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Patient learning of treatment contents in cognitive therapy



Nicole B. Gumport, Lu Dong, Jason Y. Lee, Allison G. Harvey*

Department of Psychology, University of California, Berkeley, USA

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ABSTRACT

Background and objectives: Research has demonstrated that both memory and learning for treatment contents are poor, and that both are associated with worse treatment outcome. The Memory Support Intervention has been shown to improve memory for treatment, but it has not yet been established if this intervention can also improve learning of treatment contents. This study was designed to document the number of times participants exhibited each of the indices of learning, to examine the indices of learning and their relationship to recall of treatment points, and to investigate the association between the indices of learning and depression outcome.

Methods: Adults diagnosed with major depressive disorder ($N = 48$) were randomly assigned to 14 sessions of cognitive therapy-as-usual (CT-as-usual) or cognitive therapy plus the Memory Support Intervention (CT + Memory Support). Measures of learning, memory, and depressive symptomatology were taken at mid-treatment, post-treatment, and at 6-month follow-up.

Results: Relative to the CT-as-usual group, participants in the CT + Memory Support group reported more accurate thoughts and applications of treatment points at mid-treatment, post-treatment, and 6-month follow-up. Patient recall was significantly correlated with application and cognitive generalization. Thoughts and application at mid-treatment were associated with increased odds of treatment response at post-treatment.

Limitations: The learning measure for this study has not yet been psychometrically validated. The results are based on a small sample.

Conclusions: Learning during treatment is poor, but modifiable via the Memory Support Intervention. These results provide encouraging data that improving learning of treatment contents can reduce symptoms during and following treatment.

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1. Introduction

The present study was devised to examine to what extent remembering and learning is occurring during and following the receipt of cognitive therapy. We define memory as “the record of past experiences acquired through learning” and learning as “the process by which changes in behavior arise as a result of experiences interacting with the world” (Gluck, Mercado, & Myers, 2007, p. 6/7). Hence, memory and learning are conceptualized for the purpose of the present study as interlinked yet separable processes.

Taking memory first, research on patient memory for treatment is important for three reasons. First, extant research indicates that memory for any treatment is poor. Following a treatment session,

patients with bipolar disorder were only able to recall 19.6–36.9% of the recommendations made during treatment (Lee & Harvey, 2015). Insomnia patients forgot about one third of recommendations made during treatment and recall for some types of recommendations was only 13% (Chambers, 1992). Recall is also quite poor following a physician’s visit for health behavior change advice across a variety of domains (Flocke & Stange, 2004). Second, existing research suggests that poor memory for the contents of a treatment session is associated with lower treatment adherence (Pickney & Arnason, 2005). Third, past research indicates that better memory for the contents of treatment is associated with better treatment outcome (Harvey et al., 2016; Lee & Harvey, 2015).

Moving on to learning, research on patient learning of treatment contents is important for two reasons. A recent study has demonstrated that the learning of treatment contents following treatment for depression is also poor and is associated with poorer treatment outcome (Gumport, Williams, & Harvey, 2015). In this study,

* Corresponding author. Department of Psychology, University of California, Berkeley, 3210 Tolman Hall #1650, Berkeley, CA 94720-1650, USA.

E-mail address: aharvey@berkeley.edu (A.G. Harvey).

although more than half the participants reported thinking about or applying the contents of treatment following their session each week, only 50–62.5% of these thoughts were accurate and less than half the applications were accurate. More promisingly, participants were able to generalize the contents of treatment more than half of the time, and the ability to generalize was highly correlated with lower depression symptoms each week. These results highlight the difficulty of learning the contents of treatment and the potential relationship between learning and improvement over the course of treatment. It appears that generalization, like recall, may be more strongly associated with improvement during treatment, as opposed to application or thoughts. The current study was designed to evaluate this relationship between these measures of learning with recall. Second, cognitive psychologists have demonstrated the “transfer of learning” problem. [Thorndike \(1932\)](#) posits that successful transfer of learning to novel situations depends on the number of elements in the novel situation that are identical to those in the situation in which the skills are encoded. People are often able to encode, recall, and recognize information, but there are multiple empirical demonstrations that people largely fail to apply the material that was learned in similar situations that differ only in surface features ([Mestre, 2005](#); [Rohrer, Taylor, & Sholar, 2010](#)). Given the empirical demonstrations that transfer is worse when the encoding and testing formats differ, much of the material covered in a treatment session may not be transferred to situations outside the session. Additionally, past research has found better results on a test of learning from cognitive bibliotherapy did not predict outcome ([Scogin, Jamison, Floyd, & Chaplin, 1998](#)). More recently, better results on a test of knowledge acquisition did not predict improved outcome in internet-based treatment of eating disorders ([Strandskov et al., 2017](#)). Taken together, this accumulating evidence suggests that learning, as well as memory, may be suboptimal during treatment.

The current study examines memory and learning in the context of treatment for depression. Depression is associated with several problems with both memory and learning. First, deficits in memory are common in depression ([Behnken et al., 2010](#)), including pervasive impairments in declarative memory ([Hertel & Rude, 1991](#); [Hertel, 1998](#)) and working memory ([Gotlib & Joormann, 2010](#)). Second, forgetting is common. While patients with depression experience more difficulty in forgetting negative words and disorder-related information ([Wingenfeld, Terfehr, Meyer, Löwe, & Spitzer, 2013](#)), they also experience greater difficulty in remembering neutral words ([Cottencin et al., 2008](#)). Third, depression is characterized by negative emotion and the experience of negative emotion is associated with attentional biasing and narrowing, which impacts which information is encoded ([Easterbrook, 1959](#); [Peckham, McHugh, & Otto, 2010](#); [Watkins, Vache, Verney, & Mathews, 1996](#)). One study ([Phelps, 2004](#)) found that individuals are more likely to remember the “gist” rather than specific details of an emotional event. However, treatment sessions are often emotionally arousing, and specific details and nuances are likely important when learned in these contexts. Fourth, depression is often characterized by negatively-biased schema. These schemas facilitate faulty information processing and learning, often negatively-biased ([Beck & Haigh, 2014](#)). Therefore, learning and processing new information in individuals receiving cognitive therapy for depression may be impaired. Overall, the accumulating evidence suggests that the odds are stacked against people remembering and learning new information gleaned from a cognitive therapy session.

Researchers have begun addressing the problem of poor memory for the contents of treatment. One approach has been to attempt to improve memory for the contents of therapy, which involves incorporating memory support strategies into treatment-

as-usual ([Harvey et al., 2014, 2016](#)). These strategies were carefully derived from the education and cognitive psychology literature ([Harvey et al., 2014](#)) and are proactively and strategically incorporated by the therapist without extending the session time or changing the basic content of sessions. Existing research has demonstrated that memory for treatment is modifiable using these strategies. Specifically, [Harvey et al. \(2016\)](#) reported that patients who had received this Memory Support Intervention incorporated into cognitive therapy-as-usual exhibited better memory for the contents of treatment relative to cognitive therapy-as-usual without the Memory Support Intervention. They also found that better performance on a free recall task was associated with improved outcome irrespective of treatment condition. Together, these findings raise the possibility that improving memory for treatment may be a pathway to improving outcomes in cognitive therapy. However, the impact of memory support on learning has yet to be examined.

We propose to further investigate this relatively novel pathway to improving treatment outcome by better understanding learning and memory and their relationship to treatment outcome. Building on the findings assessing the transfer of learning described in [Gumport et al. \(2015\)](#) and the Memory Support Intervention described in [Harvey et al. \(2016\)](#), we seek to explore the relationship between memory of treatment contents, transfer of learning of treatment contents, memory support, and treatment outcome in the context of treating depression symptoms using cognitive therapy.

We included an assessment of three indices of learning: (a) whether the participant *thought* about the CT treatment points, (b) whether the participant *applied* the CT treatment points and (c) whether the participant *generalized* the treatment points. The first aim was to document the number of times participants exhibited each of the three indices of learning at mid-treatment, post-treatment, and at follow-up. The hypothesis tested was that transfer of learning of the CT treatment points would be greater in the CT + Memory Support group than in the CT-as-usual group. The second aim was to examine the three indices of learning and their relationship to recall of treatment points. We predicted that greater learning would be associated with increased recall and that generalization would be more strongly associated with better recall relative to the other two indices of learning. The third aim was to investigate the association between the three indices of learning and depression outcomes. The hypothesis tested was that participants who exhibited greater learning would be more likely to exhibit improvement during treatment and that participants who exhibited greater learning would be less likely to experience another depressive episode.

2. Method

Further details regarding treatment rationale, content, and fidelity is described in [Harvey et al. \(2016\)](#).

2.1. Participants

Participants were 48 adults who met diagnostic criteria for MDD, regardless of chronicity or recurrence, who participated in a National Institute of Mental Health-funded randomized controlled trial comparing cognitive therapy-as-usual (CT-as-usual) to cognitive therapy with an adjunctive memory support intervention (CT + Memory Support) ([Harvey et al., 2016](#)). Adults were assigned to either CT-as-usual or CT + Memory Support in a 1:1 parallel group design. This study was registered (NCT01790919).

Individuals were eligible if they met the following inclusion criteria: (a) diagnosis of MDD, regardless of chronicity or

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