# **Nedscape** EDUCATION

# Improving Knowledge Related to Diagnosis and Treatment of Bipolar Depression: Effect of Online CME

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# INTRODUCTION

It is estimated that between 2% and 4% of adults in the United States have a bipolar spectrum disorder and that approximately 1% of adults have bipolar I disorder (BP I).<sup>1-3</sup> Despite the relatively high prevalence, bipolar depression is one of the more challenging psychiatric conditions to diagnose and manage:

- Although bipolar I disorder is characterized by both manic and depressive episodes, at least half of the patients initially present with depression,<sup>4</sup> and clinicians have difficulty differentiating between unipolar and bipolar depression.<sup>5,6</sup>
- Revisions to the diagnostic criteria for bipolar disorder in the 5th Edition of the Diagnostic and Statistical Manual of Mental Health Disorders (DSM-5) do not provide

# METHODS

An online CME activity was developed as a 25-minute video discussion with 2 leading experts on diagnostic criteria and the current evidence base for treatment of acute bipolar depression (http://www.medscape.org/viewarticle/782728). The activity also included a transcript of the discussion and a downloadable slide deck to highlight key data and recommendations from the video discussion. The effects of education were assessed using a Linked Learning Assessment (LLA).

An LLA compares individual participants' paired responses to questions before exposure to educational content (pre-assessment questions) with responses to the same questions after participation in the educational activity (postassessment questions). The LLA shows the overall effect of the educational activity. With this method of analysis, participants serve as their own controls. Answers to preassessment questions indicate what participants know at baseline before they participate in the activity. Responses to the repeated post-assessment questions indicate what participants have learned from the activity. Only participants who answered every assessment question are included in this analysis. Each question in the LLA is directly related to the learning objectives of the educational activity.

clarification, as there are still no discrete diagnostic criteria specific to bipolar depression.<sup>1</sup>

• Between 40% and 65% of patients with bipolar disorder are believed to have at least 1 comorbid condition, which can render diagnosis and treatment selection difficult.<sup>7</sup>

As a result, there is an estimated delay of nearly 10 years between first major mood episode and accurate diagnosis and treatment with a mood stabilizer.<sup>8,9</sup> The consequences of delayed diagnosis and treatment can be substantial and can include an increased risk and incidence of suicide.<sup>8,10</sup>

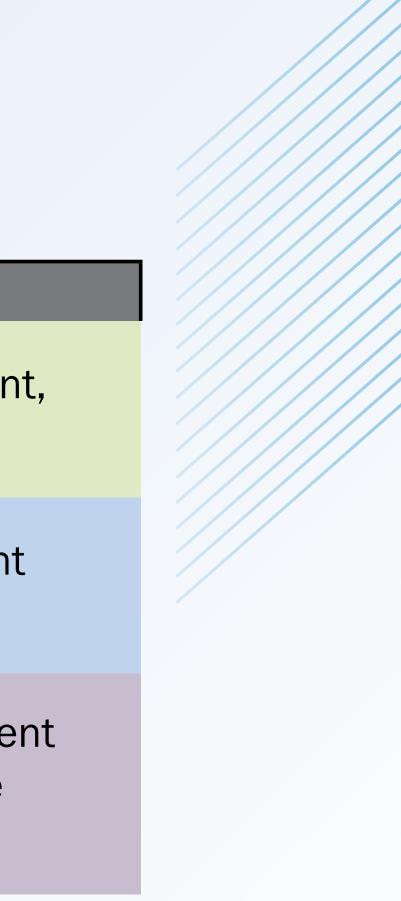
This study's objective was to determine if a video-based online CME activity improved knowledge of psychiatrists about diagnosis and treatment of bipolar depression.

#### **Assessment Question Number**

For all questions combined, a paired 2-tailed t-test was used to assess whether the mean pre-assessment score was different from the mean post-assessment score. A Pearson's  $\chi^2$  statistic was used to measure changes in responses to individual questions. Probability values (P values) were also calculated for both t-test and  $\chi^2$  statistics to determine significance level ( $\alpha$ ). A *P* value of less than .05 was considered significant, demonstrating that a change occurred from the pre-assessment to the post-assessment. Cohen's D was used to calculate the effect size of the intervention by measuring the strength of association between the preassessment and post-assessment of linked learners. Effect sizes greater than 0.8 are considered large, between 0.8 and 0.4 are medium, and less than 0.4 are small. Categories of participant responses are defined in Table 1.

# PARTICIPANT RESPONSE CATEGORIES

CATEGORY	Definition
MPROVED LEARNERS (green in pie chart)	Any incorrect response on pre-assessment correct response on post-assessment
Reinforced Learners (blue in pie chart)	Correct response on both pre-assessment and post-assessment
UNAFFECTED LEARNERS (purple in pie chart)	Any incorrect response on post-assessmen (with either correct or incorrect response on pre-assessment)



# RESULTS

Data for all participants from April 26, 2014 to May 30, 2014 were collected. A total of 304 psychiatrists answered all the assessment questions in the activity and are included in this analysis.

### Psychiatrists

- For psychiatrists who participated in the CME activity, comparison of individually linked pre-assessment question responses to the respective post-assessment question responses demonstrates statistically significant improvements (N=304; P < 0.05).
- Correct responses on post-assessment questions were significantly higher after CME completion compared with the pre-assessment question responses, with an overall moderate effect (d=0.493)

#### Table 1. Summary Statistics

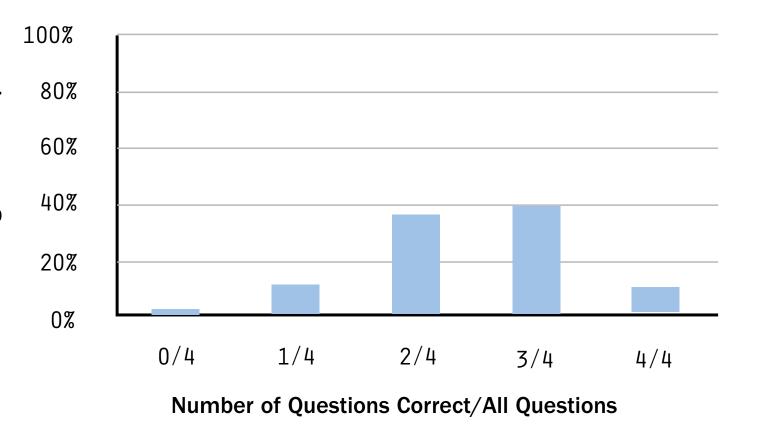
Metric	Pre-assessment	Post-assessment
Sample Size	304	304
Mean (Correct Answers)	2.447	2.941
Standard Error	0.051	0.053
Median (Correct Answers)	2.5	3
Standard Deviation	0.896	0.917
Sample Variance	0.803	0.841
Effect Size		0.493
<b>P</b> Value		<.05

The distribution of pre-assessment scores compared with that of post-assessment scores indicates improvement following the educational intervention:

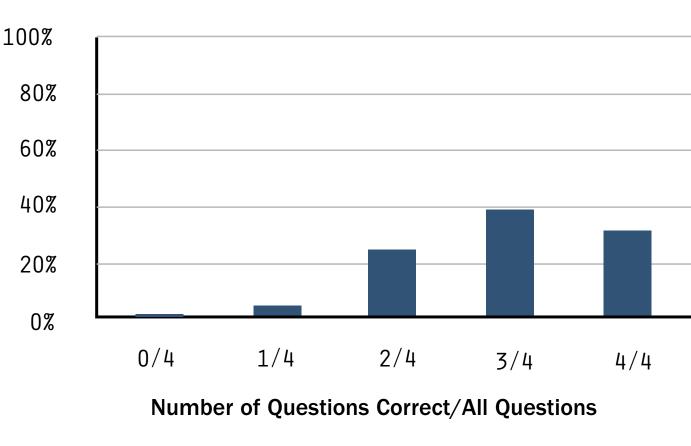
• Although only 31 (10%) participants answered all 4 pre-assessment questions correctly, 95 (31%) answered all questions correctly on the post-assessment (N=304)

### Figure 1. Scoring distribution: pre-assessment and post-assessment.

#### **Pre-assessment Scoring Distribution**



#### **Post-assessment Scoring Distribution**

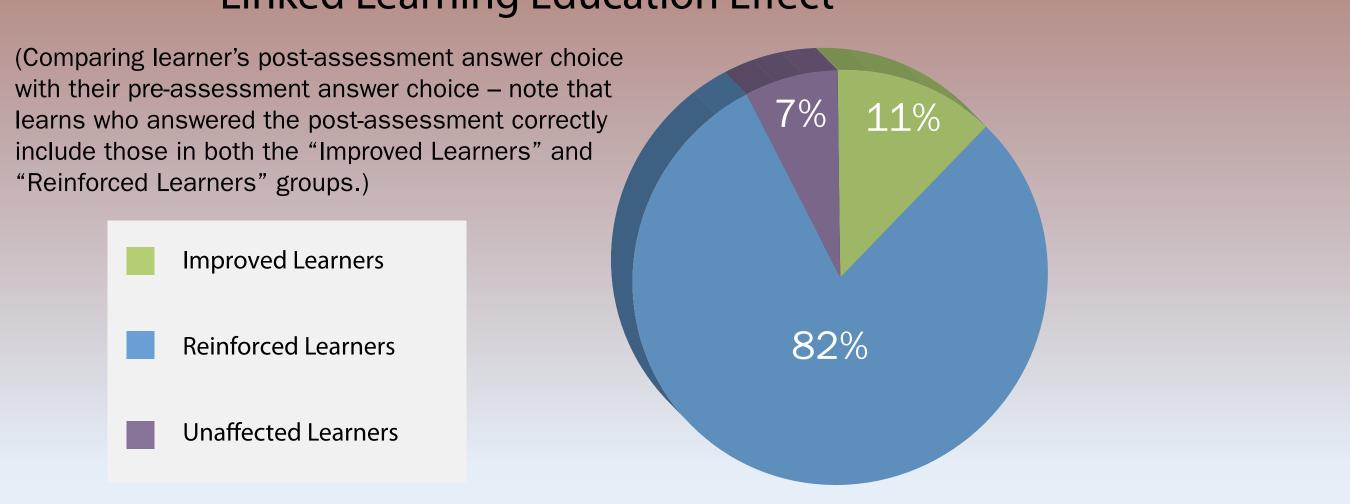


#### QUESTION 1:

According to naturalistic studies, which of the following states is most common for patients with bipolar I disorder? (correct answer is highlighted in yellow)

Pre- and Post-assessment Answer Responses: Overall Counts and Percentages			
	Psychiatrists (n = 304)	Pre-assessment	Post-assessment
		% (n)	% (n)
А	Depression	84% (254)	93% (282)*
В	Mania	10% (29)	5% (14)
С	Rapid cycling/mixed	3% (9)	1% (4)
D	Hypomania	4% (12)	1% (4)
*P <.05			



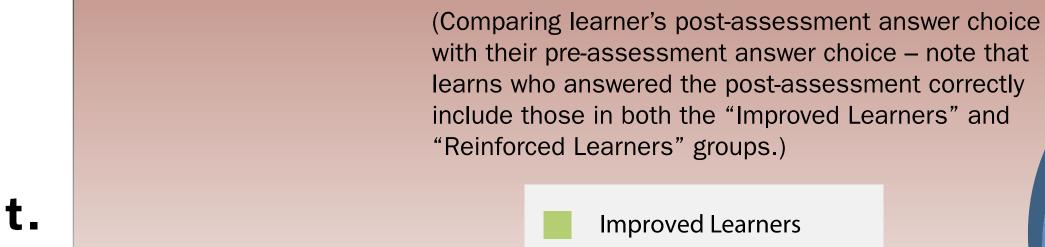


## QUESTION 2:

Among the following approved or investigational approaches to the treatment of acute bipolar depression, which carries the highest risk of weight gain? (correct answer is highlighted in yellow)

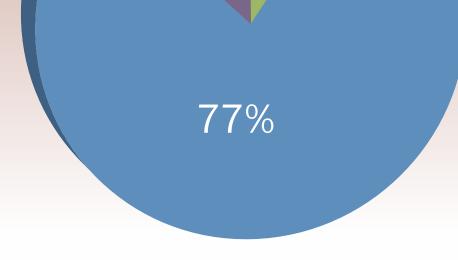
Psychiatrists (n = 304)		Pre-assessment	Post-assessment
		% (n)	% (n)
А	Armodafinil adjunctive therapy	1% (2)	1% (3)
В	Lurasidone	2% (5)	3% (9)
С	Olanzapine-fluoxetine combination	82% (250)	87% (264)*
D	Quetiapine	15% (47)	9% (28)





Reinforced Learners

Unaffected Learners



# CONCLUSIONS

This study demonstrated the success of an online, video-based CME design, including a 2-faculty interactive discussion accompanied with a downloadable slide deck in terms of improving knowledge of psychiatrists related to diagnosis and treatment of bipolar depression. The large sample size of psychiatrists included in this study and the statistically significant improvements demonstrate the benefits of educating a large audience base with aptly designed educational activities using adult-learning principles. Based on the results of this analysis, future education is needed related to the following

- Current diagnostic criteria for bipolar disorder
- Use of antidepressants for treatment of patients with bipolar depression
- Safety and efficacy profiles of new and investigational agents used for treatment of bipolar depression

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\*P<.116

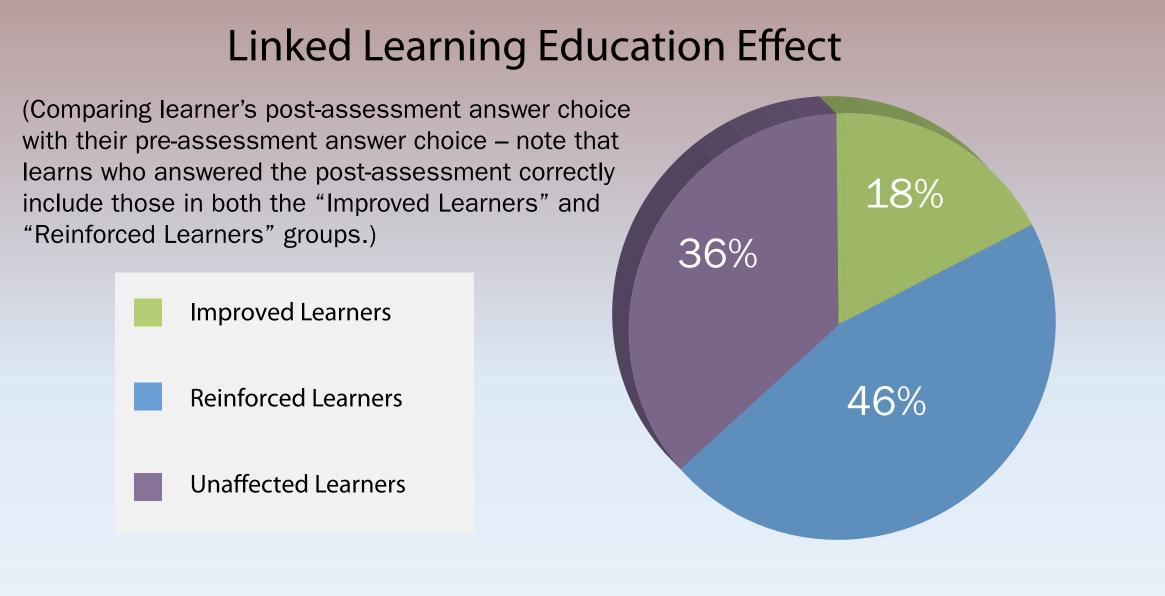


#### QUESTION 3:

Which of the following patients would be least at risk of antidepressant-induced switch from a depressive episode to mania? (correct answer is highlighted in yellow)

Pre- and Post-assessment Answer Responses: Overall Counts and Percentages

	Psychiatrists (n = 304)	Pre-assessment	Post-assessment
		% (n)	% (n)
A	A 22-year-old patient with bipolar I disorder intiated recently on treatment with a serotonin-norepinephrine reuptake inhibitior	20% (60)	15% (46)
В	A 50-year old patient with biopolar II disorder maintained on a selective serontonin reuptake inhibitor and lamotrigine	55% (168)	65% (197)*
С	A 30-year-old patient treated with a tricyclic antidepressant	18% (54)	13% (40)
D	A 35-year-old patient who has use stimulants in the past and is in a mixed depression	7% (22)	7% (21)
*P <.05			

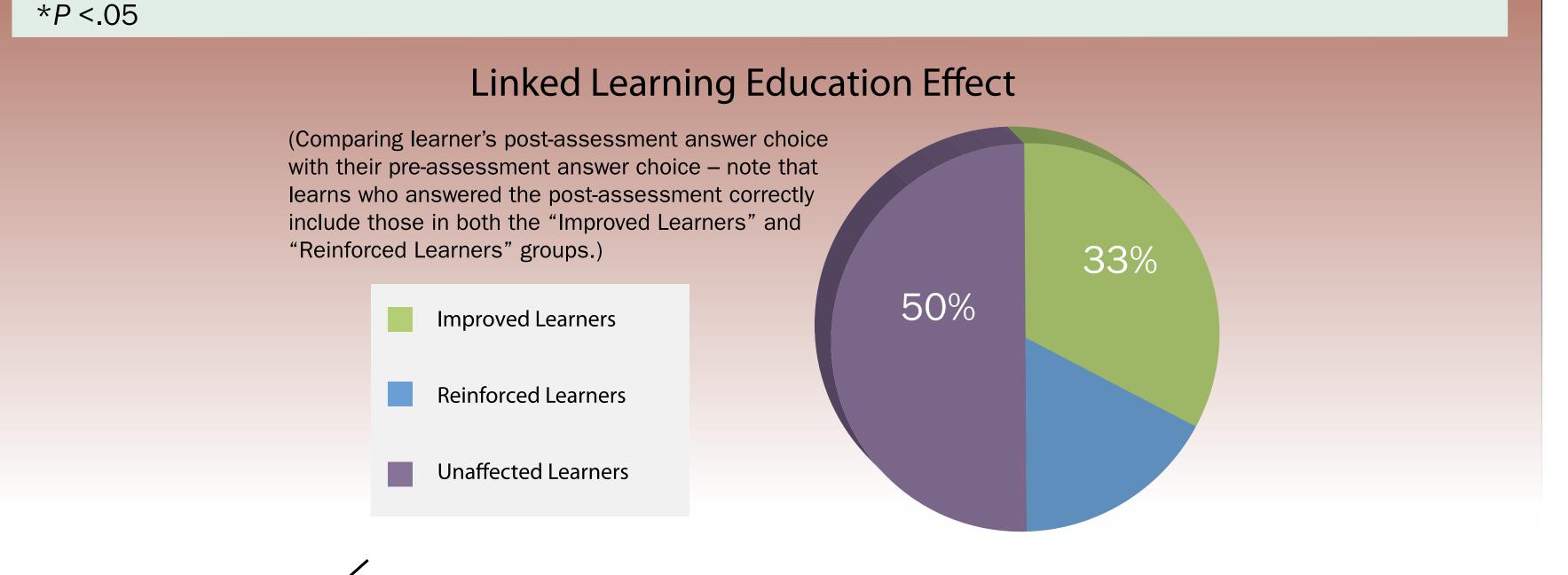


#### QUESTION 4:

In a 6-week, randomized, double-blind placebo-controlled trial of lurasidone adjunctive to lithium or divalproex for the treatment of acute bipolar I depression, which was the most common side effect reported?

Pre- and Post-assessment Answer Responses: Overall Counts and Percentages

	Psychiatrists (n = 304)	Pre-assessment	Post-assessment
		% (n)	% (n)
A	Akathisia	30% (91)	33% (100)
В	Nausea	24% (72)	50% (151)*
С	Sedation	33% (100)	11% (34)
D	Weight gain	13% (41)	6% (19)



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#### Notes

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