

A SYSTEMATIC LITERATURE REVIEW TO ASSESS THE MODELING APPROACHES IN ECONOMIC EVALUATIONS OF HEALTH INTERVENTIONS FOR ADULT BINGE EATING DISORDERS

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CONCLUSION

A Markov model structure with weekly cycle length and lifetime horizon is proposed to model the cost-effectiveness of future treatments for BED as it allows using short-term data to compare long-term outcomes through Markov simulation or clinical data extrapolation.



Background

- Binge Eating Disorder (BED) is the most common eating disorder recognized (in the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition) as abnormal and excessive eating patterns marked by uncontrolled, recurrent, and persistent binge eating¹
- The prevalence of BED is not affected by race, ethnicity, gender, or age; however, it occurs most commonly in adults; the prevalence tended to increase over time, with a peak at 19-22 years of age for females and 24 years for males^{1, 2}; BED is more common among females than males^{2, 3}
- In the United States, the BED prevalence is 0.8% and 1.6% among adult men and women, respectively, while in Europe, the prevalence of BED ranges from less than 1% to 4%⁴
- Adults with BED report a higher economic burden, driven by higher indirect costs due to workforce productivity loss, income loss, and higher medical costs^{5, 6}



OBJECTIVE

The purpose of this systematic literature review (SLR) was to identify and summarize different modeling approaches used in published economic evaluations (EEs) of adult patients with BED



Methodology

- The review followed the standard methodology for conducting SLRs as per the guidelines provided by the National Institute for Health and Care Excellence (NICE) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)
- The SLR followed a standard two review and quality control process for data collection and extraction
- Key biomedical databases (EMBASE®, MEDLINE®, NHS EED) were searched to identify economic evaluations (EEs) published in the BED population in the English language over the last ten years.
- The pre-defined PICOS criteria for study selection are presented in Figure 1

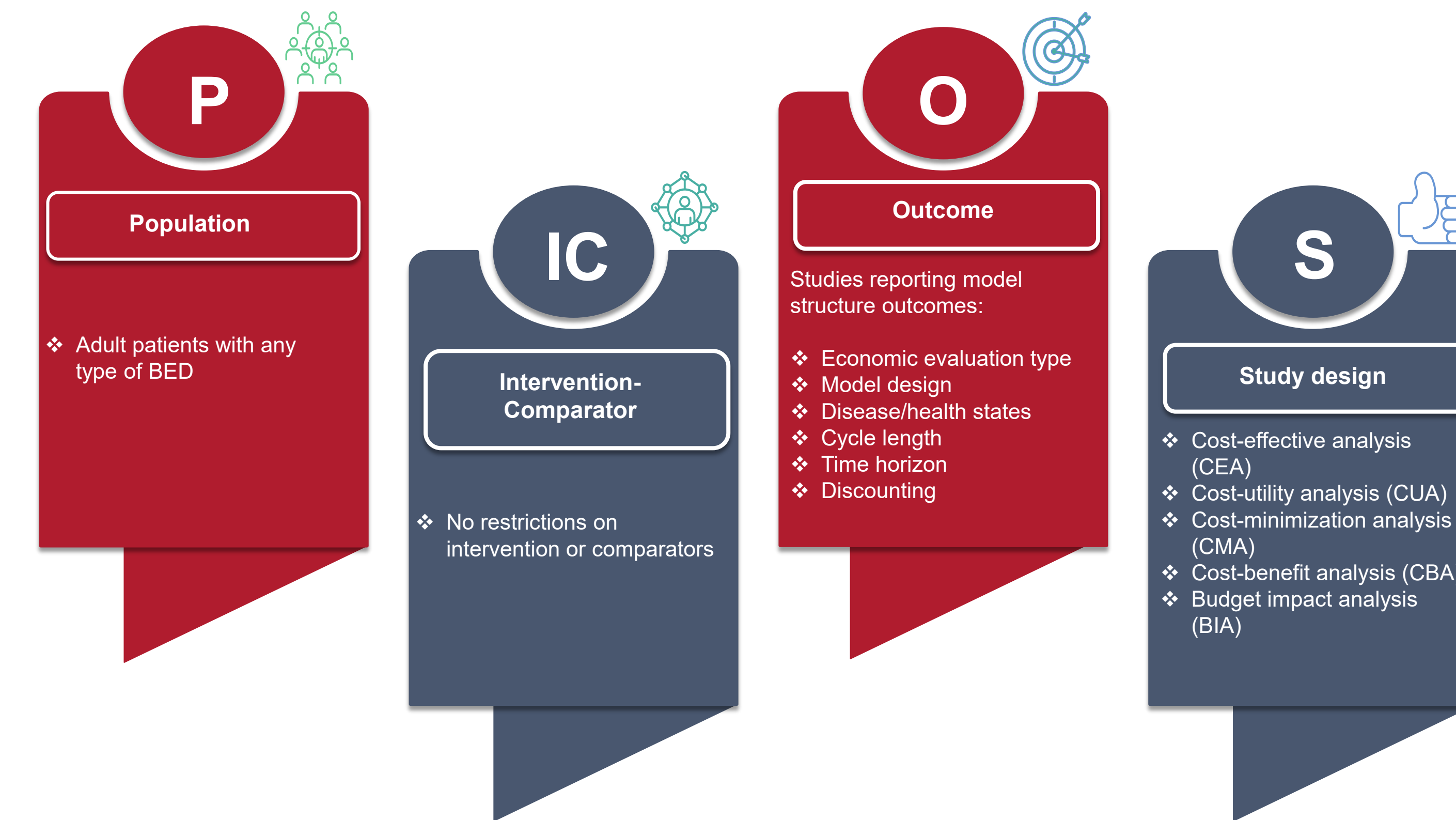


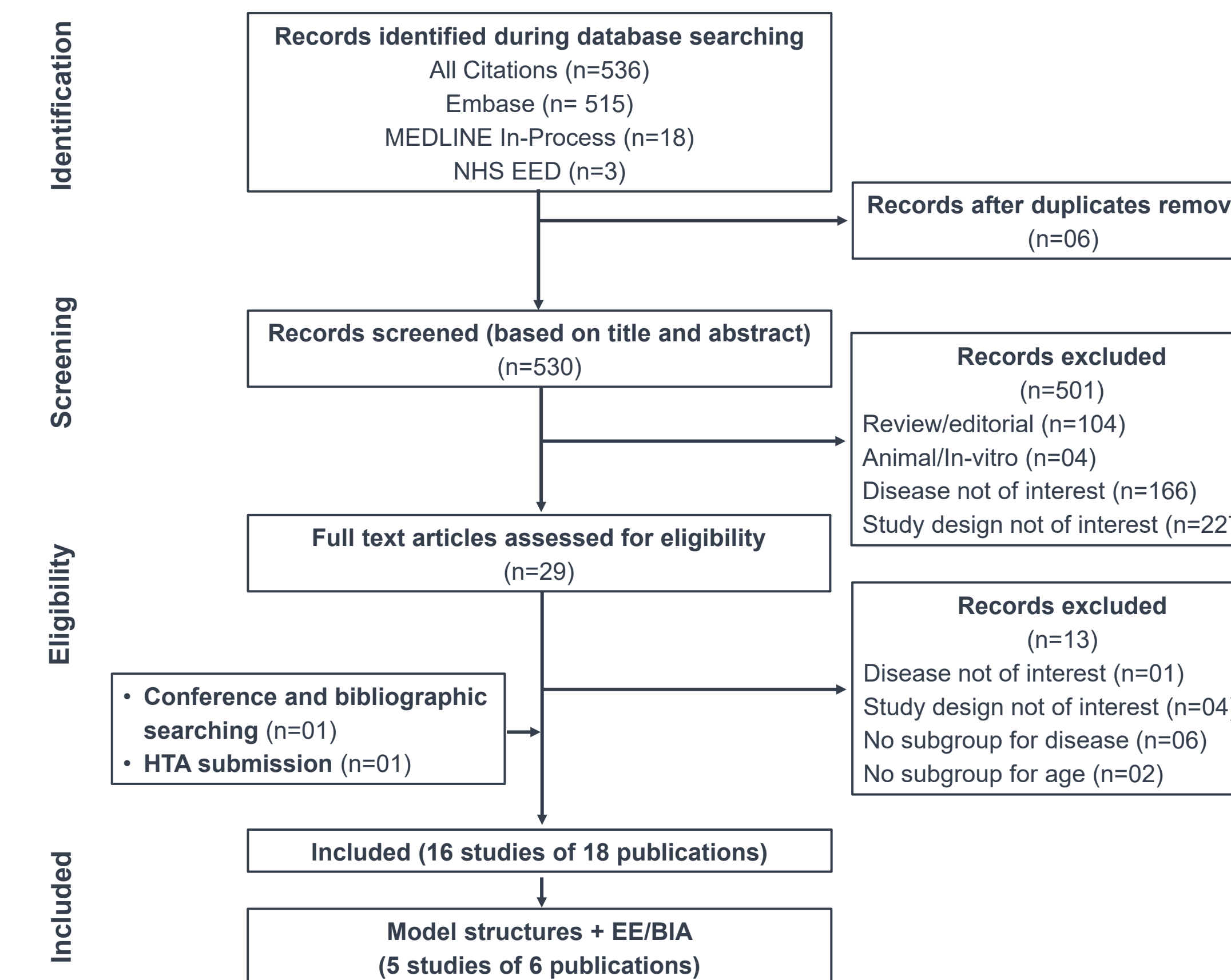
Figure 1: Prespecified PICOS eligibility criteria for selection of evidence

- Citation snowballing and grey literature searches were conducted to gather comprehensive evidence for BED
- Predefined extraction forms were used to capture (i) study characteristics (e.g., year of publication, time frame, country), (ii) modeling approaches; (iii) costs, utilities, and benefits; and (iv) discounting



RESULTS

- A PRISMA diagram for the screening process is presented in Figure 2
- Of 536 screened publications, a total of five studies of six publications met the final inclusion criteria
- Economic evaluation:** Cost-effectiveness analysis (n=2), cost-utility analysis (n=2); budget impact analysis (n=1)
- Perspective:** Healthcare system perspective (n=2), societal perspective (n=1)⁷, and both from a healthcare & societal perspective (n=1)⁸; No details (n=1)⁹
- Time horizon and discounting:** 1 year (12 months) (n=1)¹⁰; 1.25 years (16 months) (n=1)¹¹; none of the included studies considered discounting
- Model structure:** Two of five studies reported model structure namely Markov model¹⁰ and decision-tree model¹¹
- Health states (Markov model)**¹⁰: Seven health states, i.e., non-symptomatic BED, BED with sub-threshold BE behavior week 1 (w1), BED with sub-threshold BE behavior w2, BED with sub-threshold BE behavior w3, BED with mild BE behavior, BED with moderate BE behavior, and BED with severe and extreme BE behavior
- Health states (Decision tree model)**¹¹: Four health states, i.e., remission, no-remission, relapse, and no-relapse



BIA: Budget Impact Analysis; EE: Economic valuation; HTA: Health Technology Assessment

Figure 2: PRISMA diagram for the screening process

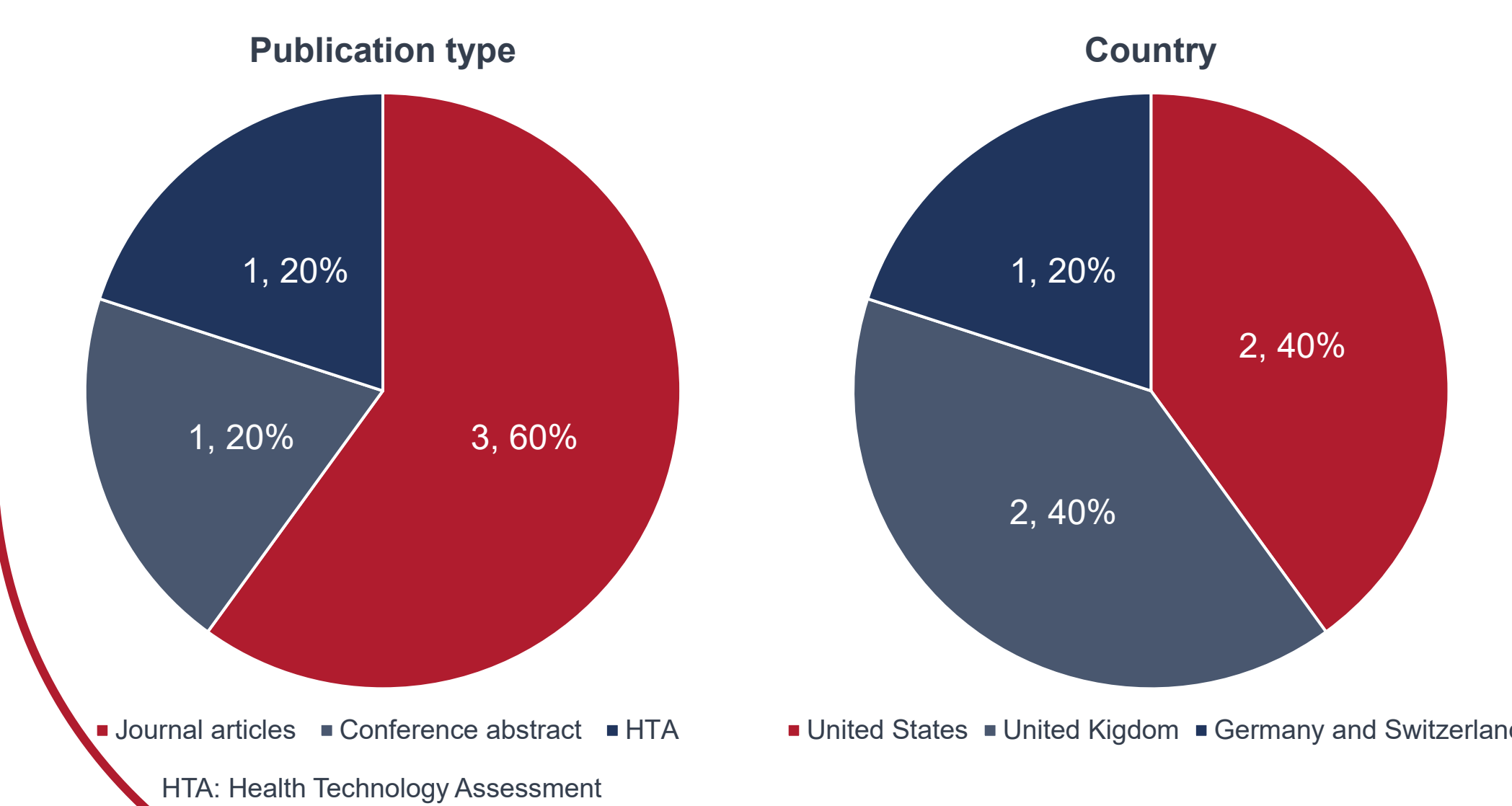


Figure 3: Study characteristics of the included studies

Table 1: Economic model recommendation

Element	Recommendations
Intervention & Comparator	Include all relevant medications
Type of EE	CUA/CEA
Type of Model	Markov model
Time horizon	Although evidence suggests 52 weeks, but a lifetime horizon is recommended
Cycle length	Weekly cycle length to be considered for capturing the granularities of events happening - No discounting in case of small cycle length and time horizon - Discounting recommended when time horizon >1 year or while extrapolating the data beyond the trial follow-up
Discounting	
Key event to model	Binge eating behavior severity states

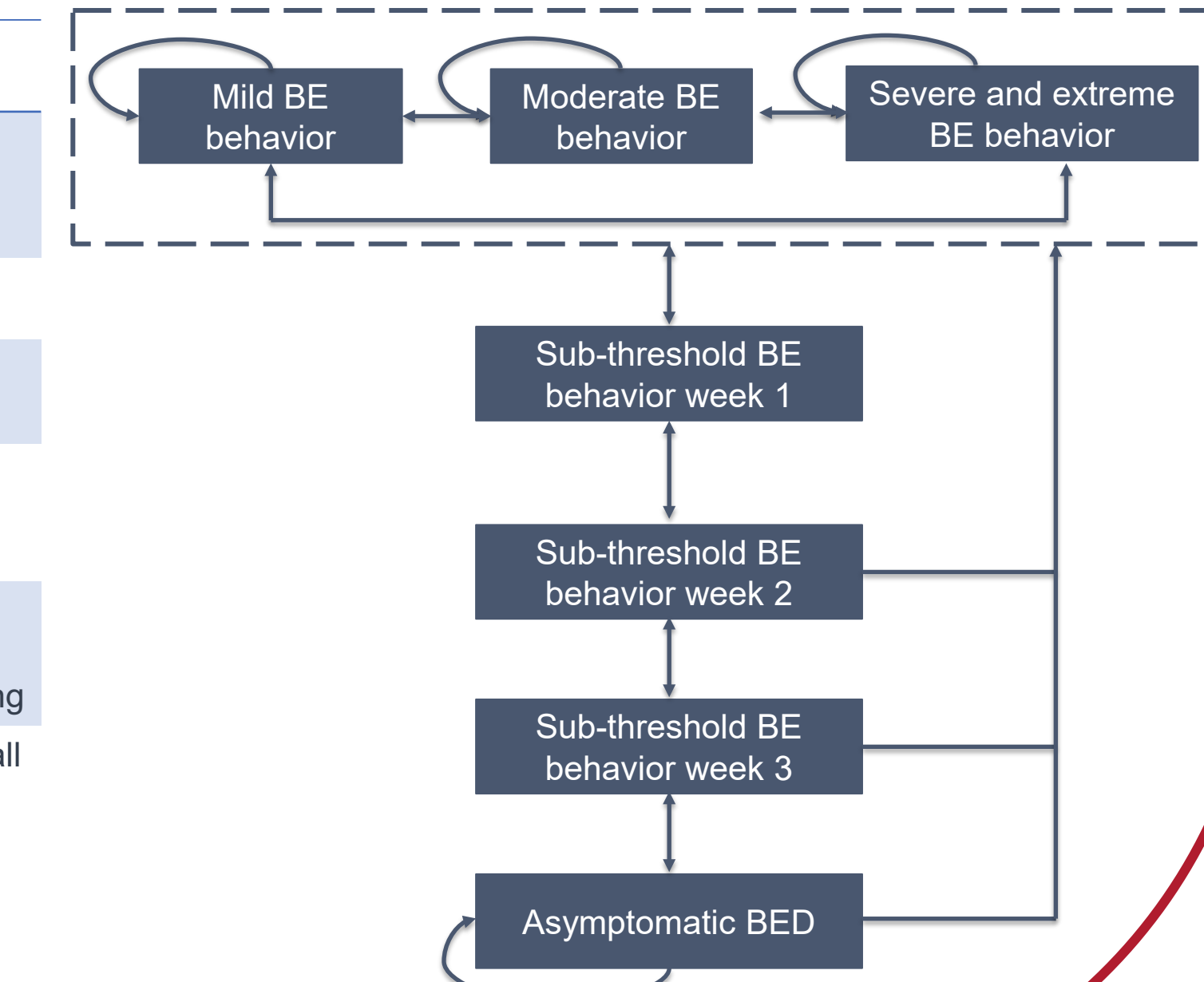


Figure 4: Proposed model structure

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