COST-UTILITY OF SOX WITH BEVACIZUMAB IN COLORECTAL CANCER AMONG INDIAN POPULATION

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INTRODUCTION

Colorectal cancer is a major health concern worldwide, and although targeted therapies have improved treatment outcomes, their high costs can create financial challenges for patients. In India, where healthcare affordability plays an important role in treatment decisions, it is essential to evaluate not only the clinical benefits but also the economic value of available treatment options. This study compares SOX plus Bevacizumab and SOX plus Cetuximab using a cost-utility analysis to assess whether the additional health benefits of Bevacizumab justify its higher cost and to identify the more economically favorable treatment strategy in the Indian healthcare setting.

OBJECTIVES

- To evaluate the cost-effectiveness of SOX plus Bevacizumab compared with SOX plus Cetuximab in colorectal cancer patients.
- To estimate the total treatment costs associated with both regimens in the Indian healthcare setting.
- To compare the quality-adjusted life years (QALYs) gained with each treatment strategy.
- To calculate the incremental cost-effectiveness ratio (ICER) to assess the additional cost per QALY gained.
- To determine whether the additional clinical benefits of Bevacizumab justify its higher treatment cost.
- To identify the more economically favorable treatment option to support cost-effective decision-making in colorectal cancer care.

CONCLUSION

SOX plus Bevacizumab provided greater health benefits than SOX plus Cetuximab but incurred substantially higher costs. At the selected willingness-to-pay threshold, SOX plus Bevacizumab was unlikely to be a cost-effective option in the Indian healthcare setting

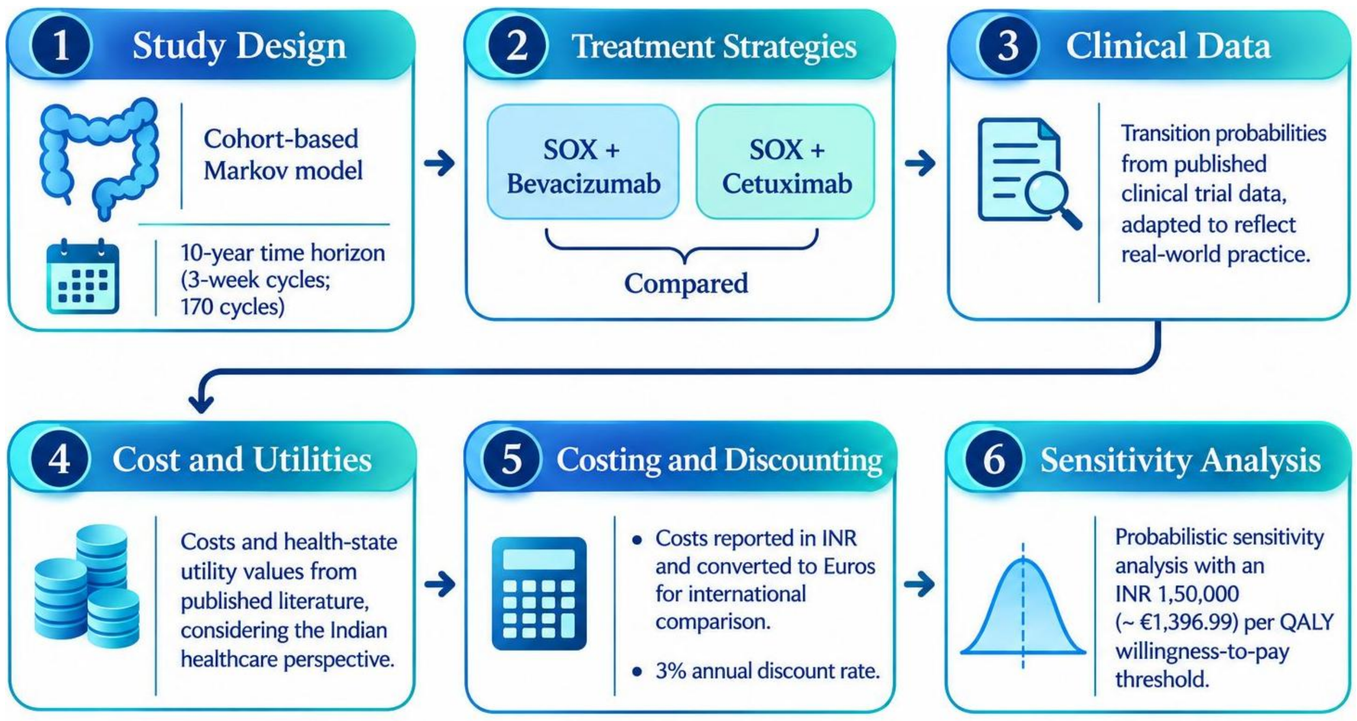
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METHODOLOGY

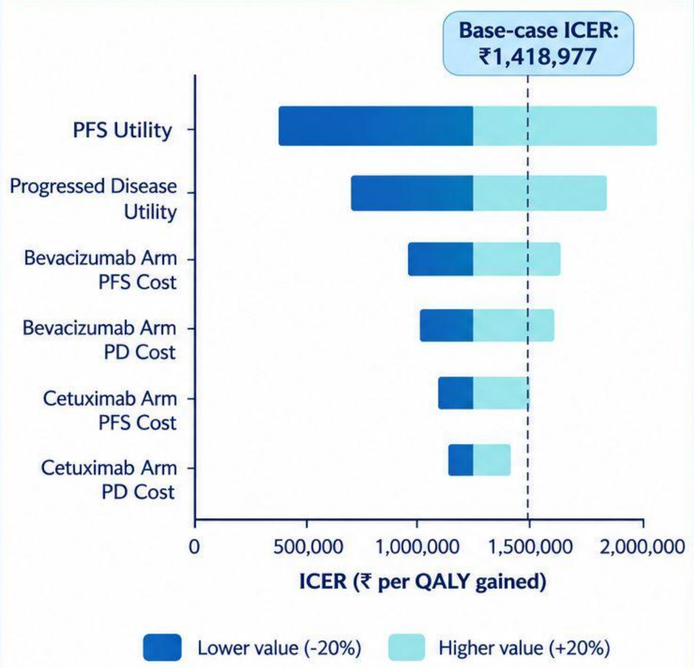


RESULTS

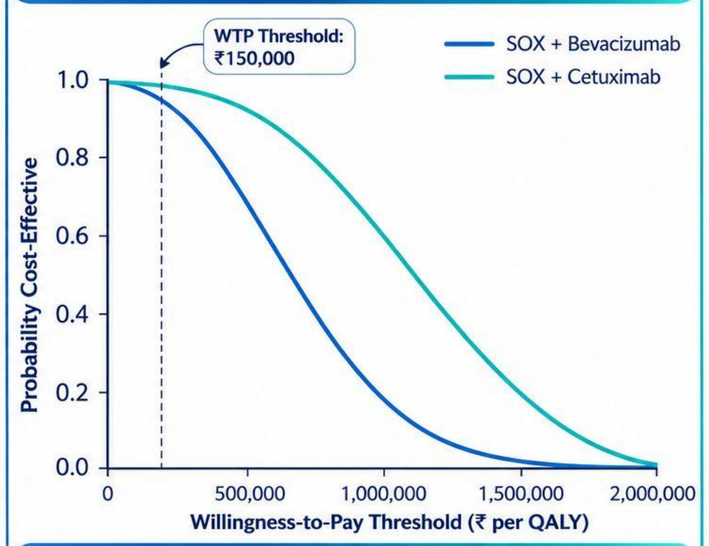
SOX plus Bevacizumab yielded 1.5749 QALYs at ₹2,359,775 (€21,981.26), compared with 1.1425 QALYs at ₹1,746,254 (€16,265.26) for SOX plus Cetuximab. The incremental cost was ₹613,521 (€5,713.87), with an additional 0.4324 QALYs gained. The ICER was ₹1,418,977 (€13,215.28) per QALY gained, exceeding the willingness-to-pay threshold of ₹150,000 per QALY, indicating that SOX plus Bevacizumab was not cost-effective at this threshold.

Sensitivity Analysis

Tornado Diagram
One-way Sensitivity Analysis (±20% variation)



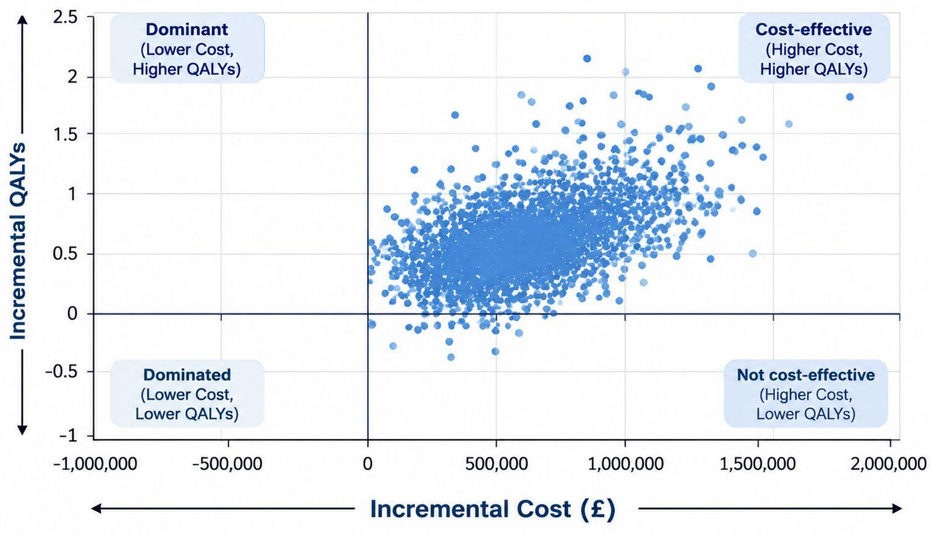
Cost-Effectiveness Acceptability Curve (CEAC)



Key Probabilities at Selected WTP Thresholds

WTP Threshold (₹/QALY)	P (Bevacizumab Cost-Effective)	P (Ceximab Cost-Effective)
₹150,000	0.02%	99.98%
₹500,000	5.03%	94.97%
₹1,000,000	49.41%	50.59%
₹1,500,000	71.57%	28.43%

PSA Scatter Plot



ICER TABLE	TOTAL COST	TOTAL QALY
SOX + BEVACIZUMAB	2359775.044	1.574891763
SOX + CETUXIMAB	1746254.375	1.142523375
INCREMENTALS	613520.6688	0.432368388
ICER	1418976.7	

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