

# Cognitive Behavioral Therapy (CBT) vs. Oral Antidepressants for Treatment of Depression in Older Adults: A Cost-Effectiveness Analysis

Kevin H. Li, PharmD Candidate; David L. Veenstra, PharmD, PhD

University of Washington, School of Pharmacy, Seattle, WA, USA

EE246

THE CHOICE INSTITUTE  
School of Pharmacy

## BACKGROUND

- While economic evaluations have been conducted on treatments for major depressive disorder (MDD) in a general population, the cost-effectiveness of treatments for MDD specifically in older adults has not been assessed<sup>1</sup>
- Specific considerations must be made given that:
  - Older adults treated with oral antidepressants (ADs) experience a higher risk of falls compared to non-users<sup>2</sup>
  - Falls are the leading cause of injury-related death among older Americans<sup>3</sup>

## OBJECTIVE

- Estimate the cost-effectiveness of CBT compared with oral ADs for MDD in older adults from a US Medicare perspective, particularly considering the risk of falls, fall-related emergency visits and related consequences

## METHODS

- A decision tree was constructed (**Figure 1; Table 1**)
- Probability, cost, and utility inputs were derived from publicly available literature and resources (**Table 2**)
  - The main outcome measure was incremental cost per quality-adjusted life year (QALY) gained
- Uncertainty was assessed through a one-way deterministic sensitivity analysis and scenario analysis
  - Scenario 1: No difference in fall risk for CBT vs. oral ADs
  - Scenario 2: Use of group CBT only
  - Scenario 3: Use of a serotonin-norepinephrine reuptake inhibitor (SNRI) instead of selective serotonin reuptake inhibitor (SSRI) as oral AD proxy

TABLE 1: Summary of Key Model Characteristics

Population	Community dwelling older adults (65+) newly diagnosed with MDD
Comparators	CBT vs. oral ADs
Perspective	Medicare payer
Time Horizon	1 year

## METHODS

FIGURE 1: Decision Tree Model

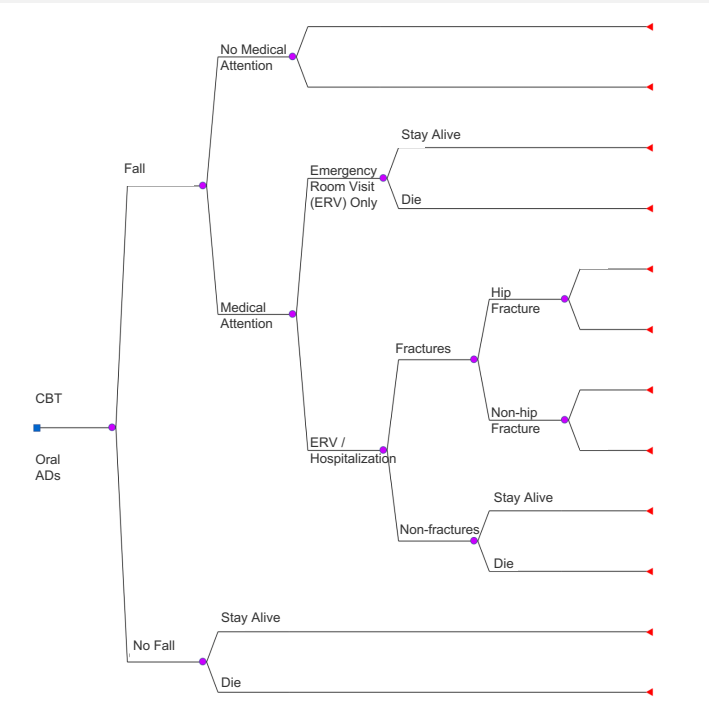


TABLE 2: Summary of Key Model Inputs

Probabilities	
Probability of fall under treatment with CBT <sup>4</sup>	0.21
Probability of a fall under treatment with oral ADs <sup>4</sup>	0.27
Mean Annual Costs (2022 US\$)	
Oral ADs (SSRIs / SNRIs) <sup>5,6</sup>	45 / 381
CBT (Group / Individual) <sup>7</sup>	328 / 1,811
Hip Fracture <sup>8</sup>	28,819
Utilities	
Under oral ADs & CBT <sup>9,10</sup>	0.67
Utility decrement for experiencing a fall <sup>11</sup>	0.03
Utility decrement for experiencing a fear of falling <sup>11</sup>	0.06
Utility decrement for experiencing a hip fracture <sup>12</sup>	0.14

## REFERENCES:

1. Ross EL, et al. *Ann Intern Med*. 2019;171(11):785-795; 2. Haddad YK, et al. *J Safety Res*. 2021;76:332-340; 3. Bergen G, et al. *MMWR Morb Mortal Wkly Rep*. 2016;65:993-998; 4. Haddad YK, et al. *J Safety Res*. 2021;76:332-340; 5. MicroMedex. 2022; 6. Milligram Health. 2022; 7. CMS. 2013; 8. Tannenbaum et al. *Drugs Aging*. 2015;32(4):305-314; 9. Sobocki P et al. *Value Health*. 2007;10(2):153-160; 10. Gould RL et al. *J Am Geriatr Soc*. 2012;60(10):1817-1830; 11. Iglesias CP et al. *Osteoporos Int*. 2009;20:869-878; 12. Hlilgsmann M et al. *Calif Tissue Int*. 2008;82(4):288-292.

## RESULTS

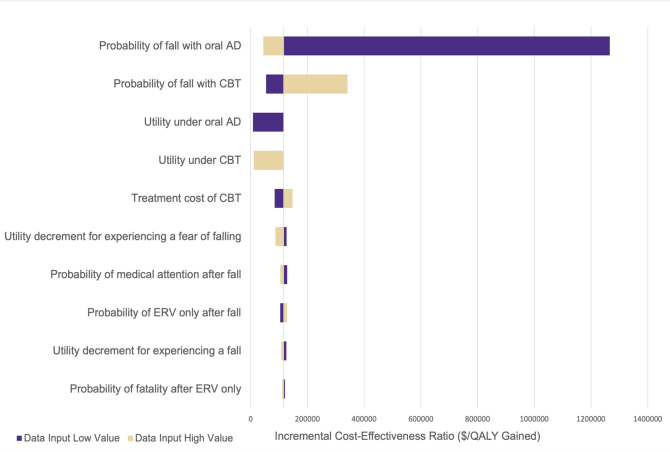
TABLE 3: Base Case Results

	CBT	Oral ADs	Incremental Value
Cost (\$)	1,898	1,113	785
Utility (QALY)	0.62	0.61	0.01
ICER (\$/QALY)	115,862		

TABLE 4: Scenario Analysis Results

	CBT	Oral ADs	Incremental Value
Scenario 1	Cost (\$)	1,898	1,113
	Utility (QALY)	0.62	0.62
	ICER (\$/QALY)	CBT is dominated	
Scenario 2	Cost (\$)	1,157	1,113
	Utility (QALY)	0.62	0.61
	ICER (\$/QALY)	6,462	
Scenario 3	Cost (\$)	1,898	1,475
	Utility (QALY)	0.62	0.61
	ICER (\$/QALY)	56,327	

FIGURE 2: One-way Deterministic Sensitivity Analysis



## KEY TAKEAWAY

This is the first CEA assessing CBT vs. oral ADs in older adults incorporating fall-associated costs, suggesting its notable impact on the results of economic evaluations

## CONCLUSIONS

- CBT is moderately cost-effective vs. oral ADs in older adults with depression per a willingness-to-pay (WTP) threshold of \$150,000/QALY
- Increased fall risk from oral ADs deserves consideration in clinical decision making and future economic evaluations with older adults
- A randomized controlled trial (RCT) of CBT vs. oral ADs in older adults with depression is needed to capture true efficacy differences

## STRENGTHS

- Robust fall risk data from matched cohort study with 8,742 Medicare community-dwelling older adults
- Transparent reporting

## LIMITATIONS

- External validity may be impacted by the real-world inaccessibility of CBT and less than 100% adherence for oral ADs
- Internal validity may be impacted by the unavailability and variability of data inputs
- The model did not include the treatment option of combined CBT + pharmacotherapy, the risk and costs associated with recurrent falls, and other perspectives besides payer (e.g., societal)

## ACKNOWLEDGMENTS

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## DISCLOSURES

The authors have nothing to disclose.