

Cognitive functioning in complicated grief<sup>☆</sup>

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## ABSTRACT

Complicated grief (CG) is increasingly recognized as a debilitating outcome of bereavement. Given the intensity of the stressor, its chronicity, and its association with depression, it is important to know the impact CG may have on cognitive functioning. This exploratory and descriptive study examined global and domain-specific cognitive functioning in a help-seeking sample of individuals with CG ( $n = 335$ ) compared to a separately ascertained control sample ( $n = 250$ ). Cognitive functioning was assessed using the Montreal Cognitive Assessment (MoCA). Controlling for age, sex and education effects, CG participants had lower total MoCA, visuospatial and attention scores relative to control participants. The two groups did not differ significantly in the domains of executive function, language, memory or orientation. Age, sex, and education accounted for much of the variance in MoCA scores, while CG severity and chronicity accounted for a very small percentage of MoCA score variance. Major depression was not a significant predictor of MoCA scores. This study is consistent with previous work demonstrating lower attention and global cognitive performance in individuals with CG compared to control participants. This study newly identifies the visuospatial domain as a target for future studies investigating cognitive functioning in CG.

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## 1. Introduction

Bereavement and the experience of grief are among life's most stressful events (Holmes and Rahe, 1967). Despite this stress, most individuals come to accept the finality of the death, its consequences, redefine their life goals and adjust to life without their loved one (Shear and Shair, 2005). However, for some, the acute grief process is stalled, leading to prolonged or complicated grief (CG). Symptoms of CG include intense sorrow, guilt, deep yearning

for the deceased; preoccupation for the loved one or events surrounding the death; avoidance of reminders of the loss; bitterness, and difficulty trusting or caring for others (American Psychiatric Association, 2013; Shear et al., 2011).

Much evidence suggests that CG is a disorder distinct from conditions with overlapping symptomatology such as post traumatic stress disorder (PTSD) and depression (Prigerson et al., 1996; Boelen and van den Bout, 2005; Simon et al., 2007). The American Psychiatric Association (APA) has included provisional criteria for the diagnosis of CG, designated "Persistent Complex Bereavement Disorder (PCBD)", in Section III of the DSM-5 (American Psychiatric Association, 2013).

Early studies have estimated the prevalence of CG to be 4–5% in the general population and 7–25% among bereaved individuals (Newson et al., 2011; Kersting et al., 2011). The impact of CG on

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society and among bereaved individuals and their families is profound. Comorbidity with other psychiatric disorders such as depression tends to be significantly higher in individuals with CG compared to the general public. In a clinical study, a concurrent major depressive disorder (MDD) was present in 55% of individuals with CG (Simon et al., 2007). Given the intensity of the stressor and its association with depression, understanding the impact CG may have on cognition is important.

Previous studies have suggested that individuals with CG have greater neurocognitive deficits compared to both normally bereaved and non-bereaved control participants in community based samples (O'Connor and Arizmendi, 2014; Newson et al., 2011). This study represents an exploratory and descriptive analysis. It builds on previous work by exploring the association of CG with cognitive function in a sample of participants in a multisite NIMH-sponsored clinical trial researching treatment for CG and describing what may be an associated feature of the disorder. We examined cognitive functioning both globally and across six neurocognitive domains. After accounting for variables associated with cognitive functioning such as age, education, and depression, we examined whether variance in cognitive dysfunction might be explained by the presence of, severity or chronicity of CG symptoms.

## 2. Methods

### 2.1. Primary study description

We used data from a multicenter, double blind, placebo-controlled intervention trial entitled “Optimizing Treatment for Complicated Grief” (Healing Emotions After Loss: **HEAL**). The study began in March 2010 and is an ongoing NIMH sponsored clinical trial investigating the effects of citalopram versus placebo, with and without complicated grief therapy (CGT) [ClinicalTrials.gov Identifier: NCT01179568]. The study is being conducted in Boston New York, Pittsburgh and San Diego. Participants were recruited through a variety of methods including referrals from health care professionals and facilities (21%), non-health care personnel or agencies (6%), print media (20%), and broadcast or internet media (41%). The analyses reported here used pretreatment data from all randomized individuals as of January 16, 2014.

Inclusion criteria required an Inventory of Complicated Grief (ICG) (Prigerson et al., 1995) score of 30 or greater at least 6 months after the death of a loved one, CG confirmed as present and the primary problem on clinical interview, and English fluency. Individuals were excluded from the study for any of the following reasons: substance abuse or dependence within the past 6 months, history of a psychotic disorder, current psychotherapy or treatment with an antidepressant, a Montreal Cognitive Assessment (MoCA) score <21, active homicidal ideation or when considered at immediate risk for suicide.

### 2.2. Archival control group

Our control sample was taken from previously published data comparing performance on the MoCA and the Mini-Mental Status Examination (MMSE) in cognitively normal individuals (Gluhm et al., 2013). Most participants were from a convenience sample consisting of spouses and friends of patients seen at the University of California, San Diego (UCSD) Huntington's disease Research Center and UCSD Shiley-Marcos Alzheimer's Disease Research Center. Participants were excluded if they reported a lifetime history of neurologic or psychiatric disorders, or the use of psychoactive substances or medications.

### 2.3. Measures

Complicated grief was measured using the ICG (Prigerson et al., 1995). The ICG is a 19-item self-report questionnaire reflecting the core emotional, behavioral and psychological symptoms of CG. Each of the 19-items are given a severity score between 0 (never) and 4 (always). Possible total scores range from 0 to 76. All study participants scored 30 or greater on the ICG (Shear et al., 2005).

Cognitive function was measured using the Montreal Cognitive Assessment (MoCA) a screening tool for mild cognitive impairment and dementia (Nasreddine et al., 2005). The range of possible scores was 21–30. The lower limit was set at 21 in the HEAL study in order to rule-out individuals with probable dementia. Therefore, we used only control participants who earned scores in the same range (21–30). In each participant, we assessed the six neurocognitive domains (visuospatial ability, executive functioning, language, delayed memory, attention and orientation) represented in the MoCA. Executive function was measured by the sum of a participant's scores in the trail making, fluency, and abstraction tasks. Language was measured by the sum of the repetition and naming tasks. The visuospatial domain was measured using the sum of the cube and clock drawing tasks. Scores on the delayed recall task were used to assess delayed memory. Attention/concentration and orientation were assessed as given on the MoCA.

Current mood disorder was evaluated using the Structured Clinical Interview for DSM-IV Axis I Disorders Patient Edition (SCID) (Spitzer et al., 1995).

Depression severity was assessed using the 16-item version of the Quick Inventory of depressive symptomatology self-report (QIDS-SR-16) (Rush et al., 2003). Possible total scores range from 0 to 27.

Medical morbidity and burden were assessed using the Cumulative Illness Rating Scale (CIRS) (Miller et al., 1992) a comprehensive review of medical problems by 14 organ systems. The CIRS rates each organ system between 0 (no problem) and 4 (end organ failure/severe functional impairment). The organ category “other” was omitted in the primary (HEAL) study, therefore, severity ratings were assessed for 13 organ systems. Possible total scores range from 0 to 52. For the purposes of this analysis, the categories of vascular and heart disease (combined mean) and neurological disease were reported as these organ systems are most likely to impact cognition. Total score included all 13 organ systems. Number of organ systems affected indicates the number of organ system categories (range 0–13) rated with a severity greater than zero.

### 2.4. CG consort chart description

One-thousand-nine-hundred-thirty-nine individuals were screened over the telephone using the brief grief questionnaire (BGQ) (Shear et al., 2006). The BGQ is a five-item self-administered screening tool that evaluates some of the core CG symptoms. Responses were rated as 0, not at all; 1, somewhat; or 2, a lot. A score of 5 or greater raises clinical suspicion for CG (Shear et al., 2006). Of the 1939 individuals screened, 1420 received a score of 5 or greater on the BGQ and were invited for a face-to-face baseline clinical assessment; 1072 were excluded for various reasons (see Fig. 1 for details). 348 participants were randomized to treatment, 13 had incomplete or missing MoCA data and were excluded from the analysis. The remaining 335 participants comprised the CG study group used in our analysis. All data for this analysis were collected at the baseline clinical assessment. The same procedures regarding recruitment and assessments described above were used at all four clinical sites.

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