

Mixed Treatment Comparison in Multi-Criteria Benefit-Risk Analysis Applied to Four Second-Generation Antidepressants

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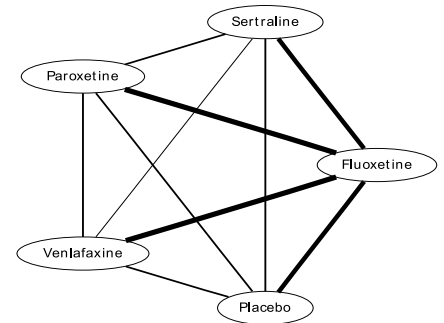
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Introduction: Benefit-Risk (BR) analysis aims to evaluate the efficacy and safety of different medical compounds. Drug BR analysis often involves multiple criteria and uncertainties. Evaluating efficacy and safety needs evidence synthesis to estimate effects from available evidence.

What Did We Do? We aimed to enable multi-criteria BR assessment of any number of alternative treatments using all available evidence from a network of clinical trials. We conducted multi-criteria decision analysis (MCDA) to identify the trade-offs among different medical compounds.

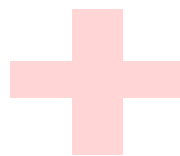
How Did We Do It?

applied to a case study with four second-generation antidepressants



MTC

MTC model, also known as network meta-analysis, synthesizes all the available evidence through application of a Bayesian evidence network. The relative effects of all included treatments are estimated using both direct and indirect evidence.

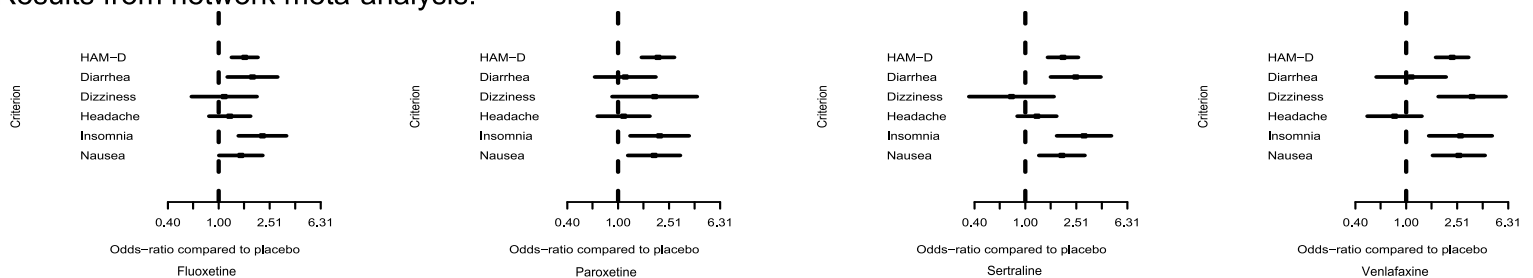


MCDA/SMAA

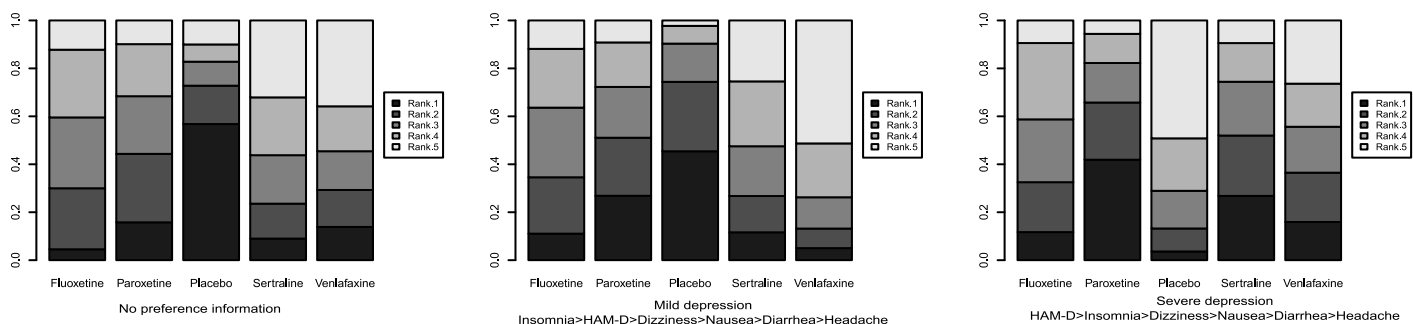
Stochastic Multi-criteria Acceptability Analysis (SMAA) is an MCDA method that allows taking into account the probability distributions of the criteria measurements and is able to quantify the uncertainty in decision making.

What Did We Get?

Results from network meta-analysis:



The analysis without preference information shows placebo is supported by a wide range of possible preferences. While treatment with antidepressants is better for severely depressed patients, for mildly depressed patients placebo is likely to be the best option.



Conclusion: The MTC based SMAA model enables BR analysis using all available evidence from a network of clinical trials and improves the transparency of decision making process.