



NACE Conversations in Primary Care 2019

Final Outcomes Report



Impacting Insomnia in Practice to Improve Quality of Life

Eisai • Grant ID: E-8169

March 31, 2020



835 Participants



1 Activity



668 Certificates issued to date

This education has the potential to impact 276,585 patients with insomnia on an annual basis

4,559 – 6,079 Patients per week

2019 Conversations in Primary Care Episode

Date

Attendees

Finale (Episode 5)

12/7/19

835

Total

835

Enduring Symposium Webcast

Impacting Insomnia in Practice to Improve Quality of Life

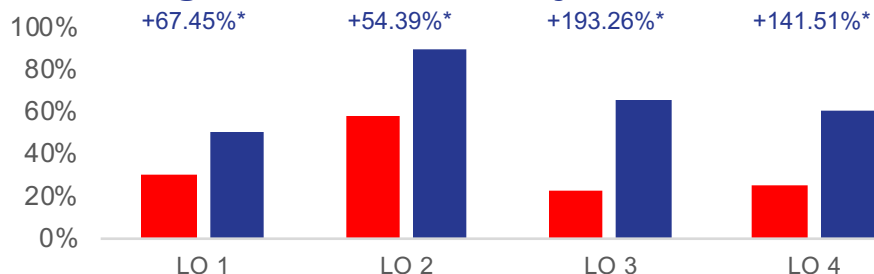


Larry Culpepper, MD Professor of Family Medicine Boston University Boston, MA

COURSE SUMMARY

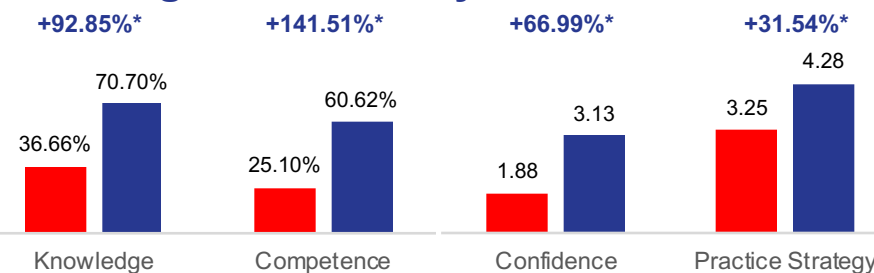
Cost: Free Start Date: 12/31/2019 Expiration Date: 12/30/2020 Target Audience: Primary Care Providers Format: Webcast Estimated Time To Complete CME Activity: 1 hour Credit(s): 1.0 AMA PRA Category 1 Credit™ 1.0 AANP Contact hour which includes 0.75 pharmacology hours Hardware/Software Requirements: Any web browser

Learning Gains Across Objectives



- LO 1: Discuss the basic neurobiology of sleep and wakefulness
LO 2: Recognize the global impact of insomnia on patient quality of life and comorbidities
LO 3: Enumerate the mechanisms of action of traditional and novel pharmacological agents and understand their potential clinical indications
LO 4: Develop an evidence - based process in the selection and use of pharmacological and non - pharmacologic modalities in the treatment of insomnia

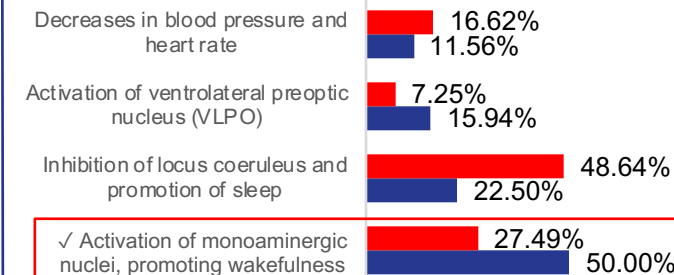
Learning Domain Analysis



- Substantial gains (of 32% to 142%) were achieved in all curriculum learning domains
Post-Test scores in Knowledge and Competence remained low, due to very low Pre-Test scores
Item level scores in Knowledge were mixed, with the lowest scores on two items related to orexin receptors
Low Confidence ratings reflect learner awareness of the challenges they face in Knowledge and Competence

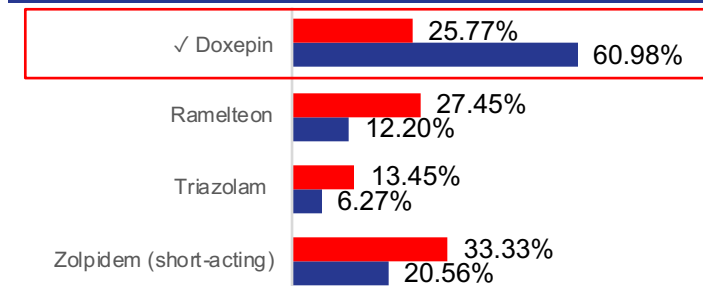
Persistent Learning Gaps/Needs

Effects of the activation of orexin receptors Despite improvements in score on a Knowledge item related to the activation of orexin receptors (+82%), learners remained challenged at Post-Test.



Initial pharmacotherapy selection for patients with persistent awakenings

On a Competence item presenting the case of a female patient with persistent awakenings, learners struggled to identify the most appropriate drug therapy to recommend at Post-Test.



LEARNING RETENTION: Although net gains were measured from Pre-test to PCA, score slippage and persistent educational gaps indicate a continued need for education on the management of insomnia

Curriculum Patient Impact

In the activity, learners (N = 387) were asked to report how many patients they see with insomnia in any clinical setting per week by selecting a range. The resulting distribution of learner responses was then extrapolated to reflect the total number of learners (835) who participated in the activity

The findings reveal that this education has the potential to impact

276,585

Patients with insomnia on an annual basis

4,559 – 6,079 patients on a weekly basis

4,559 –
6,079

Course Director

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Faculty

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NACE *Conversations* in Primary Care

2019 Commercial Support

❖ Eisai

❖ Galderma

Overview

Learning Objectives

- ❖ Discuss the basic neurobiology of sleep and wakefulness
- ❖ Recognize the global impact of insomnia on patient quality of life and comorbidities
- ❖ Enumerate the mechanisms of action of traditional and novel pharmacological agents and understand their potential clinical indications
- ❖ Develop an evidence-based process in the selection and use of pharmacological and non-pharmacologic modalities in the treatment of insomnia



1 Accredited Live Virtual Symposium: December 7, 2019



Enduring CME Symposium Webcast

<https://www.naceonline.com/courses/impacting-insomnia-in-practice-to-improve-quality-of-life>

Impacting Insomnia in Practice to Improve Quality of Life



Larry Culpepper, MD
Professor of Family Medicine
Boston University
Boston, MA



COURSE SUMMARY

Cost: Free
Start Date: 12/31/2019
Expiration Date: 12/30/2020
Target Audience: Primary Care Providers
Format: Webcast
Estimated Time To Complete CME Activity: 1 hour
Credit(s): 1.0 AMA PRA Category 1 Credit™
1.0 AANP Contact hour which includes 0.75 pharmacology hours
Hardware/Software Requirements: Any web browser

Clinical Highlights eMonograph

eMonograph, containing key teaching points from the CME activity, was distributed 1 week after the meeting to all attendees.

CONVERSATIONS IN PRIMARY CARE

Live Virtual Conferences

2019 Clinical Highlights

Impacting Insomnia in Practice to Improve Quality of Life

Faculty

Larry Culpepper, MD
Professor of Family Medicine
Boston University
Boston, MA

- Insomnia is highly prevalent in primary care, with a prevalence of ~50%, but patients rarely bring it up
- Chronic insomnia is associated with serious comorbidities and potential consequences
- The DSM-V criteria for insomnia include dissatisfaction with sleep quantity or quality, with one or more of the following:
 - Difficulty initiating sleep
 - Difficulty maintaining sleep
 - Early morning awakening with inability to return to sleep

Outcomes Methodology

Learning outcomes were measured using matched Pre-Test and Post-Test scores for Knowledge, Performance, Confidence, and practice strategy and across all of the curriculum's Learning Objectives.

Outcomes Metric	Definition	Application
Percentage change	This is how the score changes resulting from the education are measured. The change is analyzed as a relative percentage difference by taking into account the magnitude of the Pre-Test average.	Differences between Pre-Test, Post-Test, and PCA score averages
P value (p)	This is the measure of the statistical significance of a difference in scores. It is calculated using dependent or independent samples t-tests to assess the difference between scores, taking into account sample size and score dispersion. Differences are considered significant for when $p \leq .05$.	Significance of differences between Pre-Test, Post-Test, and PCA scores and among cohorts
Effect size (d)	This is a measure of the strength/magnitude of the change in scores (irrespective of sample size). It is calculated using Cohen's d formula, with the most common ranges of d from 0-1: $d < .2$ is a small effect, $d = .2-.8$ is a medium effect, and $d > .8$ is a large effect.	Differences between Pre-Test and Post-Test score averages
Power	This is the probability (from 0 to 1) that the "null hypothesis" (no change) will be appropriately rejected. It is the probability of detecting a difference (not seeing a false negative) when there is an effect that is dependent on the significance (p), effect size (d), and sample size (N).	Differences between Pre-Test and Post-Test score averages
Percentage non-overlap	This is the percentage of data points at the end of an intervention that surpass the highest scores prior to the intervention. In this report, it will reflect the percentage of learners at Post-Test who exceed the highest Pre-Test scores.	Differences between Pre-Test and Post-Test score averages

Participation



835
Total Attendees



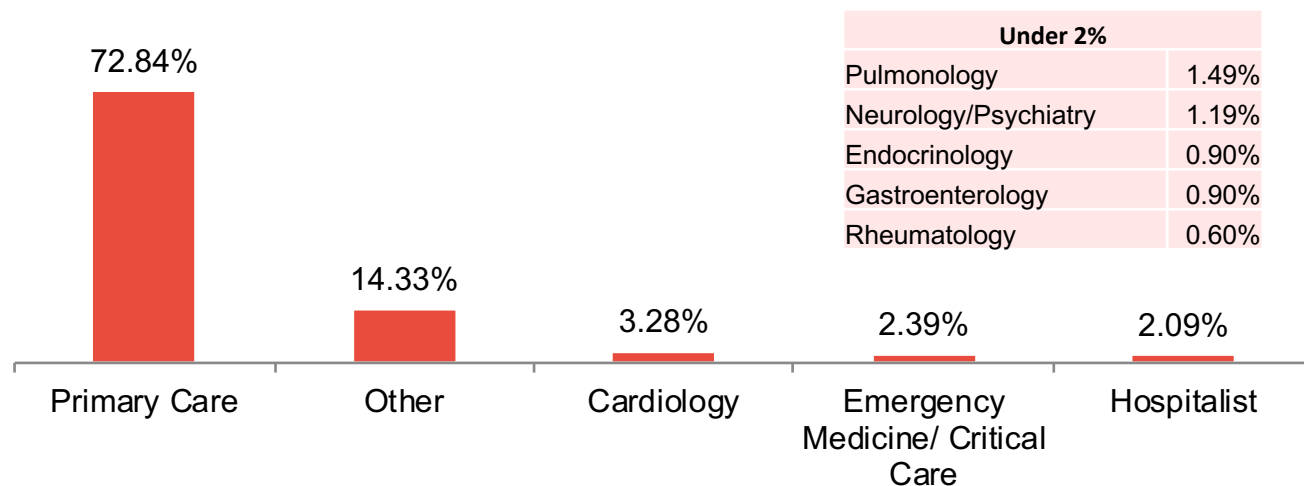
1 Activity

Participation

2019 Conversations in Primary Care Episode	Date	Attendees
Finale (Episode 5)	12/7/19	835
Total		835

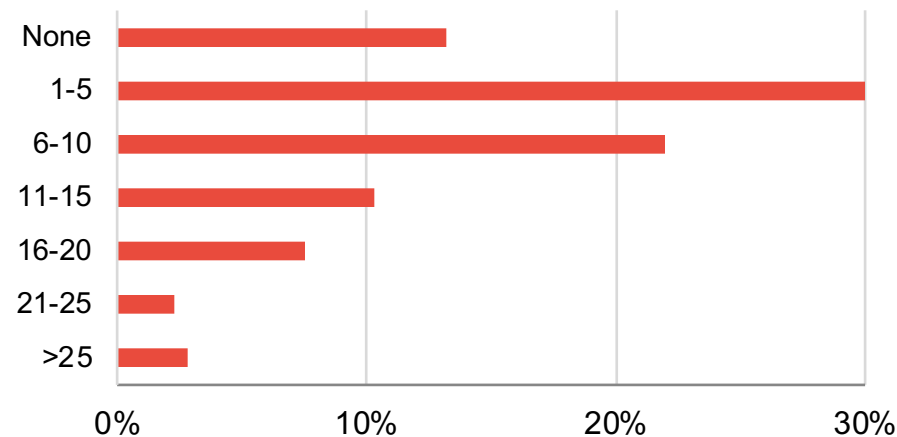
Level 1: Demographics and Patient Reach

Specialty



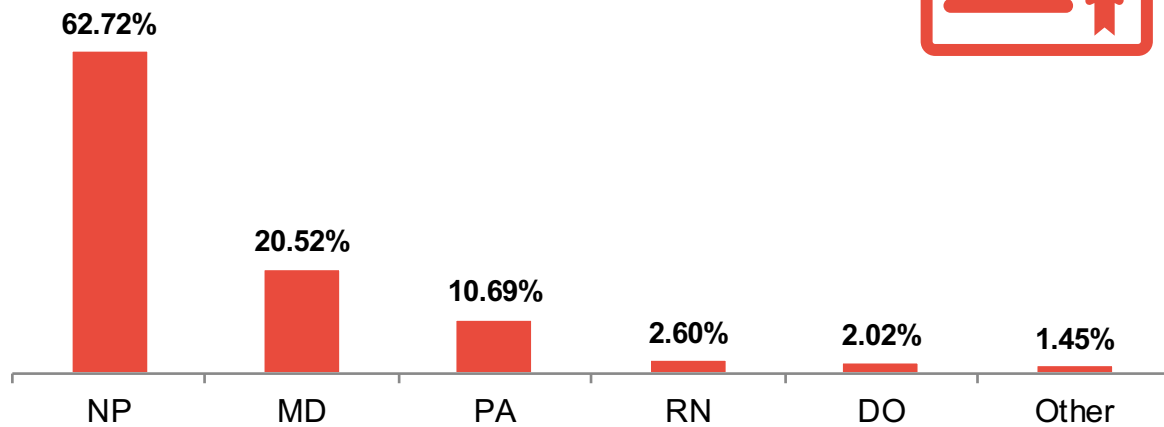
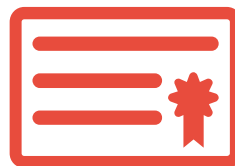
Patient Care Focus: 91%

Patients seen each week with insomnia, in any clinical setting:

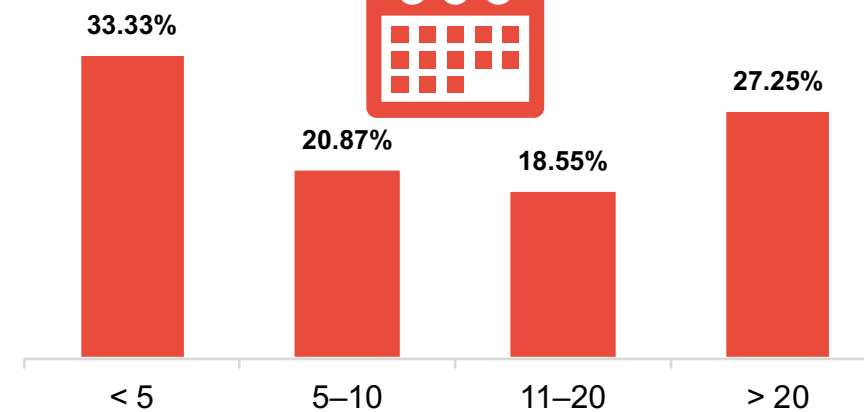


Average number of patients seen each week per clinician: 7

Profession



Years in Practice

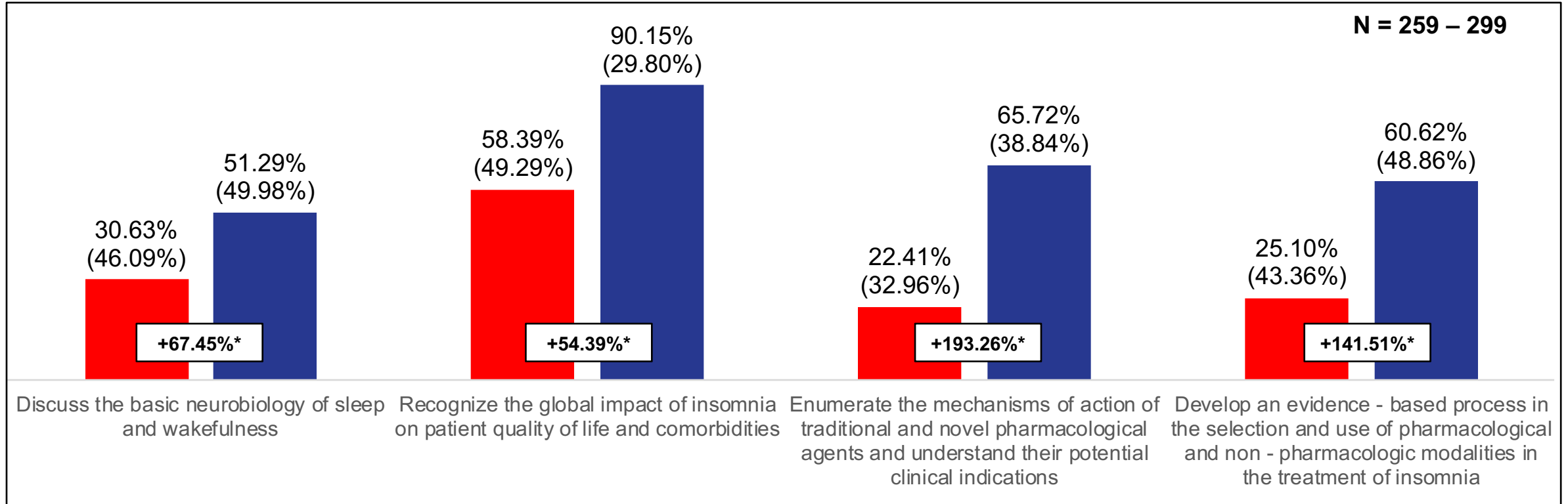




**Level 2-5:
Outcomes Metrics**

Learning Objective Analysis

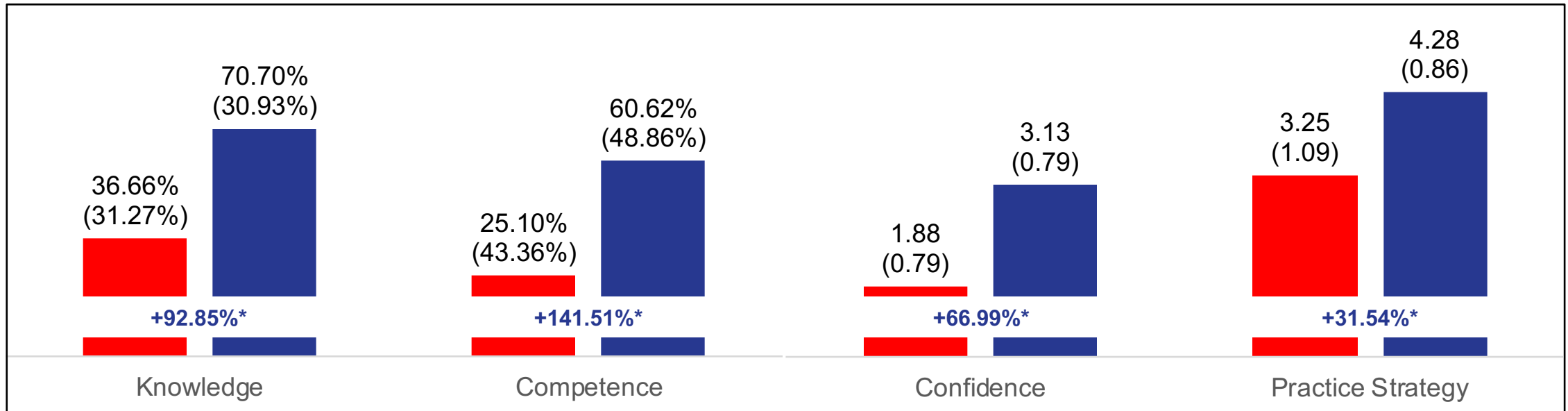
Pre-Test
Post-Test



- ❖ Substantial and significant gains (of 67% to 193%) from low Pre-Test scores were all curriculum Learning Objectives, from Pre- to Post-Test
- ❖ Learners achieved high Post-Test scores (90%) on recognizing the global impact of insomnia on patient quality of life and comorbidities
- ❖ On the other three Objectives, relating to the neurobiology of sleep and wakefulness, and treatment selection and mechanism of action, learners struggled to achieve high Post-Test scores, despite strong improvements from Pre-Test

Learning Domain Analysis

(N = 259 – 306)



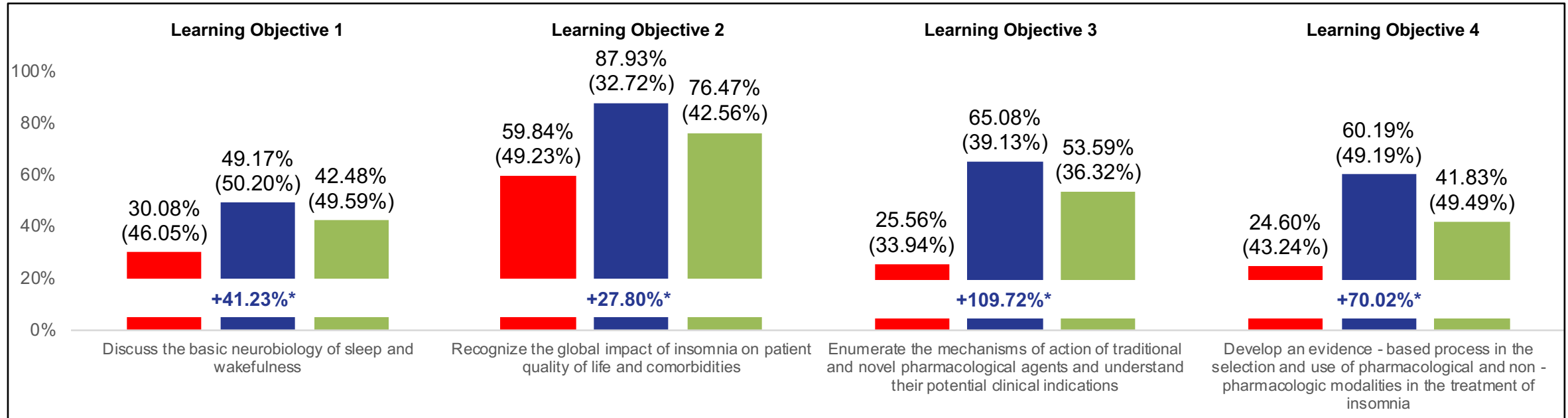
■ Pre-Test ■ Post-Test

- ❖ Substantial gains (of 32% to 142%) were achieved in all curriculum learning domains
- ❖ Post-Test scores in Knowledge and Competence remained low, due to very low Pre-Test scores
 - ❖ Item level scores in Knowledge were mixed, with the lowest scores on two items related to orexin receptors
- ❖ Low Confidence ratings reflect learner awareness of the challenges they face in Knowledge and Competence

4-Week Retention Analysis: Learning Objectives

Pre-Test Post-Test PCA

(N = 153)



- ❖ A follow-up Post Curriculum Assessment (PCA) repeated items from all four curriculum learning objectives
- ❖ Significant net improvements in score between Pre-Test and PCA observations were measured for all curriculum Learning Objectives
- ❖ Across all Learning Objectives, improvements in score measured from Pre- to Post-Test were well retained, with modest score slippage between Post-Test and PCA
- ❖ For all Learning Objectives, low to moderate PCA scores reflect opportunities for further education in this area

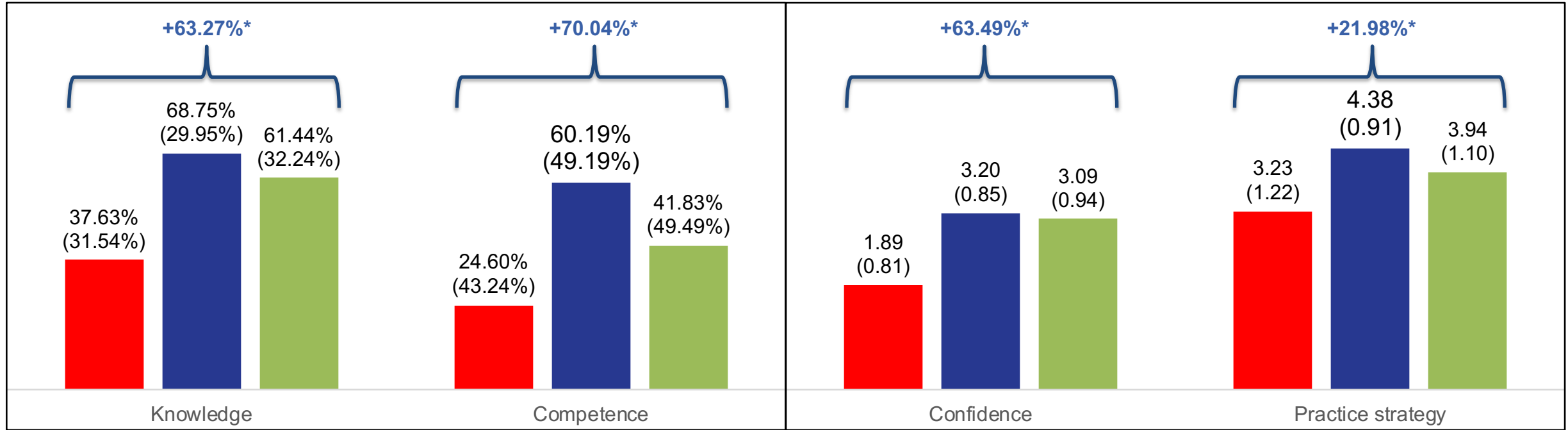
Note: data is matched; learners with a score for the given domain on the Pre-Test, Post-Test, and PCA are included

*significant at the $p \leq 0.05$ level

4-Week Retention Analysis: Learning Domains

Pre-Test Post-Test PCA

(N = 101 – 153)



At follow-up:

- ❖ Statistically significant net gains were measured from Pre-Test to PCA in all four domains, indicating sustained improvements in Knowledge, Competence, Confidence, and practice strategy
- ❖ For all learning domains, some score slippage from Post-Test to PCA measurements was observed, representing opportunities for further reinforcement

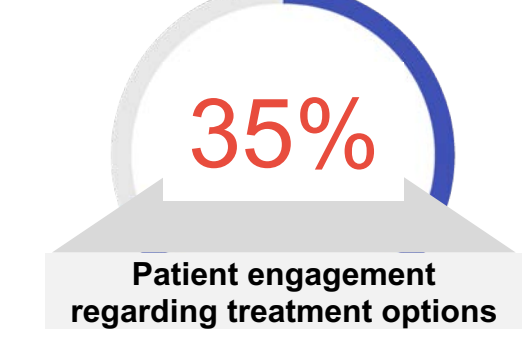
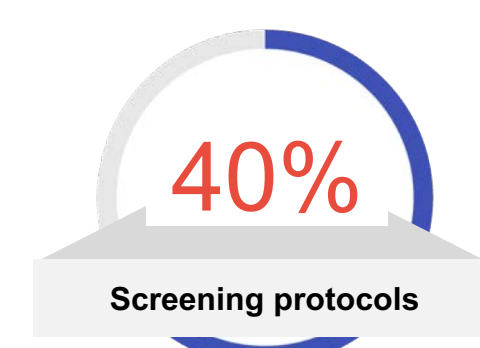
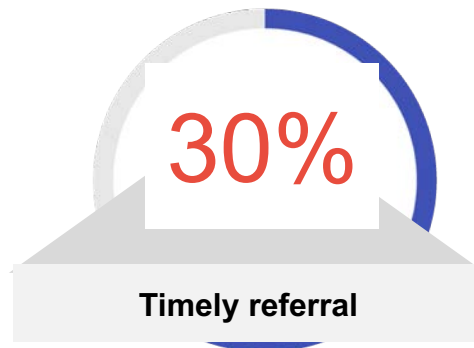
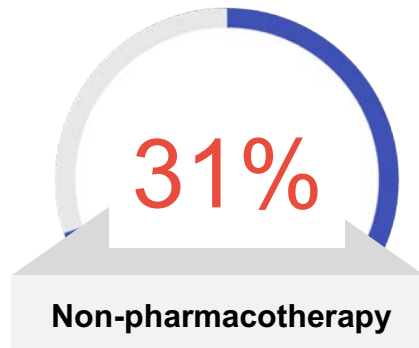
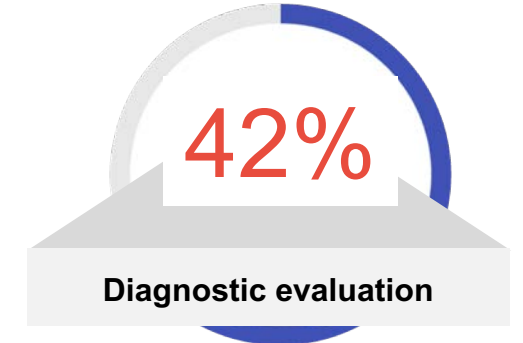
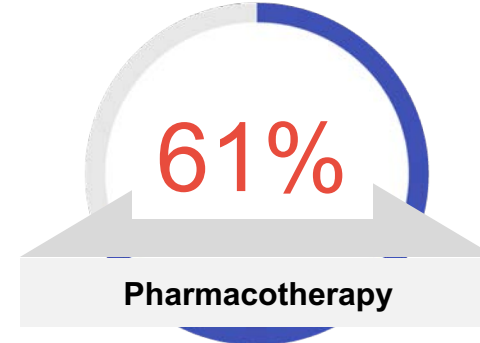
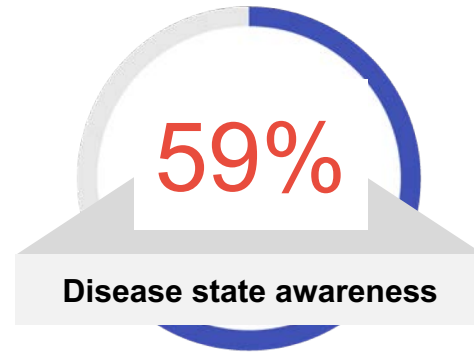
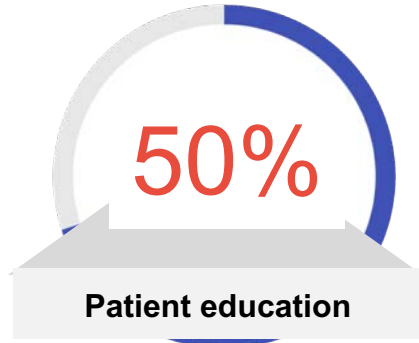
Note: data is matched; learners with a score for the given domain on the Pre-Test, Post-Test, and PCA are included

*significant at the $p \leq 0.05$ level

(4-week Post Assessment)

Please select the specific areas of *skills, or practice behaviors*, you have improved regarding the treatment of patients with insomnia since this CME activity. (Select all that apply.)

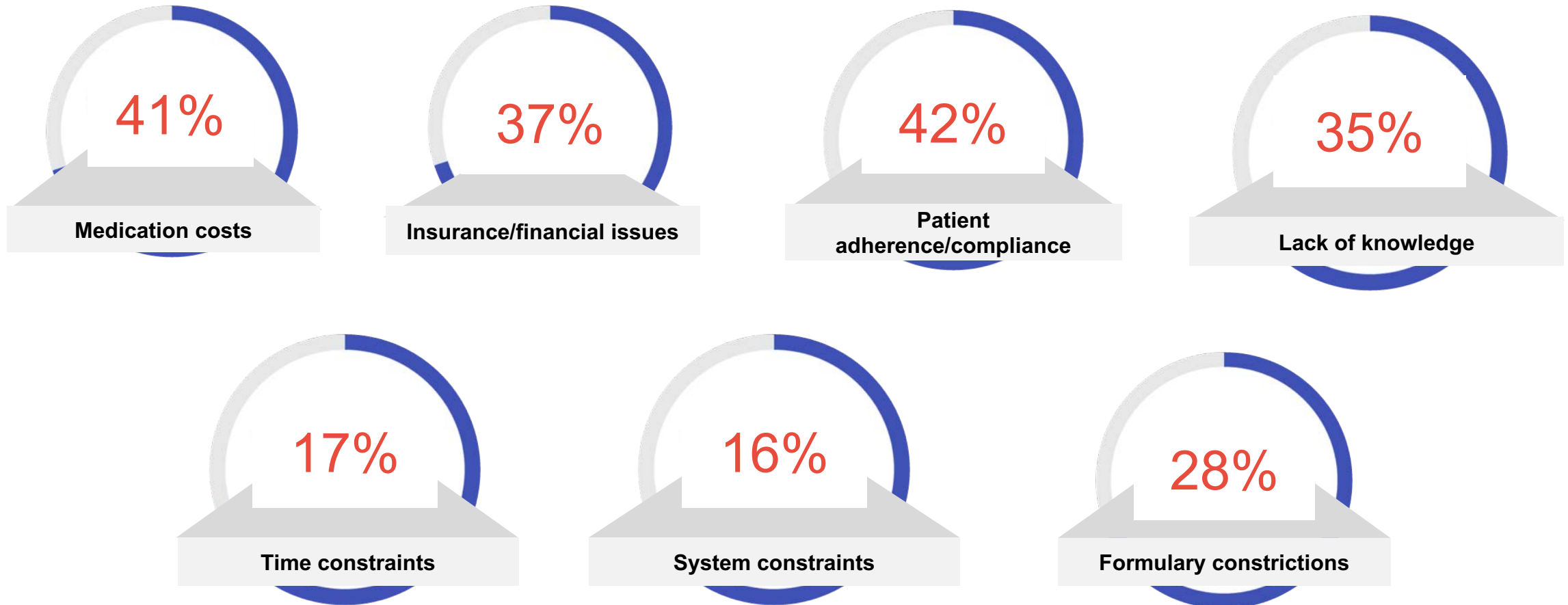
N=230



(4-week Post Assessment)

What specific *barriers* have you encountered that may have prevented you from successfully implementing strategies for patients with insomnia since this CME activity? (Select all that apply.)

N=230



Learning Objective Analysis by Professional Cohort

Learning Objective	Nurse Practitioners				Physicians			
	N	Pre-Test	Post-Test	% Change	N	Pre-Test	Post-Test	% Change
Discuss the basic neurobiology of sleep and wakefulness	138	32.61% (46.88%)	55.07% (49.74%)	+68.87%*	52	28.85% (45.30%)	55.77% (49.67%)	+93.31%*
Recognize the global impact of insomnia on patient quality of life and comorbidities	136	58.82% (49.22%)	92.65% (26.10%)	+57.51%*	47	57.45% (49.44%)	93.62% (24.44%)	+62.96%*
Enumerate the mechanisms of action of traditional and novel pharmacological agents and understand their potential clinical indications	148	21.96% (33.00%)	62.16% (40.11%)	+183.06%*	52	27.88% (34.55%)	74.04% (36.02%)	+165.57%*
Develop an evidence - based process in the selection and use of pharmacological and non - pharmacologic modalities in the treatment of insomnia	131	25.95% (43.84%)	54.20% (49.82%)	+108.86%*	46	26.09% (43.91%)	67.39% (46.88%)	+158.30%*

- ❖ Physicians and nurse practitioners (NPs) each had significant score increases on all four curriculum Learning Objectives, from Pre- to Post-Test
- ❖ Physicians achieved higher Post-Test scores compared to NPs on all Learning Objectives, from similar Pre-Test scores
- ❖ For both physicians and NPs, high scores were measured on recognition of the global impact of insomnia on quality of life and comorbidities, with low to moderate scores on other Objectives

Learning Domains by Professional Cohort

Item type	Nurse Practitioners				Physicians			
	N	Pre-Test	Post-Test	% Change	N	Pre-Test	Post-Test	% Change
Knowledge	153	36.38% (31.16%)	71.68% (29.53%)	+97.03%*	55	36.97% (32.67%)	76.67% (26.70%)	+107.38%*
Competence	131	25.95% (43.84%)	54.20% (49.82%)	+108.86%*	46	26.09% (43.91%)	67.39% (46.88%)	+158.30%*
Confidence	141	1.82 0.71	3.21 0.81	+76.66%*	45	2.20 (0.85)	3.13 (0.74)	+42.42%*
Practice strategy	133	3.27 (1.10)	4.30 (0.84)	+31.49%*	51	3.45 (1.12)	4.31 (0.89)	+25.00%*

- ❖ For each of the four curriculum learning domains, physicians and nurse practitioners (NPs) each demonstrated significant score increases, from Pre- to Post-Test
- ❖ Physicians achieved greater gains and higher Post-Test scores compared to NPs in Knowledge and Competence, with NPs improving more in Confidence and practice strategy ratings

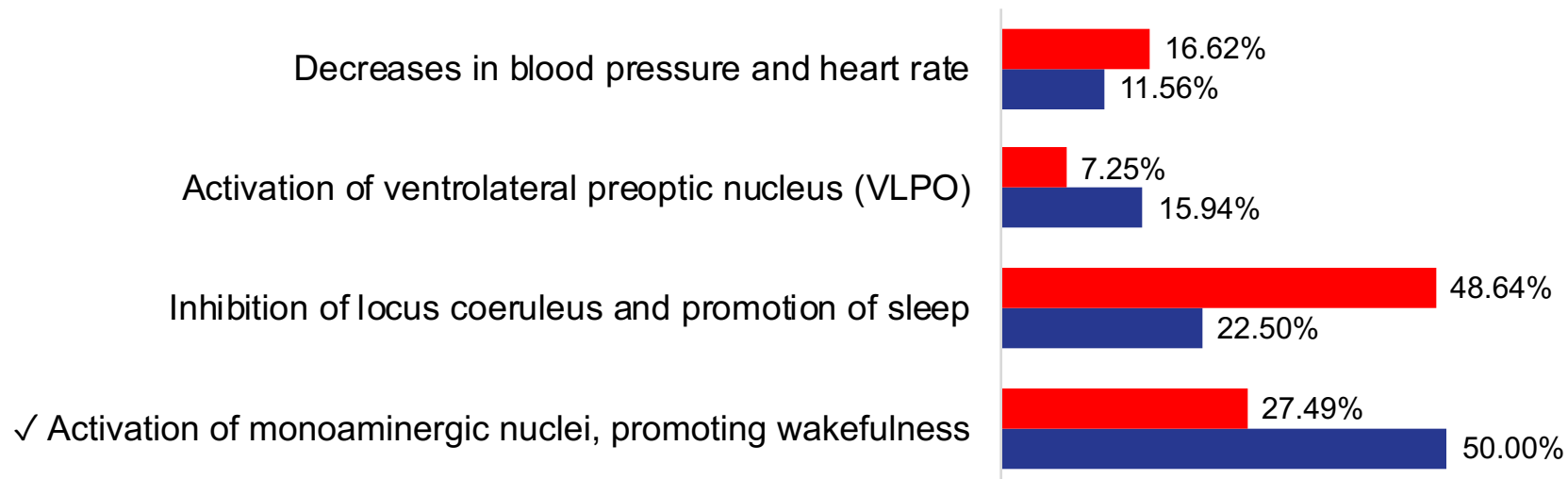
Identified Learning Gap, 1 of 2: *Effects of the activation of orexin receptors*

Despite improvements in score on a Knowledge item related to the activation of orexin receptors (+82%), learners remained challenged at Post-Test.

Activation of orexin receptors leads to which of the following?

Results:

- At Post-Test, 50% of learners correctly answered: “Activation of monoaminergic nuclei, promoting wakefulness”



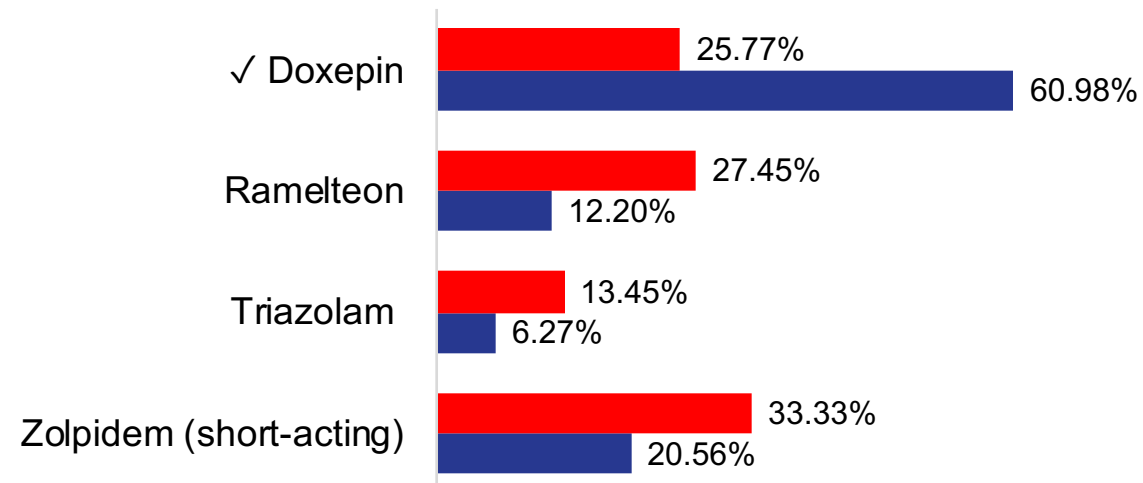
Identified Learning Gap, 2 of 2: *Initial pharmacotherapy selection for patients with persistent awakenings*

On a Competence item presenting the case of a female patient with persistent awakenings, learners struggled to identify the most appropriate drug therapy to recommend at Post-Test.

45 y/o woman falls asleep normally, then awakens at 3am every night and cannot go back to sleep. Started following work stress about 6 months ago. Daytime sleepiness leads to problems at work and with responsibilities at home. You discuss sleep hygiene and refer for CBT. Two months later, she reports persistent awakenings 3-4 nights per week. Which of the following might be appropriate to help her maintain sleep?

Results:

- At Post-Test, 61% of learners correctly answered: “Doxepin”



Overall Educational Impact

- ❖ **Significant improvements (ranging from 32% – 142%) were seen across all learning domains**
 - Physicians achieved greater gains and higher Post-Test scores compared to nurse practitioners, in Knowledge and Competence, with NPs improving more in confidence and practice strategy ratings
 - Low final scores in Confidence in individualizing medical therapy, in connection with score slippage between Post-Test and follow-up measurements, reflect further opportunities for reinforcement in insomnia
- ❖ Significant improvements ranging from 54% to 193% were measured across all Learning Objectives
 - The highest Pre- and Post-Test scores related to recognizing the global impact of insomnia on patient quality of life and comorbidities
 - On other Objectives, relating to the neurobiology of sleep and wakefulness, and treatment selection and mechanism of action, learners struggled to achieve high Post-Test scores, despite strong improvements from Pre-Test
- ❖ Analysis of Knowledge and Competence items revealed two persistent learning gaps related to **Effects of the activation of orexin receptors** and **Initial pharmacotherapy selection for patients with persistent awakenings**
 - A low Post-Test average score (50%) was measured on a Knowledge item on orexin receptors
 - Learners struggled at Post-Test to identify the correct treatment for a female patient presenting with persistent awakenings

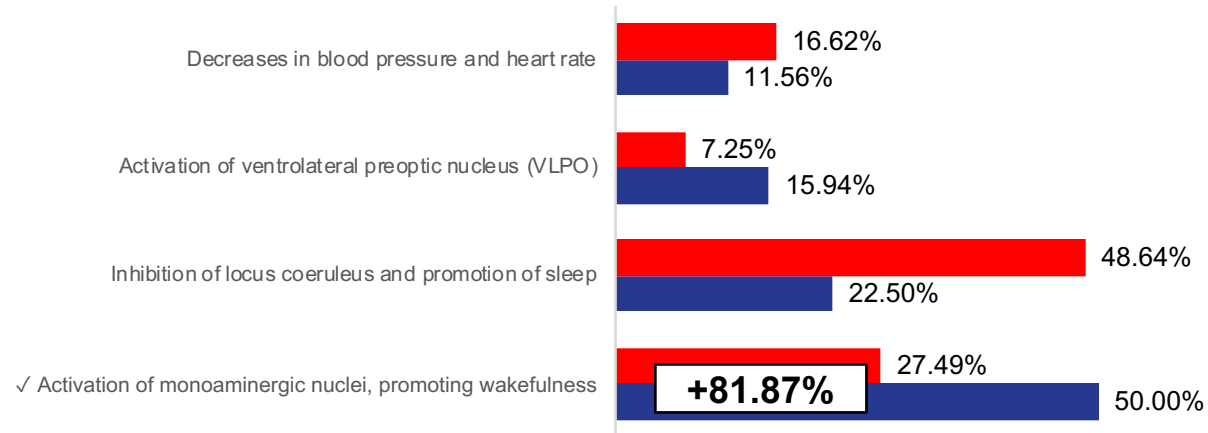
Appendix

Knowledge Items

Pre-Test
Post-Test

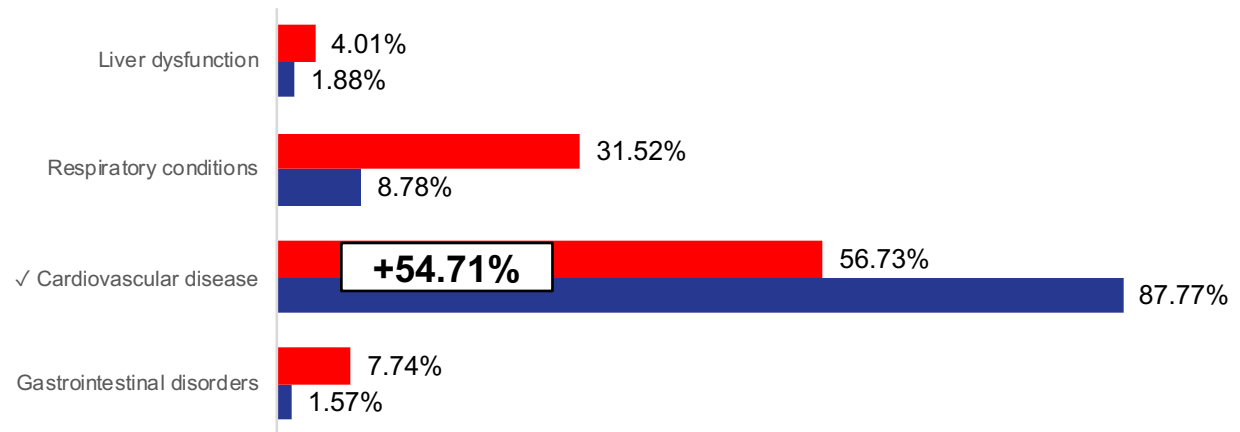
Activation of orexin receptors leads to which of the following?

N = 320 – 331



What is the most common comorbidity of insomnia identified in clinical studies?

N = 319 – 349



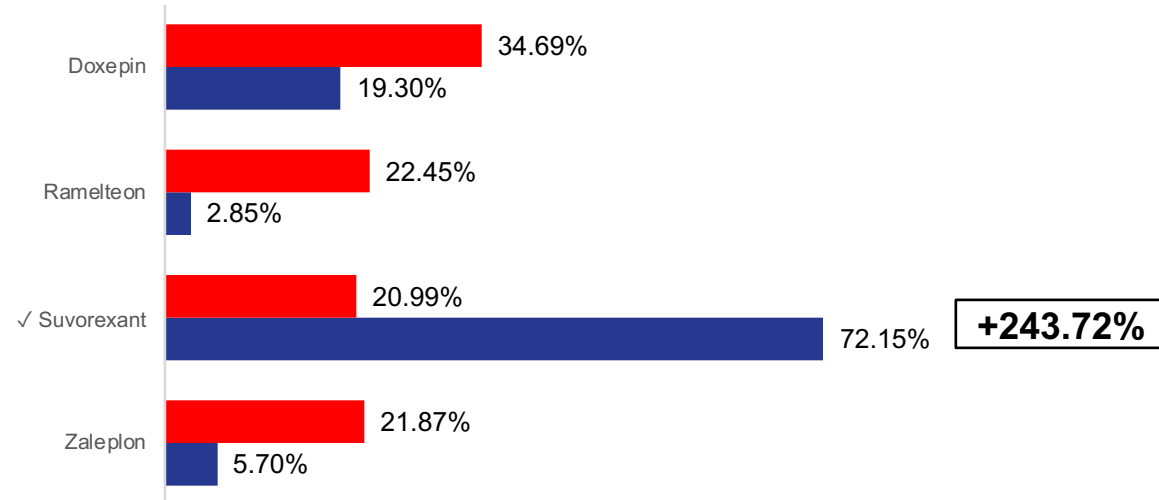
Note: data are matched.
Correct answer is designated by a ✓.

Knowledge Items

Pre-Test
Post-Test

Which of the following drugs acts through orexin receptor antagonism?

N = 316 – 343



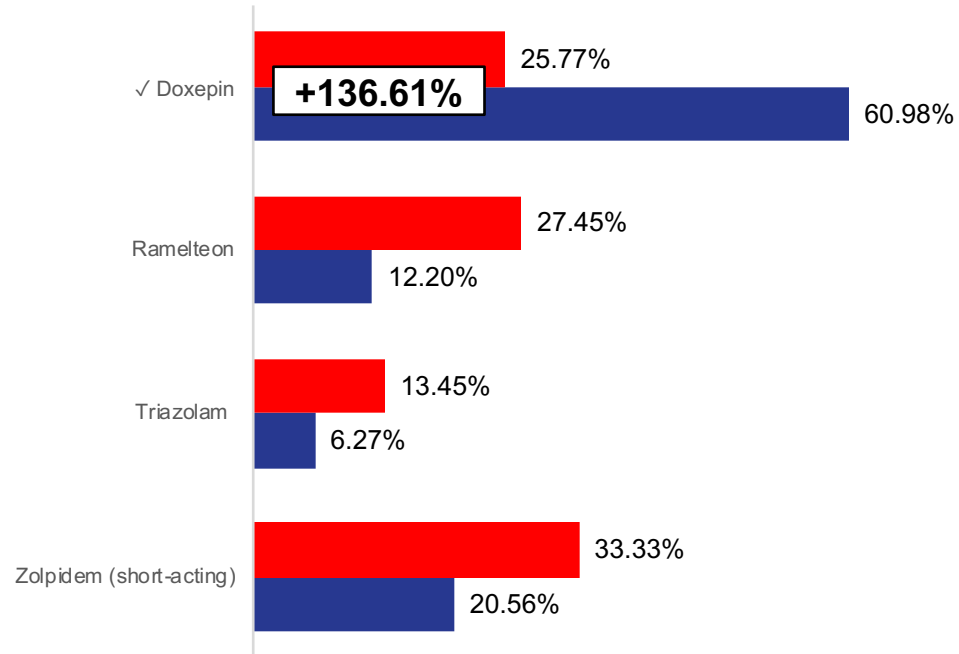
Note: data are matched.
Correct answer is designated by a ✓.

Competence Items

Pre-Test
Post-Test

45 y/o woman falls asleep normally, then awakens at 3am every night and cannot go back to sleep. Started following work stress about 6 months ago. Daytime sleepiness leads to problems at work and with responsibilities at home. You discuss sleep hygiene and refer for CBT. Two months later, she reports persistent awakenings 3-4 nights per week. Which of the following might be appropriate to help her maintain sleep?

N = 287 – 357



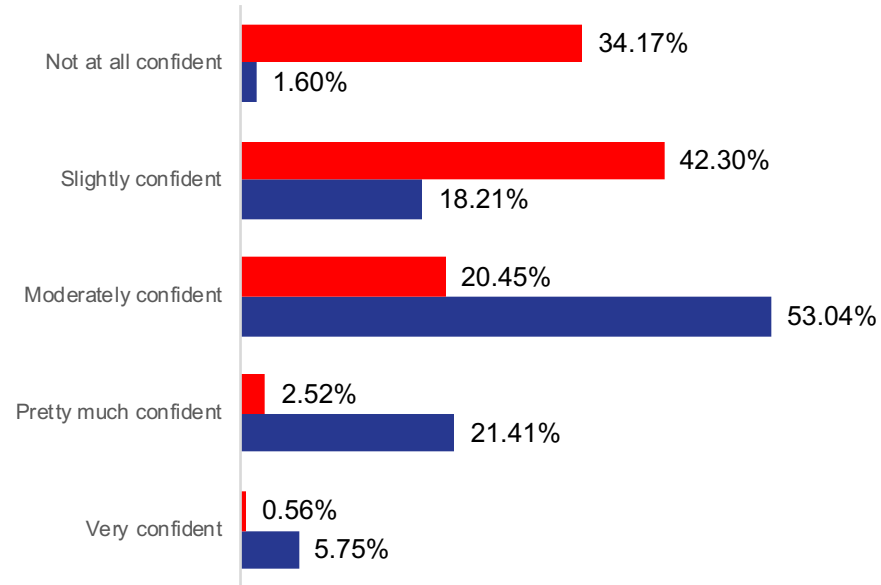
Note: data are matched.
Correct answer is designated by a ✓.

Confidence Items

Pre-Test
Post-Test

How confident are you in your ability to individualize medical therapy for patients with insomnia who do not respond adequately to non-pharmacologic modalities?

N = 313 – 357



Practice Strategy Items

Pre-Test
Post-Test

How often do you assess patients with insomnia for comorbidities?

N = 300 – 366

