



## Rating depression over brief time intervals with the Hamilton Depression Rating Scale: Standard vs. abbreviated scales



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### ABSTRACT

Although antidepressant trials typically use weekly ratings to examine changes in symptoms over six to 12 weeks, antidepressant treatments may improve symptoms more quickly. Thus, rating scales must be adapted to capture changes over shorter intervals. We examined the use of the 17-item Hamilton Depression Rating Scale (HDRS) to evaluate more rapid changes. Data were examined from 58 patients with major depressive disorder or bipolar disorder enrolled in double-blind, placebo-controlled, cross-over studies who received a single infusion of ketamine (0.5 mg/kg) or placebo over 40 min then crossed over to the other condition. HDRS subscales, a single HDRS Depressed mood item, and a visual analogue scale were used at baseline, after a brief interval (230 min), and one week post-infusion. Effect sizes for the ketamine-placebo difference were moderate ( $d > 0.50$ ), but one and two-item HDRS subscales had the smallest effects. Response rates on active drug were lowest for the complete HDRS (43%); the remaining scales had higher response rates to active drug, but the shortest subscales had higher response rates to placebo. Correlations between the changes from baseline to 230 min post-ketamine across scores were similar for most subscales ( $r = 0.82-0.97$ ), but correlations using the single items were lower ( $r < 0.74$ ). Overall, effect sizes for drug-placebo differences and correlations between changes were lower for one- and two-item measures. Response rates were lower with the full HDRS scale. The data suggest that, to best identify rapid antidepressant effects, a scale should have more than two items, but fewer items than a full scale.

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### 1. Introduction

For decades, clinical trials in depression—major depressive disorder (MDD) and bipolar disorder (BD)—have typically used weekly ratings to examine changes after treatment. Some recent experimental treatments, however, appear to exert antidepressant effects within hours or days, underscoring the need for rating instruments capable of detecting much more rapid antidepressant effects (Machado-Vieira et al., 2008). Current common scales used to assess depressive symptoms, such as the Hamilton Depression Rating Scale (HDRS) (Hamilton, 1960) and the Montgomery-Asberg

Depression Rating Scale (MADRS) (Montgomery and Asberg, 1979) were designed to obtain measurements at weekly intervals. In addition, these scales measure certain symptoms that cannot be evaluated over a short time frame (e.g., changes in sleep or weight).

Various research groups have suggested different ways to use the original HDRS items to assess depressive symptoms. In a series of clinical trials, Entsuah et al. (2002) and Santen et al. (2008) examined the individual items of the HDRS to determine those that were most sensitive to changes in depressive symptoms. Santor et al. (2008) took an item response theory approach in an attempt to differentiate patients with higher and lower degrees of symptom severity.

Because these approaches led to different subscales of the HDRS, additional studies examined how well various subscales performed compared to total HDRS score. While some studies showed that shorter subscales improved the rate of response to the outcome measure (e.g. Bech et al., 2010; Faries et al., 2000; Mallinckrodt et al., 2011; Revicki et al., 2010; Santen et al., 2009; Silverstone et al., 2002), others found no noticeable difference (e.g.

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