

ONLINE MEDICAL EDUCATION IMPROVES PSYCHIATRISTS KNOWLEDGE AND COMPETENCE IN THE MANAGEMENT OF CLINICALLY CHALLENGING CASES OF NARCOLEPSY

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INTRODUCTION

Narcolepsy is a chronic neurologic disorder that involves poor control of sleep-wake cycles.¹ Patients with narcolepsy may fall asleep unexpectedly and in a variety of situations, including while at work, while studying, during a conversation, or while driving. Consequently, patients experiencing this condition suffer from lower quality of life and higher rates of depression and other psychiatric comorbidities.² Results from the Burden of Narcolepsy Disease study showed that patients with narcolepsy, with or without cataplexy, were more likely to experience an increased rate of comorbidities, including mental illness, endocrine disorders, digestive disorders, and cardiovascular disease, compared with the general population.^{3,4} Treatment and diagnosis of patients with narcolepsy is suboptimal due, in part, to the difficulty of properly assessing patients and to guidelines that do not reflect current treatment options.^{5,6} With the goal of improving outcomes in narcolepsy, a study was conducted to determine if an online medical education activity could successfully improve the knowledge and competence of psychiatrists regarding management of patients with clinically challenging cases of narcolepsy, and regarding the impact of medications on objective sleep tests.

INSTRUCTIONAL METHOD

An online educational activity was presented in a video-based panel discussion between 3 expert faculty.

- The panel discussion incorporated synchronized slides and interactivity questions to encourage participant engagement and feedback⁷
- The activity reviewed the evidence-based management of narcolepsy in both a pregnant patient and a patient with cardiovascular comorbidities. The impact of medications on objective sleep tests was also reviewed
- For learners wishing to view the program offline, a transcript and slides were available for downloading or printing. In addition, the activity was available on the Medscape Mobile application
- The educational activity launched online on May 16, 2016, and data were collected through June 21, 2016

ASSESSMENT METHOD

Each participant's responses to questions posed before exposure to educational content (pre-assessment) were compared with the same participant's responses to the same questions posed after exposure to the educational content (post-assessment).

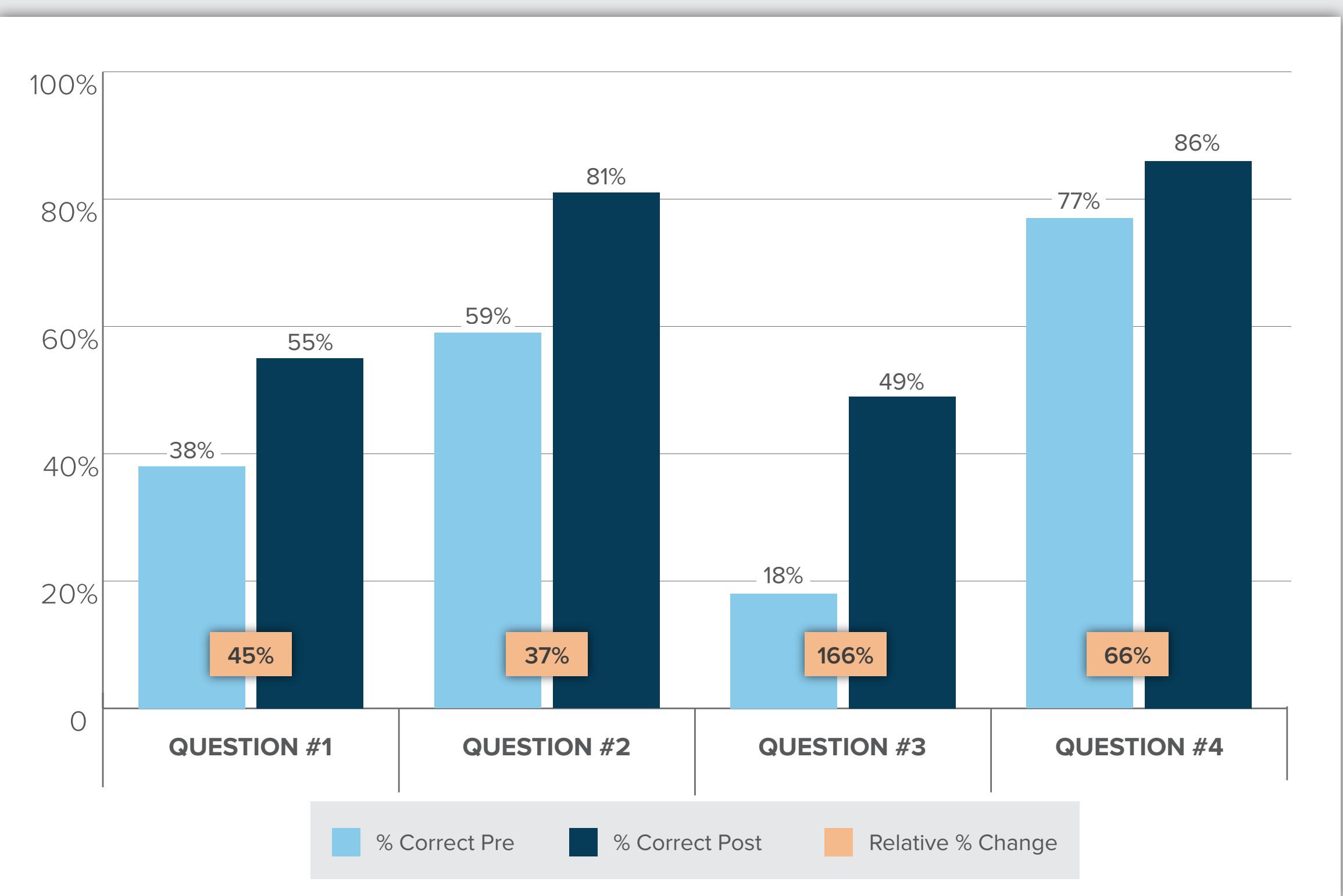
- Linking pre-assessment and post-assessment responses from individual participants allowed each learner to serve as his/her own control (Figure 1)
- A paired, 2-tailed t-test was used to assess whether the mean pre-assessment score was different from the mean post-assessment score. McNemar's χ^2 statistic was used to measure changes in responses in individual question pairs
- *P* values were calculated for both t-test and χ^2 statistics to determine significance level. *P* values less than .05 were considered statistically significant
- Cramer's *V* was used to calculate the effect size of the intervention. Effect sizes greater than .30 are considered large, between .30 and .16 are medium, and between .15 and .06 are small

RESULTS

The 175 psychiatrists who completed all pre- and post-assessment questions were included in the data analysis. After completing this educational intervention, there was a 42% relative improvement in the number of psychiatrists who chose the correct answer. A medium effect size was noted ($V=.196$) as a result of participating in the educational intervention (Figure 2). Specific areas of improvement include:

- Knowledge of fetal risk associated with medications typically prescribed for narcolepsy (relative pre-post percent improvement: 45%; $P<.05$ [Figure 3])
- Diagnostic criteria for narcolepsy based on results from the multiple sleep latency test (relative pre-post percent improvement: 37%; $P<.05$ [Figure 4])
- Selection of an appropriate treatment for narcolepsy in a patient with a history of myocardial infarction and atrial fibrillation (relative pre-post percent improvement: 166%, $P<.05$ [Figure 5])
- The possible impact of both recreational cannabis use and antidepressants on symptoms suggestive of narcolepsy (relative pre-post percent improvement: 66%; $P<.05$ [Figure 6])

FIGURE 2. Summary of Overall Pre- and Post-Activity Outcomes



Summary Statistics: Psychiatrists		
Metric	Pre-Assessment (n)	Post-Assessment (n)
Sample Size	175	175
Mean (Correct Answers)	2	3
Effect Size (V)	—	0.197
P Value	—	<.05

FIGURE 1. Linked Learning Assessment

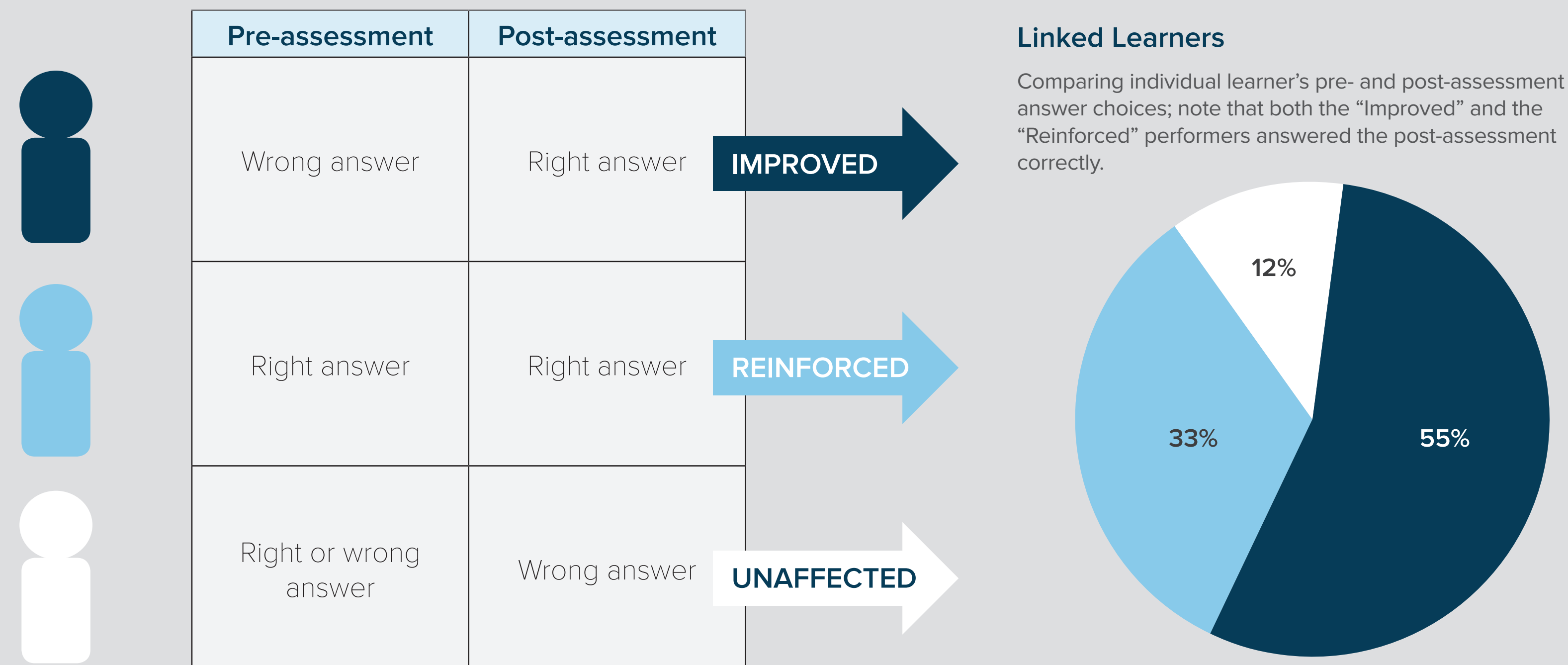


FIGURE 6.

QUESTION 2. WA 30-year-old man with a history of recreational drug (cannabis) use and depression complains of not being able to stay awake at work. He reports an irrepresible need to sleep just after lunch. He also reports having late nights, as he likes to "hang out" with his friends after work because he does not like to be alone. He is currently taking an antidepressant. Sleep studies were ordered. On polysomnography, he had an apnea-hypopnea index (AHI) of 3/h, total sleep time of 300 min, and a sleep latency of 4 min. On MSLT, he had a mean sleep latency of 5 min and 2 SOREMPs.

Which is the most likely interpretation of the findings?

FIGURE 3.

QUESTION: A 25-year-old woman with diagnosed narcolepsy wants to know whether she can continue her narcolepsy medications if she became pregnant. Which advice is reasonable based on current evidence?

Psychiatrists (n=175)		Pre-Assessment (n)	Post-Assessment (n)
A	Narcolepsy medications are mildly teratogenic and should be absolutely discontinued	11% (19)	12% (21)
B	Narcolepsy medications increase the risk of fetal abnormalities	41% (72)	30% (52)
C	Narcolepsy medications (therapeutic doses) are not known to cause fetal abnormalities or toxicity	38% (67)	55% (97)*
D	Narcolepsy medications cause complications during delivery	10% (17)	3% (5)

* $P<.05$

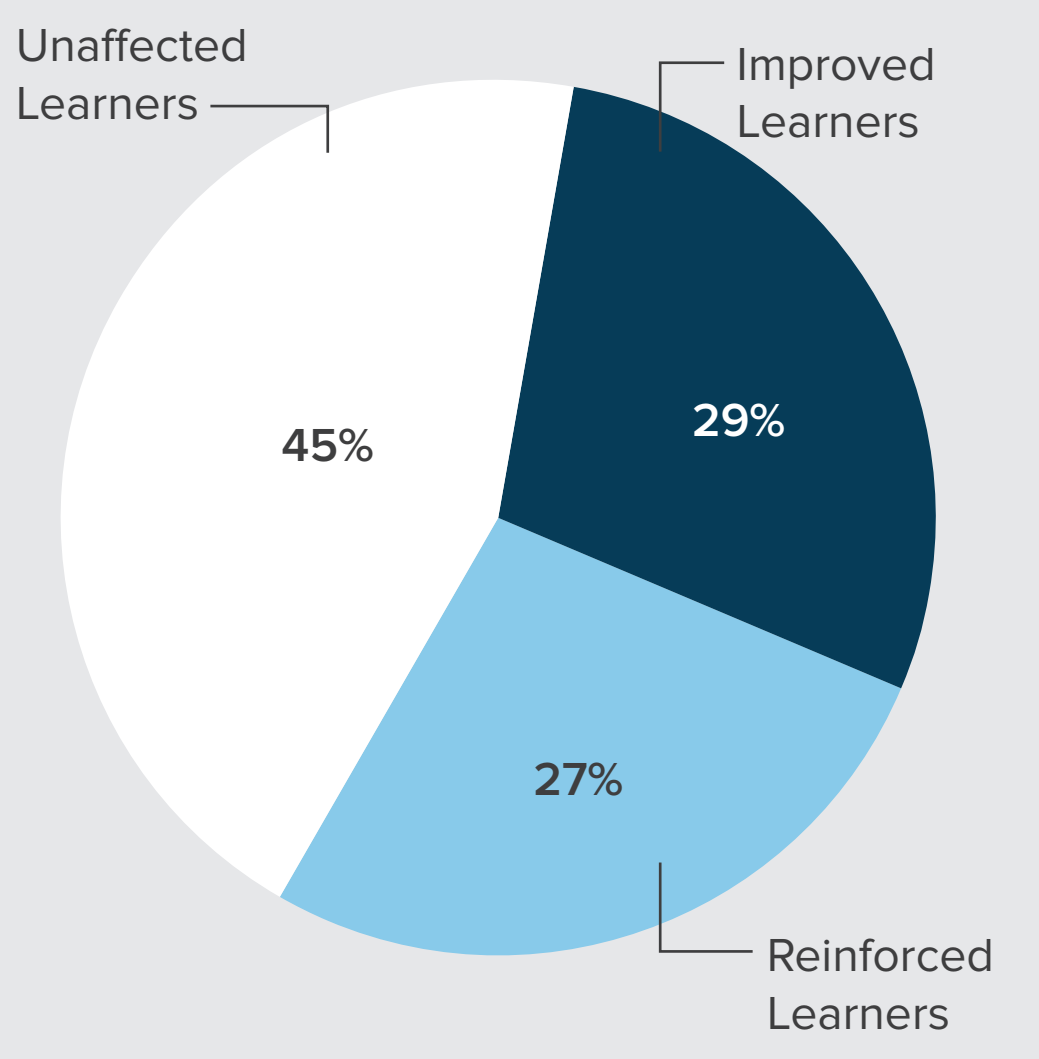


FIGURE 4.

QUESTION: Which of the following is diagnostic of narcolepsy in a patient with a history of daytime sleepiness spanning a period of 2 years?

Psychiatrists (n=175)		Pre-Assessment (n)	Post-Assessment (n)
A	Mean sleep latency of 15 min	8% (14)	4% (7)
B	Mean sleep latency of <8 min and ≥ 2 sleep-onset rapid eye movement periods (SOREMPs) on the multiple sleep latency test (MSLT)	59% (103)	81% (141)*
C	Rapid eye movement (REM) sleep latency of 20 min	11% (19)	3% (6)
D	At least 1 SOREMP on polysomnogram and MSLT	22% (39)	12% (21)

* $P<.05$

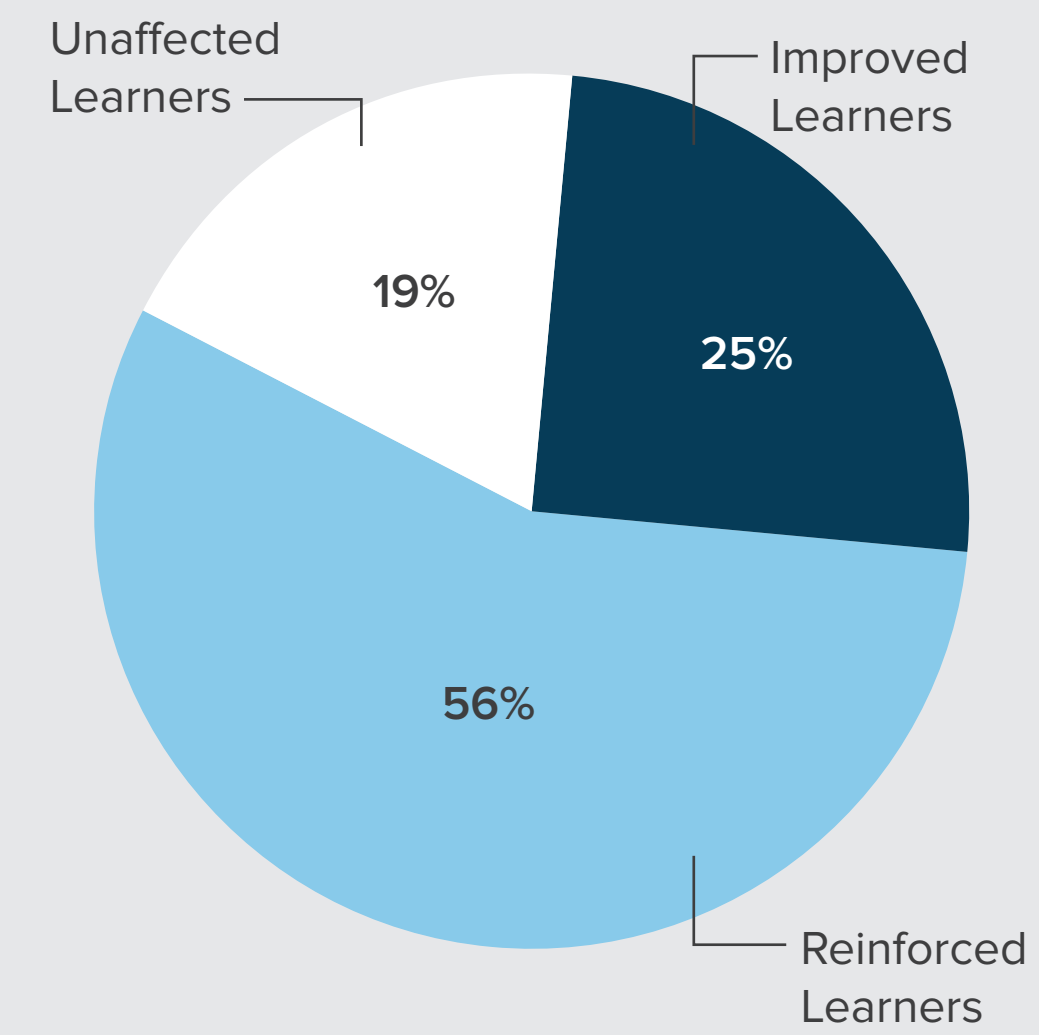
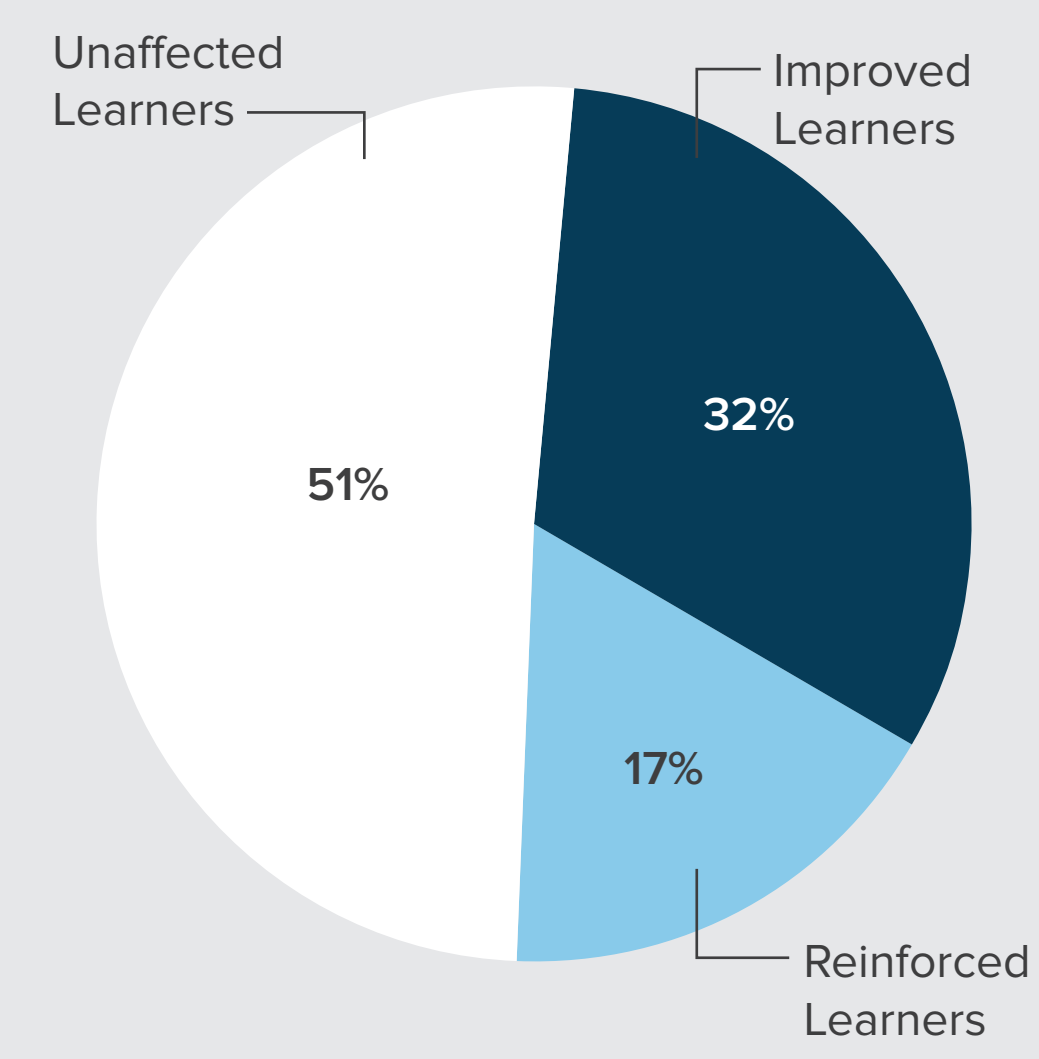


FIGURE 5.

QUESTION. A 50-year-old man with a history of atrial fibrillation and prior myocardial infarction is newly diagnosed with narcolepsy without cataplexy. Which of the following narcolepsy medications would be an appropriate option to treat his daytime sleepiness?

Psychiatrists (n=175)		Pre-Assessment (n)	Post-Assessment (n)
A	Amphetamine	9% (16)	3% (6)
B	Selective serotonin reuptake inhibitor (SSRI)	11% (19)	13% (22)
C	Modafinil	62% (108)	35% (62)
D	Sodium oxybate	18% (32)	49% (85)*

* $P<.05$



CONCLUSIONS

Significant improvements were observed in the percentage of psychiatrists who correctly identified the potential fetal risk of narcolepsy medications, the interpretation of diagnostic tools to assess narcolepsy, treatment of narcolepsy in patients with cardiovascular comorbidities, and the impact of medication and recreational substances on symptoms of narcolepsy. These data show that education consisting of an online video-recorded panel discussion between narcolepsy experts can improve knowledge and competence among practicing psychiatrists. The magnitude of knowledge change for the questions about managing narcolepsy in patients with cardiovascular comorbidities suggests that further education should focus on the management of narcolepsy in patients with these comorbidities.

Acknowledgments

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