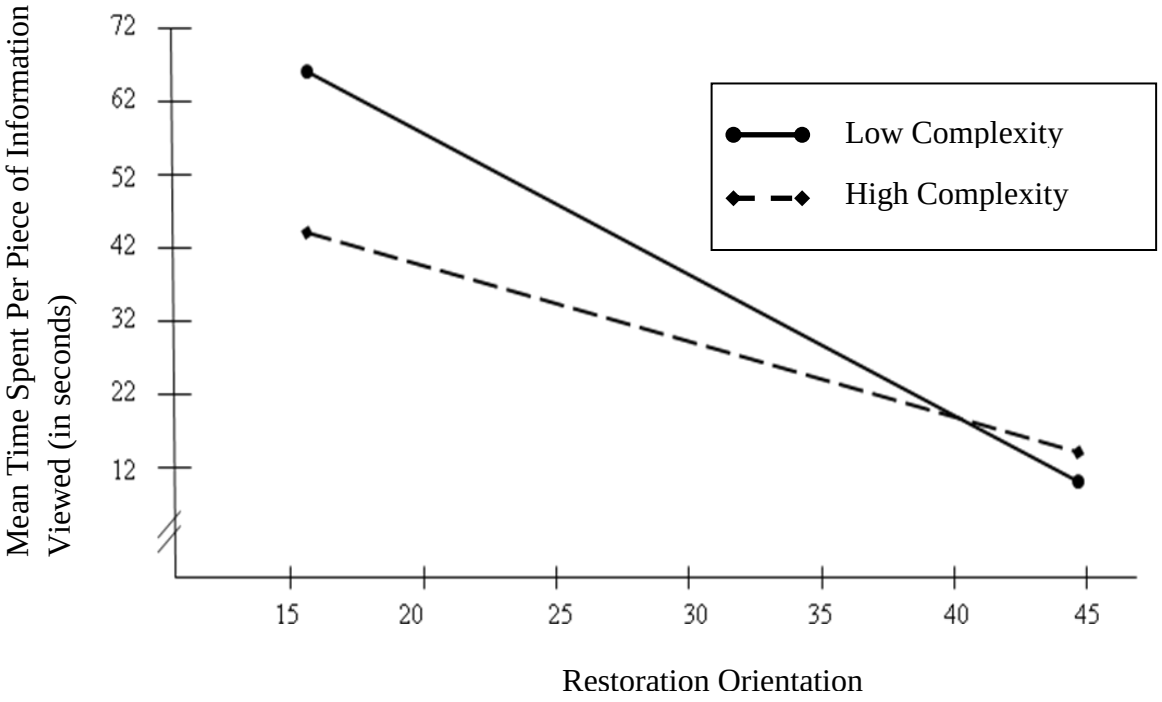

Figure 5.1. Effect of Restoration Orientation on the Mean Time Spent Per Each Piece of Information for the Low and High Complexity Decision Tasks

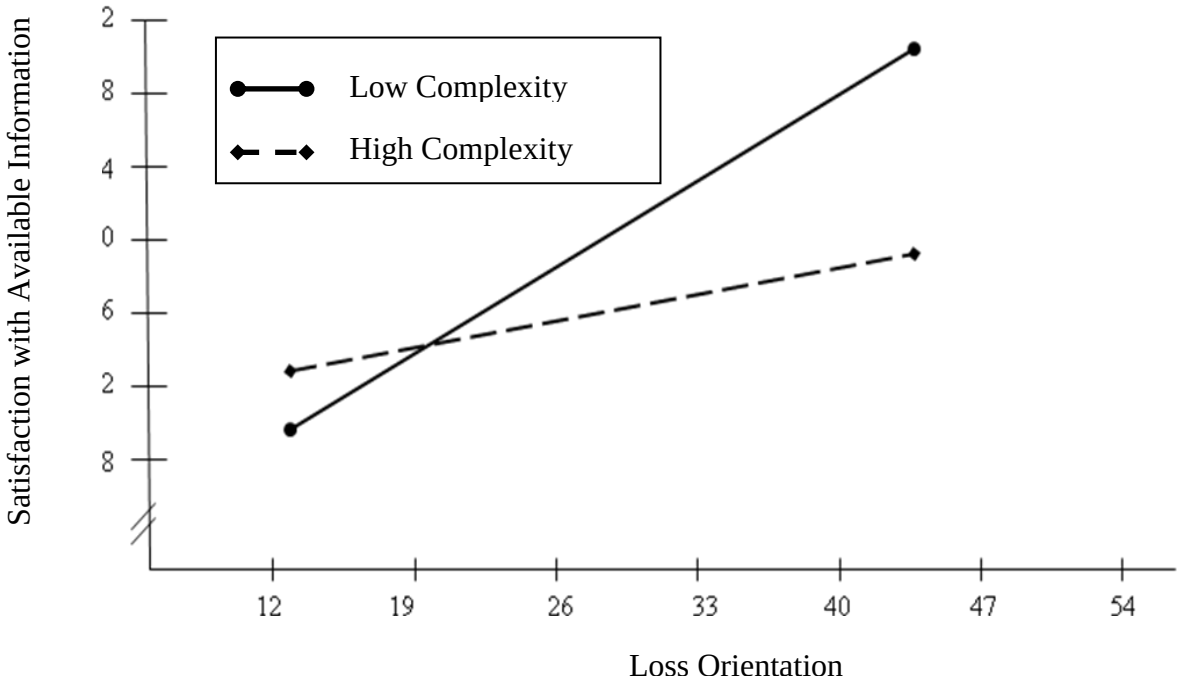

Figure 5.2. Effect of Loss Orientation on Satisfaction with Available Information for the Low and High Complexity Decision Tasks

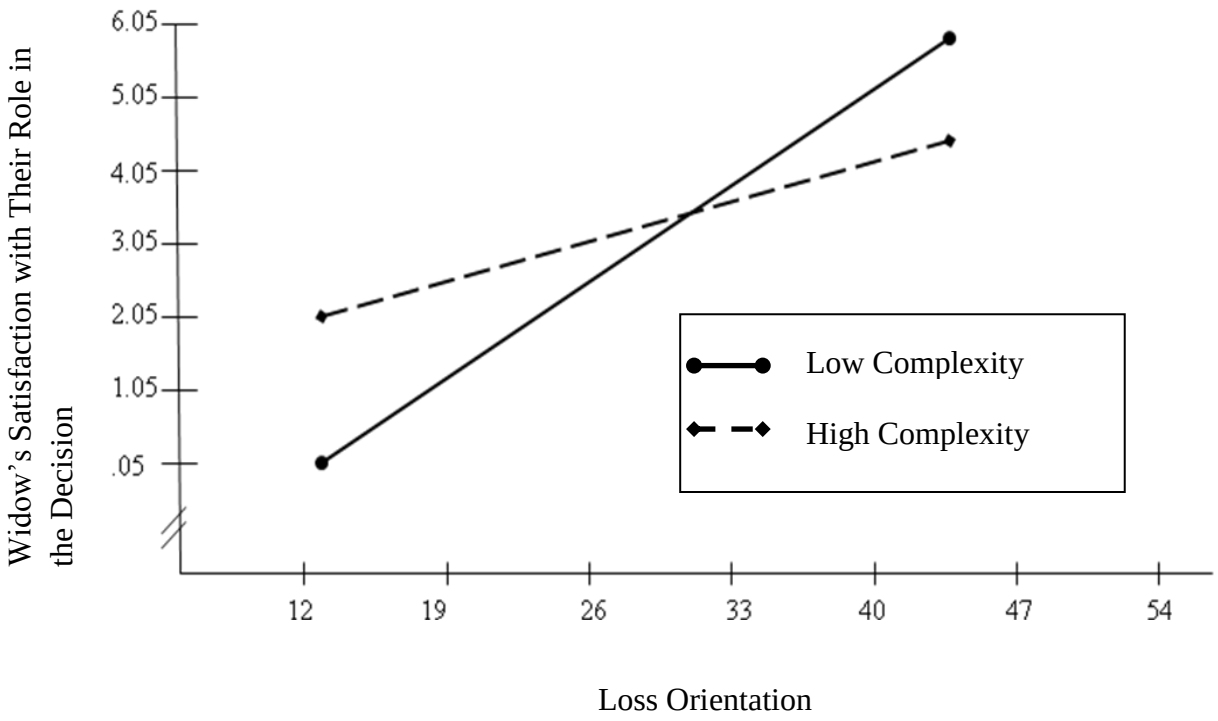

Figure 5.3. Effect of Loss Orientation on Widow's Satisfaction with Their Role in the Decision for the Low and High Complexity Decision Tasks

Chapter 6: Discussion

The goals of this dissertation were to compare married and widowed older adult women's approaches to making decisions, examine how individual difference factors influenced decision processing and satisfaction, and married and widowed women's preferences for involving others in their decisions. The discussion of the results is organized as follows: (a) an interpretation of the results for each of the specific aims, (b) implications for theory, (c) limitations and future directions, and (d) conclusions.

Specific Aim I

The first specific aim examined the influence of task complexity, and widowed status (recent widow, long-term widow, or married) on the decision-making process. It was hypothesized that complexity, widowed status, and the interaction between complexity and widowed status would influence the decision-making process. These hypotheses were partially supported. The following sections provide an in-depth discussion of the effects of task complexity and widowed status, on the measures of time and information use, with age as a covariate when making the decision.

Decision time. Decision time was defined as the average time women spent viewing information and the total time it took to make the decision for this dissertation. When examining the average time women spent viewing information and the total time it took to make the decision only one significant effect emerged. Task complexity was associated with the average time viewing information, such that women who completed the simple task spent significantly more time than women who completed the complex task. This finding is consistent with previous research which showed that as complexity increased, the average time spent viewing each piece of information decreased (Hanoch,

Wood, Barnes, Liu, & Rice, 2011) and as complexity increased, the total decision time decreased (Onken et al., 1985). Complexity might theoretically be considered another stressor which short circuits decision making capabilities, resulting in less time because the additional information overwhelms the decision maker (Janis & Mann, 1977), and the increased stress leads to a decline in decision making (Brand, Heinze, Labudda, & Markowitsch, 2008; Garvey & Klein, 1993; Starcke & Brand, 2012).

As few studies have sought to examine the influence of widowed status on the decision making process, one of the goals of this dissertation was to address this gap. Results showed that widowed status had no effect on decision time. This suggests that being married, recently widowed, or a long-term widow has no effect on mean time spent per each piece of information viewed or the total time to make the decision. Widowhood, however, is an extremely stressful life event (Stroebe, Stroebe, and Hansson, 1993), and too much stress is detrimental to decision making (Garvey & Klein, 1993; Janis & Mann, 1977), but this was not the case in this study. Perhaps this is due to the fact that the majority of the recent widows were widowed for more than a year, and they have been able to largely adjust to the death of their spouses. If more widows were included who were widowed less than a year, the results would likely be different.

Information use. For both widowed and married women, complexity played an important role in women's information use. Information use was defined as the proportion of total information examined and the proportion of information examined regarding surgery and chemotherapy, surgery and chemoradiotherapy, and palliative care/ no treatment. Specifically, as complexity increased, the proportion of total information examined decreased, along with the proportions of information pertaining to surgery and

chemotherapy, and surgery and chemoradiotherapy. In contrast, Hanoch et al. 2011 included younger adults and reported that older adults searched a greater proportion of information and reacquired more information than younger adults and this effect was intensified when complexity increased (Hanoch, Wood, Barnes, Liu, & Rice, 2011).

Widowed status influenced the proportion of total information examined and the proportion of information regarding surgery and chemoradiotherapy. Specifically, married women examined a larger proportion of information than long-term widows for each of these variables. This result was surprising because it was expected that recent widows would view a smaller proportion of information than married women or long-term widows (Wilcox et al., 2003). The fact that recently widowed women were not different from the married or long-term widow could be due to the fact that the majority of the recent widows had been widowed for longer than a year. This may have reduced their stress and resulted in them making the decision similarly to the married women and long-term widows. Perhaps the married women and long-term widows differed in the amount of information they used because the married women were experiencing that additional stress whereas the long-term widows had adjusted to the death of their spouse and were able to make the decision alone.

Specific Aim II

The second specific aim examined the influence of task complexity and widowed status on decision making satisfaction. It was hypothesized that complexity, widowed status, and the interaction between them would influence decision-making satisfaction. These hypotheses were not supported. The following sections provide an in-depth discussion of these findings.

Consistent with the literature showing that higher complexity leads to lower satisfaction with the decision (Haynes, 2009; Iyengar & Lepper, 2000), it was found that higher complexity resulted in lower overall satisfaction with the decision. In addition, it was hypothesized that increased complexity would result in stronger feelings of dissatisfaction with the degree of difficulty, decreased satisfaction with available information, and dissatisfaction with their role in the decision. However, these hypotheses were not supported. This may be due to a difference between generalized overall satisfaction and more specified sources of satisfaction, such as satisfaction with the difficulty level, the available information, or their role in the decision. Cancer decisions are likely difficult regardless of the complexity of the decision. Therefore, it is possible that in the present study, using a cancer treatment decision task overwhelmed any satisfaction related to the complexity involved. Thus, theoretically, a relationship between complexity and satisfaction might be dependent on the types of decisions made.

Widowed status was hypothesized to influence women's decision making outcomes. Specifically, it was anticipated that recently widowed women would be less satisfied than married women or long-term widows (Stalmeier et al., 2005). It was also anticipated that married women will would be less satisfied with the decision than long-term widows (Strough, Cheng, & Swenson, 2002). These hypotheses were not supported, suggesting that widowed status does not influence decision satisfaction. With respect to satisfaction with the overall decision and with the available information, all three groups indicated they were satisfied. With respect to satisfaction with the degree of difficulty of the decision, the three groups were not satisfied with the degree of difficulty. Lastly, when examining satisfaction with their role in the decision, all three groups'

satisfaction levels were around the midpoint of the scale. Thus, they were neutral on whether they had someone else decide for them or make the decision for themselves. It is not clear why this pattern of findings emerged. Future research is needed to better understand how widowed status impacts perceptions of decision making and decision satisfaction.

Specific Aim III

The third specific aim focused only on the widowed women and the factors that influenced widowed women's decision processing and satisfaction. Specifically, it was hypothesized that age, task complexity, loss orientation, and restoration orientation would influence decision processing and satisfaction. These hypotheses were partially supported. The following sections provide an in-depth discussion of these findings.

Measures of time. It was hypothesized that age, task complexity, loss orientation, and restoration orientation would influence the total time on the decision and the mean time spent per piece of information viewed. Consistent with some previous studies, age was not related to the total amount of time widowed women allocated to the decision task but being older was associated a higher mean time spent per piece of information viewed (Johnson, 1990; Johnson & Drungle, 2000). Higher complexity was expected to affect decision times of widows, which was true for the mean time spent per each piece of information viewed. In addition, increased restoration orientation led to a lower mean time spent per piece of information viewed. This was unanticipated because if a widow had moved to restoration-oriented coping where she incorporated the death of her spouse into her life, she was expected to spend more time examining pieces of information to make the decision.

These hypotheses were based on expectations that the relationship between time and the disruption of information processing capabilities was linear. However, like the theoretical relationship between stress and decision making capabilities (Janis & Mann, 1977), the effect may be an inverted U such that with too much disruption women are incapable of making good decisions but with time the disruption decreases but it still takes more effort to make decisions until normalcy is restored and they become more efficient once again. This is because she should be able to think more rationally now and examine the information closely (Stroebe & Schut, 1999; Janis & Mann, 1977). This interpretation is supported by the significant complexity by restoration orientation interaction, which showed for both high and low complexity, as restoration orientation increased, the average time spent viewing each piece of information decreased, with this effect being stronger for low complexity. This interaction indicates that the relationship between age, restoration orientation, and average time spent viewing each piece of information is more complex than simple linear hypotheses involving age or restoration orientation alone.

Measures of information use. Analyses of the effects of age, complexity, loss orientation, and restoration orientation and the interactions between complexity and these variables for the proportion of total information examined and the proportion of information regarding surgery and chemotherapy, surgery and chemoradiotherapy, and palliative care/no treatment revealed no main effects and no interactions. It was hypothesized that being older or loss orientation would result in a lower proportion of information examined. Although the literature has not examined the role of loss orientation on information processing, it was anticipated that if a widow focused on the

death of her loved one and had not integrated it into her life, then she would have difficulty making the decision such that she would examine a lower proportion of information (Janis & Mann, 1977; Stroebe & Schut, 1999) when compared to widows with lower loss orientation. In addition, it was anticipated that higher levels of restoration orientation would lead to an increase in the proportion of information examined. However, these hypotheses were not supported suggesting that in the context of this dissertation age, loss orientation, restoration orientation, and complexity did not influence information use. This could be due to a number of explanations including that perhaps this group of widows is homogenous in terms of both age and adaptation to the death of their spouse so that the variables were not significant.

Decision satisfaction. Age, complexity, loss orientation, and restoration orientation were expected to influence overall decision satisfaction, satisfaction with difficulty level, with available information, and with their role in the decision. For the decision satisfaction measures, it was found that age, complexity, and loss orientation have little to do with overall decision satisfaction. It was predicted that being older would result in widowed women being more satisfied with their decision. In addition, it was predicted that higher complexity or loss orientation would lead to decreased satisfaction (Stroebe & Schut, 1999; Haynes, 2009; Iyengar & Lepper, 2000). The differences in these findings and predictions could be attributed to the fact that these women did not see the complex task as more difficult, because they simply examined a smaller amount of information. However, the other two decision satisfaction measures did produce significant findings. First, there was a significant task complexity by loss orientation interaction for satisfaction with the available information. However, the

simple effects were not significant. Secondly, as was predicted, complexity and loss orientation were both significant for satisfaction with their role in the decision. An increase in complexity or loss orientation was associated with an increased satisfaction of their role in the decision, indicating that complexity and coping styles do have an impact on widows' abilities to make decisions. However, these main effects were overshadowed by a complexity by loss orientation interaction, indicating that for low complexity, as loss oriented coping increased, satisfaction with their role in the decision increased. Loss orientation was not significantly related to satisfaction with their role in the decision for high complexity. This finding was surprising because based on previous research; one would expect the results to be reversed for low and high complexity (Hanoch, Wood, Barnes, Liu, & Rice, 2011; Stroebe & Schut, 1999). Perhaps when dealing with a highly complex task, both recent and long-term widows are likely to want someone else to decide for them regardless of their loss orientation.

Specific Aim IV

The fourth specific aim examined the factors that predict preferences for including others or seeking information from others when making decisions. This aim examined preferences for collaboration for both the decision task that was completed and for a major medical decision for themselves. It was hypothesized that age, complexity, years married for the married women, and years widowed for the widowed women would influence preferences for collaboration. These hypotheses were not supported. The following sections provide an in-depth discussion of these findings.

Collaborative decision making preference for decision task and self.

Consistent with previous studies (Meegan & Berg, 2002), it was hypothesized that

increased age would result in stronger preferences for collaboration for both married and widowed women and for both the decision task and themselves. In addition, both married and widowed women were expected to prefer to collaborate more on the complex task than on the simple task, and married women would prefer to collaborate regardless of years married, whereas recent widows would prefer to collaborate more than long-term widows. However, none of these predictions were supported. For the hypothetical collaborative decision making preference, the overall model was not significant; however, age was a significant predictor. When examining the variables more closely, perhaps age is acting as a suppressor variable. This same explanation may be true with respect to widowed status for the collaborative decision making preference for self variable.

Implications for Theory

From a theoretical standpoint, the findings from this dissertation stand to make several contributions to the literature on widowed women's decision making abilities. For instance, higher complexity resulted in women spending less time per piece of information and examining a smaller percentage of total information, surgery and chemotherapy information, and surgery and chemoradiotherapy information. Janis and Mann (1977) suggest that an optimal level of stress is essential to making good decisions. Too much or too little hinders one's ability to make decisions. Perhaps, higher complexity creates additional stress which leads to defensive avoidance or hypervigilance. Specifically, the higher complexity creates stress that overwhelms the widow and she may be unable to see any of the alternatives as good. She then copes by either procrastinating or having someone else make the decision. Alternatively, she could

believe that there is too much information, not enough time, and become anxious and unable to make the decision.

Another plausible explanation can be made in terms of selective optimization with compensation (Baltes & Carstenson, 1999). Perhaps women in the high complexity condition spent less time per piece of information and examined smaller percentages of information for the high complexity task because they were compensating for their inability to retain information for an extended amount of time.

Lastly, these results can be explained in terms of family systems theory (Walsh, 2010). The death of a spouse disrupts the family system's equilibrium, resulting in widows losing roles and gaining other roles within the system. While the family system adapts to the role changes, more complex decisions may require different members within the system to take on additional roles to obtain equilibrium. For example, suppose a husband dies who made decisions related to car maintenance and repair and yard work. In order for equilibrium to be maintained in the family system, the widow or another family member has to take on the role of dealing with car maintenance and yard work. In the current study, as all women made the decisions alone, they did not have members of their family available to help them out, which could explain why higher complexity led to a lower mean time spent per piece of information examined and a smaller proportion of total information, surgery and chemotherapy information, and surgery and chemoradiotherapy information examined.

Widowed status influenced the proportion of total information and the proportion of surgery and chemoradiotherapy information examined. Specifically, married women examined a greater proportion of information than long-term widows. There were no

significant differences when comparing recent widows to long-term widows or married individuals. This result could be explained by conflict theory or system's theory. Perhaps the long-term widows have never returned to their baseline level of functioning; that is, the same level of functioning as when married. It is possible that the recent widows were better able to adjust and thus, they do not differ from either the married or long-term widowed. Therefore, they are still experiencing higher levels of stress that interfere with their ability to make decisions (Janis & Mann, 1977) and/or they have been unable to reestablish equilibrium in their family system which is hindering their ability to make decisions (Walsh, 2010). Lastly, selective optimization with compensation could help explained this result (Baltes & Carstenson, 1999). Specifically, the long-term widows are likely compensating for their cognitive decline due to the stress associated with widowhood by examining a smaller proportion of information. The married women, however, are still able to look at a larger amount of information in order to make the decision.

Restoration orientation interacted with task complexity for the mean time spent viewing per each piece of information viewed. Specifically, as restoration orientation increased the mean time spent per piece of information decreased for both high and low complexity, with the effect being stronger for low complexity. According to Stroebe and Schut (1999), individuals oscillate between loss oriented coping and restoration oriented coping. Restoration orientation is important for decision processing, as it shows that an individual has returned to their equilibrium. In other words, individuals high in restoration orientation would likely be able to make decisions like they had before the death of their spouse. Perhaps the interaction between restoration orientation and

complexity was not as strong for high complexity because the stress associated with the death of their spouse along with the high complexity task lead to a significant amount of stress that resulted in a weaker connection between restoration orientation and high complexity. In addition, in the high complexity task, these widows were unable to compensate for their inability to make the decision, resulting in a weaker relationship among the variables (Baltes and Carstenson, 1999). Another explanation could be that the widows' stress level was too high on the high complexity task, which inhibited them from processing the information quickly (Janis & Mann, 1977).

In addition, loss orientation interacted with task complexity for their satisfaction with their role in the decision. Specifically, for low complexity, as loss oriented coping increased, satisfaction with their role in the decision increased. Loss orientation was not significantly related to satisfaction with their role in the decision for high complexity. Loss orientation is where the person is preoccupied with the death and because they are preoccupied with the death, their stress levels are high, leading to suboptimal decision making and less satisfaction with their role in the decision. The interaction between loss orientation and complexity for satisfaction with their role in the decision can be explained by the conflict theory of decision making (Janis & Mann, 1977). For the high complexity task, perhaps their stress levels were too high for their loss orientation to be associated with their satisfaction with their role at all, but for the low complexity task, they were satisfied with their role even if their loss orientation was high, because the complexity of the task did not add to the stress they experienced from the death of their spouse.

These results suggest that when developing theories of the impact of widowed status on decision making, task complexity, restoration orientation and loss orientation

should be included. Task complexity was consistently crucial when examining these women's decision processing abilities, however, restoration and loss orientation were not always significant. The relationships between these variables are not clear. Thus, including all of these variables in future research will allow researchers to get a better understanding of their impact on decision making.

Clinical Implications

There are several clinical implications of this dissertation. First, since widowhood did influence decision processing, the development of aids to help these individuals make decisions is pertinent. For example, it is important for that clinicians working with older widows to understand that individual who seeks out help when their spouse dies will have different needs and be at different stages of bereavement as well as equilibrium in terms of the how the family system is adjusting to the change. Suppose an 86-year-old recently widowed (within the past year) woman sought help with decision making because she had been in charge of everyday household decisions, but since her husband's death, she is now in charge of all the finances and house repair decisions. The death of her spouse and the additional roles she now has are overwhelming to her and her stress level is very high. One way clinicians could help her is to discuss how she has made previous decisions in her life, and help her apply those skills to these new decision domains. This would help her decrease her stress levels and make better decisions overall (Janis & Mann, 1977).

A second way clinicians could help her is to use decision aids to teach her new ways to make decisions. She could focus on the decisions that she enjoys, optimize those decisions, and if there comes a time when she can no longer make them effectively, she

could compensate by allowing another individual, perhaps a family member to help (Baltes & Carstensen, 1999). If she were to seek help with the decision from a family member, this would help to get the family system back to equilibrium (Walsh, 2010). The optimal goal would be to help her use decision aids so that she becomes comfortable making these decisions and can integrate them into her life (Stroebe & Schut, 1999). This will allow her to benefit because she will be able to complete the tasks that she needs to complete and it will make the transition from loss orientation to restoration orientation much smoother.

Limitations and Future Directions

There are several limitations to this dissertation. First, a hypothetical decision task, albeit a real world decision, was used rather than having participants make a decision that would have a direct impact on them. Individuals may make different types of decisions when making them for themselves (Löckenhoff & Carstensen, 2008). However, using a hypothetical decision making task provided structure that allowed the author to track decision processing using a computer. Second, because only older widows and married women were included in this dissertation, the results are not able to be generalized to all widows and how they make decisions. Future studies should include younger widows and married women to get a better understanding of how age and widowhood influence decision making.

Third, although the literature shows that adjustment to widowhood occurs 1-2 years after the death of a spouse, perhaps individuals who have only been widowed for six months or less are different with respect to decision making than those who have been widowed one to two years. Future studies should include more recently widowed women

than this study included along with long-term widows. Another limitation of this dissertation is it is likely that the widows who chose to participate were coping better with the death of their husband than those widows who chose not to participate. This is a problem because it does not allow researchers to fully study and understand the influence of widowed status on decision making when individuals who are not coping well are not included.

One of the strengths of this dissertation is that in examining the effects of widowhood on decision making, a comparison group of married women was included. However, future studies addressing the effects of marital status on decision making should include male widowers, as they are likely to be distinctly different from female widows when making decisions. A final limitation of this dissertation is that the sample lacked diversity. Participants were recruited from Central Kentucky and Northwestern Pennsylvania. In addition, the majority of women became widows because their husbands died of old age or of a chronic illness. It would be interesting to see if the results from this study would change if death occurred unexpectedly such as from murder, suicide, death at a an early age. Lastly, including a measure of stress and coping would provide additional information about the effects of stress on decision making in widowhood.

Conclusions

The findings from this study offer unique insights into how widowed status influences decision making. Given that women outlive men and the baby boomer generation is aging, understanding the influence of widowhood on decision making is important, as the majority of the older population will experience the death of a spouse.

In addition, finding what leads to satisfaction with decisions and preferences for collaboration is important so that decision aids can be developed to make the transition from spouse to widow a smoother one. This dissertation provided a solid beginning to understanding decision making in widowhood. Future studies should continue to be developed to untangle the variables that are thought to influence decision making in widowhood since the majority of older women will experience this traumatic event.

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COURTNEY LEEANN ORTZ, MSW, PHD

EDUCATIONAL BACKGROUND

PhD in Gerontology
UNIVERSITY OF KENTUCKY– Lexington, Kentucky; Successfully defended July 2013

MSW, Hartford Partnership Program for Aging Education (HPPAE) Fellow (April 2013)
UNIVERSITY OF PITTSBURGH – Pittsburgh, Pennsylvania

MS, Experimental Psychology (August 2006)
WESTERN KENTUCKY UNIVERSITY – Bowling Green, Kentucky

BS in Psychology (December 2003)
CLARION UNIVERSITY – Clarion, Pennsylvania

PROFESSIONAL EXPERIENCE

SKYLINE MADISON CAMPUS, MADISON, TN
8/13-PRESENT
GERIATRIC SOCIAL WORKER

ALWAYS BEST CARE, PITTSBURGH, PA
2/2013–5/2013
Caregiver

HERITAGE HOSPICE, NEW KENSINGTON, PA
6/2012-5/2013
Per Diem Medical Social Worker

UNIVERSITY OF PITTSBURGH MEDICAL CENTER, PITTSBURGH, PA
9/2012–4/2013
MSW Intern, Benedum Geriatric Center

UNIVERSITY OF PITTSBURGH MEDICAL CENTER, PITTSBURGH, PA,
8/2012-12/2012
MSW Intern, College of Medicine

UNIVERSITY OF PITTSBURGH MEDICAL CENTER, MCKEESPORT, PA
3/2012-5/2012
MSW Intern, Community LIFE

UNIVERSITY OF PITTSBURGH MEDICAL CENTER, TRAFFORD, PA
9/2011-2/2012

MSW Intern, Living-at-home/Staying-at-home

WESTERN KENTUCKY UNIVERSITY
7/2010-6/2011
Instructor, Psychology department

UNIVERSITY OF KENTUCKY
8/2006-6/2010
Research Assistant, Gerontology department

WESTERN KENTUCKY UNIVERSITY
8/2004-7/2006
Research Assistant, Psychology department

HONORS AND MEMBERSHIPS

Sigma Phi Omega, Gamma Mu Chapter Member, University of Kentucky, Lexington, KY
2008-present; Secretary/Treasurer, 2008-2009

Gerontological Society of America (GSA), Member 2006-present.

Psi Chi Honor Society in Psychology, 2001-2003

SERVICE ACTIVITIES

Volunteer, Hospice of the Bluegrass, Lexington, KY, 2010
Abstract Reviewer for GSA, 2008
Student Representative, Curriculum Committee, Graduate Center for Gerontology, University of Kentucky, 2007-2009
Volunteer, Beverly Health Care, Clarion, PA, 2004