

Expressed Emotion in Families with Mild Cognitive Impairment

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ABSTRACT

Mild cognitive impairment (MCI) is a medical diagnosis that is conceptualized as existing on a continuum between normal cognitive aging and dementia. While a growing body of research has established the impact of this condition on family members' emotional well-being, as well as the quality of family relationships, the reciprocal impact of family dynamics and the family environment on illness course has received much less attention. This mixed methods study applied the attribution model of expressed emotion (EE) to test the validity of EE in predicting the illness course of MCI, and to identify family members' attributions regarding MCI-related behaviors and symptoms that underlie their EE status. The study sample included 57 family dyads consisting of a person with MCI and a family member providing primary care or assistance. The results of the ANCOVA did not support the hypothesis that EE status would predict changes in the non-cognitive features of MCI over time. However, methods of thematic analysis revealed four major themes, or care partner attributional stances: (a) non-blaming, (b) blaming, (c) variable, and (d) no identified. The analysis also revealed three subthemes, or attributional styles, within the variable stance: (a) ambivalent, (b) mixed, and (c) complex. These attributional stances and styles intersected with family EE status in notable ways and form the basis for future research in this area, as well as clinical interventions with these families that promote adaptation to the illness.

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Dedication

To Babci.

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Chapter One

INTRODUCTION

Background and Significance

Mild cognitive impairment (MCI) is a diagnosis that refers to self-reported changes in memory and executive functioning that are uncharacteristic for a person's age (Petersen, 2004). These cognitive changes, though noticeable, are not severe enough to warrant a formal diagnosis of dementia. Common characteristics of MCI include forgetfulness and deficits in memory and language, judgment, and decision-making skills (Bennett, 2004). In what often is referred to as a pre-caregiving stage of cognitive decline, MCI does not significantly impair abilities related to day-to-day functioning (Petersen, 1999). Although individuals with MCI may require some assistance in certain areas (e.g., cooking, shopping, managing finances), they are typically able to function independently, as compared to those with more severe forms of cognitive impairment such as Alzheimer's disease (Petersen, 2004). In fact the term, *care partner*, has recently been introduced into the literature on MCI to reflect that the type of assistance provided by relatives of individuals with MCI is qualitatively distinct from that provided by *caregivers*, a term reserved for more intensive assistance provided by family members with more progressed forms of cognitive impairment (Blieszner, Roberto, Wilcox, Barham, & Winston, 2007).

MCI is generally regarded as a prodromal or transitional phase between normative, age-related memory loss and dementia (Bennett, 2004; Bruscoli & Lovestone, 2004; Burns & Morris, 2008). Dementia is a general term that refers to decline in cognitive abilities significant enough to interfere with performing everyday activities

(Alzheimer's Association, 2011), and captures a broad range of possible symptoms and functional impairments. Nearly half of those who receive a diagnosis of MCI will develop dementia within three to four years (Alzheimer's Association, 2011). While a diagnosis of MCI is a strong predictor of future onset of dementia (Alzheimer's Association, 2011; Larrieu et al., 2002; Petersen et al., 1999), not all persons with MCI will progress to more advanced levels of impairment. In some cases, symptoms may stabilize, slowly progress, or occasionally improve (Petersen et al., 1999). The reasons for the variability in the progression of MCI are not fully understood. Depression demonstrates some predictive validity for conversion of MCI to dementia (Gabryelewicz et al., 2007; Panza et al., 2010). However, it is debated as to whether depression is actually a risk factor for this crossover, or whether depression is simply an early manifestation of dementia. Other risk factors associated with the progression from MCI to dementia include genetic variants, and the presence of various biomarkers (Panza et al., 2010).

Given that the prevalence of MCI among adults age 65 and older is estimated to be between 10% and 20% (Hanninen, Hallikainen, Tuomainen, Vanhanen, & Soininen, 2002; Lopez et al., 2003), it becomes clear that MCI directly affects a substantial portion of older adults. Moreover, the prevalence of MCI is expected to rise as the Baby Boom generation advances through the stages of late adulthood (Petersen, 2004). The impact of MCI is even more far-reaching when considering its effects on close family members of persons with MCI, who with the passage of time, are increasingly likely to provide some degree of assistance or care (Alzheimer's Association, 2011).

As with families adjusting to Alzheimer's disease, confusion and ambiguity

regarding the nature of MCI and its behavioral manifestations may be a significant source of stress for couples and families, and can stymie effective coping and adjustment (Boss, 2006). Part of the reason for this stress is that, by virtue of its mildness, MCI can be particularly difficult to discern from normal cognitive aging (Petersen, 1999). For instance, cognitive function and problem behaviors can fluctuate from day to day, causing confusion and doubt as to the whether a memory problem actually exists, and blurring appraisals of the cognitive and functional capabilities of persons with MCI (Blieszner et al., 2007; Roberto et al., 2011). Guided by the theory of ambiguous loss, Blieszner and colleagues (2007) found that ambiguity surrounding the current status of memory loss and future trajectory of the condition was a significant source of distress for couples adjusting to MCI.

The ramifications of MCI for care partners, including their personal well-being and interpersonal and family functioning, have been well established in the research literature. Among care partners of a person with MCI, high rates of mental health symptomology have been identified (Blieszner & Roberto, 2010; Garand, Dew, Eazor, Dekosky, & Reynolds, 2005; Lu et al., 2007), as have high levels of stress, as measured by changes in diurnal cortisol rhythms (Savla, Roberto, Blieszner, Cox, & Gwazdauskas, 2011). These outcomes may occur as a result of changes in daily routines, roles, responsibilities, and interactions associated with MCI that place significant strain on couple and family relationships (Blieszner & Roberto, 2010; Blieszner et al., 2007; Pasymowski, Roberto, & Blieszner, 2013; Roberto, Blieszner, McCann, & McPherson, 2011). For example, Blieszner and Roberto (2010) identified the potential for the behavioral manifestations of MCI to strain couple relationships, or exacerbate problems

in the relationship that preceded the onset of the condition. Additionally, the presence of specific behavioral manifestations of MCI have been shown to be strongly associated with lower care partner ratings of marital quality (Garand et al., 2007). MCI also appears to negatively impact communication and emotional intimacy in key family relationships (Blieszner et al., 2007).

While the negative impact of the behavioral manifestations of MCI has been well documented in terms of care partner psychosocial outcomes, as well as the quality of the relationship between care partner and the person with MCI, the literature is limited in providing only a unidirectional picture of phenomena occurring within families adjusting to MCI. Lacking is consideration and exploration of the ways in which family factors reciprocally influence the illness. The notion of circular causality (or bi-directionality) is one of the central tenets of family therapy that informs systemic approaches with couples and families (Watzlawick, Bavelas, & Jackson, 1967), and has provided useful insights about how to intervene with these complex systems. Essentially, circular causality challenges the traditional notions of linear causality, in which there is assumed to be a simple unidirectional relationship between cause and effect with regard to behaviors or events in the interpersonal realm. Circular causality goes further in recognizing that an “effect” (i.e., reaction) can reciprocally influence the original “cause” (i.e., action). Moreover, this perspective recognizes that the distinction between cause and effect may be arbitrary, and may be based on the way in which an observer chooses to punctuate the sequence of events and the relationship between behaviors (Watzlawick et al., 1967). Theoretically, a circular perspective is thought to provide a more complete picture of family dynamics. Applied to clinical practice, this perspective helps to avoid the pitfalls

of focusing on only one person's behavior, and appreciates the mutual influences of all members of the family system to the formation or resolution of the presenting problem (Watzlawick, Weakland, & Fisch, 1974). Addressing issues at a systemic level has been shown to have positive and lasting change within families (Fisch, Weakland, & Segal, 1982). In the context of MCI, it would therefore be equally important to appreciate the influence of the illness on families, as it would be to appreciate the reciprocal influence of family on illness course. So far, consideration of these mutual influences has not directly been investigated.

Research focusing on the influence of psychosocial factors, such as family emotional climate, on the illness course of psychiatric disorders has established that a family member's reactions to the behavioral manifestations of an illness reciprocally influence the mental health symptomology in the ill family member, including both relapse and symptom exacerbation (Hooley, 2007). Additionally, there is evidence in the dementia literature to support the notion that family emotional climate plays a role in the manifestation of a particular sub-set of disease symptoms known as non-cognitive features (Donaldson, Tarrier, & Burns, 1997; Vitaliano, Young, Russo, Romano, & Magana-Amato, 1993), which are distinct and delineated from cognitive features. Cognitive features pertain to declines in cognitive function and activities of daily living (ADLs), and are relatively non-distressing to caregivers and family members (Teri et al., 1992). Non-cognitive features refer to behavioral disturbances and affective symptoms, such as irritability or inactivity. Non-cognitive symptoms are typically more distressing than cognitive symptoms, and are associated with high levels of burden and depression among caregivers of those with dementia (Donaldson et al., 1997; Teri et al., 1992).

These particular symptoms are believed to cause greater distress due to the likelihood of family members perceiving them to be controllable by the patient, thereby engendering more negative or critical attitudes (Wearden, TARRIER, Barrowclough, Zastowny, & Rahill, 2000). It was theorized that when such attitudes are enacted or expressed in family members' interactions with the patient, this generates stress in the patient and further exacerbates the non-cognitive features of the illness (Donaldson et al., 1997). Despite this information about the reciprocal influences of family reactions on the non-cognitive symptoms and illness course of dementia, there has been no identifiable research examining the influence of these family factors on the variability in the non-cognitive features and illness course of MCI. As such, there is a need to explore the ways in which family factors may be related to symptomology and illness course of persons with MCI.

Expressed Emotion

The theoretical construct of EE is well-suited for examining the reciprocal influence of family factors on the illness course of MCI. EE is a measure of family emotional climate that is strongly associated with illness course of persons with psychological disorders (Barrowclough & Hooley, 2003; Leff & Vaughn, 1985). Specifically, EE has demonstrated strong predictive validity for both the relapse and remission of psychiatric symptoms (Hooley, 2007), and has been applied to a broad range of disorders, including Alzheimer's disease and other dementias (Donaldson et al., 1997; TARRIER, Barrowclough, Ward, Donaldson, Burns, & Gregg, 2002; Vitaliano et al., 1993). There are five main elements of EE: criticism, hostility emotional-over-involvement (EOI), warmth and positive remarks (Leff & Vaughn, 1985). Criticism refers to a relative's dislike or disapproval of a patient's behavior. Hostility refers to more

generalized critical attitudes or outright rejection of the patient as a person. Emotional over-involvement (EOI) reflects exaggerated, over-protective, or self-sacrificing behaviors or attitudes, which are often enacted by an intrusive style or extreme emotional distress with regard to the patient's behaviors. Warmth refers to statements indicating empathy toward the patient or interest in their activities and accomplishments. Positive remarks refer to praise or approval of the patient's behaviors or personality.

Based on Leff and Vaughn's (1985) conceptualization of EE, family members can be classified dichotomously as either high or low EE. The presence of sufficient levels or occurrences of criticism, hostility, and EOI among family members is grounds for a classification of high EE, and is highly predictive of relapse and increases in both symptom severity and frequency (Hooley, 2007). In the absence of these elements, or when these elements are at sub-threshold levels, family members are classified as low EE, which is associated with extended periods of symptom remission and fewer hospitalizations over time. Though not commonly used in rendering EE status, positive comments and warmth are associated with low EE classification, and are predictive of similar outcomes. This attests to the protective role that families can play in illness course (Lee, Barrowclough, & Lobban, 2014; Tienari et al., 2004). EE has been shown to be the most consistent predictor of psychiatric relapse (Hooley, 2007), and while this measure of family environment has been applied to various psychological disorders, including Alzheimer's disease, to date, it has not been applied to MCI.

EE research has been greatly enhanced by incorporating the framework of attribution theory to create what is known as the attribution model of EE (Barrowclough & Hooley, 2003; Hooley, 2007). It has proven useful to incorporate attribution theory

into conceptualizations of EE, as EE in itself is simply a relational construct that does not provide an explanation for the attitudes or beliefs that distinguish high and low EE family members and that underlie their reactivity. The attribution model of EE postulates that there are key differences in high and low EE families in terms of their fundamental attitudes and beliefs about the nature of the illness and its symptoms, the degree to which the ill family member has control over those symptoms, and how they should be managed or controlled (Tarrier et al, 2002). A tenet of attribution theory is that reactions to illness symptoms tend to be more negative and emotionally charged when behaviors are believed to be personal to and controllable by the patient, and this is theorized to account for high EE families, and less favorable clinical outcomes over time (Barrowclough & Hooley, 2003). Due to EE's strong predictive validity with psychiatric relapse and symptom exacerbation, EE research has also informed family-based intervention programs targeting family members' understanding of, and reactions to a broad range of clinical disorders (Hooley, 2007) and could prove useful for the development of interventions related to MCI.

EE and Cognitive Impairment

As previously mentioned, the construct of EE has been used in research on persons with Alzheimer's disease and their caregivers. A longitudinal study found that high EE in caregivers was predictive of increased frequency of non-cognitive features in Alzheimer's patients over time (Vitaliano et al., 1993). As predicted, EE had no bearing on changes in the cognitive features of Alzheimer's, characteristics the authors posited could only be related to the biological organicity of this neurological disorder, and not environmental or psychosocial factors. This study supports the predictive validity of EE

in care recipient outcomes in the context of MCI, and affirms that there is no relationship between EE and declines in the cognitive features of the illness.

The attribution model of EE has been applied to Alzheimer's disease, though research is limited in this area. A cross-sectional study by Tarrier and colleagues (2002) demonstrated a strong association between high EE status and non-cognitive features of the illness such as depression, psychotic symptoms, and behavioral disturbances, corroborating previous findings of Vitaliano and colleagues (1993). Tarrier and colleagues (2002) also found that high EE family members tended to make more attributions about negative behaviors that were personal to, and controllable by the patient, whereas an opposite tendency was shown for low EE family members, who attributed negative events as being outside of the patients' control. These findings point not only to the predictive validity of EE in the illness course of cognitive impairment, but also to the integral connection between attributions and EE in this context.

While the attribution model of EE has been applied to research on Alzheimer's disease, applications to MCI are more limited. A few studies lend support to the relevance of these theoretical frameworks to MCI, however. Although not derived a priori from the framework of EE or attribution theory, some preliminary findings have emerged from qualitative analyses of families with MCI regarding attributions and causal beliefs about MCI-related behaviors (Blieszner et al., 2007). These authors theorized that due to the ambiguity of the condition of MCI, care partners often wavered in their attributions of the causes of the behaviors of the person with MCI, which ranged from beliefs that behaviors were related to a disease process largely outside of their control, to notions that the person with MCI in fact had more control over these behaviors than they

simply were not exercising. In these latter cases, care partners intimated negative attributions, such as carelessness, laziness, willfulness, and teasing. These findings map well onto attribution theory. Specifically, care partners tended to make negative attributions about the person with MCI when they perceived symptoms and behaviors to be within their control.

Although the impact of care partner attitudes and beliefs on the care recipient remains largely unexplored, some evidence suggests that care recipients may experience these attitudes negatively. For instance, Roberto, Blieszner, McCann, and McPherson (2011) found that some care partners' reactions reflected a "try harder" mentality when it came to such things as the ability of a person with MCI to remember information. Other care partners demonstrated an underlying belief that the person with MCI could overcome personality changes, such as irritability, if they really wanted to. As a result of this "performance pressure" persons with MCI often experienced stress and frustration. These findings are consistent with the attribution model of EE in which care partner attributions regarding the controllability of the person with MCI over their symptoms led to negative interactions, which were stressful for persons with MCI.

Similarly, while not formally grounded in EE and attributional theory, Pasymowski and colleagues (2013) also identified patterns of negative interaction (e.g., blaming, demanding, withdrawing) between persons with MCI and spousal care partners, suggestive of high EE status. These interactions stemmed from care partners' lack of understanding of the nature of MCI and its behavioral manifestations, and their associated emotional reactivity (e.g., anger, frustration) to these behaviors. In addition, even when demonstrating awareness and understanding of the illness, some care partners

still struggled with managing their immediate reactions to MCI-related behaviors in the moment. In these cases, reactions seemed to negatively impact the emotional state of the person with MCI (e.g., making them more depressed or anxious). These findings parallel and lend support to the supposition that EE impacts the non-cognitive features of the illness. Implications of this study lend further support for the hypothesis that care partners' understanding of the illness (i.e., attributions), and their associated emotional reactivity (i.e., EE status) may be key factors underlying family interactions, and may contribute to increases in the non-cognitive symptoms and influence the illness course of MCI.

In sum, the link between attributions and EE has been well documented in the Alzheimer's literature. And while the qualitative findings emergent in MCI literature are also consistent with the attribution model of EE, this theory has not been formally applied to this context. Therefore, extending EE research to MCI is theoretically justified given that MCI and dementia are conceptualized to exist on a continuum (Albert et al., 2011). Utilizing this framework, care partner attributions can be meaningfully connected with their emotional reactivity and its influence on the progression of the non-cognitive features of MCI. Historically, this construct has not only provided a theoretical basis for the influence of family factors on clinical course and outcome, but has also helped to identify those who are at heightened risk of relapse and symptom exacerbation, and would benefit from psychoeducation and family-based treatment interventions (Barrowclough & Hooley, 2003; Hooley, 2007). Because of the likely trajectory to dementia and the need for increasing level of care, interventions can promote adaptation to these expected changes over time, and assist couples and families in reorganizing,

adjusting to new roles and responsibilities, and finding new ways of relating to one another—tasks that this form of impairment often demand (Blieszner & Roberto, 2010; Pasymowski et al., 2013). Dementia research suggests that interventions in the early stages of cognitive decline may improve psychosocial outcomes over time for both caregivers and care recipients (Gaugler, Davey, Pearlin, & Zarit, 2000; Gaugler, Kane, Kane & Newcomer, 2005). Unfortunately, at this time there is only limited understanding of risk factors associated with variability in long-term outcomes or with conversion of MCI to dementia. This study fulfills a need in the research on MCI by examining a family factor that may influence non-cognitive symptoms and illness course, thus having the potential to inform clinical interventions with at-risk families.

Study Overview and Purpose

The aim of this study was to establish the validity of EE in predicting the illness course of MCI, as well as to understand how family members' attributions regarding MCI-related symptoms and behaviors intersect and give rise to their EE status. To this end, this study used a mixed methods design (Creswell & Plano Clark, 2012). The purpose of the quantitative strand of this study was to determine whether care partner EE predicted changes in the non-cognitive features of MCI (i.e., disruptive behaviors and depressive symptoms) over time. Based on the attribution model of EE, the qualitative analysis aimed to identify themes and patterns that emerge from attributional statements of care partners utilizing methods of thematic analysis to adapt and further develop a pre-existing attributional framework for this particular illness context. The data-mixing stage intended to explain the hypothesized association between EE and non-cognitive features in the quantitative strand, as well as identify key differences across indices of EE with

regard to attributional themes.

The research questions guiding each phase of the study are as follows:

Quantitative Research Question

1. Does EE in care partners at Time 1 predict increases in non-cognitive features of MCI (i.e., depressive symptoms and disruptive behaviors) in care recipients at Time 2?

It was hypothesized that, while controlling for cognitive impairment and age of the person with MCI, increases in care recipient non-cognitive features of MCI at Time 2 would be predicted by high EE in care partners at Time 1.

Qualitative Research Question

2. How do care partners make attributions regarding the cognitive and non-cognitive features of MCI?

Mixed Methods Research Question

3. How does the thematic analysis of causal attributions explain care partners' EE classification and its relationship to the non-cognitive features of MCI?

Chapter Two

LITERATURE REVIEW

Mild Cognitive Impairment

Definition and Characteristics

Mild cognitive impairment (MCI) is a diagnostic category reserved for symptomology that does not meet the criteria for more severe forms of cognitive impairment, such as dementia and Alzheimer's disease, but is distinct from cognitive decline that is associated with normal aging (Petersen, 1999). In circulation since the early 1990s, MCI refers to cognitive impairment that is distinct from Alzheimer's disease and more severe forms of progressive dementia by the fact that there is no significant impairment of abilities related to day-to-day functioning (Peterson, 2004). Persons with MCI are able to function relatively independently and are able to perform activities of daily living (ADLs) such as eating, dressing, bathing, and moving (Petersen, 2000). However, they may require assistance in some areas that generally fall under the category of instrumental activities of daily living (IADLs), including such activities as driving, shopping, managing finances and medications, house cleaning, and performing other household responsibilities (Tuokko, Morris, & Ebert, 2005). Persons with MCI may also demonstrate deficits in the ability to focus on and complete tasks that involve multiple steps (e.g., preparing meals). Some of the most noticeable early signs reported by family members include difficulty in managing finances, and asking the same question several times (Blieszner & Roberto, 2010). Persons with MCI may also show some difficulties in social interaction, such as forgetting names, not recognizing faces, or losing the thread of conversations. However, these individuals may use compensatory strategies (e.g., making

lists, giving themselves reminders), and are otherwise able to function fairly well in the community (Petersen, 2000). Often those who do not know the person with MCI well (e.g., casual acquaintances or family members with limited contact) may not detect any impairment (Petersen, 1999).

MCI Diagnosis and Prevalence

Because MCI typically exhibits a gradual and progressive course towards dementia, defining onset and transition points along this continuum has proven challenging for clinicians (Albert et al., 2011). As a diagnostic category, MCI has been the subject of controversy due to a lack of both a standard definition, and consensus among researchers regarding the specific criteria that should be included (Petersen, 2000). This lack of diagnostic specificity has implications for detection of MCI in both clinical and research contexts, in that it is difficult to consistently operationalize across different settings and studies (Davis & Rockwood, 2004; Petersen, 1999). This may lead to under-diagnosis of the disorder in clinical settings, and presents problems for reliability and validity in research practice. Due to a lack of consensus among clinicians and researchers regarding what constitutes the criterion of “normal cognitive aging” (from which MCI is distinguished), conceptualization of this condition has been varied and much debated (Petersen, 2009). For example, some even question the validity of MCI as a diagnostic entity, and contend that MCI is simply early-stage dementia or prodromal Alzheimer’s disease (Morris, 2006). Related to this conceptualization, some have called for new terminology to more explicitly reflect that MCI exists on a continuum of cognitive decline. Also emergent in the discussion on defining MCI are recommendations for the inclusion of specific biomarkers and neuroimaging in the diagnostic criteria

(Petersen, 2009).

New recommendations for diagnosis of MCI for clinical and research practice were presented by Albert and colleagues (2011), a working group assembled by the National Institute on Aging and the Alzheimer's Association to address these issues of controversy as they relate to a lack of consistency and diagnostic specificity along the continuum of cognitive decline and the progression of Alzheimer's disease (AD). Included in their recommendations is the revised term, "MCI due to AD," to indicate those who are in the symptomatic, but non-demented phase of AD. The working group also outlined four core criteria for diagnosing MCI in clinical settings, which include (1) concern about a change in patient's cognition from their previous level, which may be expressed by a patient, someone close or familiar with the patient, or a trained clinician, (2) significant impairment in at least one cognitive domain (e.g., episodic memory, attention, language, executive function), when considering age and educational background, (3) preserved independence in daily life and functional capabilities, and (4) no evidence of dementia (i.e., non-significant impairment in social or occupational functioning). For the sake of clarity for this discussion, the term MCI will be used rather than "MCI due to AD."

At present, persons with MCI are a rather heterogeneous group in terms of the range of functional impairments (Davis & Rockwood, 2004). Persons with MCI also comprise a considerable portion of older adults (age 65+), with prevalence estimated to be between 10% and 20% for this age group (Hanninen et al, 2002; Lopez et al., 2003). However, because the changes associated with MCI can be subtle and ambiguous, the condition may often go undetected by family members and health care professionals

(Petersen, 2009). In fact, research shows that families will wait an average of two years following the first signs and symptoms of cognitive impairment before consulting with a memory disorders clinic (Wackerbarth & Johnson, 2002). As a result, rates of diagnosis may not reflect the true prevalence of MCI. The rate of detection of MCI is assumed to be considerably lower than that of dementia, which research has shown to already be remarkably low. To provide a sense of the magnitude of under-diagnosis of MCI, of those people who would meet the criteria for a diagnosis of dementia, it is estimated that only half have received a formal diagnosis (Alzheimer's Association, 2011; Petersen, 2004). While specific figures do not exist for MCI, it is clear from these statistics that MCI is likely grossly under-diagnosed. As a result, professional help seeking, education, and clinical interventions aimed at stemming the progression of the condition or managing changes associated with memory loss are often delayed. Given that the timely delivery of interventions early in the care cycle is a strong determinant of more favorable psychosocial outcomes over the long-term (Gaugler et al., 2000; Gaugler et al., 2005), many persons with MCI and their families are not afforded these opportunities and benefits.

MCI Crossover to Dementia and Risk Factors

There has been wide variation in the research literature with regard to the conversion rate or progression from MCI to dementia, ranging from 8% to 15% annually (Larrieu et al., 2002; Petersen et al., 1999), whereas the annual incidence of dementia for the general population of older adults (aged 65+) is estimated to be between 1% and 2% (Alzheimer's Association, 2011). A systematic review of conversion studies estimates the annual mean rate of crossover from MCI to dementia to be around 10% to 15% (Bruscoli

& Lovestone, 2004), and that nearly 50% of those given a diagnosis of MCI will develop dementia within three to four years (Alzheimer's Association, 2011). The lack of a standard definition of MCI, as well as variation in the criteria and measures for evaluating MCI, may explain the variability in these conversion studies. It is also important to note that a diagnosis of MCI does not predetermine that someone will necessarily progress to dementia. For some, the illness course will have a very slow progression, and in some cases MCI-related symptoms and behaviors may stabilize or even subside (Petersen, 1999). Nonetheless, the literature has established that those with MCI are at considerable risk of eventually developing dementia.

Because of the high rates of crossover from MCI to more progressed stages of cognitive impairment, researchers have focused on identifying potential risk factors associated with this transition. Deficits in episodic memory, which are related to the ability to learn and retain new information, are most commonly observed in individuals who eventually progress from MCI to AD dementia (Albert et al., 2011). Various biomarkers and structural changes in the brain (revealed through neuroimaging) also help to predict progression to more advanced stages of impairment. Much of the research tracking these biomarkers has focused specifically on the progression of MCI to AD (Panza et al., 2010). Biomarkers can be divided into three main categories. One category is related to the presence of key protein deposits in the brain that directly reflect pathology and the disease process (beta-amyloid protein ($A\beta$) and tau). Another main category of biomarkers includes measures of various indices of neuronal injury (e.g., brain atrophy, hypo-metabolism), which are considered a less direct and non-specific form of evidence of AD pathology (Albert et al., 2011). A third category of biomarkers

measures biochemical changes, which are secondary to and indicative of pathology (e.g., cell death, synaptic damage). While the aim is for measurement of these biomarkers to be used widely and increase diagnostic accuracy in clinical settings, at present, these types of tests are primarily used in research settings (Albert et al., 2011; Petersen, 2009).

Genetic variants may also influence whether MCI progressed to AD dementia.

Specifically, the presence of one or two $\epsilon 4$ alleles in the apolipoprotein E (APOE) gene is widely established as increasing risk for progression (Albert et al., 2011).

In addition to neurobiology and genetic variations, depressive symptomology may be another risk factor for the progression of MCI to dementia (Gabryelewicz et al., 2007; Houde, Bergman, Whitehead, & Chertkow, 2008). Some of the most common depressive symptoms observed in persons diagnosed with MCI include sadness, inactivity, lack of interest, sleep disturbance, poor concentration, and pessimistic thoughts (Gabryelewicz et al., 2004). Hopelessness and crying spells are also commonly noted depressive features seen with MCI (Hwang et al., 2004). Generally, researchers have found high rates of comorbidity between MCI and depression (Potter & Steffens, 2007), though prevalence rates have varied widely across studies. One study found a 63.3% prevalence rate of depression among persons diagnosed with MCI, with 49.3% exhibiting mild and 14.0% exhibiting severe depressive symptoms (Solfrizzi et al., 2007). Gabryelewicz and colleagues (2004) found that almost half (47%) of persons with MCI also met the diagnostic criteria for some form of depression. Of these, 20% met the criteria for mild depression (i.e., dysthymia), and 27% met the criteria for major depressive disorder. However, much lower (9%) rates of depressive symptoms were found in a hospital-based study by Geda and colleagues (2004). Sampling procedures, specifically the settings in

which studies were conducted (i.e., hospital-based versus population-based) may account for discrepancies in prevalence rates. Also, the variability seen may have to do with a lack of standard definition and diagnostic criteria for MCI. In assessing MCI, the use of stricter operational definitions generally resulted in lower rates of prevalence of depression (Panza et al., 2010).

The mechanisms linking depression and MCI are not fully understood. There are various competing hypotheses regarding this link (Panza et al., 2010). In their review of literature regarding the role of depression in MCI and progression to dementia, Panza and colleagues (2010) suggest that, at this time, there is evidence in support of various hypotheses, but that further investigation is needed to determine the link and mechanisms between depression and MCI. These authors also emphasize that these hypotheses are not necessarily mutually exclusive, and that more than one could be valid. That is, a combination of two or more risk factors could have predictive validity in assessing the likelihood or risk for the progression to dementia.

While depressive symptoms may be predictive of progression from MCI to dementia, some argue that they may simply be an early manifestation of dementia rather than a risk factor (Panza et al., 2010). The risk-factor hypothesis suggests that depression causes or exacerbates MCI and contributes to the crossover to dementia due to damage to the hippocampus from a glucocorticoid cascade (Sapolsky, 2001). The vascular depression hypothesis suggests that MCI and depression simply co-occur and are the result of the same underlying neurodegenerative disease process. For example, depression may simply be an early indicator of a neurodegenerative disease (Chen et al., 1999). Another hypothesis for this association is that depression may “unmask” the

manifestations of MCI, which would be particularly apparent among individuals with limited cognitive reserve (Jorm, van Duijn, & Chandra, 1991; Panza et al., 2010).

Other evidence suggests that specific depressive symptoms are predictive of progress from MCI to dementia. One study showed that common features of depression, namely anxiety and apathetic symptoms, observed in persons with MCI place them at the highest risk of conversion to AD dementia (Teng, Lu, & Cummings, 2007). Similarly Robert and colleagues (2008) showed that one dimension of apathy in particular – lack of interest – was highly predictive of the conversion of MCI to AD dementia. Panza and colleagues posit that collectively, the findings from the two studies suggest that these symptoms may reflect a response to cognitive and functional impairments, as well as reciprocally influence progression to dementia. This has led to an alternative hypothesis for the association of depression and MCI progression. In this view, depression develops as a reaction to the initial symptoms of MCI and the limitations experienced in their functional abilities, and may foster negative self-perceptions that contribute to or cause depression (Lahr, Beblo, & Hartje, 2007).

While this hypothesis makes intuitive sense, it is perhaps underdeveloped in terms of recognizing the influence of other possible intermediate factors between MCI symptoms and depression in addition to negative self-perceptions. Most relevant to the present study, intermediate factors contributing to depressive symptoms in a person with MCI could include negative feedback from the individual's family or social environment. For example, critical perceptions of cognitive abilities by family members could contribute to negative appraisals of the person with MCI, thus contributing to depressed mood. This hypothesis acknowledges the psychosocial influences on depressive

symptoms and illness course, and yet has received no empirical attention. This is surprising given that the well established link between depression and environmental and psychosocial factors (Mazure, 1998). For a variety of mental disorders, the nature vs. nurture debate has given way to greater acknowledgment that both aspects can contribute to the illness to varying degrees (Dobson, Dozois, & David, 2008). Establishing this link between family factors (e.g., emotional reactions), depression and the illness course of MCI is an important step towards appreciating the influence of psychosocial factors and developing interventions aimed at either modifying or capitalizing on them. The timely delivery of family-based treatment interventions for persons with MCI and their relatives may serve to delay or protect against symptom exacerbation and illness progression.

Family Context of MCI

Cognitive Decline and Family Caregiving

At present, it is estimated that 65.7 million or 29% of the U.S. adult population provides informal care to an adult or child, and this number is projected to rise dramatically over the coming decades as the Baby Boom generation further advances into the stages of late adulthood (NAC, 2009). Cognitive decline, such as that occurring in Alzheimer's disease and other types of dementia, is one of the primary reasons for caregiving in the U.S. In a recent national study by the National Alliance for Caregiving (2009), 12% of caregivers reported that dementia or Alzheimer's disease was the *main* reason for caretaking, with 26% reporting that the care-recipient had some form of cognitive impairment. Given the current trends in rising medical and custodial care costs, and the increased need for home-based, informal caregiving, the responsibility for those with declining cognitive functioning will increasingly fall on close relatives, most often

spouses, partners, and adult children (Rossheim & McAdams, 2010).

Providing informal care often strains caregivers' financial and job security, emotional wellbeing, physical health, social status or social capital, and relationships within other family members (Beeson, Horton-Deutsch, Farran, & Neundorfer, 2000). As a result of these strains, spousal caregivers, in particular, appear to be at heightened risk for health related problems, including compromised immune functioning, sleep disturbances, and poor nutrition (Carpenter & Mak, 2007). Spousal caregiving also increases the chances of mortality following certain events, such as the hospitalization of the care recipient (Christakis & Allison, 2006). Spousal caregivers also report poorer marital quality as compared with non-caregiving spouses (Beeson et al., 2000), and experience difficulty in adjusting to changes in their relationship with their partner, in addition to meeting the demands that caregiving places on them (Adams, 2006). These outcomes appear to be particularly pronounced for those providing care for a person with *cognitive* impairment as compared with care for a person with a *physical* disability, disease or illness because of such distressing symptoms as personality changes and behavioral problems (e.g., argumentativeness, aggressiveness, wandering), and the often-high degree of supervision involved with this type of care (Alzheimer's Association, 2011; NAC, 2009). Although poor psychosocial outcomes are generally not as extreme among families dealing with MCI, as compared with those dealing with dementia (Petersen 1999), they often present as relative degrees of disturbance that begin to emerge at this early stage of the care cycle.

Impact of MCI on Care Partners

The impact of caring for a family member with MCI on psychological wellbeing

of care partners has received some empirical attention. One of the first studies examining the psychosocial outcomes of spousal care partners revealed that subjective caregiver burden was significantly associated with symptoms of depression and anxiety (Garand, Dew, Eazor, Dekosky, & Reynolds, 2005). Greater responsibility for nursing tasks, most prominently medication management and administration, were significantly associated with increased depressive symptoms in care partners. Additionally, greater lifestyle constraints (e.g., amount of time to self) were also strongly correlated with heightened levels of care partner anxiety. In terms of care partner psychiatric morbidity, the authors concluded that symptoms of depression and anxiety were mid-way between those of dementia caregivers and community samples of healthy older adults. Further, they suggested that MCI care partners could benefit from interventions aimed at promoting emotional regulation and adaptive coping skills that may contribute to more favorable mental health outcomes over time. A notable limitation of this study, however, was its cross-sectional design, which prevented the authors from making causal inferences regarding caregiver burden and psychiatric symptoms, or ruling out other underlying characteristics of the care partner or the person with MCI.

In a study of the 769 care partners (both spousal and non-spousal) of a family member with MCI, 24.6% exhibited clinically significant levels of depressive symptomology (Lu et al., 2007). In addition, depression was more likely among younger, non-spousal care partners. However, as with other MCI studies, the study findings were limited by a cross-sectional design. A more recent study examined the impact of MCI related behaviors and care needs on 30 spousal care partners' psychological wellbeing over a 7-day period (Savla et al., 2011). Measuring changes in diurnal cortisol rhythms, a

biomarker of physiological stress, findings indicated that spousal care partners experienced significant, negative physiological changes associated with MCI-related problem behaviors and the provision of care. The cumulative effects of the heightened levels of cortisol over time have long-term implications for care partners who are at risk for poorer health and increased risk of morbidity and mortality. Study findings point to the importance of support and respite for those providing care to an elder with MCI, as well as the vulnerability of these care partners as impairment progresses (Roberto et al., 2011; Savla et al., 2011).

Beyond these examinations of the impact of caring for a person with MCI, Blieszner and Roberto (2010) addressed how care partners (both spousal and non-spousal) manage behavioral changes associated with MCI as well as the psychological impact of caring for a relative with MCI. The authors hypothesized that various theoretically grounded risk factors (Pearlin et al., 1990) would predict psychological outcomes (i.e., depressive symptoms) in care partners. The sample consisted of 86 care partners, the majority of whom were either a spouse or other family member (e.g., adult child). Predictors of depressive symptoms included poor health, lower importance of religion, limited knowledge of dementia, higher levels of care burden, lower environmental mastery, and greater distress regarding behavior problems exhibited by the person with MCI. Comparing rates of clinically significant depressive symptoms in this sample (12.5%) with the general population (9%), authors suggest that care partners of persons with MCI are at greater risk of developing depressive symptomology. This study not only establishes some of the ways in which performing the role of care partner carries considerable risk for developing depressive symptomology, but also identifies key

variables that are amenable to clinical intervention. However, as with the previous studies reviewed, these findings may be limited due to the design being cross-sectional, and consequently the nature and direction of these effects cannot be verified. Also, the theory used to guide this study did not allow for examination of how persons with MCI may be reciprocally impacted by care partners' depressive symptoms and responses to MCI.

Impact of MCI on Couple Relationships

Because of the impact of MCI on care partners' physical and psychological well-being, it is logical that MCI would also have a significant impact on key family relationships. To date, much of the research has focused on the impact of MCI on couple and marital relationships (Blieszner et al., 2007; Blieszner & Roberto, 2010; Davies et al., 2010; Garand et al., 2007; Pasymowski et al., 2013). For example, Garand and colleagues (2007) examined the quality of marital relationships in the context of MCI using a cross-sectional, correlational design. Although they did not specify their theoretical framework, their research questions and hypotheses were derived from the existing research literature on dementia, specifically, the documented impact of behavioral problems on caregiver distress and perceived quality of marital relationships (Adams, 2006). The sample consisted of 27 spouses of a person recently diagnosed with MCI. Correlation coefficients were computed between scores of marital quality and each of the specific problem behaviors related to MCI on the 12-item Memory and Behavior Problem Checklist (Teri et al., 1992). The behavioral manifestations of "asking the same question over and over," "trouble remembering recent events," "follows you around," "talking little or not at all," and "becoming angry" were all negatively correlated with marital satisfaction. These behaviors were both frequently occurring and distressing to care

partners. The authors concluded that the behavioral manifestations of MCI negatively impact the marital relationship. However, given that this is a cross-sectional design, the direction of effects cannot be verified and caution is warranted in the interpretation of these results. Another limitation of this study is that although it established the relationship between specific behaviors and symptoms with marital quality, it did not examine the attitudes or beliefs regarding these behaviors that underlie their distress. What is needed in future research is a theoretical framework that captures not only the behaviors that are distressing, but also the causal attributions about behaviors that may explain care partners' distress.

Research has also shown that couples in which one member has MCI may experience significant changes in intimacy. Davies and colleagues (2010) led focus groups with 14 caregivers of persons with dementia and 9 spousal care partners of persons with MCI to compare the experiences of changes in intimacy and sexuality between these groups. Their qualitative analysis of the MCI group identified five themes including 1) communication, 2) marital cohesion, 3) expressions of affection, 4) caregiver burden, and 5) ambiguity about the future of the relationship. MCI care partners reported being distressed by their spouses' behavior problems and described feeling impatient, anxious, or depressed about their spouses' changes in memory. Communication among MCI couples was often a source of frustration for care partners. For instance, it was often difficult for care partners to convey complex thoughts to their partner with MCI, such that they became exasperated or resigned to avoiding expressing themselves on a more intellectual level, which impacted their intimacy. However, some care partners demonstrated compensatory strategies, such as simplifying or limiting the length of

conversations. Most intriguing was the finding that some care partners reported having sought marital counseling, specifically for communication problems, prior to a diagnosis of MCI. As such, these authors suggested that such changes and difficulties with communication and intimacy in long-term intimate relationships could serve as a diagnostic indicator of early memory impairment (Davies et al., 2010).

Changes in marital intimacy and emotional involvement has emerged a theme in other studies on the impact of MCI on couple relationships. In a qualitative study of 67 couples, Blieszner and colleagues (2007) also found that, in the context of MCI, couples experienced changes in their levels of emotional involvement with one another, ranging from increased companionship to diminished emotional availability and connection. For instance, some partners avoided going out of the house alone. Accompanying one another served to reduce some anxiety for care partners about leaving the elder unsupervised, as well as for the elder with MCI about being left alone. For others, the presence of memory impairments prevented couples from engaging in joint activities that they previously enjoyed, such as socializing or traveling. Some elders with MCI demonstrated considerable apathy and lack of interest in these previously shared activities, which was further distressing for care partners. These findings are consistent with that of Davies and colleagues (2010) in demonstrating significant changes and disruptions to couples' intimacy and emotional involvement when one partner has MCI. What is not known is how these changes could influence their reactions to the behavioral manifestations of MCI or impact the quality of care provided.

The research pertaining to the relational impact of MCI is limited by findings that pertain predominantly to spousal care partners as opposed to other family members who

provide care. This reflects the general trend in caregiving, in which the majority of those providing care are spouses (NAC, 2009). Nonetheless, further research is needed to examine relational process and outcomes with other, non-spousal, family care partners.

Care Partner Responses to MCI

Research on the family context of MCI has also offered insights into the various ways in which care partners acknowledge, make sense of, and respond to MCI-related symptoms and behaviors. A qualitative analysis by Roberto and colleagues (2011) regarding adjustment to MCI demonstrated that the degree of acknowledgment, or cognizance of problems with memory, among family members is an important factor determining their adaptation and coping to the stress associated with MCI. In this study of 56 family triads (including a person with MCI and two involved family members), those families in which there was complete acknowledgement about the nature and extent of the memory loss fared better in their ability to adjust to MCI, as compared with those families in which levels of acknowledgement (passive, partial) were incongruent across two or more family members, or those in which there was no acknowledgment of impairment. Of these, the partial acknowledgment category demonstrated considerable difficulty in managing memory loss and experienced significant distress related to contrasting views among family members about the degree to which memory was considered to be a problem, and a lack of understanding of the nature of MCI. Family members in the partial acknowledgment category were more likely to personalize the elder's behavior problems, believing that they were intentional or assuming that they were controllable, and stemmed from willfulness or carelessness. Even when family members acknowledged some degree of memory loss, some still believed that the elder

could overcome it by being more effortful (i.e., trying harder). Elders were also prone to personalizing family members' reactions to their behaviors, such as believing that they were being picked on, or becoming frustrated with family member's "performance pressure" (Roberto et al., 2011). Families that fully acknowledged MCI were able to band together and devise strategies to manage problems associated with memory loss and changes in personality. Although full acknowledgment families reported some frustration with behavioral problems such as forgetfulness, they were able to appreciate that they were not behaviors over which the elder had control.

It is important to note that, with the partial acknowledgment category, insufficient information or understanding of MCI may have been a factor in driving negative interactions between persons with MCI and care partners, as well as other family members not directly involved with providing care. This study's findings supported previous findings in which limited knowledge of cognitive impairment was associated with negative affect among care partners, namely depression (Roberto et al., 2010). However, mere acknowledgement or understanding of the nature of the illness does not necessarily preclude negative emotional reactions to symptoms and behaviors. Even care partners who are knowledgeable and informed about MCI are prone to the overriding of intellectual processes by emotional reactivity, and this may also account for some of the variation in family members' responses to MCI (Pasymowski et al., 2013).

The apparent discrepancy between knowledge and understanding of MCI and negative emotional reactivity was examined in another qualitative study by Pasymowski and colleagues (2013). This study incorporated the tenets of communication and systems theory (Watzlawick et al., 1967) to guide an analysis of couples' experiences of

adjustment to MCI. Specifically, the study examined how 11 couples perceived change in their relationships when husbands were primary care partners for their wives with MCI. This study identified a typology of interactional sequences among couples that resulted from the behavioral manifestations of MCI, which included 1) face-to-face sequences, and 2) couple routine sequences. With couple routine sequences, negative interactions were characterized by more entrenched beliefs and misunderstandings about MCI. These sequences spanned the course of several hours or days, and sustained more enduring patterns of conflict and relational distress over time. Face-to-face sequences, however, comprised varying degrees of care partner emotional reactivity to the behavioral manifestations of MCI. These sequences took place in the context of care partners possessing knowledge and understanding of the nature of MCI. In some cases, care partners were prone to directing in-the-moment frustration or anger towards their spouse, despite their knowledge of MCI, whereas others had learned to attenuate their emotional reactivity, and avoided making or acting on automatic attributions regarding their spouses' behavior. For example, a care partner might account for the behavior as being related to the illness rather than to laziness, carelessness, or teasing that would subsequently bring about a negative emotional reaction. Participants typically acknowledged the deleterious effects of negative affect (e.g., frustration, anger, blaming) in that it often created marital discord and, in some cases, seemed to exacerbate memory loss, due to the anxiety generated for the elder with MCI. However, not all care partners were consistently able to moderate their emotional responses to the behaviors. Some care partners were overt about their struggle to manage their emotions and reactions to their spouses' symptoms in light of their intellectual grasp of MCI. The distinction between

these two types of sequences is a subtle but important one, in that emotional reactivity exists even when the condition is acknowledged and well understood.

Taken together, these preliminary findings are a call for further investigation into the ways in which care partners interpret and respond to MCI-related behaviors and symptoms. A main point of inquiry should include care partners' perceptions of the person with MCI controllability or responsibility for these symptoms and behaviors, and how this informs their responses to them. Additionally, these findings also point to the need for further research to understand the conditions or factors that explain the discrepancy between having knowledge and understanding of the nature of MCI and reacting with negative emotionality to behaviors associated with it. The variable responses to MCI-related symptoms may stem from care partners' underlying attitudes and complex belief systems about them, which to have not been directly examined. Therefore the application of a theoretical framework is needed to illuminate these phenomena.

While the literature investigating the impact of MCI on both care partner outcomes and family relationships has been extensive, the reciprocal influence of family reactions on the non-cognitive symptoms of MCI and illness course has only been the subject of speculation based on some of the qualitative research findings in this area (Pasymowski et al., 2013; Roberto et al., 2011). While components of this potential relationship have been identified – care partner attributions and emotional reactivity (Pasymowski et al., 2013; Roberto et al., 2011) – they have not been formally operationalized or tested with regard to their relationship with symptomology and illness course. The presence of negative emotion and emotional reactivity among care partners

highlights the need to understand how these responses impact persons with MCI, as well as the underlying factors that explain their influence, namely causal attributions. The literature on dementia as well as the construct of expressed emotion would support this hypothesis of the bidirectional relationship between illness and family factors (Tarrrier et al., 2002; Vitaliano et al., 1993). EE has been applied to a variety of psychological and mental disorders, including dementia (Hooley, 2007; Tarrrier et al., 2002; Vitaliano et al., 1993). Extending and testing the application of this theory to MCI provides an opportunity to establish the relationship between EE and illness course in this particular context. In so doing, a clinical justification can be made for developing and tailoring family-based interventions that can capitalize on strengths and diminish potential vulnerabilities of families managing MCI.

Expressed Emotion

What is not established in the MCI literature is a theory or construct that provides a framework for not only capturing family emotional reactions to symptoms and behaviors of MCI, but also predicting the influence of these factors on outcomes for the person with MCI, specifically the non-cognitive features and illness course. In light of the existing literature on families and MCI, namely literature highlighting the emotional climate of the family context and its apparent impact on persons with MCI (Pasymowski et al., 2013; Roberto et al., 2011), the theory of expressed emotion (EE) is particularly applicable to MCI because of its ability to capture a family factor that potentially influences the illness course. Developed in the 1960s and originally applied to research on schizophrenia (Brown & Rutter, 1966), the construct of EE is defined as a measure of the family emotional climate that is a strong predictor of long-term outcomes for patients,

including symptom relapse and remission across a variety of psychiatric disorders (Hooley, 2007). While the etiology of psychiatric disorders is understood to be largely biological, psychosocial factors, such as family relationships and dynamics, also contribute to illness onset and progression in significant ways (Hooley, 2007; Vaughn & Leff, 1976). The research on EE over the past 40 years has demonstrated that this measure of family emotional climate cannot be underestimated in its ability to account for illness course for a variety of psychiatric and medical conditions (Hooley, 2007). EE has been applied to mood disorders (i.e., major depressive disorder, bipolar disorder), anxiety disorders (i.e., post-traumatic stress disorder), substance use disorders (i.e., alcoholism), personality disorders (i.e., borderline), and Alzheimer's disease, and is widely established as the strongest predictor of relapse or symptom exacerbation (Hooley, 2007).

EE is conceptualized as a dichotomous variable in which a family member can be classified as exhibiting either high EE or low EE. The assessment of EE entails a highly structured interview with a key family member of a patient and subsequent observational coding protocol aimed at assessing five dimensions: criticism, hostility, emotional over-involvement (EOI), warmth, and positive remarks. Of these, three main dimensions are predictive of symptom relapse or exacerbation: criticism, hostility and emotional over-involvement (EOI) (Hooley, 2007; Vaughn & Leff, 1976). Criticism reflects annoyance or disapproval of some aspect of the ill family member's behavior. Hostility is similar to criticism in expression of disapproval, but is more generalized, reflecting negative attitudes about the person as a whole, or outright rejection of them. Lastly, EOI refers to overprotective or intrusive styles on the part of a relative, often reflected by over-

responsibility, self-sacrificing behavior, or exaggerated emotional reactions to negative behaviors and situations (Hooley, 2007; Leff & Vaughn, 1985). Of these three dimensions of EE, criticism is the strongest predictor of symptom relapse.

While criticism, hostility and EOI have demonstrated strong associations with long-term outcomes and illness course, warmth and positive remarks are relatively weakly linked. Warmth refers to evidence of empathy, sympathy, or concern for the patient, and may also reflect interest in or enthusiasm for the person's activities and achievements. Positive remarks are statements expressing praise or approval of the behavior or personality of the patient. While positive remarks and warmth are also measured, research has demonstrated a less predictive relationship between these variables and outcomes over time as compared with criticism, hostility and EOI. Because the other indices of EE are more strongly linked with outcomes, ratings for warmth and positive remarks are not typically included in the overall EE assessment (Hooley, 2007).

It should be noted that the term, expressed emotion, is a partial misnomer because it is not a measure of overt emotional expressiveness in families (Leff & Vaughn, 1985). Rather, the term refers to emotionality expressed within the interview by which EE is assessed; it is conducted in the absence of the ill family member. Moreover, while family members may display outward emotional expressions in the presence of an ill family member (e.g., anger, frustration), this is not necessarily the case nor is it assumed by this theory. Emotional reactivity among high EE relatives may, in fact, be manifested more subtly or covertly (e.g., withdrawing emotionally, acting passive-aggressively). Regardless of the manner in which it is expressed, family member EE is assumed to have a deleterious effect on the patient's emotional health and symptomology (Barrowclough

& Hooley, 2003).

Another common misconception about EE is that families *cause* the onset of the disorder or a relapse. It is both more accurate and less blaming of families to recognize that family factors can *contribute* to illness onset and its course. It is also important to note that the family emotional climate captured by EE can actually play a protective role (Tienari et al., 2004). Supportive families can be a resource and safeguard against the progression over time (Lee et al., 2014; Tienari et al., 2004). The notion of the family serving a protective function is consistent with the notion of family resilience that seeks to capitalize on family strengths, rather than to focus on deficiency or dysfunction (Goldenthal, 1996). For example, in the context of MCI research, it is equally important to identify strengths among these families, as it is to identify their vulnerabilities in informing clinical interventions that may follow.

While high EE status is established as highly predictive of poor clinical outcomes for a variety of disorders, the mechanism underlying the relationship between EE and relapse and symptom exacerbation is not well understood (Barrowclough & Hooley, 2003). It is assumed, however, that negative emotions in family members, such as anger or frustration, exacerbate patients' psychiatric symptoms. In the context of dementia, negative emotional reactions of family members appear to only exacerbate disruptive or depressive behaviors (Tarrier et al., 2002; Vitaliano et al., 1993), which is consistent with broader research application of EE to psychiatric disorders (Hooley, 2007). While the specific neurobiological mechanisms underlying relapse and symptom exacerbation have not been identified in the literature pertaining to EE, it is theorized that high EE perturbs activity in the neural circuitry that underlies the disorder, and essentially impacts the

patient at a neurobiological level. This is believed to cause stress in the patient and increase the manifestation of illness symptoms (Hooley, 2007).

Some critics have suggested the possibility that EE simply reflects a natural response that is proportional to the intensity or frequency of patients' difficult behaviors and circumstances (Hooley, 2007). That is, higher intensity or frequency of symptoms might be expected to yield greater emotional reactivity in family members. However, research has demonstrated that EE makes an independent contribution to relapse when statistically controlling for symptom severity, suggesting that this factor is *not* simply a proxy for the severity of the illness (Nuechterlein, Snyder, & Mintz, 1992). Family-based treatment interventions also lend support to the causal influence of EE on illness course, as rates of patient relapse have diminished significantly when interventions target behaviors associated with high EE status (Barrowclough & Hooley, 2003). Family-based treatment interventions for dementia care have also aimed to reduce caregivers' negative emotional reactions (e.g., anger) that are directed toward the care recipient (Schulz et al., 2002).

The Attribution Model of EE

There is a lack of understanding of what causes or influences EE status. The underlying characteristics distinguishing high and low EE family members are not accounted for by EE as a stand-alone construct, which is merely descriptive. As such, understanding the genesis and maintenance of EE status has required an explanatory model (Barrowclough & Hooley, 2003). Incorporating attribution theory with EE has provided insight into key differences between high and low EE family members in terms of the attitudes and beliefs generally held (Barrowclough & Hooley, 2003). An attribution

is defined as a causal explanation for a behavior or event. The attribution theory of EE posits that causal beliefs about negative behaviors or events mediate relatives' emotional responses and their tendency to attempt to manage or control them (Barrowclough, Tarrier, & Johnston, 1994). That is, attributions about symptoms and behaviors seem to account for the variability seen across families with regard to reactions and use of emotional and instrumental coping strategies. Thus, attribution theory may provide a useful framework for delineating high and low EE family members according to the beliefs they hold about illness behaviors and symptoms. For example, some evidence suggests that critical family members are more likely than non-critical family members to hold the patient responsible for problem behaviors or negative events, seeing them as controllable by and personal to the ill family member (Barrowclough & Hooley, 2003; Hooley & Campbell, 2002; Wearden et al., 2000). Conversely, family members rated as non-critical are more likely to cite external or uncontrollable factors to account for a behavior or symptom (Barrowclough & Hooley, 2003). High-hostile family members have been shown to make similar attributions as those rated as high-critical (Barrowclough & Hooley, 2003). However, a key difference between these categories is that high-hostile family members have a propensity for identifying a sole causal factor to account for a behavior or event, whereas high-critical are more likely to cite multiple contributing factors (Brewin et al., 1991). High-EOI family members have been shown to be remarkably similar to low EE family members in the attributions they make about negative behaviors or events, specifically in terms of citing external and uncontrollable factors to explain them (Barrowclough et al., 1994; Yang, Phillips, Licht, & Hooley, 2003). However, high-EOI also demonstrate the propensity to hold themselves personally

responsible for behaviors, which is believed to account for their intrusive and self-sacrificing attempts to manage or control them (Barrowclough & Hooley, 2007).

While the causal inferences regarding the relationship between attributions and expressed emotion are generally accepted, some argue that because the majority of research in this area is limited by cross-sectional (correlational) designs, conclusions about the direction of effect cannot be drawn (Hooley, 2007). That is, it is plausible that a relative's emotional state or attitudes about the ill family member could conversely drive the attributions they make (Barrowclough & Hooley, 2003). Therefore, longitudinal research is needed to confirm the purported direction of effect.

Research has also identified notable patterns among various attributions that may also account for differences in EE status. Barrowclough and colleagues (1994) found that particular attributions tended to cluster together according to perceived patient responsibility. Specifically, these results led to a classification of "attributions of patient responsibility" in which behaviors or symptoms are perceived by the family member to be internal, personal to, and controllable by the patient, and connote a sense of blame. Similar findings were demonstrated in other studies (Hooley & Licht, 1997), showing substantially higher prevalence of patient responsibility attributions among high EE family members as compared with low EE family members.

The theory of ambiguous loss (Boss, 1999; 2006) has provided some insight into how care partners make sense of MCI-related behaviors and symptoms. Blieszner and colleagues (2007) found that the irregularities and inconsistencies in cognitive impairment and functioning associated with MCI often resulted in a sense of uncertainty or ambiguity about the condition for care partners. Cognitive functioning appeared to be

influenced by the presence or absence of certain stressors, such as exhaustion, other illness, and changes in routine. This oscillation in cognitive functioning often caused care partners to waver in their appraisal of the severity of the condition. This ambiguity often led to attribution errors by the care partner about the behaviors of the person with MCI. For instance, a care partner may attribute memory problems to personal or controllable causes (e.g., laziness, carelessness) rather than to uncontrollable causes (e.g., organic condition, disease process). Attribution theory posits that, when behaviors and symptoms are attributed to factors personal to and controllable by the ill family member, relatives' reactions are more likely to be negatively emotionally charged (Hooley et al., 1994). Subsequent analyses of this dataset have documented the ways in which considerable emotional reactivity and conflict can result from such attributions about the nature of the condition (Roberto et al., 2011; Pasymowski et al., 2013). These analyses make clear that ambiguity is a central feature of families adjusting to MCI. An appreciation of this situational ambiguity has important implications for future research, particularly the need to identify the ways in which family members construe and respond to illness symptoms and behaviors, how their responses shape their interactions with the person with MCI, and what effect these responses have on symptoms and illness course.

The complementarity of attribution theory with EE is important because it provides a basis for understanding the processes or mechanisms that underlie family member reactions to behaviors and symptoms associated with MCI. Moreover, it provides a foundation for the development of clinical strategies that have the potential to foster family resilience and effective adaptation to the illness, and improve outcomes for both persons with MCI and care partners. The research to date on MCI has left

unanswered questions regarding the factors that may explain differential family responses. Because attribution theory has not been formally applied to the context of MCI, the findings that have emerged are circumstantial and therefore limited. Additional research is needed to provide a deeper and more complete understanding of the beliefs and attitudes that underlie family members' expressed emotion by examining a broad range of possible causal attributions commonly made about MCI-related symptoms and behaviors by utilizing and adapting an existing conceptual framework.

Attribution Model of EE and Late Life. As noted, EE and attribution theory have been applied to a variety of disorders. The following review is not exhaustive, but focuses on EE studies most relevant to the current study and the application of this theory to the context of MCI. These include studies that apply EE to Alzheimer's disease (AD) and late-life depression (LLD).

A study by Vitaliano and colleagues (1993) was one of the earliest applications of EE to dementia research. In this study of 79 spousal dyads, the authors hypothesized that initial EE status would predict increases in negative behaviors over time. They also hypothesized that EE status would have no effect on cognitive symptoms or ADLs. The reasoning underlying these hypotheses was that behavioral problems would be susceptible to both the organicity of the disease process as well as emotional reactions of spousal caregivers, whereas cognitive features would be affected by the organicity of the disease. Both hypotheses were confirmed; findings support the notion that non-cognitive features of AD are sensitive to interpersonal dynamics, whereas the cognitive features are not. Another component of this study was to test the construct validity of EE by comparing it with other caregiver self report measures regarding affect and beliefs. These

analyses revealed that while EE was associated with depression and suppressed anger in caregivers, it was not associated with expressed anger. This finding suggested that overt or outward signs of anger were not a feature of high EE spouses, and that the negative affect associated with EE may manifest itself in subtle or covert ways, such as exasperation or passive-aggressiveness (e.g., “the silent treatment”).

In a more recent study, Tarrrier and colleagues (2002) applied the attribution theory of EE to Alzheimer’s disease. In this cross-sectional design involving a sample of 100 persons with AD and their primary caregivers, authors investigated the relationships between caregiver EE status, caregiver strain and distress, as well as specific MCI-related symptoms and behaviors, and casual attributions made about them by caregivers. Authors aimed to overcome the limitations of previous research by delineating cognitive and non-cognitive features of Alzheimer’s disease. Results supported three hypotheses, namely (1) EE status was associated with caregiver strain and distress, (2) increased non-cognitive features in the care recipient were associated with greater strain and distress in caregivers, as well as high EE, and (3) criticism and hostility were associated with more attributions of care recipient responsibility than those caregivers with low EE. Findings also suggested that behaviors and symptoms of AD are subject to ambiguous attributional interpretations, particularly the non-cognitive features of the illness. That is, family members were uncertain as to whether non-cognitive features were attributable to the person or to the illness.

Hinrichsen and colleagues (2004) applied the attribution theory of EE to late-life depression with 46 family dyads, including both spouses and adult children providing care to a depressed family member. The aim of this study was to compare indices of EE

with interpersonally relevant constructs and measures commonly used in the gerontological and caregiving research, including those pertaining to family illness attributions, caregiver emotional functioning, and both past and current relationship quality of the caregiver – care-recipient dyad. Results generally confirmed the conceptual and empirical congruence hypothesized to exist between EE and these variables.

Specifically, past relationship quality and attributions of patient control predicted high EE status. However, results also revealed no association between EE indices and caregiver emotional functioning, which ran counter to previous research linking EE status with caregiver outcomes (Tarrier et al., 2002; Vitaliano et al., 1993). The authors note that the episodic nature of major depression (periods of relapse and remission) may explain this discrepancy as prior research linking these variables was based on chronic illness course, such as dementia and schizophrenia, which are characterized by a progressive loss of functioning. Notable differences between high EE family members of depressed older adults in this study as compared with previous research on depressed younger adults. Specifically, lower rates of critical remarks were associated with providing care to an older adult, suggesting that the frequency of critical comments may vary as a function of care recipient age.

In sum, Henrichsen and colleagues (2004) research supports the application of the attribution model of EE to late-life depression. Because depressive symptoms often co-occur with MCI, these results have implications for understanding family dynamics within the context of MCI. For example, the finding regarding attributions of care recipient control of symptoms is germane to potential family member reactions to the depressive features manifested with MCI. This study also underscores the importance of

clinical interventions that addresses the relationship between caregiver and care recipient that target both long-standing issues that preceded illness onset and those that have resulted from it. In so doing, these interventions may stem relapse of symptomology and improve long-term outcomes for both caregivers and care-recipients (Hinrichsen et al., 2004).

The Present Study

Although prior research has provided important insights about the challenges facing families adjusting to MCI (Blieszner et al., 2007; Blieszner & Roberto, 2010; Davies et al., 2010; Garand et al., 2007; Lu & Haase, 2009; Pasymowski et al., 2013; Roberto et al., 2011), further research is needed to identify the role of family factors in illness course, in either exacerbating or mitigating the non-cognitive symptoms. So far, little is known about the psychosocial risk factors that contribute to the course of MCI. While a large body of research suggests that family factors, namely EE, strongly predict the progression of a variety of mental disorders, empirical support for this hypothesis in the context of MCI is lacking. The research conducted thus far has established that MCI impacts care partner outcomes as well as family relationships. Ripe for further investigation is emerging evidence that suggests family members' emotional reactions to MCI-related symptoms and behaviors may have a reciprocal impact on the non-cognitive symptoms of the illness (Pasymowski et al., 2013; Roberto et al., 2011). To date, a theory that pertains specifically to family emotional reactions to, and influence on, the illness course of MCI has not been applied to confirm this hypothesized relationship. EE captures the psychosocial influence of family emotional climate on clinical course, and has been applied to a variety of disorders. Given its proven predictive validity in a variety

of illness contexts, this theoretical construct shows great potential in its application to the context of MCI. Furthermore, applying the attribution model of EE provides greater insight into the attitudes and beliefs that underlie care partner emotional reactions to MCI-related symptoms and behaviors. Because attributions of MCI care partners have not been formally examined, it is necessary to apply a pre-existing attributional framework and to adapt it to this particular illness context.

The present study sought to establish the applicability of the attribution theory of EE. More specifically, it was hypothesized that care partner EE would predict changes in the non-cognitive features of MCI over time, specifically disruptive behaviors and depressive symptomology. To explain differences among high and low EE family members, a qualitative analysis theoretically driven by attribution theory was incorporated to explain differences between high and low EE family members with regard to the attributions made about MCI-related symptoms and behaviors.

Chapter Three

METHODS

The Research Design

The objective of this convergent mixed methods analysis was to examine the relationship between care partner EE and changes in the non-cognitive features of MCI over time, and to identify key differences between high and low EE care partners with regard to causal attributions made about MCI-related symptoms and behaviors. The quantitative strand employed an ANCOVA, in which T1 care partner EE was used to predict T2 increases in the non-cognitive features (i.e., disruptive behaviors and depressive symptoms) of MCI. In the qualitative strand, a thematic analysis of semi-structured interviews with care partners was conducted to identify care partner statements of attribution related to MCI-related behaviors and symptoms. The aim of the data-mixing phase was to merge the qualitative findings with the quantitative findings to explain the predicted relationship between care partner EE and changes in the non-cognitive features of MCI over time, as well as explain differences across the various indices of EE. Therefore, merging these data provided a more complete understanding of the relationship between causal attributions and care partner expressed emotion.

The data for this study were secondary and drawn from a larger research project at the Center for Gerontology of Virginia Tech, examining family adjustment to MCI. The principal investigators for the original study were Dr. Karen A. Roberto and Dr. Rosemary Blieszner. The funding for the original research project came from the Alzheimer's Association (# IIRG-03-5926 & IIRG-07-59078). The Institutional Review Board (IRB) of Virginia Tech and each of the six memory clinics from which the sample

was recruited approved the original research project.

Sample

Larger study sample and recruitment. The overall sample for the present study was drawn from the larger study of 125 families (64% response rate), which were comprised of a person with MCI, a primary care partner, and in most cases a secondary care partner. The inclusion criteria at Time 1 required that persons with MCI were 60 years of age or older and that a primary care partner agreed to participate. Ideally, persons with MCI had received a diagnosis of MCI within six months of the interview, but this criterion was not always met. Although the definition and criteria for diagnosing MCI had not been standardized at the time of data collection, the assessment protocols of participating memory clinics incorporated five commonly used criteria to determine presence of MCI: (a) complaint of memory loss, (b) minimal interference with activities of daily living, (c) normal cognitive functioning, (d) memory loss uncharacteristic for the person's age, and (e) no evidence of dementia (Petersen et al., 2004). Clinic assessment protocols ruled out both the presence of dementia based on the DSM-IV-TR, as well as reversible conditions that could cause impairment or masquerade as MCI (e.g., nutritional deficiencies, depression), using comparable batteries of tests. All six memory clinics used the Mini Mental State Exam (MMSE; Folstein, Folstein, & McHugh, 1975) and Clock Drawing Task (Royall, Cordes, & Polk, 1998) to assess cognitive functioning. MMSE mean scores for the original study sample fell within the established range (24-30) used to verify generally intact or normal cognitive functioning, which is one criterion for a diagnosis of MCI. It should be noted however, that having an MMSE score below 24 did not exclude participation in this study, as MMSE is not the sole criterion for a diagnosis

of MCI (Petersen, 1999). The research investigators deferred to the medical diagnosis provided by the clinicians, whose assessment included all five commonly used criteria. There were some differences across memory clinics in how they assessed functioning in activities of daily living (ADLs) and instrumental activities of daily living (IADLs). Some clinics used Katz's index (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963), whereas others used the Barthel's index (Mahoney & Barthel, 1965). In all other respects, the batteries of tests used in diagnosing MCI were comparable (Roberto et al., 2011). Participants were recruited from memory clinics in Virginia, Maryland, Georgia, Indiana, and Illinois. Interviews took place between 2004 and 2011 and involved three waves of data collection (Roberto et al., 2011).

Present study sample. The samples were slightly different for the qualitative and quantitative phases of the present study. The overall sample of 57 family dyads consisted of primary care partners and persons with MCI, for a total of 114 participants. The sample size ($n = 57$) was the same for the qualitative thematic analysis and for the EE coding of participant interviews, which allowed for meaningful comparison of these results in the data mixing stage of the analysis. For the ANCOVA, however, the sample size was slightly smaller ($n = 53$) due to missing data. The families were recruited from six memory clinics across three states, which included Virginia ($n = 45$), Illinois ($n = 4$), and Indiana ($n = 4$).

The 57 family dyads included in this study were composed of 1) a person with MCI (age 60+) who had received a diagnosis of MCI from one of the participating memory clinics, and 2) a primary care partner who was a family member. Of the 125 families who agreed to participate in the original study, 85 families participated in both

T1 and T2 waves of data collection, which spanned approximately one year. Two of these families were excluded from the study because the primary care partners were not family members. Another 24 families had care partner interviews conducted with the person with MCI present for some part, or the entirety of the interview, and were therefore excluded from the study to ensure adherence to the interview protocol for the assessment of EE (Hooley, 2007; Leff & Vaughn, 1985). Excluding these families was necessary for ensuring consistency with semi-structured interview protocol, which requires that the interview be conducted privately, in the absence of the patient (Vaughn & Leff, 1976). This lowered the sample to 59 families. Due to missing/incomplete data for the qualitative interviews, another two families were excluded from the present analysis, bringing the final sample to 57 dyads. As mentioned, the sample was slightly smaller for the ANCOVA. Because four of the participant families had significant missing data necessary for the quantitative analysis (i.e., RBMPC scores), list wise deletions were made. As a result of these deletions, the ANCOVA included 53 participants.

Procedures

Recruitment and three waves of data collection began in 2004, and were completed in 2008. The original data collection employed purposive sampling techniques (Roberto et al., 2011). persons with MCI were recruited from three memory clinics in the Commonwealth of Virginia, including Roanoke, Salem, and Norfolk, as well as three additional clinics in Illinois, Indiana and Georgia. Staff from participating clinics provided information about the study to those who had received a diagnosis of MCI, and with the permission of the person with MCI, either introduced them to the research coordinator during their clinic visit, or provided the research coordinator with the persons

with MCI' contact information. Within one week of their clinic visit, persons with MCI were contacted by telephone, provided with information about the study, and invited to participate.

During the first contact, persons with MCI were asked for permission for the researchers to contact the family member or friend (i.e., primary care partner) who was most involved with their lives and the clinic evaluation (Roberto et al., 2011). Researchers asked, "Can you give us the name of a close family member or friend who would also be willing to talk with us about your memory loss, the support you provide to each other now, and what might be needed in the future?" These identified care partners were then invited to participate in the study, and face-to-face interviews with persons with MCI and primary care partners were scheduled.

Doctoral level researchers with expertise in family studies and gerontology, or memory clinic social workers conducted care partner interviews. All interviewers received information about MCI and the purposes of this study. Interviewers also received training regarding the specific aim of open-ended questions, and on the use of appropriate probes. The principal investigators of the original study also provided ongoing coaching and feedback to interviewers to ensure fidelity to the interview guides, as well as to ensure depth and richness in the interview data. All interviews were audio recorded and subsequently transcribed verbatim by a professional transcriptionist.

Face-to-face interviews were most often conducted in the homes of persons with MCI and primary care partners, though a smaller portion was comprised of interviews conducted in clinic settings. Administration of scales and self-report measures were interspersed with guided interview questions to reduce participant fatigue. Guided

interviews with persons with MCI and spouses were typically conducted separately to ensure privacy, and to allow participants, particularly care partners, to express themselves freely and without fear of upsetting the person with MCI (Blieszner et al., 2007). The typical length of care partner interviews was approximately one hour. While persons with MCI were also interviewed for the larger research study, these interviews were not used for the present analysis. As compensation, persons with MCI received a \$10 gift card, and primary care partners received a \$15 gift card.

Instrumentation and Data Analysis

Because the recruitment and data collection procedures were identical for both the quantitative and qualitative strands, these methodological aspects were presented concurrently to avoid redundancy. However, as the instrumentation and data analysis were different for the qualitative and quantitative strands in this present analysis, this information will be presented separately for the purposes of organization and clarity.

Quantitative Strand

Instrumentation

As mentioned, this study represents a secondary analysis of existing data. One advantage of using secondary data is the efficient use of time and resources that would otherwise be needed to collect primary data (Hinds, Vogel, & Clarke-Steffen, 1997). However, there are some notable drawbacks of using secondary data as they relate to this particular study that will be explained with regard to the particular measures used for the analyses.

Expressed emotion. Pearlin and colleagues' (1990) *Caregiving Stress Process Model*, which served as a guiding theory for the semi-structured interview development

and data collection in the larger study, is well established and widely accepted in the field of gerontology and caregiving research (Roberto, Blieszner, & Allen, 2006). This theoretical framework has been applied to a variety of caregiving contexts, and taps various concepts. Five sets of potential contributors to, or mitigators of, caregiver stress are conceptualized as 1) background and contextual variables (e.g., family/caregiving history, relationship with the care recipient, interpersonal dynamics), 2) primary objective stressors (e.g., perceptions of cognitive status and problem behaviors, physical limitations), 3) secondary stressors (e.g., role strain/overload, intrapsychic strain), and 4) protective conditions (e.g., coping strategies, social support). This model also focuses on caregiver outcomes related to these factors (e.g., declines in physical health, development of mental health symptomology).

The dimensions of Caregiving Stress Process Model (Pearlin, Mullan, Semple, & Skaff, 1990) were operationalized in the development of the interview guides, as well as the quantitative measures, that were administered for the larger study. The interview guides consisted of 12 open-ended questions pertaining to care partners' experience of various aspects of MCI, including MCI onset and history, reasons for initially visiting a memory clinic, difficulties associated with symptoms, reactions to the diagnosis, changes in roles and responsibilities, changes in care partner physical and emotional health, care partner coping strategies, future planning, and suggestions for others who are dealing with memory loss. Interviewers also used probes for further details regarding their responses. The full interview guide appears in Appendix A.

It is important to note that the semi-structured guide used to collect interview data was different from that of the standard interview guide for assessing EE. Given that EE is

the theoretical framework for the study, the Camberwell Family Interview (CFI) (Vaughn & Leff, 1976; Leff & Vaughn, 1985) would ideally have guided the interview data collection. However, the semi-structured interview protocol utilized in the larger study and the CFI overlap in many areas and can be regarded as comparable. What follows is a description of the CFI, with subsequent comparison of this measure with the interview guide used for the present analysis.

The Camberwell Family Interview (CFI) is considered the standard instrument in EE research in classifying family members as either high or low EE (Van Humbeeck, Van Audenhove, De Hert, Pieters, & Storms, 2002). This semi-structured interview is conducted with a key family member in the absence of the patient. This format provides privacy and fosters candidness regarding sensitive issues that might otherwise be avoided if the patient were present. The CFI consists of questions focusing on the onset and development of the psychiatric disorder, including information about specific symptoms and impact on various aspects of family life. This includes, for example, the delegation of household tasks/responsibilities within the family, the frequency of conflict among family members, and the amount of contact the rest of the family has with the patient (Leff & Vaughn, 1985). It also elicits from the family member how they have managed difficult behaviors and situations in the past three months, and inquires about the respondent's relationship with the patient (Leff & Vaughn, 1985). Interviewers also use neutral and direct probes to elicit further detail regarding particular responses. The interview typically takes from one to two hours to complete, and is audio-recorded for later coding. CFI coding is manualized and highly structured to ensure accurate identification and scoring of the various elements of expressed emotion. EE coding

considers both verbal and non-verbal aspects of family member responses to the interview questions, with vocal tone being one of the key determinants of how an excerpt is coded. The CFI has demonstrated high inter-rater reliability across numerous studies with various types of psychiatric disorders (Hooley, 2007). It has also established strong predictive validity for clinical outcomes across a variety of psychiatric disorders (Butzlaff & Hooley, 1998).

The interview guide used for the analysis converges with the CFI in many respects, and therefore is a reasonable proxy for the CFI. Table 1 provides a comparison of the two interview guides, and reveals many similarities between these interview protocols in terms of the topic areas of inquiry. One notable difference is that the CFI includes specific questions regarding family conflict, whereas the interview guide for the current study does not. Often however, care partners made reference to conflict spontaneously, and follow-up probes elicited further information about this topic. Another difference is the length of each interview. The interview length varied across participants from this sample, and was interspersed with the administration of self-report measures. Together the administration of the interview and self-report measures took approximately one hour. The administration of the CFI, however, is uninterrupted, and is considerably longer, taking between one and two hours to complete. Despite these differences, the content areas of the two interviews are comparable. While approximate in its ability to tap constructs of EE, the interview guide maps well onto the CFI and is an appropriate proxy measure. A full version of the interview guide is found in Appendix A.

Table 1
Comparison of Interview Guides

Camberwell Family Interview	Virginia Tech Families with MCI Study
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Onset and development of the psychiatric disorder	Onset of symptoms Period of time dealing with memory issues Reason for visiting memory clinic
Symptoms Impact on various aspects of family life	Changes in memory Predicted changes in the future Family's reaction to diagnosis/test results Managing everyday life Evaluation of own physical and mental health Giving up enjoyable activities (care partner) Use of self-care strategies
Delegation of household tasks Division of responsibilities within the family	Role and relationship in helping with memory loss Whether receiving outside help Whether providing care for anyone else Comfort with asking family members for help
Frequency of conflict among family members	Not specifically elicited; probes used when spontaneously mentioned
Amount of contact the rest of the family has with the patient	Family members involved Family members who could be involved who are not
Management of difficult behaviors and situations in the past three months	Dealing with minor/major difficulties with memory Helpful information or suggestions received for dealing with memory loss Suggestions offered for others managing/coping with memory loss
Respondent's relationship with the patient	Relationship and role in providing assistance
Subjective feelings about objective events	Reaction to diagnosis/test results Feelings about care role

Non-Cognitive Features of MCI

The revised memory and behavior problems checklist (RMBPC) is a caregiver

self-report measure used to assess the frequency of behavior problems exhibited by patients with dementia (Teri et al., 1992). This measure is often used to track the course of the illness (progression of impairment) over time, or to assess how the person with cognitive impairment and/or how his or her caregiver is responding to treatment interventions. Although the RMBPC was originally developed for caregivers of dementia patients, it is applicable to MCI because MCI is conceptualized to exist on a continuum between normative cognitive aging and dementia (Petersen, 2004). Versions of the RMBPC are used in MCI research and similarly applied in measuring and tracking illness progression, or how individuals are responding to clinical interventions. In sum, the use of the RMBPC is established as a valid and reliable measure in the assessment of MCI as well as dementia, and has proven useful in furthering an understanding of the illness and its influence on psychosocial outcomes (Teri et al., 1992).

The RMBPC delineates cognitive and non-cognitive features of dementia/MCI, and includes 24 possible problem behaviors typically exhibited by persons with cognitive impairment (Teri et al., 1992). Cognitive features refer to the more obvious signs of memory or functional impairment, such as forgetfulness or losing/misplacing things, or declines in ADLs. Non-cognitive features are those symptoms and behaviors that are not as commonly recognized as being related to cognitive impairment, and comprise two subscales – depressive symptoms (e.g., sadness, worrying) and disruptive behaviors (e.g., arguing, irritability). Table 2 presents the two subscales included in the analysis with their corresponding items.

Each item is scored as to whether the behavior occurred within the last week (i.e., “yes” or “no” scored as 1 and 0, respectively). An aggregate score for each subscale is

rendered with higher scores reflecting greater levels of impairment. Although the RMBPC items are typically weighted by a reaction rating – the degree to which the care partner was bothered by specific behaviors – this dimension was not included in the present analysis so as to remove any possible confounding effects of emotional reactions captured by these responses. For the quantitative analysis, a sum score for all items in the depression and disruption subscales was computed for each participant. Consistent with previous research studies demonstrating that EE does not predict changes in the cognitive features of Alzheimer’s disease (Vitaliano et al., 1993), the memory problems subscale was excluded. The RMBPC scale was administered to the person with MCI at both T1 and T2.

The convergent validity of the RMBPC has been confirmed through comparison with established measures that its subscales measure, including the MMSE, the Hamilton Rating Scale for Depression, the CES-D, and the Caregiver Stress Scale (APA, 2015). This scale also demonstrates good overall reliability. Patient behavior showed an alpha of .84 (APA, 2015).

Table 2

Revised Memory and Behavior Problem Checklist: Non-Cognitive Subscales

Depression Subscale	Disruption Subscale
Appears anxious or worried	Destroying property
Threats to hurt oneself	Doing things that embarrass you
Appears sad or depressed	Waking you or other family members at night
Expressing feelings of hopelessness or sadness about the future	Talking loudly and rapidly
Crying and tearfulness	Engaging in behavior that is potentially dangerous to self or

Comments about death of self or others	others
Talking about feeling lonely	Threats to hurt others
Comments about feeling worthless or being a burden to others	Aggressive to others verbally
Comments about feeling like a failure or about not having any worthwhile accomplishments in life	Arguing, irritability, and/or complaining

Cognitive Impairment

A widely used assessment measure in dementia research and practice, the Mini Mental State Exam (MMSE) is a 30-item inventory that estimates the severity of cognitive impairment, and has been established as a valid and reliable measure for the diagnosis of Alzheimer's disease as well as assessment of the disease progression over time (Folstein, Folstein, & McHugh, 1975). This measure tests various areas of cognitive function including recall, language, registration, orientation, attention and calculation, the ability to follow simple commands, and motor skills. Areas are assessed using serial sevens (counting backwards from 100 in sevens), naming items/objects, repeating back phrases, and following instructions to draw a figure or shape, to name a few.

Scoring of MMSE follows guidelines for rating each specific area, which are then added together to provide a raw score (maximum 30). Scores of 25 or higher indicate normal cognition. Scores below 25 are indicative of relative degree of impairment, ranging from mild (21-24), moderate (10-20), to severe (0-9). The MMSE is used as one criterion for diagnosing dementia; by itself it is not intended to be a sole criterion for a diagnosis of dementia, but rather a screening tool for further assessment (Tomburgh & McIntyre, 1992). When compared with a clinical diagnosis of dementia, this measure has

demonstrated high sensitivity (87%) in predicting dementia (Grut, Fratiglioni, Viitanen, & Winblad, 1993). As noted previously, for this study, the MMSE was conducted with persons with MCI by staff from the clinics from which the sample was recruited.

Quantitative Data Analysis

Expressed emotion coding. Classifying EE involves the administration of the Camberwell Family Interview (CFI; Leff & Vaughn, 1985; Vaughn & Leff, 1976) to a family member, and the utilization of a highly structured protocol for coding the interview. While the details about the CFI interview protocol appear in an earlier section, this section presents an overview of the coding procedures. For the present analysis, I employed the CFI coding protocol with the care partner interview data. I was unsuccessful in attempts to establish contact with CFI trainers regarding opportunities to become a certified EE coder. Due to this lack of requisite training to become a certified EE coder (Hooley, 2007), as well as limited time and resources to code interview recordings, I used an EE proxy variable for the analysis. That is, I did not use a direct measure of EE in the strictest sense, based on the protocol and coding guidelines for this variable. Rather, what is measured in the analysis is care partner emotional reactivity that is proximal to and representative of EE. The qualitative analysis of this study also broke with EE coding protocol in that it used interview transcripts, rather than audio recordings, which consequently precluded coding for the vocal aspects of interview data (i.e., tone of voice). However, tone was inferred through key indicators of verbal content of interview statements, including care partners' explicit references to their own emotional state or reactions to MCI-related symptoms and behaviors.

Expressed Emotion in Families (Leff & Vaughn, 1985) served as a guide for

coding EE. While not a training manual per se, it provides detailed guidelines (30+ pages) on how to code the various dimensions of EE. There are two main dimensions used in the coding of EE, consisting of 5 independent scales: (a) frequency counts of both positive remarks and critical comments and (b) global ratings (0-5) of emotional over-involvement, hostility and warmth. Based on previous research on EE with Alzheimer's disease (Tarrrier et al., 2002; Vitaliano et al., 1993), critical comments and emotional over-involvement have been deemed most relevant to predicting symptom relapse or exacerbation. Although much less commonly observed, any evidence of hostility is also highly predictive of relapse (Hooley, 2007; Leff & Vaughn, 1985). Therefore, the analysis included coding on the three scales of critical comments, emotional over-involvement, and hostility, but not warmth or positive remarks, as they have not been documented in the literature as being as strongly associated with illness course and long-term outcomes.

Of the various dimensions, criticism is typically regarded as the central dimension determining EE status (Hooley, 2007). The coding of criticism is based on a frequency count of critical comments. If a relative makes an above-threshold number of critical comments, they are classified as high EE. Criticism is adapted to the particular clinical disorders to which it is applied, and is the only dimension for which the coding criteria vary from disorder to disorder, and thresholds tend to correspond with disorder severity. For example, the threshold score for depression (typically three critical comments) is considerably lower than it is for Schizophrenia or Alzheimer's disease (typically six or more critical comments), because the symptoms and behaviors are generally less severe or disruptive (Hooley, 2007). Cutoff scores are established by previous research

demonstrating their predictive validity with relapse or symptom exacerbation. Only one study has used the CFI with Alzheimer's disease, and the cutoff score for critical comments was set at six (Tarrier et al., 2002). Because this study dealt with older adults with whom overall cognitive symptoms are much less severe than with Alzheimer's disease, a cutoff score of three was deemed an appropriate threshold score, with the expectation that it may require adjustment as the analysis progressed. Other criteria that warrant a classification of high EE are 1) any evidence of hostility, or 2) an EOI global rating of 3 or more (out of a 5). These criteria remain the same across disorders, and no adaptations were made for the coding in the current analysis. Further information about how these dimensions are coded is available in the manual used to guide the analysis (Leff & Vaughn, 1985).

Expressed emotion and inter-rater reliability. I recruited a second coder (Ms. Han) for the purposes of coding and establishing inter-rater reliability for the analysis. Ms. Han was a graduate student in the Couples and Family Therapy program at the University of Oregon, and had prior experience with observational coding in her undergraduate studies. She was briefed on the theory of expressed emotion and given key articles to read, including literature reviews on the topics of both EE and the attribution model of EE. Ms. Han was also provided literature about MCI, and was informed of the aim of the present study. Additionally, she was provided a personal copy of the aforementioned *Expressed Emotion in Families* (Leff & Vaughn, 1985), to familiarize her with the process of coding EE. Several key chapters were assigned as reading prior to a meeting that focused on the initial coding process and protocol for the analysis.

To develop the coding protocol and establish inter-rater reliability, Ms. Han and I

coded the first three interviews side-by-side over the span of two meetings. This allowed us to share and compare our initial impressions, discuss rationales for assigning particular codes, and offer feedback to one another. During this early coding process, we consistently referred to the *Expressed Emotion in Families* text (Leff & Vaughn, 1985), to ensure that we were adhering to the coding protocol. Extensive memo writing also took place at this stage and throughout the analysis, to document our coding development, and to serve as a reference for the coding of subsequent transcripts. I wrote memos shortly after each meeting, and shared them electronically with Ms. Han prior to the coding of the subsequent transcripts. In this early stage of side-by-side coding, most discrepancies in our coding were resolved via discussion. However, there were some discrepancies about which there was lingering uncertainty or disagreement, and these were noted in a memo and tabled for discussion and resolution in a later meeting.

As part of the memo-writing process, Ms. Han and I compiled a running list of key words and phrases of care partners that we agreed were indicative of criticism. These words and phrases made reference to the care partner's own emotion (e.g., "annoyed", "angry", "impatient"), or the care partner's own contribution to, or initiation of, a negative interaction with the person with MCI (e.g., "fussing at", "got on", "hassled"). Because we did not have access to the audio data for these interviews and could not code the non-verbal aspects of speech, this list was of central importance in inferring critical comments and represented an attempt to compensate for the lack of non-verbal data (i.e., vocal tone).

Next, we coded three transcripts separately, by hand, and then met to compare our codes side-by-side. At this stage, our discussions focused on resolving discrepancies and

honing our application of the coding system. For example, it became apparent that there was a need to more clearly delineate appropriate coding of EOI versus criticism. Also, given that EOI is a global rating, it was necessary to reach consensus about the criteria for determining high versus low EOI in the context of MCI. We also made adjustments to the EE coding system with regard to EOI. As mentioned, EOI scores are global and rated on a scale of 0 to 5, with scores of three and above constituting a high EE rating for the interview. For the purposes of both practicality and the objective of achieving reliability, these rating scores were collapsed into two rating scores: low EOI (0-2) and high EOI (3-5). Consistent with the EE coding protocol, just one hostile remark or a generalization of criticism constituted sufficient grounds for a rating of high EE.

Intra-class correlation (ICC) was computed after coding 16 interviews separately to ensure inter-rater reliability, after which time the second coder to serve as a check of the lead coder's work. The ICC coefficient was .902 for the first 16 interviews. Given this high degree of inter-rater reliability, the Ms. Han coded one interview for every four that I coded as a check to verify and maintain reliability. Comparing transcripts and resolving discrepancies was aimed at preventing drift. Intra-class correlations remained within the acceptable range (.80 - .89) throughout the analysis, and the overall ICC for 32 interviews was .895. Ms. Han coded a total of 32 interviews, which represented 56% of the total interviews included in the analysis.

ANCOVA. An analysis of covariance (ANCOVA) was employed to determine the effect of care partner EE (i.e., high vs. low EE) on non-cognitive features (i.e., disruptive behaviors and depressive symptoms) of MCI over time, while controlling for the potential influence that level of cognitive impairment (MMSE score) and T1 behavior

problems had on the outcome variable. As age of care recipient has been shown to be associated with EE status (Henrichsen et al., 2004; Vitaliano et al., 1993), this was also included as a covariate. For the purposes of the current study, ANCOVA was chosen to remove the potential influence that level of cognitive impairment (measured by MMSE score) on the dependent variable (T2 non-cognitive features), thereby providing a more accurate picture of the relationship between EE and non-cognitive features. Data were analyzed using the Statistical Package for Social Sciences (SPSS) version 20.0.

The assumptions that need to be met for ANCOVA include the homogeneity of group variance and the homogeneity of regression slopes (Howell, 2009). To check the assumption of homogeneity of variance, Levene's Test was conducted, and this assumption was met. The assumption of the homogeneity of regression slopes was also met by verifying non-significant values for the interaction effect between the independent variable and the covariates included in the analysis. An a priori power analysis was performed using G*Power (Faul, Erdfelder, Lang, & Buchner, 2007). This analysis revealed that in order to achieve a power of .80 with a large effect size (.40), and a significance level of .05, a total sample size of 52 would be required.

Preliminary analyses and missing data. As mentioned, list-wise deletions were made for four cases within the overall study sample. One of the drawbacks of list-wise deletion is that it diminishes sample size and therefore statistical power and the ability to detect meaningful effects (Howell, 2009). However, list-wise deletion is appropriate when data are missing "not at random." This determination was made on the basis that many, if not all, of the self-report measures for T1 were missing for these cases, indicating that systematic factors were responsible for the missing data. Participant

characteristics that were related to their EE status may have accounted for the missing data. For example, care partner impatience or frustration with the administration of the self-report measures may have been related to their high EE status. Therefore, alternative methods for handling the issue of missing data, such as data imputation, were not appropriate and would risk skewing the results.

Qualitative Strand

Theoretical Thematic Analysis

The qualitative strand of the study employed methods of theoretical thematic analysis (Braun & Clarke, 2006). This type of thematic analysis is explicitly driven by preexisting theory. Rather than provide detailed description of the data overall (as with inductive thematic analysis), theoretical thematic analysis aims to provide rich description or a detailed account of a specific aspect of the data often outlined by the initial research question(s) (Braun & Clarke, 2006).

The current analysis was informed by the attribution theory of EE (Barrowclough & Hooley, 2003). A statement of attribution is broadly defined as a caregiver mentioning an event or behavior that relates to a patient, and accounting for it with a causal explanation (Tarrier et al., 2002). Statements of attribution may be explicit, or may be inferred by considering the surrounding context in which the statement was made. The qualitative strand of this study focused on answering the research question: How do care partners make attributions regarding the cognitive and non-cognitive features of MCI? Consistent with theoretical thematic analysis, engagement with the literature commenced at the early stages of conceptualization of this study, and continued throughout the data analysis (Braun & Clarke, 2009). The analysis was sensitized to a specific attributional

framework known as the Leeds Attributional Coding System (LACS; Stratton, Munton, Hanks, Heard, & Davidson, 1988). While not the most common way of conceptualizing and coding causal attributions, the LACS is perhaps the most valid and the most preferred (Barrowclough & Hooley, 2003).

The LACS is essentially a component of the CFI, in which spontaneous causal attributions are extracted from the CFI interview and rated on one of five attributional dimensions. These dimensions include: (1) internal – external, (2) personal – universal, (3) controllable – uncontrollable, (4) stable – unstable, and (5) global – specific. The internal – external dimension refers to attributions in which a symptom or event is believed either to be caused by some feature or characteristic of the person or to some environmental condition or event. The personal – universal dimension is concerned with whether a behavior or event is seen as related to idiosyncrasies of the person (personal), or regarded as what would be expected for anyone under similar circumstances (universal). The controllable – uncontrollable dimension considers whether a behavior or symptom is regarded as being within or outside of the person's control. The stable – unstable dimension concerns perceptions of a symptom or behavior as being enduring (stable), versus transient (unstable) over time. Lastly, the dimension of global – specific is concerned with whether the cause of an event is seen as associated with one particular outcome (specific), or various outcomes (global). In terms of their relationship with EE status, attributions related to perceptions of patient responsibility, which comprise personal and controllable attributions, have been found to be associated with high EE status (Hooley, 2007; Lee et al., 2014).

The current analysis was also informed by modifications to the LACS made by

Tarrier and colleagues (2002) for application to persons with Alzheimer's disease, as well as Polenick and Martire (2013) for application to late life depression. One modification is the inclusion of just four dimensions of patient causality and the exclusion of the global-specific dimension due to a lack of relevance to the context of cognitive decline (Tarrier et al., 2002). For the same reasons, these authors also included only two of the dimensions for the caregiver (controllable – uncontrollable, internal – external). Other modifications that inform the current analysis come from attribution research on late-life depression, which has identified character attributions and intention attributions (Polenick & Martire, 2013). Character (or personal) attributions refer to caregiver perceptions that symptoms and behaviors are related to character flaws, such as laziness or lack of self-discipline. Intention attributions reflect views that symptoms or behaviors are manipulative or deliberate. These attributions were modified and added to the personal – universal dimension in this qualitative analysis.

Theoretical thematic analysis is a recursive and organic coding process in which the researcher moves back and forth among six phases of the analysis (Braun & Clarke, 2006). The six phases include: familiarizing, initial coding, searching for themes, reviewing themes, defining and naming themes, and reporting findings. The last phase does not warrant explanation, however the first five phases are outlined below, with descriptions of particular aspects of the qualitative analysis to illuminate the analytic process and ensure its trustworthiness (Lincoln & Guba, 1985).

Familiarizing. The phase of familiarizing informally began in the quantitative strand of the analysis, at which time I read all transcripts two to three times. While identifying attributions was not the objective of the quantitative phase, I noted

occurrences of attributions when they were apparent. Specifically, in electronic format (using Microsoft Word), I highlighted and made a note in the margin indicating that an attribution was made. Repeated reading helps to immerse the researcher in the data (Tuckett, 2005). Ideally, the researcher reads through the data at least once through prior to beginning the coding process (Braun & Clarke, 2006). In the qualitative strand, I re-read through each transcript once through prior to coding. This re-familiarizing with the data was essential, as several months had lapsed between the completion of the quantitative analysis and the beginning of the qualitative analysis. As with previous stage, instances of attributional statements were simply noted, using the same electronic process. Codes were not assigned at this stage, as the specific aim of this initial phase of the thematic analysis was to identify statements of attribution broadly and without specificity. To this end, any instance in which a care partner attempted to provide a causal explanation for an event or behavior related to MCI was noted. I did not incorporate or refer to the LACS framework at this stage of the coding process.

Initial coding. The next phase involves organizing and collating data into meaningful groups through coding (Tuckett, 2005). Because this thematic analysis was theoretically driven, I used the LACS conceptual framework to guide the initial coding. Specifically, four attributional dimensions of the LACS were used to guide coding for the qualitative analysis: (1) internal – external, (2) personal – universal, (3) controllable – uncontrollable, and (4) stable – unstable (Stratton et al., 1988). Consistent with prior research indicating a lack of relevance of the global – specific dimension to cognitive decline, as well as evidence of low inter-rater reliability, this dimension was excluded from the present analysis (Barrowclough & Hooley, 2007; Tarrier et al., 2002). As

mentioned, character and intention attributions were modified and subsumed under the personal – universal dimension.

One of the objectives of this phase was to refine and expand the initial LACS attributional codes and create sub-codes with greater specificity than was provided by the LACS conceptual framework. As predicted, the initial LACS codes proved overly broad for the purposes of the current analysis, especially given that statements of attribution were often nuanced in their reference to specific MCI-related behaviors, symptoms and coping strategies. In other words, these codes were inadequate in their ability to capture the range of attributions and related phenomena seen in this particular context. Therefore, I compared attributional statements across participants to identify patterns and create sub-codes within many of the initial LACS codes. In doing this, I began to create working definitions of all codes and sub-codes for reference and further development and refinement.

I coded electronically, highlighting text with direct relevance to attributions and coding each extract in the margins. I used an inclusive method of coding in which attributional statements were coded along with surrounding text to provide sufficient context to make sense of the data of the qualitative analysis (Bryman, 2001). This was of particular importance for the purposes of presenting/displaying the findings and ensuring the confirmability and transferability of the analysis (Creswell, 2007). Next, I extracted attributional statements and surrounding text, along with their initial codes and sub-codes and entered them into a spreadsheet in Microsoft Excel arranged according to individual participants with separate columns for participant name and ID number, statements of attribution (i.e., direct quotes), and their corresponding codes. Arranging the data in this

way provided a convenient and efficient way of comparing and recognizing patterns in the data, and laid the foundation for developing themes in the subsequent phases of the analysis.

Finally in this stage, I reviewed and refined codes and sub-codes, which involved reading through all data extracts (i.e., direct quotes) to determine how well the codes fit the data, and making adjustments as necessary. For example, two codes, universal and internal, were problematic in that there was significant overlap and lack of conceptual distinction between them, which had led to a lack of clarity when one code would be used instead of the other. To resolve this issue, I made needed conceptual delineations, and recoded extracts that had been coded inconsistently.

Searching for themes. In this phase, I began to focus more broadly on the development of themes by sorting and organizing the codes. Often, codes are combined to create overarching themes. This process involved considering the relationship between codes, and how different codes are situated, or fit, within the themes (Braun & Clarke, 2006). By the end of this stage, I produced a list of candidate themes and subthemes for further analysis, which determined whether they would be refined, combined or discarded (Braun & Clarke, 2006). In this qualitative analysis, the organization of codes and sub codes (attributions) was the basis for and led to the development of themes (attributional stances) and subthemes (attributional styles).

The second objective of this phase of the analysis was to begin to identify patterns among codes, and combine them to develop themes. I did this by compiling lists of codes within each interview, and comparing these lists across different interviews in the electronic spreadsheet. This allowed me to begin to see patterns among the data, namely

the ways in which codes clustered together, and instances in which certain codes were conspicuously absent from these main groupings or clusters. I made a list of several candidate themes and subthemes with brief synopses for consideration in the next phase.

Reviewing themes. This phase is primarily concerned with testing and refining candidate themes. Seemingly separate themes may be collapsed or combined into a single theme, whereas other themes may need to be broken down into two or more individual subthemes. In some cases, a theme may be discarded altogether due to a lack of fit with the data (Braun & Clark, 2006). I reviewed the candidate themes with regard to the coded data extracts (i.e., direct quotes) to determine if meaningful and coherent patterns existed, and to verify that the themes were in fact adequate descriptors or representations of the data. For example, one of the four candidate themes was weak in that it only applied to a very small number of data extracts, and was very similar to another theme such that it could be absorbed into that primary theme.

Defining and naming themes. In this phase, I defined and refined themes further in order to capture their essence and the story that they tell about the data (Braun & Clarke, 2006). This involved writing a detailed account of each individual theme, as well as how themes relate to one another. Up to this point, the researcher usually has relied on working titles for each theme for the analysis, and now begins to hone in on final names that will be presented in the final analysis.

In this phase, I created a detailed account of each of the themes and subthemes developed, drawing on various quotes to illustrate their essence and to create a narrative interpretation. In this analytic stage of the process, previously unrecognized patterns in the data began to emerge. In particular, patterns were noted regarding the way themes

related to or differed from one another. Comparisons were drawn between the themes, and added to the overall narrative account. For example, patterns of emotional valence became more apparent among the three themes areas, and addressed the research question more fully.

Also in this phase, it became apparent that the initial working titles were somewhat idiosyncratic, or did not seem to describe the phenomena adequately. While these titles were useful and made sense for the purposes of organizing the data, they were problematic in that they were unlikely to be immediately accessible to an audience. The obscurity of these titles had the potential for creating confusion or misconceptions about what exactly the themes represented. Therefore, I experimented with different titles until arriving on ones that were cogent and unlikely to be misunderstood.

Trustworthiness. Triangulation was one strategy employed during the qualitative analysis to ensure trustworthiness of the study. Essentially, triangulation involves examining data from multiple perspectives to verify consistency in interpretations and conclusions drawn from the phenomena of interest (Patton, 2002; Schwandt, 2001), and helps to establish the validity and integrity of qualitative analyses. Triangulation was achieved in a few different ways and at various stages of the analysis. First, my initial engagement with literature pertaining to the attribution theory of EE, particularly the LACS framework and modifications for the contexts of cognitive impairment and late-life depression, ensured the relevance of this guiding theoretical framework to this context and guided the original conceptualization of the qualitative strand of this study. This theory and prior research cited were reference points throughout the analysis.

The trustworthiness of the qualitative analysis is also enhanced through peer

debriefing (Lincoln & Guba, 1985) with my dissertation chair to review coding and theme development in the final stages of the analysis. Specifically, an in-depth review of two early drafts of the qualitative results by my dissertation committee chair also ensured that the interpretations I made regarding the data were valid. Both of these early drafts included substantially more raw data (i.e., example quotes) and interpretations than did the final version of the results section for the qualitative analysis, which was significantly condensed in the interest of presenting the findings concisely. Including these more extensive findings and exemplars in earlier drafts sought to address concerns often raised with regard to “anecdotalism” in qualitative research (Bryman, 1988), in which “one or a few instances of a phenomenon are reified into a pattern or theme, when it or they are actually idiosyncratic.” (Braun & Clarke, 2008, p. 25). Even though some of the raw data was trimmed in the final presentation, the earlier reviews confirmed that codes, sub-codes, themes, and subthemes in fact applied broadly to the data rather than a just a few instances.

Data Mixing

The convergent mixed methods design involves separate analyses for the qualitative and quantitative strands, followed by the merging of the two data sets in the final mixing stage (Creswell & Plano-Clark, 2011). The mixing stage of data analysis involved making interpretations or “meta-inferences” across the quantitative and qualitative findings to address the mixed methods research question (Teddlie & Tashakkori, 2009). The research question guiding the mixing phase was: How does the thematic analysis of attributional statements help to explain the predictive relationship between care partner EE and non-cognitive features of MCI in care recipients? To

address this question involved the integration of the qualitative results, namely attributional themes, and the quantitative results, namely EE classification. This resulted in the creation of a joint data display arraying quantitative categories by thematic areas (Creswell & Plano Clark, 2012). Arranging the data in this way made it possible to draw meaningful comparisons and interpretations across the two data sets.

Chapter Four

RESULTS

EE and MCI Illness Course: Quantitative Findings**Participants**

The sample for this study comprised 57 family dyads, consisting of primary care partners and persons with MCI, for a total of 114 participants. The average age of persons with MCI was 76 years ($SD = 6.36$) and ranged from 61 to 89 years. Thirty-eight (66.7%) persons with MCI were male, and 19 (33.3%) were female. In terms of race, 43 (75.4%) identified as White/Caucasian, and 13 (22.8%) identified as Black/African-American (data on race were missing for one person with MCI). One (1.8%) person with MCI identified as Hispanic/Latino. Their mean MMSE score was 26.75 ($SD = 2.93$), with a range of 16 to 30.

The average age of the primary care partners was 69 ($SD = 10.82$), and ranged from 38 to 89 years. Forty-nine of the primary care partners (86.0%) were female, and eight (14%) were male. In terms of relationship to the person with MCI, 42 (73.7%) were spouses or partners, 11 (19.3%) were adult children or stepchildren, and four (7.0%) were siblings. Racially, 46 (80.7%) identified as White/Caucasian, and 11 (19.3%) identified as Black/African-American. One (1.8%) primary care partner identified as Hispanic/Latino. The mean time between T1 and T2 interviews was 13.74 months ($SD = 3.25$), with a range of 19 to 25 months.

Predicting Non-cognitive Features of MCI

An analysis of covariance was conducted to determine whether there were significant differences between the mean RMBPC scores of the T2 non-cognitive features

(disruptive behaviors and depressive symptoms) of high versus low EE groups, while controlling for severity of cognitive impairment (MMSE score) and age of the care partner. The ANCOVA revealed no significant differences between the mean RMBPC scores of the two EE groups when the threshold score for critical comments was set at three. Given the exploratory nature of the study, an adjustment was then made to the threshold (cutoff) score for critical comments from three to four comments for categorizing a care partner as critical. Because the threshold score for late-life depression is typically set at three and the threshold for Alzheimer's disease is set at six, a score between the two is justifiable. That is, the threshold should be below six, given that MCI represents less severe impairment than Alzheimer's disease. And it is also reasonable that the score would be higher for MCI than for depression due the ambiguity of the illness and the associated distress that care partners often experience (Blieszner et al., 2007; Blieszner & Roberto, 2010). This change in this threshold score resulted in fewer interviews being classified as high EE, from 21 to 15. Therefore the final EE classification of care partner interviews revealed that 15 (26.3%) were high EE status and 42 (73.7%) were low EE status. Of the 15 high EE status care partners, seven were classified as high-critical, five were high-EOI, two were high-EOI/critical, and one was high-hostile.

Assumption checks for ANCOVA were conducted. Levene's Test was run to test the assumption of homogeneity of variance. The error variance of T2 non-cognitive features was equal across the two EE groups ($p = .35$). The assumption of the homogeneity of regression slopes was also tested, showing non-significant values for the interaction effect between the independent variable, EE, and the covariate, T1 RMBPC

score ($p = .22$), the interaction between EE and the covariate, MMSE ($p = .23$), and the interaction with the covariate, age of the person with MCI ($p = .31$). This confirmed that the assumption had not been violated and that the regression slopes were equal.

A one-way analysis of variance (ANOVA) was calculated to determine whether there was a significant difference in mean scores of T2 RMBPC scores between high and low EE groups. The mean score for T2 non-cognitive features was 1.61 ($SD = 2.25$) for the low EE group, and 2.15 ($SD = 1.81$) for the high EE group. The difference in mean scores was non-significant $F(1, 51) = .49, p = .48$. The predicted relationship between EE and T2 RMBPC score was not confirmed, $F(1, .47), p = .50$, even when controlling for T1 RMBPC score $F(1, 17.97) p < .001$, age of the person with MCI $F(1, 4.02), p = .05$, and MMSE $F(1, .06), p = .81$. Therefore, the results of the ANCOVA did not support the hypothesis that care partner EE status would predict increases in care recipient non-cognitive features of MCI over time.

Care Partner Attributions: Qualitative Findings

The purpose of the qualitative strand of this study was to understand how care partners make attributions regarding the cognitive and non-cognitive features of MCI. To this end, methods of theoretical thematic analysis (Braun & Clarke, 2006) were employed, drawing from the LACS attributional coding framework (Stratton et al., 1988), as well as modifications of this coding framework that are specific to persons with cognitive impairment (i.e., Alzheimer's disease) and their caregivers (Tarrier et al., 2002), as well as late-life depression (Polenick & Martire, 2013). The theoretical thematic analysis led to further development and adaptation of the LACS conceptual framework, which guided the initial coding. That is, the analysis led to the creation of

sub-codes within the initial LACS codes. Together, the codes and sub-codes (i.e., attributions) became the basis for the development of the various theme and subtheme areas. Because these codes laid the foundation for the subsequent development of theme areas (i.e., attributional stances/styles), an overview of these codes and sub-codes is provided first, with explanations and definitions for each. Thematic areas (i.e., attributional stances/styles) are then discussed and presented along with supporting examples and case studies.

Attributions

Some codes and dimensions of the original LACS coding framework were dropped from the analysis because they were not relevant to MCI or did not apply to attributional statements made by these participants. This included the global – specific dimension, and the attributional code, stable. However the code, unstable, was retained as it occurred fairly frequently. A total of 131 attributions were made within the 57 interviews included in the qualitative strand of the study. Table 3 provides a full list of attributional dimensions and codes, definitions and examples, as well as notations to distinguish preexisting codes from the LACS conceptual framework from those codes developed in the qualitative analysis. A summary of the codes is also provided in the following section with illustrative examples. Participants were assigned pseudonyms to protect confidentiality.

Table 3

Attributional Dimensions and Codes, Definitions, and Examples

Dimensions, Codes and Definitions	Example Quotations
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Personal – Universal: Behavior or event seen as related to idiosyncrasies of the person with MCI versus what

would be expected for anyone under similar circumstances.

**Personal (historical forgetfulness) (n = 3):* To account for current memory issues, reference is made to forgetfulness preceding, and separate from, illness onset.

“He has just always been really forgetful.”

**Personal (trait – positive) (n = 3):* Behavior or symptom is attributed to a positive aspect of personality, believed to exist prior to, or to be separate from, the illness.

“Repeating the same thing. I think it’s to be social. She has always been very sociable, and I think she wants to contribute to the conversation, you know.”

**Personal (trait – negative) (n = 9):* Behavior or symptom is attributed to a negative personality trait or character flaw, believed to exist prior to, or to be separate from, the illness.

“He has always been a bit of a procrastinator, and that has gotten much, much worse.”

**Personal (intention) (n = 5):* Behavior or symptom is attributed to negative intention or deliberate manipulation typically related to the character or personality of the person with MCI.

“She should have mastered [the computer] by now or at least know how to do some of it. She is a great one for getting people to do what she doesn’t like to do.”

Universal (n = 20): Behavior or symptom is accounted for through comparing or drawing similarities with a reference group (e.g., persons with MCI or Alzheimer’s disease, older adults, care partner themselves), or making reference to a diagnosis. Often accompanied with a normalizing or accepting attitude.

“As far as memory as I put in my questionnaire, I think this is a matter of age... George to me is normal, and I put that down, or somewhat normal, because I see the same thing with myself.”

Controllable – Uncontrollable: Cause of behavior believed to be within versus outside of the control of the person with MCI or care partner.

Uncontrollable (n = 9): Behavior or symptom is regarded as outside of the

“Well I would say it extremely bothered me until I realized that he can’t help it.”

ability of the person with MCI to prevent or control.

**Controllable – Managing (n = 10):* Behavior or symptom is believed to be within the control of the person with MCI, and efforts to manage it are regarded as effective or sufficient.

**Controllable - Not Managing (n = 8):* Behavior or symptom is believed to be within the control of the person with MCI, but persists because they are either not attempting to manage it, or their efforts to manage it are regarded as ineffective or insufficient.

**Controllable (Partner) – Managing (n = 17):* Behavior or symptom is believed to be within the care partner's control, and their efforts to manage it are regarded as effective or sufficient.

Uncontrollable (Partner) (n = 4): Care partner's own efforts to manage a behavior or symptom are seen as ineffective or insufficient.

Internal – External: Cause of behavior believed to be a feature of MCI versus environmental or situational factors.

Internal (n = 18): Behavior or symptom is attributed to specific features of MCI (i.e., memory or recall problems), or to its etiology (i.e., an underlying organic condition or disease process).

External (n = 17): Behavior or symptom is attributed to environmental or situational factors.

Stable – Unstable: Cause of behavior of the person with MCI believed to be

“This is good I think from his part, he makes his own little ‘to do’ list, his own little notes.”

“I said, ‘You need some stimulation, you need to do something’...I have told him this, ‘If you don’t use it, you are going to lose it.’”

“I need not remind her I had told her before because that hurts her feelings and makes her anxious...That doesn't gain anything because when she gets upset, it becomes worse.”

“But when I know there is something to do I try to judge how much time it will take and put a little cushion on it. She likes to use up the cushion.”

“I began to realize that it was memory problems.”

“If she has been busy all day and doesn't take a nap, you can see her memory is not as clear as normal.”

constant versus transient.

Unstable ($n = 8$): Behavior or symptom is recognized as being transient or variable over time. “She still does have memory lapses, and they seem to come and go; sometimes they are more severe than others.”

* Indicates a sub-code developed in the present analysis

Personal – Universal Dimension

The attributional dimension of personal-universal is concerned with the central issue of whether a behavior or event is related to personal idiosyncrasies of the person with MCI (personal), or whether the behavior would be expected for anyone under similar circumstances (universal) (Stratton et al., 1988). This dimension was also quite nuanced in its sub-code development within the original LACS conceptual framework. The attribution *universal* was the most prevalent ($n = 20$) of all the attributions in this dimension, as well as in the overall analysis. Within the universal attribution, sub-code development included universal (age) ($n = 4$), universal (illness) ($n = 11$), and universal (comparison) ($n = 5$). The qualitative analysis also led to the creation of four sub-codes within the larger attribution, *personal*. Among them, personal (historical forgetfulness) ($n = 3$), and personal (trait – positive) ($n = 3$), tended to carry either neutral or positive emotional connotations by care partners, whereas personal (intention) ($n = 6$) and personal (trait – negative) ($n = 8$), were typically negatively charged, in terms of care partners’ emotional responses.

Universal. The attribution, universal ($n = 20$), reflected care partners accounting for a behavior or symptom through comparing or drawing similarities with a reference group, such as persons with MCI or Alzheimer’s disease, older adults, or care partners themselves. This code also captured care partners citing the diagnosis of MCI as the

cause of a behavior or event, or situating behaviors and symptoms within the context of cognitive decline (e.g., dementia, Alzheimer's disease). These accounts typically indicated the care partner's knowledge and awareness of the influence of the illness on the behaviors of the person with MCI, and were often accompanied with a normalizing or accepting attitude. Sub-codes within the universal code included sub-code development included age, illness, and comparison, and are outlined below

Universal (illness). Universal (illness) ($n = 11$), reflected care partners accounting for symptoms or behaviors in the person with MCI by referencing a diagnosis or medical information that they had received, and remarking on the consistency between symptoms and behaviors and what would be expected given the diagnosis or information. For example, Gabby referenced information received from medical professionals as well as educational resources to explain the behaviors she was observing in her husband, Galen:

The diagnosis [of MCI] I thought was correct based on what I was observing so I was very pleased...I've done a bit of reading on it. I go on-line to learn about it...I've attended workshops...I've gone to some programs for aging and whatnot, and I always sit on those sessions...First of all, it gives you a way of assessing or identifying or evaluating what the person's situation may be, and then it gives suggestions for follow-up on care.

This account makes clear that her understanding of the illness informed how Gabby responded to, or managed, MCI-related symptoms and behaviors. Understanding that certain behaviors she was observing were actually common symptoms related to illness helped her to identify them as such and to respond to them appropriately. In seeing the behaviors as universal, Gabby avoided holding Galen personally accountable, or blaming

him.

Similarly, Barb also drew connections between her father's behaviors and symptoms and a diagnostic formulation of MCI. Specifically, she appeared to seek vindication by receiving a diagnosis of greater severity (i.e., dementia) than the one given (i.e., MCI), which she saw as commensurate with his limitations:

But I still want him to have the diagnosis of dementia, and I know that is awful to say, but I want that validation for him that this really is something significant, that it is and it's you know, I mean they are talking about taking away his driver's license and you know things like that, not being able to drive and not being able to pay your bills and not being able to wash your clothes, those are significant things.

In this statement, Barb attributed symptoms and behaviors to the illness, and more specifically to a diagnostic category (i.e., dementia). Connecting the behaviors and symptoms to a diagnosis normalized her father's "not being able" perform various tasks and imbued a sense of compassion for the limitations he was experiencing. Across instances of the universal (illness) attribution, care partners indicated their acknowledgement of the limitations of the person with MCI by recognizing their membership with a group, namely people with legitimate cognitive impairment, and identifying commonalities. In attributing symptoms and behaviors in this way, care partners avoided blaming the person with MCI or holding them personally responsible. Instead, care partners showed understanding and compassion for the person with MCI and the difficulties they were experiencing.

Universal (age). The attribution, universal (age) ($n = 4$), reflected a care partner's

accounting for a behavior or symptom through referencing the membership of the person with MCI with an age group, which was typically accompanied by a normalizing and accepting attitude of the MCI-related symptoms or behaviors that they were observing. For example, Gladys sought to normalize her husband's memory issues stating, "As far as memory as I put in my questionnaire, I think this is a matter of age...George to me is normal." This attribution connected George's behaviors to what would normally be expected for his age, i.e., universal for his age category, and was therefore not seen as a problem. Similarly, Enid's appraisal of her husband's memory also exemplified an accepting attitude, reflecting the tendency to see her husband's memory issues in a positive light through comparison with same-aged peers: "Overall I think he does pretty good for his memory at his age." Finally, in accounting for her husband's forgetfulness, Rosa drew comparisons and made light of memory loss afflicting their age group when she said, "I mean we all have 'senior moments', and you can't remember whether you got out of bed or not this morning." In this statement, Rosa inferred that having problems with memory is a universal experience for their age group (i.e., seniors). Instances of this attribution reflected that care partners were not particularly bothered or alarmed by the behaviors or symptoms, and regarded them as within the range of normal for their age group.

Universal (comparison). The attribution, universal (comparison) ($n = 5$), was seen in cases where care partners drew comparisons between the person with MCI and themselves regarding memory and other cognitive issues, and indicated that they were similar or comparable in ability. This attribution was distinct from the universal (age) attribution in that it *implicitly* referenced the process of aging or the age group to which

both the person with MCI and care partner belonged, whereas the universal attribution was *explicit* and did not reference care partners themselves. Care partners making the universal (comparison) attribution typically intimated that there was nothing particularly abnormal about the memory of the person with MCI, and sought to discount its severity or convey that it was innocuous, or not a problem, by drawing a comparison with themselves and implicitly with their age category to which they both belonged or the process of aging. For instance, Cliff drew comparisons regarding his own difficulties with memory, and shared his conviction that his wife's was no worse: "Well, I have gotten so forgetful it's just part of it, but I tried to tell [the medical team] I was as bad off as she was, but they didn't agree."

In some instances, care partners indicated that the memory of the person with MCI was, in fact, better than their own. Melba was most explicit in expressing this sentiment, stating, "If anything, he helps my memory. He helps to jar my memory especially when it comes to names. But I don't see what the big deal is. I just don't." Not only did she perceive concerns about her husband's memory to be exaggerated, but regarded his abilities with recall as an asset to her in helping her compensate for her own memory loss. Using her own cognitive limitations as a reference point, Melba denied that his memory loss was cause for alarm. With this attribution, care partners typically downplayed concerns expressed by others (often alluding to medical professionals) by drawing comparisons with themselves.

Personal. The attribution, personal ($n = 20$), emerged in instances where care partners conceptualized behaviors and events as being related to personal idiosyncrasies or characteristics of the person with MCI. This code included four sub-codes: personal

(historical forgetfulness)($n = 3$), personal (trait –positive) ($n = 3$), personal (trait –negative) ($n = 9$), and personal (negative intention) ($n = 5$). Each sub-code is outlined in detail and with illustrative examples.

Personal (trait – positive). This code occurred with relatively low frequency ($n = 3$), but reflected instances where care partners attributed a behavior or symptom to a positive aspect of the personality of the person with MCI, believed to exist prior to, or separate from, MCI, such as their mental prioritization, sociability, or frivolity. These attributions carried positive emotional valence, which reflected their acceptance or admiration of the person. For example, Rosa attributed her husband’s forgetfulness to his long-standing personal characteristic of being preoccupied with issues of greater importance or higher priority:

But he does have a tendency to forget where he’s put things and all, but, it isn't so much that he can't remember, is that he, when he’s on a project, he thinks about it constantly, and he’s a thinker. And when he is thinking about it, nothing else, you know, he has blinders on to anything else. He does other things, but really, mentally he’s concentrating on whatever project he’s developing at the time. And so he doesn't remember whether he laid the hammer down or not. Then he gets frustrated because he knew he had it, and he can't find it. And, he expects for me to go immediately and find it for him and fortunately I usually can. [Laughter]. I don’t see it as the same problem he sees it as. I see it as he’s just preoccupied with things that are more important to him.

Rosa indicated an accepting attitude towards her husband’s mental prioritization and regarded him positively as “a thinker.” She attributed her husband’s behavior as being

caused by a positive aspect of his personality rather MCI, and dismissed the notion that it was related to MCI or memory loss. Similarly, Rachel also saw memory loss within a positive frame, attributing her mother's memory loss to her propensity to be social, stating, "Repeating the same thing – I think it's to be social. She has always been very sociable, and I think she wants to contribute to the conversation, you know." In this way, memory loss was connected with a positive personality characteristic. Instances of this attribution reflected care partners' proclivity to positively connote the behaviors, as well as deny that these behaviors were indicative of memory loss.

Personal (trait – negative). This attribution ($n = 8$) emerged in instances in which the care partner attributed a behavior or symptom to a negative personality trait or character flaw in the person with MCI, such as procrastination or disregard for others. Care partners making this attribution perceived these traits or flaws as existing separate from, or prior to, MCI, and conveyed negative emotional valence, such as disapproval and annoyance. For example, Helen stated of her husband, Harold, "He has always been a bit of a procrastinator, and that has gotten much, much worse." This statement reflects her belief that his tendency to put things off existed previously, and was exacerbated by MCI rather than caused by it. Moreover, the attribution indicates some degree of denial of an actual memory problem. That is, instead of acknowledging that forgetfulness was at the root of not completing tasks, Helen implied that Harold was simply putting things off. David also made a personal (trait – negative) attribution, establishing her behavior as an entrenched pattern and reflecting her lack of consideration for others. His strong disapproval of this behavior was also apparent in this attributional statement. Regarding his wife's lack of punctuality he stated,

It's horrible habit. I said, 'Not to be unfair, it's unfair to everyone'...She got that from her mother who was always late...and to this day she thinks it's kind of cute, and [that] people see it as one of her charming traits – they don't.

Rather than attributing her lateness to MCI, David cited a long-standing "habit" that was inherited or passed down inter-generationally. In so doing, any potential influence of memory loss on these observed behaviors went unacknowledged. This reflected the general trend across instances of this code in which attributions regarding symptoms and behaviors were made in absolute terms, and failed to recognize the possible influence of other factors, namely MCI, or denied or dismissed memory problems altogether. These attributions generally reflected the care partner's sense that the symptoms and behaviors of the person with MCI were due to their personal flaws or shortcomings.

Personal (intention). This code ($n = 6$) was applied to care partner statements in which a behavior or symptom was attributed to negative intention or deliberate manipulation on the part of the person with MCI rather than a symptom of MCI or manifestation of memory loss. These attributions carried negative emotional valence, namely annoyance or anger. For example, Tom indicated his belief that his wife was deliberately interfering with his effort to be punctual, stating, "When I know there is something to do I try to judge how much time it will take and put a little cushion on it. She likes to use up the cushion." Instead of attributing this behavior to issues with memory and planning (i.e., executive functioning), Tom assumed his wife was deliberately choosing to make them late. Similarly, Dale also attributed the damage his wife caused to a project she was assisting him with in the garage to negative intentionality. In describing this incident he shared, "She knocked over the [filter] as soon

as I set it up, and I said oh it busted it up...I said, "Get out of here." I said, "You haven't been here 10 minutes and you are sabotaging it." Similarly, rather than attributing the accident to problems with his wife's cognitive functioning, such as inattention, Dale instead regarded the behavior as a deliberate attempt to damage or destroy his project. Consistent with other instances of this attribution, this statement indicated denial of the influence of memory or cognitive issues on the behaviors of the person with MCI. The anger and sense of blame in Dale's reaction to the behavior is also consistent with the negative emotional valence associated with this attribution.

The negative (intention) attribution also applied to instances in which care partners accounted for the behaviors of the person with MCI by citing deliberate manipulation believed to underlie them. Regarding his wife's reliance on others for help with the computer, David believed this behavior to be manipulative. He indicated that his wife was feigning incompetence with using a computer in an attempt to avoid responsibility, stating, "She should have mastered [the computer] by now, or at least know how to do some of it. She is a great one for getting people to do what she doesn't like to do." In his statement, David did not reference such limitations as problems with memory and learning that could account for her lack of ability. Similar to the personal (trait – negative) code, instances of personal (intention) attribution reflected care partners' lack of acknowledgement or denial of other contributing factors to the observed behaviors, namely cognitive impairment. As a result, these attributions were negative in their emotional valence, reflecting disapproval or annoyance with the behaviors, and a sense of blame towards the person with MCI.

Personal (historical forgetfulness). This code occurred with relatively low

frequency ($n = 3$), and was applied to statements in which care partners accounted for the current forgetfulness of the person with MCI by referencing memory issues that preceded MCI. These attributions were neutral in their emotional valence in that positive or negative emotionality were not present. Because these issues with memory were seen as long-standing, care partners indicated that were accustomed to them and demonstrated a level of acceptance. Tracy, for example stated of her husband that, “It seems like to me he has always been forgetful you know, but he has always written things down. He does okay...He has just always been really forgetful.” From her statement, Tracy did not indicate being particularly bothered by her husband’s forgetfulness, and spoke about in a matter-of-fact way. Similarly, in explaining her husband’s propensity to lose or misplace things, Doris made attributions of universal (historical forgetfulness) and universal (comparison), “Well, he has always done that, so, [and] I do the same thing a lot.” From this statement, Doris downplayed the influence of MCI on his forgetfulness referencing a long-standing pattern (historical forgetfulness), and discounted the notion that his problems with memory were abnormal by comparing them to her own (universal comparison). Doris’ emotional neutrality about the issue is apparent and exemplifies the dispassionate attitude that accompanied this attribution.

Controllable – Uncontrollable Dimension

The controllable – uncontrollable dimension is concerned with whether the cause of a MCI-related behavior is believed to be within or outside of the control of persons with MCI or care partners. This dimension was the most nuanced of the attributional dimensions in terms of sub-code development within the original LACS codes. The codes within this dimension included: uncontrollable ($n = 9$), controllable – managing ($n = 10$),

and controllable - not managing ($n = 8$). Also within this dimension were codes regarding care partner controllability: uncontrollable (partner) ($n = 4$), and controllable (partner) – managing ($n = 17$).

Uncontrollable. The code, uncontrollable, ($n = 9$) comprised attributions that explicitly indicated the care partner’s understanding that the person with MCI could not control or prevent the MCI-related symptoms and behaviors. These statements of attribution often carried a sense of compassion or tenderness on the part of the care partner toward the person with MCI. For example, Omarosa saw her sister’s memory problems as being outside of her ability to control, and shared how accommodation and patience regarding these cognitive limitations was required of her when she shared,

You have to be patient with them. You can't snap up and act like she knows because she don't know. You can't make [them] know what they don't know... You can't make me know what I don't know. If I don't know it, I just don't know it.

From her statement, Omarosa recognized that to “snap up” and assume that her sister actually did remember something (or perhaps could with effort) was inappropriate; she simply could not remember, and no amount of prompting or trying to “make” her remember would be effective as it was not within her ability to control. Positive emotional valence is also apparent in this remark, specifically citing the need for patience, which conveyed a compassionate or sympathetic tone. It is important to note here that the uncontrollable attribution is associated with a care partner response to symptoms and behaviors that sharply contrasts those associated with the controllable – not managing attribution. As will be shown later in this section, the controllable – not

managing attribution was associated with the opposite tendency of care partners to exert pressure or influence on the person with MCI to control their behaviors.

Other care partners mentioned having had initial misconceptions about the underlying causes of MCI-related symptoms, and with time, coming to the realization that certain behaviors were related to memory loss and beyond the control of the person with MCI. For instance, Ethan reflected on his realization that his wife's struggling to complete tasks was not something that she could control:

I would notice that she wasn't able to perform these tasks after she had left them and would come back to them...And so I thought that was because she wasn't paying attention...Boy, was I wrong... That went on for a number of years and caused us a great amount of difficulty in our marriage because I am rather aggressive, and I couldn't understand because I know she is smart...So, once I then began to take notice of she is doing this because she doesn't want to do it, and I began to notice, gee, there's some difficulty.

Attributing "difficulty" rather than a lack of effort (i.e., not paying attention, not wanting to) to these behaviors helped Ethan to recognize that overcoming them was not simply a matter of choice, but was actually outside his wife's control. In coming to this realization that the MCI-related symptoms were not within her control, Ethan was able to temper his aggressive reactions to them. In so doing, this presumably diminished tension or conflict (i.e., "difficulty") that had emerged in their marriage as a result of MCI. Ethan's account of his changing perceptions over time demonstrates the relationship between care partners' attributions regarding behaviors and symptoms and their responses (including emotional valence) to them.

Controllable – managing. Controllable - managing ($n = 10$) refers to attributions in which a behavior or symptom was believed to be within the control of the person with MCI, and that his or her efforts to manage it were regarded as effective or sufficient by the primary care partner. Care partners typically acknowledged or gave credit to persons with MCI for their ability to manage their symptoms using various coping strategies such as making lists or notes, using calendars, compensating (e.g., “covering” in social situations) or engaging in appropriate self-care (e.g., getting sufficient sleep, abstaining from substance use). Across instances of this attribution, care partners demonstrated positive emotional valence, namely positive regard for the person with MCI and approval or appreciation of their efforts to manage their symptoms. For example, Mary shared how her husband was able to compensate for memory loss when she stated, “Short-term is bad, but although if we are alert and we are thinking and we look at me...you know, it’s good.” Mary’s statement reflected her belief that her husband’s ability to focus on the conversation and direct his attention to her when she was speaking to him was an effective strategy in retaining information. Similarly, Wendy also showed appreciation for her husband’s efforts to manage his MCI symptoms when she said, “Another thing he has been doing and this is good I think from his part, he makes his own little ‘to do’ list, his own little notes.” Finally, Melba indicated that her and her husband shared some of the same strategies for managing memory loss, stating that:

Listing things is vital to me and it is to him. I have noticed he will keep an ongoing list of things he has to do in his book, and he is always looking at his books, so I am glad for that.

Melba’s statement indicates that these compensatory strategies were effective and that

she was pleased with him taking responsibility in managing his symptoms. This satisfaction with the person with MCI taking on this responsibility was typically seen across instances of the controllable – managing attribution, in which the person with MCI or their behaviors were cast in a positive light.

Controllable – not managing. This attribution ($n = 8$) and was applied to care partner statements in which a behavior or symptom was believed to be within the control of the person with MCI. However, care partners believed that the behavior or symptom persisted because the person with MCI was either not attempting to manage it, or regarded the efforts of the person with MCI to manage it as being ineffective or insufficient. Negative emotional valence was associated with this attribution, including frustration, impatience and anger. For example, Fiona shared her distress about her husband's inactivity and refusal to manage illness symptoms with appropriate self-care practices, which she believed would benefit both his physical health and cognitive functioning:

[He] took a nap, and that is when I lost it. I said you need some stimulation, you need to do something, you need to exercise; there is a treadmill out here... I have told him this if you don't use it, you are going to lose it.

Her frustration with her husband's refusal to do something that she believed would improve his symptoms is apparent, and reflects the notion that he was not doing enough to manage his memory loss. Furthermore, her concern that his condition would worsen if he were to remain inactive as indicated by her "use it" or "lose it" philosophy conveys her belief and anxiety about the future trajectory of her husband not managing the illness. As a result, she was highly reactive to her husband's apathy, and with anger, attempted to

exert pressure on him to manage and modify his behavior. Similarly, Rachel described losing patience with her mother's short-term memory loss, stating,

You know I say, "Well, mother, I told you that. Just think." I say, "Just think what did I just say? You asked me that just a few minutes ago and what did I tell you?" And sometimes, usually she will come up with the answer. But I have lost my patience sometimes.

Rachel's prompting of her mother to "just think" suggests that it she believed her mother could manage her memory loss more effectively if she tried. Instances of this attribution generally conveyed the care partner's distress regarding the behaviors, and carried a negative emotional valence. As previously mentioned, the controllable – not managing attribution was associated with attempts by the care partner to in some way correct or modify the behaviors seen as problematic. This was typically enacted in confrontational or intrusive ways, as these examples demonstrate.

Controllable (partner) – managing. The attribution, controllable (partner) – managing, occurred with relatively high frequency ($n = 17$) in the analysis. Similar to controllable – managing, this attribution indicated the belief that a behavior or symptom associated with MCI was within the care partner's control, and that the care partner regarded their own efforts to manage it as effective or sufficient. Care partners often cited their own strategies for managing the symptoms of the person with MCI, such as simplifying, organizing, and creating more stability or predictability with their environments or routines. Care partners also indicated that they were helpful or effective in managing both cognitive and non-cognitive symptoms of MCI, such as safeguarding against forgetfulness, confusion, and irritability. These attributions tended to carry

positive emotional valence, which included pride and confidence in their abilities to manage the illness symptoms and saw this assistance as important and even crucial to the functioning of the person with MCI. For instance, Olivia acknowledged the need for adjusting (i.e., simplifying) the way she communicated with her husband to make it easier for him to comprehend what she was saying when she said, “Well, [one] of the things is the comprehension. I have to keep things very simple otherwise I confuse him.”

Similarly, Bertha also stated, “I just, you know, I prepare all of his medicines and everything and have it ready for him because I know that...he would never be able to get all his pills together and things.” From her statement, Bertha indicated that she was playing a crucial role and was successful in assisting her husband with medication management, something she believed he could not do himself.

Other care partners demonstrated awareness of the non-cognitive features of MCI, such as irritability, and described ways to safeguard against them. Typically, this involved creating a stable and predictable living environment by removing distractions, providing reminders, and developing consistency with schedules, which helped to reduce or avoid distress in the person with MCI. For example, Wendy believed that her strategies of simplifying their lifestyle were effective in managing and reducing the non-cognitive features associated with MCI. Regarding her husband’s propensity for irritability, Wendy offered advice for other care partners based on the success of her own management strategies:

Back to that number one again is simplify your life as much as you can. Actually out of sight out of mind on some things that might irritate them. Just remove the thing that’s irritating.

Hilda offered similar advice, stating, “Don't change where things are located, don't change habits, don't change routines. That's upsetting...we find the physical reminders do us much better.” Hilda's efforts to create greater stability and predictability and avoid disruptions in their everyday life were successful in stemming negative emotional states (i.e., being upset) in her husband. As a result of these management strategies their situation was “much better.” As this statement exemplifies, the controllable (partner – managing) attribution often conveyed their success in adapting to the illness (i.e., management strategies “do us much better”) in producing more positive outcomes in the functioning of the person with MCI, as well as improving the quality of their day-to-day life. Perhaps most demonstrative of the confidence and pride that these care partners experience is the presentation of their management strategies in the form of advice to others and the implication that they can be universally applied.

Uncontrollable (partner). This attribution occurred with relatively low frequency ($n = 4$), and reflected estimations that the care partner's own efforts to manage a behavior or symptom were ineffective or insufficient, and that they were generally unable to control them. While not all care partners making this attribution were necessarily absolute in their estimation of their ability to control or manage symptoms (i.e., control was regarded as a matter of degree), they tended to underscore the ways in which their strategies fell short. Typically, these statements hinted at some frustration, discouragement, exasperation, hopelessness or sadness on the care partner's part regarding their inadequacy in managing the symptoms. Delia, for example, expressed her frustration with her ineffectiveness with trying to persuade her husband, Darnell, to be more mentally active or engaged. “I don't know how to encourage him, to do the things

that he likes. Or something that will make his mind work...And, I don't know how to deal with him." Similarly, Fiona shared that she had been so far unsuccessful in her attempts to convince her husband to use a calendar or day planner, which she believed would help compensate for his memory loss:

And he refuses to [use a calendar], you know... I think that would be so helpful, if he knew, you know, when he was at his office, if he had appointments there, if he was at home, and had them all together in a calendar. So, that has been troublesome...And this is probably something I have just got to give up on. But, you know I have a day planner, I have an agenda. He has never done that. He doesn't carry a personal calendar with him.

Fiona's statement suggests that she was discouraged by her husband's refusal to utilize a memory aid, and that she was considering abandoning her efforts to persuade him as she saw them to be ineffective.

In another example, Polly indicated variable effectiveness in her efforts to manage the non-cognitive symptoms of MCI, namely her husband's irritability and anger, "I have to guide my questions, I have to think about what I'm gonna to say to him, and most of the time it works. But sometimes it does not. He just goes into a rage." This attribution was not absolute in the sense that she believed she had no control over the behavior whatsoever. Her statement suggests that she was, at times successful in her attempts to stem her husband's anger, but regarded her strategies as limited and insufficient in consistently managing the behavior. Furthermore, when her attempts were not effective, her husband's reactions were quite severe.

Kay also bemoaned her own limitations in offering her husband compensatory

strategies for managing his cognitive impairment, particularly her inability to assist him with difficulties he was having with certain skills such driving, stating, “He does get frustrated, he gets angry when he can't do something. He says, ‘why can't I pull out of here?’ That is sad because I can't help him with that.” As with other instances of this attribution, the care partner’s estimation of their lack of effectiveness (whether absolute or a matter of degree) in managing MCI-related symptoms and behaviors was connected with negative affect, in this case sadness. Taken together, not only did care partners recognize their own lack of ability to manage the illness symptoms, but were also considerably distressed by it, and indicated a range of negative emotions about themselves and the situation.

Stable – Unstable Dimension

The stable – unstable attributional dimension is concerned with the central issue of whether the cause of a behavior is either constant or transient (Stratton et al., 1988). As mentioned, *stable* was dropped from the analysis due to its irrelevance for MCI and categorizing these data. However, *unstable* was retained as it proved to be applicable to and representative of the data.

Unstable. The attribution, unstable ($n = 8$), reflected a care partner’s awareness that the relative presence or absence of a behavior or symptom (e.g., forgetfulness, memory lapses, repeating questions, irritability), or MCI more generally, was related to its transience or variability over time. Often care partners making this attribution remarked on the fact that there were “good days and bad days.” The emotional valence of this attribution tended to be either neutral, as care partners discussed variability of symptoms in a matter-of-fact way, or positive, as care partners indicated patience and

compassion for the person with MCI. Jean acknowledged the tendency for day-to-day fluctuations in her husband's cognitive abilities, stating, "I kind of noticed that he said some things that didn't really make a lot of sense so there are good days and bad days, good times, bad times." Enid also commented on the ebb and flow she noticed in her husband's memory:

Do the best you can with them because sometimes the mind comes and sometimes it goes. And when a mind isn't good, I would tell them try to be patient with them and understand them.

Implicit in Enid's statement is positive emotional valence, particularly an attitude of compassion, which appears to underlie her suggestion for being patient with persons with MCI. Notably absent from these attributions was negative emotional valence. These care partners did not expressed the frustration or annoyance with MCI-related behaviors that were characteristic of care partners whose attributions reflected limited understanding of the nature of MCI (e.g., controllable – not managing, personal (intention)). Therefore, the recognition of the variability and transience of symptoms reflected in the unstable attribution may account for these care partners' more neutral or positive emotional valence.

Internal – External Dimension

The internal – external attributional dimension is concerned with whether the cause of behavior is attributed to a feature of MCI, such as problems with memory and recall, and the underlying organicity of the disease process, or alternatively, to environmental or situational factors, such as exhaustion or stress. While the original LACS conceptual dimension (Stratton et al., 1988) did not undergo any further sub-code

development, the analysis revealed specific attributions that are made in the context of MCI that fall under the LACS internal – external dimension.

Internal. This code occurred with high frequency ($n = 18$), and reflects care partners' reference to specific features or deficits associated with MCI (i.e., “short-term memory” or “recall” problems), or to its etiology (i.e., organicity or disease process) that are believed to account for behaviors and symptoms. It is important to note that the attribution, internal, may seem conceptually similar to the attribution, universal, in that both relate to aspects of MCI memory loss. However, it is distinct, in that *universal* reflects reference and comparison to a category (i.e., age group, diagnosis) and the expectations for behaviors associated with this category, whereas the *internal* refers to specific phenomena associated the MCI. The internal attribution reflected care partners accounting for behaviors by citing the underlying disease process or cognitive deficits believed to cause them. The emotional valence associated with this attribution was generally neutral as statements were made in a matter-of-fact way.

The internal attribution was most often applied to statements that cited problems with “short-term memory” or “recall” as the cause of forgetfulness. This was frequently demonstrated with a brief statement such as Jean's: “It's short-term memory.” Fiona distinguished her husband's relative abilities with long and short-term memory. She recognized that her husband's long-term memory was intact, stating that, “He has a great memory for things that happened a long time ago.” However, in accounting for his forgetting about their social obligations and commitments, Fiona stated, “but his short-term, current memory he has trouble with.” Consistent with other internal attributions, Fiona's statement reflects an understanding of the specific cognitive deficits associated

with MCI. Similarly, Tracy attributed her husband's inability to remember or absorb new information to a lack of recall stating, "He doesn't even remember. Like if he has seen a movie on television and it comes on again, he has no recall at all of that movie – none."

These statements all reflect the care partner's explicit reference to memory issues and the constraints it places on the retention of new information.

Some care partners went further in referencing their understanding of the disease process underlying the cognitive and behavioral changes in the person with MCI. For example, Jacob demonstrated his understanding of the brain physiology that was responsible for his wife's memory loss:

I explained to her that essentially the problem was not with her mind essentially, or the biologic part of her mind, but the part that keeps the mind going, ...it's the interstitial tissue that's being impinged upon, which impinges on the neurons and so what they are trying to do. We were talking about the research, what they are trying to do is find something that will help stop that process, and that Aricept essentially was to try to help with the neuronal part making the thinking better.

Likewise, Omarosa attributed her sister's memory loss to organic changes, but was less certain of the underlying biological mechanisms stating, "They just said that those strokes took her memory. Something happened in her brain. I don't know what it was. It took her memory away from her." Omarosa's statement reflects the notion of the absence of her sister's memory is the direct result of damage to the brain. Again, the organic basis of memory loss is referenced as a way of explaining observed changes in behavior. As seen in these examples and across many instances of this attribution, care partners' tended to be matter-of-fact in their attributions in that memory or organic disease process was

responsible for the symptoms or behaviors. As a result, the emotional valence regarding these symptoms and behaviors was generally neutral.

External. The attribution, external, also occurred relatively frequently ($n = 17$), and was applied in instances where care partners attributed the behaviors or symptoms of the person with MCI (e.g., memory lapses, repeating questions or information, agitation) to environmental or situational factors, such as changes in routine, stress, social pressure, inadequate sleep, and medications. Typically, these statements indicated an awareness of how environmental and situational factors either exacerbated or ameliorated MCI-related symptoms or behaviors. The emotional valence of this attribution was generally neutral, as the connection between memory and external factors was made in a factual way. For example, Len attributed memory issues to inadequate sleep and exhaustion:

Sometimes [memory lapses] are more severe than others. Today she had some memory lapses this morning, but she was tired. She didn't sleep last night and neither did I for that matter. When she gets tired, she has more mental problems, lapses. She has memory problems with short-term, you know, "what did I just do."

Gail also noticed that exhaustion seemed to impact her mother's cognitive abilities:

When mom is tired, it's a lot worse and she takes a daily nap now. And you know if she has been busy all day and doesn't take a nap, you can see her memory is not as clear as normal.

In both of these external attributions regarding lack of sleep and exhaustion, and across many instances of this code, environmental and situational factor was seen not as the sole cause of the behavior, but rather a contributing factor. For example, there were "more" or

“worse” memory problems as compared with their baseline.

Bertha noted changes in memory after discontinuing a medication stating, “And I began to notice he repeated himself a lot after he came off that medicine.” Rosa also recognized the impact of taking a medication on Rolland’s cognitive abilities “When he is in a lot of pain, he will be on that horrible medicine that just knocks him into next week.”

Kay demonstrated her understanding of the interrelationships between medication, non-cognitive, and cognitive features of MCI.

And [Wellbutrin] helped the depression because they said sometimes that has something to do with your memory, and yeah he did much better afterwards on the Wellbutrin. He could remember things better and just had a better outlook, but before that he was really, you know, paranoid.

Bertha recognized that the stimulation and stress generated by family gatherings contributed to the non-cognitive features of the illness, “If it's a lot of family around, especially his family, they are kind of loud. And so a lot of commotion or something he gets a little bit more agitated.” In this way, her husband’s agitation is attributed to the family environment and their propensity for being “loud”, rather than to more personal characteristics, such as his propensity for being irritable, for example.

Gail indicated her awareness of how unusual circumstances contributed to her mother’s confusion stating, “When she gets something unusual in the mail, it confuses her...And so when anything unusual like that happens it kind of confuses her.” Again, the symptom or behavior, in this case confusion, is attributable to a precipitating situation or event, rather than to an internal characteristic of the person with MCI (e.g., being easily

confused). Across these codes, care partners identified environmental factors to explain both the cognitive and non-cognitive features of MCI, and conveyed a neutral emotional valence.

Attributional Stances and Styles

As mentioned, the attributional codes and sub-codes that were developed provided the foundation for the development of the overarching themes and subthemes for this qualitative analysis. The thematic analysis revealed four themes, which are referred to as attributional *stances*, as well as three subthemes within one of the main themes, which are referred to as attributional *styles*. The four attributional stances reflect care partners' patterns of attribution regarding the central issue of responsibility of the person with MCI for MCI-related symptoms and behaviors. The three attributional styles (subthemes) reflect nuances observed within one of the attributional stances. Definitions and frequencies for each of the attributional stances and styles are presented in Table 4. Example quotes and case studies are provided to illustrate these stances and styles. The case study format is particularly illustrative of the interactions of the various attributional codes within the larger stance, and is useful in enhancing an understanding of the attributions related to MCI.

Table 4
Attributional Stances, Definitions, and Frequencies

Attributional Stance	Definition	Frequency %
<u>Non-Blaming</u>	General sentiment that persons with MCI were not to blame or be held responsible for the MCI-related behaviors and symptoms they were manifesting	<i>n</i> = 30, (52.6%)

<u>Blaming</u>	Overarching tendency to blame or hold the person with MCI responsible for negative behaviors or events	<i>n</i> = 5, (8.8%)
<u>Variable</u>	Considerable attributional variability regarding negative behaviors or events, with elements of both blaming and non-blaming stances	<i>n</i> = 15, (26.3%)
<u>Ambivalent Style</u>	Vacillation in appraisal of negative behavior or event as related to MCI or to other factors, with meta-cognitive awareness of uncertainty or ambivalence	<i>n</i> = 6, (10.5%)
<u>Mixed Style</u>	Pattern of alternating blaming and non-blaming attributional stances	<i>n</i> = 7, (12.3%)
<u>Complex Style</u>	Pattern of alternating blaming and non-blaming stances manifested in both mixed and ambivalent styles	<i>n</i> = 2 (3.5%)
<u>No Identified</u>	Attributional statements were absent, or too vague to assign a stance	<i>n</i> = 7 (12.3%)

Non-Blaming Stance

The majority of care partners (*n* = 30, 52.6%) exhibited a non-blaming attributional stance. This attributional stance reflected the general sentiment that persons with MCI themselves could not be blamed or held responsible for the MCI-related behaviors and symptoms they were manifesting. Instead, care partners cited various other factors (e.g., unfamiliar places, stress, mental prioritization) to account for, or explain, the behaviors or symptoms of the person with MCI (e.g., forgetfulness, confusion, irritability). These care partners generally demonstrated positive emotional valence, particularly compassion and positive regard for the person with MCI, and often conveyed a sense of confidence or pride in their own ability to manage the illness. The specific

attributions (i.e., attributional codes) most commonly associated with this theme were (1) universal (illness, age, comparison with partner), (2) internal, (3) uncontrollable, (4) controllable – managing, (5) controllable (partner) – managing, and (6) external. Less common, but notable, were the codes unstable, personal (trait – positive) and personal (historical forgetfulness). Notably, attributional codes that were not associated with this stance were personal (trait –negative), personal (intention), and controllable – not managing. A few case studies illustrate the interaction between attributional codes within this stance.

Enid. Enid exemplified a non-blaming attributional stance with her husband, Eldon. In discussing Eldon’s difficulties with memory, she made a universal (age) attribution stating, “Overall I think he does pretty good for his memory at his age,” which both normalized and casted Elton’s memory loss within a positive frame (i.e., “good”). Consistent with the universal (age) code, this statement is also suggestive of a degree of acceptance of her husband’s memory issues, but also denial of the fact that it was abnormal. Regarding advice she would give to others in a similar situation, Enid made unstable, internal and uncontrollable attributions in the following statement:

I think I would tell them to be patient with that person, I mean do the best you can with them because sometimes the mind comes and sometimes it goes. And when a mind isn’t good, I would tell them try to be patient with them and understand them you know.

Enid’s advice reflects her belief that the memory issues are related to internal causes (i.e., the “mind”), and also demonstrates her understanding of the variability in memory function associated with the illness, when she makes an unstable attribution (i.e., “the

mind comes and goes”). Also consistent with the non-blaming stance is Enid’s positive emotional valence, particularly compassion, for her husband, as she cited the need for “patience” and understanding with memory loss.

Olympia. Olympia also demonstrated a non-blaming attributional stance with her father-in-law, Orville. Olympia described the way in which certain factors, such as being focused on a task, could influence her father’s memory, and made an external attribution:

Tuesday I went down and reminded him that we needed to leave in ten minutes to go to the VA where he goes to get treatments. Ten minutes later I went down there and, I think it was because he was focused on a task, he was trying to get his checkbook balanced. So, he heard me and acknowledged it, but then he went back to the task. And it just kind of went over his head.

Rather than to attribute the behavior, a personal (intention) attribution, such as ignoring or refusal, Enid made an external attribution in recognizing how her father being focused on the task of balancing his checkbook affected his ability to remember and respond to her reminder. She made another external attribution later in the interview stating that, “He does get confused. When he is out of a familiar space, he gets a little confused.” Again, recognizing that cognitive ability was affected by unfamiliar places reflected the general sense that her father was not to blame for the behavior.

As with many care partners exhibiting this attributional stance, Olympia also made a controllable (partner) managing attribution that reflected her awareness of how she worked to effectively manage both the cognitive and non-cognitive features of MCI, namely her father-in-law’s forgetfulness and irritability:

I probably ask questions of him to clarify if he remembers things. Rather than

saying, “Dad, you forgot to put your teeth in again, I say, “Dad, do you have your teeth in?” Invariably he grins at me and says, “Yes”, and then he realizes, “No!” (Laughter)...So, I guess in part in dealing with that I’m slowly learning to ask like that...So, I’m learning how to [say things], because... when he gets grumpy, it doesn’t take much for him to kind of light into me and chomp down hard.

In managing her father-in-law’s forgetfulness, Olympia’s prompt of asking him about his teeth was perceived as more effective than bluntly telling him that he had forgotten. It appears that this non-confrontational approach was less likely to put her father-in-law on the defensive and elicit his irritability and anger, than a more direct or blaming approach.

Blaming Stance

Of the four attributional stances, the blaming stance comprised the fewest number of care partner interviews – five in total. Care partners exhibiting this attributional stance demonstrated the overarching tendency to assign blame or responsibility to the person with MCI for negative behaviors or events. Often, these care partners blamed the person with MCI for their unwillingness to manage their symptoms and behaviors, often citing a lack of effort (e.g., “not trying”) and were generally absolute in their estimation of the responsibility of the person with MCI for them. In particular, care partners cited the negative character or personality traits of the person with MCI believed to underlie their behaviors. For instance, care partners described the person with MCI in some of the following ways: “procrastinator”, having “a horrible habit”, “doesn’t care.” This theme area also included statements that suggested the person with MCI was being irresponsible, abdicating responsibility, or being unmotivated/unhelpful. In one case, a care partner’s statements even indicated the belief that the behavior was intentional.

The most common attributions within this stance included, controllable – not managing, personal (trait – negative), and personal (intention). This theme area is notable not only for the attributional codes that were present, but also for attributional codes that were absent. With the exception of only two attributions (unstable and controllable (partner) – managing, neither of which pertains to the person with MCI), interviews within the blaming stance theme area contained none of the attributions found in interviews within the non-blaming stance theme area. In other words, the theme areas of blaming and non-blaming stances were generally mutually exclusive in terms of the attributional codes they contained.

This attributional stance generally carried a negative emotional valence, with both explicit and implicit expressions of care partner distress regarding MCI-related behaviors and symptoms. These included, for example, frustration, resentment and exasperation. A few case studies provide a sense of the attributional statements and the emotional valence associated with this stance.

Helen. Helen’s blaming attributional stance with regard to her husband’s behavior was evident in various sections of the interview as she made a personal (trait negative) attribution and two controllable – not managing attributions. First, she made a personal (trait – negative) attribution, observing that Harold, “has always been a bit of a procrastinator, and that has gotten much, much worse.” This attribution cites a trait of putting things off rather than an MCI-related problem with actually forgetting to do things.

Later in the interview, Helen complained of Harold’s inattention to conversations in social situations making a controllable – not managing attribution:

If we are talking about what he is interested in, he is just like this [gesturing interest]. And if we don't, you can just tell he is off in his own little world somewhere paying no attention. He doesn't try to participate unless it is of real interest to him.

Helen's statement suggests that she believed Harold's attention and participation was selective and dependent on whether the topic was "of real interest" to him. Her assumption that this behavior was modifiable with greater effort is evident in this excerpt and is made more explicit later in the interview with another controllable – not managing attribution about his involvement with a bridge club:

Sometimes I feel a little bit angry towards him because I feel like he is not trying. Instead of his making an effort, he will just say, "No, I can't do that", or "I am not going to do that", or whatever. And that gets me upset because I feel like, well at least you could try.

Helen's frustration and emotional distress appears to be connected with her perception that Harold was not making an effort or was unwilling to try to improve at bridge. Her description makes clear her view that Harold's poor performance was tantamount to refusal or resistance to her requests. Later in the interview, Helen expressed frustration with Harold's lack of effort with playing bridge.

He wants to be a member of this couple's bridge club, but he is by far the worst bridge player in the group, and he won't make any effort. He says, "I can't remember it, so I am not going to try."

Helen's statement suggests that she did not share Harold's view of his symptoms. Her interpretation was that he saw his difficulty as uncontrollable – that it is an issue of

memory (e.g., “I can’t remember”), and that it is essentially futile to “try.” Helen, however, believed that his lack of improvement and poor performance could be overcome with greater effort, and made a controllable – not managing attribution.

In sum, a blaming attributional stance pervaded this interview, manifested primarily through controllable – not managing statements, and secondarily through a personal (trait –negative) statement. Taken together, these statements are indicative of Helen’s the perception that Harold (person with MCI) was in some way responsible for his MCI-related behaviors, and could exert more control over them if he made the effort. Other possible factors that could cause or influence these behaviors were not mentioned (e.g., problems with memory or learning, stress, new situations), which is consistent with the blaming attributional stance.

Delia. Delia similarly exhibited a blaming stance with her husband, Darnell, making a controllable – not managing and uncontrollable (partner) attribution at different points in the interview. Initially, she expressed concern about what she perceived to be Darnell’s inadequate self-care and general inactivity. Specifically, she conveyed her distress with her husband’s sleep routine and its impact on his symptoms, and made a controllable – not managing attribution:

You need a good night's sleep. And, he goes to bed at 2:00 to 2:30 a.m., and he is up at 8:00 to 9:00 o'clock in the morning. I says, “That is not a good 8-9 hour sleep. You need to get more rest.” I said, “You stay up half of the night, and don't let me wake you up a little bit earlier in the morning. You didn't get a good, restful night's sleep.”

Delia believed that the cognitive issues Darnell was having could be ameliorated if he

followed a better sleep routine. She also expressed concern about the non-cognitive features of MCI that Darnell was exhibiting, namely inactivity. She feared that this behavior was contributing to further cognitive and physical decline, and made another controllable – not managing attribution:

And, it bothers me, him sitting at this table. Because, I don't feel like he needs to just sit and sit. I think everything is just diminishing, to sit here. If he got the dust mop. If he tried to help me. If he just... not even help me. It's our home. But that sitting here – that bothers me more than anything. Because all I can see is him just shriveling up and deteriorating, right here in this chair. Your mind can't be active when you are just sitting here in a chair. And he doesn't see it like I see it.

Delia's account suggests that, if Darnell contributed to household chores, it would help to keep his mind active. From her statement that she and Darnell saw things differently, it is clear that she believed he was refusing to engage with these household activities.

Delia's discouragement with her own efforts to motivate Darnell is also made clear with another statement later in the interview: "I don't know how to encourage him, to do the things that he likes. Or something that will make his mind work... And, I don't know how to deal with him." In seeing herself as ineffective in managing his inactivity, she made an uncontrollable (partner) attribution. Within this statement she also intimated her exasperation with her lack of control, which is consistent with the general negative emotional valence that characterized the blaming attributional stance. Throughout the interview, Delia cited Darnell's lack of initiative, holding him responsible for the behaviors and their persistence, and assigning blame for not putting forth the effort to manage or control them.

David. Of all the care partners exhibiting a blaming attributional stance, David's was perhaps the most extreme in terms of negative emotional valence, specifically disapproval and derision. Across the interview, David made attributions of controllable – not managing, personal (trait – negative), and personal (intention). For instance, David expressed his distress over his wife's pattern of being late for social engagements, and attributed the behavior to a longstanding habit of keeping people waiting, instead of her MCI symptoms. In the following passage, David made both personal (trait – negative) and controllable – not managing attributions to account for his wife's lateness.

Gradually she had very few friends... You have to wait two minutes, an hour, 30 minutes, [you are] always late and gradually you lose them. A few people that see her still know her peculiarities and still put up with it. She has been that way since I have known her. I said, "It's a horrible habit." I said, "Not to be unfair, it's unfair to everyone"... She got that from her mother who was always late... and to this day she thinks it's kind of cute, and [that] people see it as one of her charming traits – they don't.

David believed that his wife was both aware of and unwilling to change this behavior, which he saw as preventable or modifiable (e.g., a "habit" to break), making a controllable – not managing attribution. David went further in attributing his wife's ostensible inability to learn something new to manipulation, a personal (negative intention) attribution. David stated, "She should have mastered [the computer] by now, or at least know how to do some of it. She is a great one for getting people to do what she doesn't like to do." Rather than recognizing the behavior as being, at least in part, due to deficits in learning and the acquisition of new skills, David perceived it as deceit and an

abdication of responsibility. Across these excerpts and throughout the interview, David continually conveyed the sense that his wife could do no right, and that she was fully responsible for the behaviors she was exhibiting. Notably absent from the interview are any references to the illness or problems with memory.

Variable Stance

The variable attributional stance ($n = 15$) represented care partners with considerable attributional variability regarding the MCI-related symptoms and behaviors, and included elements of both blaming and non-blaming stances. This stance comprised three distinct styles (i.e., subthemes): a) ambivalent ($n = 6$), b) mixed ($n = 7$), and c) complex ($n = 2$). With the variable – ambivalent style, care partners overtly expressed being confused or uncertain in their account of MCI-related symptoms and behaviors, remarking on the ambiguity of accurately identifying their cause. In the variable – mixed style, care partners made combinations of attributional statements for different behaviors that would otherwise place them in either the blaming or non-blaming attributional stances had they appeared in the absence of the other. In some cases, care partners with this style gave conflicting attributions for the same MCI-related symptoms or behaviors. The variable – complex style represented a combination of mixed and ambivalent attributional styles, characterized by the presence of a care partner's ambivalence as well as conflicting accounts regarding MCI-related symptoms and behaviors. Overall, these three styles differed notably in their emotional valence. The ambivalent style presented generally as emotionally neutral, whereas the mixed and complex styles tended to be negatively emotionally charged.

Variable – Ambivalent Style

With the variable – ambivalent style ($n = 6$), care partners vacillated in their appraisal of a negative behavior or event as related to MCI or to other factors, such as jocularity or refusal, and demonstrated meta-cognitive awareness of their attributional uncertainty or ambivalence. Attributional codes commonly associated with this stance included internal and personal (intention), and care partners often vacillated between the two. As mentioned, the emotional valence within this stance tended to be generally neutral. This was likely due to the fact that care partners were uncertain of the cause of the behaviors and were therefore unsure of how to react. The ambivalent statements occurring within individual interviews were often limited to one or just a few, and consequently were insufficient for the purposes of generating a case study. Therefore several discrete example statements representative of the ambivalent style are provided. Together, they demonstrate the attributional dilemma characteristic of this stance.

First, Kathryn demonstrated uncertainty about how to account for issues with her mother's memory, stating, "So, I never knew if it was because she really didn't like taking [medication] or she really was forgetting." Her statement reflects her ambivalence about making a personal (intention) attribution (i.e., refusal) or an internal attribution (i.e., forgetfulness). Similarly, Nettie showed confusion as to whether to attribute her husband's behavior to jest, a personal (intention) attribution, or to a memory problem, an internal attribution: "And he is such a comic most of the time that you don't know." Finally, Alicia reflected on the ambiguity surrounding her husband's behavior as attributable to either sensory or memory-related issues, stating, "Between the macular degeneration, and he has a hearing problem, and him forgetting... Whether it's the Alzheimer's that he really has, or it's just that he is, you know, you do forget." Both of

Alicia's possible accounts for the behavior constitute internal attributions, albeit with different causal bases (i.e., vision, hearing, memory).

Despite having recently recognized that her husband's behaviors were related to MCI and outside of his control, Leslie indicated some residual ambivalence as to whether to attribute them to memory, an internal attribution, and regard them as uncontrollable, or to attribute them to teasing, a personal (intention) attribution.

He is such a tease that it's hard to tell sometimes whether he is teasing you or whether he really means it or not. So, I really didn't pay much attention to it at first. I thought he doesn't want to tell me or just teasing me... Well I would say it extremely bothered me until I realized that he can't help it. I mean I realized that he is not teasing me. He really does not know. I realized that he can't help it, but I have only made up my mind in the last two weeks that that's the case. Before that I was just kind of mad [about him] forgetting events.

Although showing greater awareness of the underlying memory issues at play, her statement that "it's hard to tell" was made in the present tense, and suggests that considerable ambiguity still remained. This example illustrates the way in which residual ambivalence may operate in a care partner's attributional style, and points to the way in which the phenomenon of ambivalence can be a matter of degree. That is, it may not be something that can necessarily be fully resolved.

With the ambivalent style, the ambiguity of these behaviors led to care partners' persisting uncertainty about how to correctly attribute them. As these examples clearly illustrate, the central feature of this style is the ability of care partners to hold two distinct, or even contradictory, attributions. Without sufficient evidence for either, these

care partners refrained from foreclosing on one attribution over the other. In sum, this attributional stance captures the uncertainty and confusion generated by MCI-related symptoms and behaviors, as well as the mental flexibility of care partners to hold valid two realities or interpretations of their experience. As a result, these care partners remained emotionally neutral with regard to the behaviors of the person with MCI.

Variable – Mixed Style

Within the variable – mixed style ($n = 7$), care partners were not explicit or aware of the variability in their own accounts of MCI-related symptoms or behaviors; rather, these inferences were made by the researcher on the basis of the combinations of blaming and non-blaming attributional stances within the interviews. This mixed attributional style tended to carry negative emotional valence, such as impatience, frustration and exasperation, consistent with the blaming style. Although elements of the non-blaming stance were present in this style, there was virtually no evidence of positive emotional valence associated with a non-blaming stance. In this sense, negative sentiment seemed to override the positive. Statements of attribution were not typically contradictory with reference to the same symptom or behavior, though there were a few instances of this. Rather, care partners generally alternated in their attributional stances across different behaviors or symptoms. Several case studies are presented to illustrate this attributional style.

Rachel. In discussing her mother's memory loss, Rachel made attributions that were consistent with both blaming and non-blaming stances, including personal (trait – positive) and controllable – not managing attributions. For instance, Rachel saw her mother's asking the same question repeatedly as related to her outgoing personality and

made a personal (trait – positive) attribution:

Well, you have to constantly remind her and her worse thing is just repeating the same thing. I think it's to be social. She has always been very sociable, and I think she wants to contribute to the conversation.

Later in the interview, however, she expressed her frustration with her mother's repeating questions, and made a controllable – not managing attribution regarding this behavior that carried with it a sense of confrontation and blame.

I say, "Well, mother, I told you that. Just think." I say, "Just think what did I just say? You asked me that just a few minutes ago and what did I tell you?" And sometimes, usually she will come up with the answer. But I have lost my patience sometimes.

Rachel's impatience appears to stem from the belief that her mother could manage her forgetfulness, as indicated by the statement "just think." While her intention seems to be to prompt her mother to jog her memory, her account of having lost patience suggests it may have been delivered in a somewhat critical manner. This interview exemplifies the alternating, or mixed, stance of care partners regarding the degree to which they blame or hold the person with MCI responsible for their behaviors, even across the same behavior.

Tom

In relating his wife's MCI-related symptoms and behaviors, Tom's attributions also reflected elements of non-blaming and blaming stances, and included internal, universal, uncontrollable, and personal (intention) attributions. Tom initially made an internal attribution regarding his wife's memory problems, stating straightforwardly, "She has difficulty remembering things." However, he later made mixed attributions

regarding her ability to remember obligations and commitments. For instance, in an earlier part of the interview, Tom made universal and uncontrollable attributions about these behaviors, stating:

She talks a good game about going to do this and going to do that, but it's talk, which I have to accept that is part of the nature [of the illness]. It annoys me, and when it happens I have to realize that it's something she can't control.

Later in the interview, however, he made a personal (intention) attribution regarding her problems with time management and punctuality stating:

When I know there is something to do I try to judge how much time it will take and put a little cushion on it. She likes to use up the cushion...I get upset about that... She finds some way to piddle the time away no matter how much advanced [notice]. I get her up and remind her. It's rare exceptions that we get there on time.

The first two excerpts indicate his understanding that the behaviors are related to the illness and not something that she can control, constituting a non-blaming attitude.

However, the last excerpt attributes MCI-related behavior to intentionality, much to his upset and apparent resentment, which is consistent with the predominant negative emotional valence associated with this attributional style.

Variable – Complex Style

These interviews ($n = 2$) were the most thematically complex. Similar to the mixed attributional style, these interviews comprised blaming and non-blaming stances. However, an added layer of complexity for this style was that these blaming and non-blaming stances were manifested in both mixed and ambivalent styles, respectively.

While the specific attributional codes represented in this style were varied, the broader connection with attributional stances, specifically that they involved combinations of both stances and styles was a hallmark feature of this style, namely, non-blaming and blaming stances, as well as variable and mixed styles. The emotional valence associated with this style ranged from neutral to negative. Consistent with the non-blaming stance and ambivalent style, attributions regarding such factors as memory, age, and stress were associated with neutral emotional valence and stated in a matter-of-fact way. Consistent with the blaming stance and mixed style, attributions regarding such behaviors as inactivity, refusal, and not caring were associated with negative emotional valence, namely frustration and exasperation. However, there was one notable exception to this pattern that is discussed. Only two of the interviews were categorized with this attributional style, and both are presented.

Gladys. Gladys exhibited a variable – complex attributional style in discussing her husband’s problems with memory. In the early part of the interview, she took a non-blaming attributional stance, making universal (age) and universal (comparison) attributions about her husband’s memory, normalizing it in light of his age and her own memory issues, stating:

As far as memory as I put in my questionnaire, I think this is a matter of age...But this, what we are going through and even George, to me, is normal. And I put that down, or somewhat normal because I see the same thing with myself.

Later in the interview, however, Gladys seemed to be reacting to the non-cognitive aspects of the illness, namely oversleeping and general inactivity. She indicated some exasperation with trying to motivate him to be more active, which she believed would be

beneficial for his cognitive functioning.

[He] took a nap, and that is when I lost it. I said you need some stimulation, you need to do something, you need to exercise; there is a treadmill out here. Well, he claims his ankle is bad. He reads a little bit, but find something even if it's, I like the word circle...I think, and I have told him this if you don't use it, you are going to lose it. But that day I thought I don't want him taking a nap. It was a dreary day. [I said], "lets play rummy", and that is good. That makes the mind work.

This represented a controllable – not managing attribution that carried with it a sense of blame for her husband not exerting some control over his symptoms. Still later in the interview, Gladys's ambivalent attributional style emerged in her statement regarding her husband's memory and concentration as she stated, "He doesn't concentrate. Maybe he can't, I don't know." Her statement reflects her ambivalence and vacillation in making a controllable – not managing attribution, reflecting a blaming stance, versus an uncontrollable attribution, reflecting a non-blaming stance. Consistent with ambivalent style her tone in this passage returns a neutral emotional valence. Across these attributional statements, Gladys' emotional valence varies from neutral to negative depending on the specific category of attribution being made, that is, whether the attribution falls into the non-blaming stance or ambivalent style categories, or whether it falls into the blaming stance or mixed style categories, respectively.

Fiona

Fiona also demonstrated a variable – complex attributional style in discussing her husband's problems with memory. Initially, her statements were consistent with a mixed style, reflecting changes in her attributional stance over time. In describing how initially

she attributed her husband's forgetfulness to not caring, a personal (trait – negative) attribution associated with the blaming stance, she came to understand that this was related to memory issues, an internal attribution, which constitutes a non-blaming stance:

If I didn't put it on the calendar, but it seemed like an important event, like opening for my show is next Friday, he would forget, and schedule something else. So, at first, it was just, I was hurt from it. I thought you only care about your things...And then I began to realize that it was memory problems...He has a great memory for things that happened a long time ago. But his short-term, current memory, he has trouble with.

However, later in the interview, she exhibited a more blaming stance again, making a controllable – not managing attribution:

And he refuses to [use a calendar], you know... I think that would be so helpful, if he knew, you know, when he was at his office, if he had appointments there, if he was at home, and had them all together in a calendar. So, that has been troublesome...

Fiona was clearly bothered with her husband's refusal to use a calendar, which she believed would help him manage memory loss when it came to making appointments and commitments. She found his refusal to be "troublesome", which reflects her frustration with his unwillingness to use instrumental coping strategies to diminish the negative outcomes associated with his memory loss (e.g., forgetting appointments or commitments).

Finally, in a later part of the interview, her non-blaming attributional stance emerged again as she made external and universal (comparison) attributions:

I expressed concern to him about his memory. And I put it in terms of – its stress. Because, I forget things all the time, too... You know, if I'm stressed out, I will forget things, all the time. So, I put it in those terms. And, I guess I was hoping that that [stress] is what it was... You know, it's just little things that drive me crazy. It's not just that, you know, that he doesn't care about what you are interested in, or something. It's that, there is a problem, here, so...

Ultimately, Fiona accounted for her husband's forgetfulness by citing a memory "problem." Interestingly however, despite her making attributions typically associated with a non-blaming stance, the statement conveyed an element of negative emotional valence. Specifically, her statement that "little things drive me crazy", suggests frustration or exasperation regarding relatively minor manifestations of MCI. One possible explanation of this anomalous finding is that her negative emotional valence regarding other, more challenging behaviors (e.g., non-cognitive features) had seeped into her reactions to comparatively minor symptoms of the illness.

Fiona's ambivalent style was apparent throughout interview. In one statement she suspected, but was still uncertain about, whether her husband's behavior was attributable to memory (internal attribution) as opposed to jest (personal intention), as he would have her believe.

We have an icemaker and a new refrigerator. We have had it for about two years. And, whenever the ice drops it makes this rather loud sound. He looks up and he says, "What is that?" And we have had the blame thing two years, so by now (laughs), he knows what that sound is. And, so, it would really freak me out, that he forgot that. And then, finally, we were at dinner the other day, and we were

talking about this, and I told him how concerned I was. He said, “Oh, well, I am just... That is a little joke. And I am testing you.” I said, “What are you... what?!” He says, “And there are other things, too.” And I said, “What are they? Tell me.” And, he wouldn't tell me. So, I still suspect that he really can't remember what it was, what that noise was, and he is being defensive about it...

Her formulation suggests that her husband was essentially masking or covering his symptoms so that they appeared to be related to his personality (joking) rather than a memory problem. Confusion was also apparent regarding his ability to remember appointments, and whether to attribute this to forgetfulness, an internal attribution, or to deliberate omission, a personal (intention) attribution. She stated, “And, I kept saying, ‘When is that appointment?’ And, I don't know if he purposely did not mention it to me, or if he actually forgot it.” This echoes the attributional ambivalence shown by Gladys with the statement, “I don't know.” Similarly, Fiona vacillated between attributions associated with both blaming and non-blaming stances, and variable and mixed styles. With one exception, her emotional valence coincided in ways consistent with the stances and styles that her statements reflected.

No Identified Stance

This theme area was developed for care partner interviews in which attributions were absent or too vague to assign to any of the other attributional stances. This theme area represented a small but notable proportion of the interviews ($n = 7$; 12.3%). There were several interviews that contained no attributional themes at all ($n = 4$; 7%), and three interviews that contained statements in which it was difficult to decipher if an attributional statement was actually made or not. For example, Laila, described her

husband's philosophy about the need for exercising and challenging the brain to improve its functioning, but was unclear whether she subscribed to it or if she applied these strategies to her mother with MCI:

He said, you know, it's lazy to keep your keys in one place. You should keep your keys maybe someplace else so you have to exercise your brain. It makes you lazy when you know you always keep your keys in a certain place, but if you keep them other places, it'll help, you know.

Had she applied this philosophy in some way to her care role with her mother, this may have suggested a controllable (partner) – managing attribution, yet there was not a sound basis for making such a determination about this attribution. This interview was also lacking any other statements of attribution.

Another care partner, Victoria, remarked about her mother, Visilia, not being proactive enough, but it was unclear if she was she was making a statement about the impact on her cognitive or physical health, as she described, “She's in that yellow zone and I can see her going to the red zone because she is not being very proactive because in her mindset, and she has been like this.” This interview was also absent of any other attributions and it was not possible to infer an attributional stance.

Attributions and EE: Data-Mixing Results

The data-mixing phase of this study involved the merging of the qualitative and quantitative findings, specifically identifying patterns among the various indices of EE and both the attributional codes and attributional stances. First reviewed is the mixing of attributional codes and indices of EE. While Table 5 provides a complete display of these findings, only notable associations and patterns are summarized below. As mentioned,

the attributions associated with high-EOI and low EE have been shown to be quite similar in the existing literature (Barrowclough & Hooley, 2003). Specifically, low EE and high-EOI family members tend *not* to hold the person responsible for their symptoms or behaviors. It is therefore necessary to examine individual indices of EE rather than the more broad high and low EE status classifications. This allows for meaningful inferences to be drawn across the data. It should be noted, however, that because the majority of care partner interviews were rated as low EE ($n = 42$; 73.4%), it is also important to consider relative percentages of occurrences of attributions across the various indices of EE. Where relevant, this aspect of the study findings will be noted.

Attributions and Indices of EE

Controllable – uncontrollable dimension. The controllable – uncontrollable dimension was perhaps the most illustrative of differences between low and high EE status with respect to attributions. The majority ($n = 8$; 80%) of the attribution controllable – managing occurred within care partner interviews characterized as low EE. There was only one instance of this code within high-EOI and high-critical/EOI interviews, respectively. Conversely, the controllable – not managing attribution was completely absent from low EE interviews. The majority ($n = 5$; 62.5%) of instances of this attribution were found within high-critical interviews, with one instance found in each of the other high EE categories: EOI (12.5%), critical/EOI (12.5%), and hostile (12.5%). Also notable was the finding that the code, uncontrollable, was found predominantly ($n = 7$; 77.7%) in low EE interviews. It occurred only once in both EOI (14.3%) and critical/EOI interviews (14.3%), but was absent from critical and hostile interviews. Lastly, the majority ($n = 13$; 76.5%) of instances of the controllable (partner)

– managing attribution occurred within low EE interviews. There was one instance of this attribution in both critical (5.9%) and critical/EOI (5.9%) interviews and instances of this code in two of the EOI (11.8%) interviews. In sum, the key findings from this dimension include: 1) the controllable – managing attribution was associated with low EE and EOI, but less associated with criticism or hostility, 2) controllable – not managing attribution was associated with criticism, and less associated with low EE, 3) the uncontrollable attribution was associated with low EE and EOI, and less associated with criticism or hostility, and 4) the controllable (partner) managing attribution demonstrated a somewhat higher association with low EE than with the high EE indices. Taken together, these findings suggest that the controllable – uncontrollable dimension is most relevant to distinguishing critical and non-critical care partners by the attributions they make. However, this dimension did not reveal key differences between low EE and high-EOI care partners.

Stable – unstable dimension. As previously explained, the stable attribution was dropped from the analysis as it did not apply to or represent the interview data. However, the analysis revealed a high association with the attribution, unstable, and low EE status. Specifically, seven of the eight (87.5%) instances of the unstable attribution were found within low EE interviews. The only other instance of this code was found in an EOI (12.5%) interview. Notably, this code did not occur within any of the other high EE status categories (i.e., critical, hostile). Overall, the unstable attribution was negatively associated with high-critical status, and highly associated with low EE status. As with the previous dimension, however, this dimension did not reveal key differences between low EE and high-EOI care partners in terms of the attributions they made.

Internal – external dimension. Both of the attributions within this dimension were associated with low EE status. Fourteen of the 17 (82.4%) external attributions were found among low EE status interviews with only one instance in each of the critical, EOI and critical/EOI interviews. Fourteen of the 18 instances (77.7%) of the attribution, internal, occurred within low EE interviews. However, three (16.75%) occurred with critical interviews and one (5.6%) occurred in a critical/EOI interview. However, because the relative percentages of occurrences of these attributions across the indices of EE were not markedly different from the distribution of the sample across these indices, these findings are only marginally notable.

Personal – universal dimension. One key finding within this dimension is that the code, personal (historical forgetfulness) occurred exclusively within low EE interviews ($n = 3$). The personal (trait – negative) code was comparatively more frequent ($n = 9$), but more broadly distributed across the various indices. Three (33.3%) instances occurred within high-critical interviews, and one (11.1%) occurred within a hostile interview. Additionally, three (33.3%) instances occurred with low EE interviews, and two (22.2%) occurred within EOI interviews. Relative to the distribution of the sample across indices of EE, these findings are notable in that there was a higher association of critical, hostile, and EOI interviews with this attribution as compared with low EE. The other codes within this dimension were less delineated in terms of EE status, with more equal distributions across low EE and high EE indices. Personal (trait – positive) occurred with generally low frequency ($n = 3$); two (66.7%) instances were found in low EE interviews, and one (33.3%) instance was found within a high-critical interview. The personal (intention) attribution occurred with low frequency as well ($n = 5$), and was also

relatively evenly distributed across the indices of EE, with two instances (40%) occurring in low EE interviews, and one instance in each of the high-critical (20%), high-EOI (20%) and high-hostile (20%) interviews. The universal code was most prevalent in low EE interviews ($n = 14$; 70%), and was seen to a lesser degree among other indices of high EE – two instances in each critical (10%), EOI (10%) and critical/EOI (10%), however, this distribution corresponds closely with the distribution of the sample across indices of EE. In sum, the key findings within this dimension included, 1) the association of personal (historical forgetfulness) with low EE, 2) the association of personal (trait – negative) with indices of high EE (i.e., critical, hostile, and EOI), and 3) the association of personal (intention) with indices of high EE (i.e., critical, hostile, and EOI).

Table 5
Attributions and EE Indices

Codes	EE Indices				
	<i>Low EE</i>	<i>Critical</i>	<i>EOI</i>	<i>Critical/EOI</i>	<i>Hostile</i>
<i>Controllable – Managing (n = 10)</i>	8	-	1	1	-
<i>Controllable – Not Managing (n = 8)</i>	0	5	1	1	1
<i>Uncontrollable (n = 9)</i>	7	-	1	1	-
<i>Controllable (Partner) – Managing (n = 17)</i>	13	1	2	1	-
<i>Uncontrollable (Partner) (n = 4)</i>	2	2	-	-	-

<i>Personal (historical forgetfulness) (n = 3)</i>	3	-	-	-	-
<i>Personal (trait – positive) (n = 3)</i>	2	1	-	-	-
<i>Personal (trait – negative) (n = 9)</i>	3	3	2	-	1
<i>Personal (intention) (n = 5)</i>	2	1	1	-	1
<i>Universal (n = 20)</i>	14	2	2	2	0
<i>Internal (n = 18)</i>	14	3	-	1	-
<i>External (n = 17)</i>	14	1	1	1	-
<i>Unstable (n = 8)</i>	7	-	1	-	-
Total	89	19	12	8	3

Attributional Stances and Indices of EE

Next, the mixing phase of the study involved the merging of EE indices with care partner attributional stances to identify patterns and associations across these two data sets. Table 6 displays the merging of these qualitative and quantitative findings, namely the frequency with which the indices of care partner EE and attributional stances/styles converged. A review of these findings provides some interpretation of their significance,

and inferences that can be made regarding the relationship between attributions and EE status.

Blaming stance. A relatively small portion of the sample exhibited a blaming stance (8.8%, $n = 5$). Of these, two care partners were rated as critical, and one was rated as hostile. The remaining two care partners exhibiting a blaming stance were rated as high-EOI and low EE. However, these care partner interviews revealed sub-threshold critical comments for a rating of high-critical. That is, they had three critical comments, just short of the required four comments for a rating of high-critical. While below the threshold for a formal rating of high EE, the presence of relatively high levels of critical comments is an important consideration and may help to explain why these care partners were categorized as exhibiting a blaming stance. These findings suggest a close association between criticism and a blaming stance.

Non-blaming stance. Just over half (52.6%) of participants exhibited a non-blaming stance ($n = 30$). Of these, 27 (90%) were rated as low EE. Two were rated as high-EOI, and one was rated as high-critical. These findings point to close association between the non-blaming stance and low EE, and a negative association between non-blaming and high-critical/hostile EE status.

Variable stance. Sixteen participants (28.1%) exhibited a variable stance that comprised three distinct attributional styles within this stance. Of the six participants with a variable – ambivalent style, the majority ($n = 5$; 83.3%) was rated as low EE, and one (16.7%) was rated as EOI/critical. The variable – mixed style was more evenly distributed across the various indices of EE. Of the seven participants with a variable – mixed style, three (42.9%) were rated as critical, two (28.6%) were rated as EOI, and two

were rated as low EE (28.6%). The variable – complex style, though occurring with relatively low frequency ($n = 2$), was observed exclusively in high EE interviews involving the presence of criticism. More specifically, of the two care partners exhibiting a variable – complex style, one was rated as critical and one was rated as EOI/critical. In sum, the central findings regarding this theme area included: 1) the variable – ambivalent style was associated with low EE status, 2) the variable – mixed style was associated with high EE status (i.e., criticism, EOI), and 3) the variable – complex style was associated with high EE status (i.e., criticism, EOI).

Table 6

Joint Data Display: Frequencies of Convergence between Attributional Stance and EE Indices (n= 57)

EE Status	Attributional Stance						Total
	Variable						
	<i>Blaming</i>	<i>Non-Blaming</i>	<i>Ambivalent</i>	<i>Mixed</i>	<i>Complex</i>	<i>None</i>	
<i>Critical</i>	2	1	-	3	1	-	7 12.3 %
<i>EOI</i>	1 ^a	2	-	2	-	-	5 8.8%
<i>EOI/critical</i>	-	-	1	-	1	-	2 3.5%
<i>Hostile</i>	1	-	-	-	-	-	1 1.8%
<i>Low</i>	1 ^a	27	5	2	-	7	42 73.7 %
Total	5 8.8%	30 52.6%	6 10.5%	7 12.3%	2 3.5%	7 12.3%	57 100%

^a Sub-threshold critical (critical comments = 3)
Note: EOI – Emotional Over-Involvement

Chapter Five

DISCUSSION

This study aimed to fill a gap in the MCI literature by identifying the role of EE in influencing the illness course, and offering insights into family members' attributions that underlie emotional reactivity to illness symptoms. Although the predictive validity of EE in this illness context was not confirmed, this study adds to the existing literature on MCI by extending the LACS attributional framework to MCI, identifying new attributions that are specific to this illness context, and providing a theoretical foundation for future attributional research in this area. Useful insights were also gained from examining the intersection of specific attributions and indices of EE that carry implications for clinical practice. Furthermore, the thematic analysis generated a typology of care partner attributional stances and styles and that were shown to intersect indices of EE in the data-mixing phase. These findings serve as a basis for family-based treatment interventions targeting complex attitudes and beliefs that underlie emotional reactivity and interactions between care partners and persons with MCI. Practice implications and directions for future research are discussed.

EE and Symptoms

The research question driving the quantitative strand of this mixed methods analysis was: While controlling for cognitive impairment and age of the person with MCI, does EE in care partners at Time 1 predict increases in non-cognitive features of MCI (i.e., depression and disruption subscales) in care recipients at Time 2? As the results of the ANCOVA revealed, EE was not a significant predictor of changes in non-cognitive features of MCI over time, even when controlling for cognitive impairment and

age of the care partner. This finding runs counter to the existing literature on dementia, which has demonstrated that EE is predictive of changes in the non-cognitive features of dementia over time (Vitaliano et al., 1993). More generally, this finding is inconsistent with the broader research linking family EE and long-term outcomes for a variety of mental disorders (Hooley, 2007).

One possible interpretation of this finding is that the construct of EE is not relevant or applicable to this particular illness context. By virtue of its mildness, the symptoms and behaviors related to MCI may not be significant enough to elicit strong reactions from care partners. Consequently, these reactions may be muted relative to those that occur in the context of other mental disorders, and may not cause stress or neural perturbation (Hooley, 2007) sufficient enough to increase the frequency or intensity of the non-cognitive features.

The existing literature regarding the family context of MCI has established that care partners commonly experience high levels of distress (Blieszner et al., 2007; Blieszner & Roberto, 2010; Pasymowski et al., 2013). However, the findings from this study may suggest that the distress experienced by care partners is not manifested or expressed at levels that have a significant relationship with the non-cognitive symptoms of the person with MCI. For example, a care partner's distress may only be exhibited in the context of the interview, and may not necessarily reflect or transfer to their day-to-day interactions with the person with MCI. This would run counter to the tenets of EE, in which the attitudes of family members expressed in the interview are assumed to be indicative of how they interact with their ill family member (Leff & Vaughn, 1985), be they through overt behaviors (e.g., anger, frustration) or covert behaviors (e.g., emotional

withdrawal, passive aggressiveness). Nonetheless, given that problems emerging early in the care cycle have implications for family adaptation to illness over time (Gaugler et al. 2000; Gaugler et al., 2005), it is important to consider that emotional reactivity that is subtle and of little apparent consequence may become more pronounced and impactful on the person with MCI as the illness progresses and symptoms worsen. That is, as the illness progresses over time, so to may care partners' reactions. As Gaugler and colleagues (2000; 2005) suggest, interventions that target problems early in the care cycle can contribute to more favorable outcomes over time.

The methodological considerations for these non-significant findings will be discussed later in this chapter. Despite the non-significant results of the ANCOVA, the quantitative results regarding EE status are meaningful when merged with the results regarding attributions and attributional stances. Substantive comparisons can be drawn between the indices of EE and both attributional codes and stances, as the results of the data-mixing phase showed.

Attributions and EE

Controllability Attributions

Consistent with prior research (Yang et al., 2003), the uncontrollable attribution was associated with low EE and high-EOI status, and was not found in any of the high-critical or high-hostile interviews (Barrowclough & Hooley, 2003). This finding suggests that the tendency to regard symptoms and behaviors as outside of the control of the person with MCI accounts for low EE status as well as non-critical and non-hostile attitudes. That is, care partners attributing a lack of control of the person with MCI over their symptoms and behaviors appear to be generally less reactive to them. While high-

EOI family members also see symptoms and behaviors as outside of the control of the person with MCI and are therefore non-critical, they are emotionally reactive in a different way – they are more likely to blame or hold themselves personally responsible for the behaviors and engage in self-sacrificing or intrusive behaviors to attempt to correct or ameliorate symptoms and behaviors (Barrowclough & Hooley, 2003).

Previous research has also demonstrated a consistent pattern in which relatives rated as high-critical make more attributions of patient controllability (Yang et al., 2003). That is, critical family members are more likely to attribute greater control to the person for symptoms and behaviors as compared with low EE and high-EOI family members, and this was also found specifically in the context of dementia (Tarrier et al., 2002). The findings from this study partially confirm those of previous research.

The sub-code development within the controllable – uncontrollable dimension generated new knowledge that extends the LACS (Stratton et al., 1988) to the specific context of MCI. Specifically, attributions of the controllability of the person with MCI were delineated into two sub-codes: controllable – managing and controllable – not managing. This distinction is important as each attribution reflects very different views of the abilities of the person with MCI and their efforts to manage their own symptoms, and each carries different emotional valence. With the controllable – not managing attribution, care partners saw behaviors and symptoms as being within the control of the person with MCI, but believed that they were either not attempting to manage them, or their efforts to manage them were insufficient. Often care partners conveyed negative emotional valence (e.g., frustration, exasperation) when discussing these circumstances. As the data mixing revealed, the controllable – not managing code was most often found

in interviews in which criticism was present, and was completely absent from low EE care partner interviews. This finding suggests that the controllable – not managing attribution may, in part, explain the attitudes of care partners rated as high-critical. This is consistent with prior research, in which perceptions of controllability have been strongly associated with criticism (Barrowclough & Hooley, 2003). However, the finding regarding the controllable – managing attribution extends existing theory in an important way. Specifically, when the behavior is perceived as controllable *and* something over which the person with MCI is exercising control, family members exhibit positive emotional valence (e.g., approval, appreciation, positive regard) and non-critical attitudes towards the person with MCI. Taken together, these findings point to the differential association of controllable – managing and controllable – not managing attributions with regard to care partner's EE status.

Another key finding within the controllable – uncontrollable dimension involved the controllable (partner) – managing attribution. As mentioned, this attribution represented care partners' view of their own efforts to manage MCI-related symptoms and behaviors as being effective or sufficient. There was a higher frequency of the controllable (partner) – managing attribution among low EE care partners (and to a lesser degree high-EOI care partners), a virtual absence of this code within high-critical interviews, and a complete absence from high-hostile interviews. One interpretation of this finding is that care partners who experience a sense of control in managing illness symptoms and behaviors are less reactive to them. However, prior attribution research has not identified associations between attributions of carer control and indices of EE (Barrowclough & Hooley, 2003).

Unstable Attributions

The code, *unstable*, represented a care partner's view that a symptom or behavior of MCI, such as repeating questions and irritability, was variable or transient over time. Interestingly, this code occurred almost exclusively within low EE care partner interviews, and did not occur within those interviews classified as high EE. To date, the attribution literature has not identified patterns or relationships between this specific code and EE status; rather, the *stable* attribution has been linked with high-critical/hostile EE status (Brewin et al., 1991; Hooley & Licht, 1997). The association between the *unstable* attribution and low EE represents an important contribution to the literature on the attribution model of EE. One interpretation of this association is that an awareness of symptom variability reflects an understanding of the nature of MCI and may contribute to diminished emotional reactivity to behaviors and symptoms. The day-to-day fluctuations in cognitive abilities can be a source of confusion and distress that may cause care partners to doubt whether a memory problem actually exists (Blieszner et al., 2007), and may contribute to negative emotional reactions (Pasymowski et al., 2013). The current findings suggest that acknowledgement of the variability and instability of symptoms and behaviors as part and parcel of MCI may, in part, explain low EE status.

Personal Attributions

The association of both the personal (trait – negative) and personal (intention) attributions with indices of high-EE (i.e., criticism, EOI, and hostility) was a key finding of this study and confirms previous findings regarding the original LACS code of personal and its relationship with high EE (Barrowclough & Hooley, 2003). Previous accounts of this relationship suggested that when behaviors are perceived to be deliberate

or related to character flaws, family members react negatively with such emotions as disapproval, and attempt to exert influence or pressure over them to their behavior. It is also important to address the fact that both of these attributions occurred in a considerable portion of low EE interviews as well. This may seem surprising given its more general association with high EE in the existing literature. However, data mining provided some insights into why these attributions occurred in low EE interviews, which will be discussed later. More generally, the significance of these attributions becomes more apparent when considered within the context of the attributional stances that were identified and co-occurrences with other attributional codes. This aspect of these codes will be explored more fully in the subsequent section regarding attributional stances.

The finding that personal (historical forgetfulness) occurred exclusively within low EE interviews may suggest that a normalizing or accepting attitude about problems with memory seen as long-standing may be a protective factor in diminishing emotional reactivity to behaviors. In other words, care partners are accustomed to memory loss and are not particularly bothered by it. However, it may also be some indication of a level of denial or lack of acknowledgment about the memory loss of the person with MCI. As previous research has suggested lack of acknowledgment of memory issues may stymie the ability of families to successfully cope and adjust to the illness (Roberto et al., 2011). For example, a care partner's denial or lack of awareness of an actual memory problem may prevent them from also recognizing that other symptoms and behaviors (e.g., non-cognitive features) are due to MCI. Further research is needed to determine the implications of this attribution for care partner adjustment and coping over time, and specifically for how it may influence EE status across the illness course.

Attributional Stances and EE

The qualitative analysis led to the development of four attributional stances – non-blaming, blaming, variable – and three attributional styles within the variable stance – ambivalent, mixed, and complex. Together, these stances and styles provide a classification system for how care partners attributed MCI-related symptoms and behaviors, and serve to inform clinical interventions with persons with MCI and care partners. The relative strengths and weaknesses of these stances are discussed with respect to their relationship to indices of EE.

Non-Blaming Stance

As mentioned, the majority of care partners in the qualitative analysis exhibited a non-blaming stance. On the whole, these care partners tended to avoid blaming or holding the person with MCI solely responsible for symptoms and behaviors and demonstrated positive regard for them. The range of attributions typically seen among care partners with this attributional stance exemplifies the lack of blame regarding control of persons with MCI and care partners themselves over behaviors and symptoms: uncontrollable, controllable – managing, and controllable (partner) – managing. Attributions within this stance typically carried positive emotional valence (e.g., compassion, pride). This would appear to be the optimal attributional stance as it was generally associated with low care partner EE. In the EE and attribution literature, Weisman and colleagues (1993) suggest that, “Those families who cope well with their...relatives may be those who maintain a delicate balance between perceiving some control while recognizing that some of the odd or disruptive behavior is an inevitable side effect of a genuine illness.” (p. 606). This attributional stance is also notable for the

attributions that are conspicuously absent: personal (trait –negative), personal (intention), and controllable – not managing. This finding represents a key delineation between blaming and non-blaming stances.

While all the attributions regarding control within this stance are non-blaming, the controllable – managing code encapsulates this notion of attributional balance and the ability to recognize aspects of the illness that are within and outside the control of the person with MCI. In the context of MCI, this ability to discern the degree of control would be particularly adaptive for care partners in striking a balance of providing appropriate assistance while also preserving the functional autonomy of the person with MCI, a theme identified in previous research (Pasymowski et al., 2013).

The controllable – managing attribution occurred almost exclusively within the non-blaming stance interviews, and that this attribution was completely absent from interviews among care partners exhibiting a blaming stance. Furthermore, only one high EE care partner made a controllable – managing attribution, and this care partner was rated as high-EOI. This suggests a possible association between this attributional stance and being both less critically reactive to symptoms and more cognizant of the efforts of the person with MCI to manage their symptoms. There are a couple of possible interpretations for this finding. It could be that low EE/non-blaming care partners are more disposed to noticing and appreciating efforts of persons with MCI to manage symptoms, whereas high EE critical or hostile relatives are more likely to notice or focus on the persons with MCI deficits or weaknesses. Another interpretation is that the efforts of the person with MCI to manage their symptoms leads to care partners being less reactive or inclined to place blame as they perceive the person with MCI to be making an

effort. For example, care partners may generally be more tolerant of MCI-related symptoms and behaviors when they see the person with MCI utilizing practical coping strategies, such as making lists or reminders, or engaging in appropriate self-care such as following a sleep routine, as were commonly associated with this attributional code. Because of the nature of the care relationship, care partners typically take on greater responsibility than they did previous to illness onset (Blieszner & Roberto, 2010). As a result, they may take note of opportunities for persons with MCI to take on more responsibility for themselves, and experience some relief when they observe their efforts to do so.

Other attributions commonly found within this stance exemplify care partners' awareness of features of the illness and factors that can influence it, namely, unstable, universal, and external attributions. The association of these attributions with the larger non-blaming stance as well as low EE suggests that they may be good indicators of family adaptation to the illness and contribute to more positive and accepting attitudes regarding symptoms, behaviors and persons with MCI themselves. The association of both the universal and external attributions with low EE is consistent with previous literature (Barrowclough & Hooley, 2003). However as mentioned, the relationship between the unstable attribution and low EE has not been previously identified.

Blaming Stance

This attributional stance was characterized by care partners' tendency to blame or to hold the person with MCI responsible for their symptoms or negative events. The most common attributions occurring within this stance were controllable – not managing, personal (trait – negative), and personal (intention). A negative emotional valence was

strongly associated with this stance, as care partners tended to view the person with MCI and their behaviors and symptoms with disapproval or criticism. As the results revealed, this stance was associated with high EE, namely criticism and hostility. In fact, the sole care partner rated as high EE-hostile in this qualitative analysis exhibited this attributional stance. These findings regarding the association of this attributional stance with criticism and hostility suggest that attributions related to this stance may underlie critical/hostile attitudes and reactions towards the person with MCI.

As mentioned, the association between both personal (trait – negative) and personal (intention) attributions and EE is more meaningfully realized when they are considered together and/or alongside the controllable – not managing attribution within a single interview. When these attributions exist independently of one another and the controllable – not managing attribution, they may not necessarily be cause for concern with respect to engendering critical or hostile attitudes. For example, there were a few occurrences of the personal (trait – negative) and personal (intention) attributions in low EE and EOI interviews. However, it is when care partners exhibit combinations of either, or of both, these attributions with the controllable – not managing attribution that it appears to engender blaming and critical attitudes towards the person with MCI.

Variable Stance – Ambivalent Style

The variable stance – ambivalent style represented care partners who wavered in their estimation of whether the behaviors of the person with MCI were attributable to the illness or to other factors, and who demonstrated awareness of the situational ambiguity and their attributional dilemma. Internal and personal (intention) attributions were most common. Care partners exhibiting this stance generally conveyed neutral emotional

valence, and not surprisingly were predominantly classified as low EE. As such, these findings suggest that a variable – ambivalent stance is generally associated with lower negative emotional reactivity. Moreover, it could be that care partners who demonstrate meta-cognitive awareness of the situational ambiguity and their own uncertainty are able to remain more emotionally neutral.

These findings and interpretations are consistent with prior research, which suggests that attributional uncertainty (i.e., citing more than one possible cause for an event or behavior) is associated with reduced emotional intensity (Kelly, 1983). As demonstrated by this study, low EE relatives may be more able to tolerate uncertainty and ambiguity, and therefore less likely to foreclose on a single causal explanation for an event or behavior. Boss (2006) suggests that resilience can be found in a family's ability to tolerate ambiguity, and to make meaning despite uncertainty and unanswered questions. Perhaps this tolerance of uncertainty or ambiguity, as exhibited by care partners with a variable – ambivalent stance, is similar to what has been identified as a flexible attributional stance.

According to Barrowclough and Hooley (2003), a flexible attributional stance is “one which neither attributes all aspects of the patient's behavior to factors beyond their control, nor assumes that the patient could easily control their symptoms” (p. 875). However, the term, “tentative attributional stance,” may be more apt in this illness context as it captures the provisional nature of care partners' attributions. That is, these care partners are thoughtful and deliberate in their appraisal of the cause of different symptoms and behaviors. Essentially, they are able to hold two or more possible realities or interpretations of a behavior or event simultaneously. For example, a care partner

responding to the apparent confusion of the person with MCI might attribute the behaviors to teasing or jest (personal intention) as well as to memory loss/MCI (internal). As a result of these conflicting attributions and their consequent ambivalence, they avoid making automatic judgments and are less emotionally reactive when these behaviors occur. As distressing as it may be for care partners to essentially not know or to be uncertain of the cause of behaviors and symptoms, as was found in prior research (Blieszner et al., 2007), the ambivalent style may actually serve a protective role in terms of care partner reactivity.

The variable – ambivalent style may also explain the occurrence of the code, personal (intention) within low EE interviews. The two instances of the personal (intention) attribution were found in care partner interviews that were classified as both low EE and that exhibited the variable – ambivalent style. That is, these personal (intention) attributions were made alongside attributions that cited other factors considered outside the control or responsibility of the person with MCI. Because of care partners' uncertainty and ambivalence as to how to attribute these behaviors, they were not emotionally reactive to them, as reflected by their low EE status.

Variable Stance – Mixed Style

A variable stance – mixed attributional style reflected care partners who exhibited attributional variability, with elements of both blaming and non-blaming stances. These care partners were not aware or explicit about their attributional variability (as compared with the ambivalent style), and conveyed negative emotional valence (e.g., frustration, impatience). Generally, care partners showed variability in their attributions across different symptoms and behaviors, as opposed to overtly wavering about a particular

symptom or behavior (as was seen with ambivalent style). This stance was associated with high EE status in five of the seven interviews, including those with high-EOI and high-critical status. The remaining two were rated as low EE. The variable stance– mixed style was the most heterogeneous in terms of association with the various indices of EE, making it difficult to draw inferences about its significance. Perhaps, however, these findings reflect that when care partners exhibit elements of blaming and non-blaming stances, it can essentially “go either way” with regard to EE, specifically in the development and maintenance of critical attitudes. Nonetheless, it appears that any evidence of a blaming stance, even alongside non-blaming stance, may be a risk factor for high EE status.

Variable Stance – Complex Style

This style was the most thematically complex, comprising elements of blaming and non-blaming stances, as well as ambivalent and mixed styles. The attributions occurring within this stance were varied, and the emotional valence ranged from neutral to negative. While there were only two care partners with a variable – complex attributional style, both were high EE (critical and EOI/critical). These findings suggest that any instance of a mixed stance, even when co-occurring with ambivalence (as is the case with the complex stance), is strongly associated with high EE status. Again, the presence of a blaming stance, even alongside other more “benign” stances or styles (i.e., non-blaming, ambivalent) may be a risk factor for the development and maintenance of high EE and critical attitudes.

Study Limitations

This study make an important contribution to the literature on MCI in advancing

understanding of care partner emotional reactivity to the illness symptoms of the person with MCI, as well as the attitudes and beliefs that underlie their reactivity; however, it is not without its limitations. First, the limitations regarding the quantitative strand will be explored, followed by the limitations of the qualitative and data mixing strands.

Quantitative Strand Limitations

Regarding the quantitative strand, there are various other possible explanations for results of the ANCOVA related to methodology of this quantitative analysis that warrant discussion. One possible explanation for these non-significant results is that an insufficient amount of time passed between T1 and T2 interviews to detect significant changes in the non-cognitive features of the illness. Had the length of time been both longer, a similar analysis may have detected significant changes in the non-cognitive features, thereby establishing EE as a valid predictor of these changes. In other words, the predictive validity of EE may only be realized across a more extended time frame, particularly given the mildness of MCI symptoms. Data collection for the original study included the administration of the RMBPC measure at T3, and perhaps measuring RMBPC change scores between T1 and T3 may have revealed significant results.

Another possible explanation for the non-significant quantitative results is the issue of missing data. Two of the high EE interviews were removed from the analysis (using list wise deletion) as they were missing most of the questionnaires at T1, including the RMBPC measure. Not only did this diminish the power of the analysis and the ability to detect a significant effect, but these missing data may also have been related to the care partners' EE status. For example, the care partners' reactivity may have manifested itself through losing patience with completing the questionnaires or refusing to complete them.

For both care partners, T2 RMBPC scores were on the high end of what was observed in this sample. One of the care partners was rated as hostile and had the highest RMBPC score of all participants at T2 (a score of 13). The exclusion of these care partners from the analysis could account for the non-significant results. For example, had there been substantial increases in the RMBPC scores *and* these increases were captured by the self-report measure, this may have generated significant findings. On the other hand, if these data points were outliers, including them could have potentially inflated the findings.

Another issue concerns the content of the RMBPC measure itself. Regarding possible problem behaviors, at both time points, care partners were asked if a behavior had occurred in the past week. These data were therefore likely limited in that they only provided a snapshot (a period of one week) of behaviors that had occurred. Because of the variable nature of MCI and the tendency for symptoms to fluctuate from day-to-day or week-to-week, participant responses to these items may not accurately reflect these changes on a more general time scale, for example the previous six months. If a person with MCI had exhibited a high frequency of these behaviors in the last six months, but had a “good week” before the interview, responses to the RMBPC items would not reflect the true extent of their impairment within a broader timeframe. This could obscure an accurate picture of illness progression, creating an impression of either symptoms appearing more mild or severe than they actually are at baseline. Although the RMBPC is a standard measure in dementia research, these findings raise the question of its appropriateness for MCI because symptoms tend to be more variable and ambiguous. Perhaps framing the questions in terms of whether a behavior occurred in the past month, would have elicited different responses and therefore different results in this quantitative

analysis.

Also related to the RMBPC is the fact that this measure is generally intended for more severe forms of cognitive impairment (i.e., dementia), and is less sensitive to more mild forms such MCI (APA, 2005). Consequently, this measure did not include items reflecting some of the more common symptoms and behaviors reported by care partners. For example, behaviors often cited in care partner interviews, such as apathy and inactivity, were not included in the RMBPC measure. This limitation of RMBPC measure in capturing the range of common MCI-related behaviors and symptoms may also explain the study's non-significant findings.

Another limitation of this study already mentioned in the methods section is the use of an EE proxy variable. The interview protocol, though generally similar to the CFI, diverged in several ways, including interview length and the specific questions that were asked, and therefore may not have fully captured the manifestations of EE. Also, given that the coders lacked the requisite training and certification for coding EE, this may have led to errors in coding. Lastly, the coding of EE did not include vocal tone that is used to infer the various EE indices, most notably criticism. This break from the CFI protocol, namely reliance on speech content of the interview transcripts may have also led to coding errors. For example, criticism may have been incorrectly inferred based on seemingly critical content of speech, when in fact there was no critical tone accompanying a care partner's statement. Or alternatively, instances of criticism may have been missed when the critical tone of a statement was absent. Therefore, the results of EE coding may have been skewed by incorrectly characterizing care partner EE status. This would be a limitation not only for the quantitative strand, but also for inferences

drawn in the data-mixing strand, which involved the merging of quantitative and qualitative data.

Qualitative Strand Limitations

The qualitative strand also had some limitations. While the thematic analysis led to the creation of new sub-codes within the original LACS conceptual framework, the coding framework that was applied does not have the advantage of reliability that has been established with the LACS (Stratton et al., 1988). Additionally, the qualitative analysis was performed by only one coder which somewhat limits the study's trustworthiness, despite other measures taken to ensure that the researcher's interpretations remained true to the data.

Implications for Future Research

Future research should aim to establish the predictive validity of EE in the illness course of MCI to provide a basis for identifying and intervening with families at risk of poor psychosocial outcomes. The use of more rigorous methodology would likely yield significant findings regarding EE's predictive validity in this illness context. Specifically, this study should be repeated using a standard EE measurement and coding protocol. Coders should possess the requisite training and be certified to code EE. While the CFI is the gold standard for coding EE, more time efficient options exist and should be considered for future studies. For example, the five-minute speech sample (FMSS; Magana et al., 1986) is administered in a relatively short period of time (five minutes), and takes significantly less time to score (approximately 20 minutes) as compared with the CFI (Hooley & Parker, 2006). The FMSS has demonstrated predictive validity of illness course in the context of cognitive decline (i.e., Alzheimer's disease) in the

previously cited study by Vitaliano and colleagues (1993). Using standardized measurement and coding protocols for EE is necessary to establish the applicability of this theoretical construct to the context of MCI.

Future research designs should also measure changes in the non-cognitive features over a more protracted period of time than the one studied for this quantitative analysis, or include several time points for measuring these changes. Because of the gradual progression of MCI (Petersen, 2004), capturing significant changes in the non-cognitive features may require more extended time periods for data collection. Future research could measure changes in RMBPC scores using T1 and T3 time points that were collected as part of the original study. Also, as discussed, the RMBPC measure is intended for use with persons with dementia (APA, 2015) and does not capture some of the more common non-cognitive symptoms of MCI. Therefore, future research could incorporate an adapted version of the RMBPC measure that includes items reflecting behaviors specific to MCI (e.g., apathy, inactivity).

Because these results emerged in large part from qualitative methodology, they are not generalizable beyond the research participants for this study. Rather, they are transferable, in the sense that they can be confirmed using a similar design, population and context (Krefting, 1991). As such, future research should aim to establish inter-rater reliability of this adaptation to the LACS conceptual framework specific to the illness context of MCI that was developed for this study. Also, examining how attributions change over time (Brewin et al., 1991) through the collection and analysis of longitudinal data may provide further insight into the variability seen in care partners' reactions and changes in non-cognitive features. One research question, for example, would be: Do

care partner attributions of the responsibility of the person with MCI change as the illness progresses? It could be hypothesized that attributions of blame or responsibility may become less prevalent as problems with memory become more apparent, and less ambiguous, to care partners.

Practice Implications

Several of this study's findings have implications for systemic clinical practice. For instance, the findings regarding the controllable – uncontrollable dimension provide insight for the development of clinical interventions with these families that appreciates the circular nature of behaviors and interactions between care partners and persons with MCI (Watzlawick et al., 1967). Generally, these findings indicate that less blaming attributions regarding control are associated with low EE, whereas blaming attributions are associated with high EE status, particularly criticism. However, what is more difficult to discern is whether these attributions have more to do the reality of the situation, that is, the degree to which the person with MCI is actually able to manage their symptoms, or whether they reflect the care partner's misconceptions or lack of understanding of MCI and the person with MCI relative abilities and limitations. As noted by Barrowclough and Hooley (2003, p. 876), "It should not be assumed that the negative attributions of the relative are invariably wrong." In fact, a care partner's negative attribution may be more or less accurate depending on the degree to which a person with MCI is able or willing to manage their symptoms. For example, a person with MCI may actually be doing little or refusing to implement coping strategies to minimize the negative impact of their symptoms. This would understandably be distressing for care partners. Alternatively, a care partner's understanding of what is actually within the control of the person with MCI

may be inaccurate, or the care partner may have unrealistic expectations for the ability of the person with MCI to manage symptoms. In both cases, these attributions appear to lead to ineffective or inappropriate attempts at controlling or correcting the behavior, often manifested in criticism or hostility. Systemic practice goes beyond the notion that human problems are simply rooted in the individual, and recognizes that problems are imbedded within relational processes and patterns of interaction (Watzlawick et al., 1967).

In cases where the former explanation may be applicable, the persons with MCI' development of effective coping strategies for managing their symptoms (Blieszner et al., 2007), to the degree that they are able, could help to diminish care partner reactivity. For example, it may be useful to utilize strategies such as making lists, notes and reminders, creating routines, keeping and referring to a calendar, simplifying tasks involving multiple steps, and using assistive technologies. These types of coping strategies may diminish the frequency or intensity of MCI-related symptoms and behaviors, and thereby reducing sources of stress for the care partner and thereby the potential negative emotional reactivity directed toward the person with MCI. This information might best be delivered in a group format with both care partners and persons with MCI present, as dementia intervention research has shown that outcomes are improved when both patients and caregivers are actively involved (Brodaty, Green, & Koschera, 1997). Groups also offer the opportunity for participants to share strategies and experiences with each other (Blieszner et al., 2007). Moreover, research has indicated families may be more receptive to certain information provided in a group setting (Joosten-Weyn Banningh, Kessels, Rikkert, Geleijns-Lanting, & Kraaimaat, 2008).

In cases relating to the latter account, care partners may benefit from information

regarding the nature of MCI and its associated symptoms and behaviors, as this would likely diminish negative emotional reactivity (Lucksted, McFarlane, Downing, Dixon, & Adams, 2012). Because of the ambiguity of the condition and the inherent difficulty in distinguishing what is inside and outside of one's control, it may be most effective to diminish care partner reactivity from both angles. That is, increasing the practical coping strategies of the person with MCI as well as increase care partner's understanding of MCI may contribute to more favorable outcomes for care partners and persons with MCI.

The findings regarding the association between care partner – managing and low EE status also supports the notion of involving care partners in identifying effective ways to support persons with MCI in managing illness symptoms. Given that care partners who saw their own efforts to manage symptoms as effective were also rated as low EE, fostering the execution of this role may yield some positive benefits. Not only do such approaches represent practical coping strategies that are likely to diminish the occurrence of negative behaviors and events, but may also be a form of emotional coping strategy for care partners. That is, a sense of control may diminish or counter care partner distress related to the illness context and increase their self-efficacy. One aim of family-based interventions in the context of dementia is to increase caregivers' sense of competence (Marriott, Donaldson, Tarrier, & Burns, 2000). This information could also be delivered in a group setting.

Despite knowledge and understanding of the nature of MCI, care partners may still be faced with a certain amount of ambiguity, which may make them prone to negative emotional reactions (Pasymowski et al., 2013). It is reasonable to assume that no amount of knowledge or understanding of the condition will be sufficient for care

partners to entirely resolve the ambiguity inherent with MCI. Perhaps, adopting a tentative attributional stance is equally important as acquiring knowledge and understanding of the condition. As the results of this study revealed, the variable – ambivalent style was associated with low EE and virtually no criticism. These care partners were exemplary in their ability to withhold judgment regarding confusing and distressing behaviors, and to avoid automatic and negative emotional reactions.

Family-based psychoeducation has proven effective in reducing EE and stemming relapse and symptom exacerbation across a variety of mental disorders (Hooley, 2007). However, Barrowclough and Hooley (2003, p. 875) state, “Family treatment approaches that simply communicate new knowledge and attempt to teach new interaction skills are unlikely to be successful if they ignore the underlying complex belief systems that exist within the family.” It is therefore essential that interventions target blaming attributional stances. Along with family-based psychoeducation, intervention frameworks such as cognitive behavioral therapy (CBT) have been suggested as an effective way to alter and modify problematic attributions that underlie family members’ negative emotional reactivity (Barrowclough & Hooley, 2003; Hooley, 2007). CBT is widely accepted as one of the most effective and valid treatments for a variety of mental disorders (Epstein & Baucom, 2012). This approach aims to increase emotional regulation through increased awareness and management of one’s own thought processes. This often includes identifying and challenging automatic thought patterns and cognitive distortions, such as absolute, “all-or-nothing” thinking, “filtering” or “overgeneralizing” that are understood to underlie negative affect. Interventions targeting these problematic ways of thinking typically involve the development of such strategies as “thought-stopping”, “thought

balancing”, and “thought substitution.” CBT interventions target automatic, negative thoughts and cultivate the ability to balance negative thoughts with alternative and more realistic interpretations of events (Epstein & Baucom, 2012).

CBT interventions can be tailored to the clinical context of MCI to identify automatic attributions that are made about associated behaviors and symptoms. These interventions can challenge a particular attribution through prompting care partners to reflect on the evidence for or opposition to it. When an attribution is inaccurate, it will be useful to then replace the thought with a more accurate or realistic interpretation. However, when behaviors or events are more ambiguous, care partners can be coached to consider other alternative interpretations in addition to their original interpretation. Essentially, this instills the ability to be tentative and builds the capacity for holding two or more possible interpretations of a behavior or event. These types of interventions would be most effectively delivered in a family therapy setting, such that the conversation and information provided can be tailored to the specific circumstances of a couple or family system.

Conclusion

This study represents an important contribution to advancing knowledge about family adjustment to MCI. The analyses led to an adaptation of an attributional framework to the context of MCI, as well as the creation of a typology of care partner attributional stances. These results can inform clinical interventions with persons with MCI and their care partners that foster resilience and optimal adjustment over time.

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Appendix A

T1 Interview Guide for Primary Care Partners

1. What changes did you notice in [name of person evaluated at the Memory Clinic] that led to [her/his] visit to the Memory Clinic? When did these changes start? How long have you been dealing with minor and/or major difficulties with [name's] memory?
2. Did you go anywhere else before contacting the Memory Clinic? What happened? What was your reaction to that?
3. What is your reaction to the test results you got from the Memory Clinic? What is [name's] reaction? How about the rest of the family? Is there anyone who could be involved in dealing with this situation and is not?
4. I know that you are [name's] [wife/husband, daughter/son, friend, etc.], but besides that, what do you see as your role and relationship in helping [her/him] deal with the changes that are happening? How do you feel about that?
5. What are you doing to manage everyday life with [name]? Are you getting any outside help now that is different from help you got before? What kind? From whom?
6. Has [name's] doctor given you any information or suggestions for dealing with this situation? Have you found any helpful information elsewhere about memory loss in later life? What kind? Where did you get it? Is any of this helpful? In what ways?
7. Are you taking care of anyone else these days [child, parent, friend, etc.]? Do you get any help with that? From whom? Is that caregiving going to continue in the future?
8. What about your own physical and mental health these days—have you noticed any changes since [name's] situation began? What are you doing to make sure you stay as healthy as possible? Have you had to lessen or give up anything you found enjoyable before?
9. What do you think will happen with [name] in the future in terms of thinking and memory changes?
10. What kinds of information and assistance do you think [name] and you might need in the future? How comfortable would you feel about asking family members or friends for help? What about community agencies or senior services—do you know where to turn for help from them? Would you be willing to rely on them?

11. You might be faced with making some important decisions about [name] in the future [e.g., living arrangements, help with daily matters]. How have you gone about determining what to do in the past if an important decision [about anything] came up? Who will be involved in making decisions about future plans for [name]? Is that different from before?
12. What suggestions would you give others about how to make living with memory loss easier?

