A Systematic Literature Review of Economic Evaluations and Health Utility Values in Moderate-to-Severe Hidradenitis Suppurativa

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First to submit AI-SLR to HTA

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INTRODUCTION

- Hidradenitis suppurativa (HS), or acne inversa is a chronic inflammatory skin disease, which affects intertriginous skin and is estimated to have a prevalence of about 1% in most studied countries[1]
- The disease causes chronic pain, impaired mobility, Recent meta-analyses reported a pooled global prevalence of 0.99% (95% CI, 0.67-1.46%) from Global HS Atlas studies and 2.5% (95% CI, 1.8-3.5%) from questionnaire-based studies[2,3]
- Psychological distress, and social stigmatization, substantially affecting quality of life and contributing to social withdrawal, depression, and unemployment. It is often associated with comorbidities such as metabolic syndrome, depression and anxiety, inflammatory bowel disease, and axial spondyloarthritis[1,4]

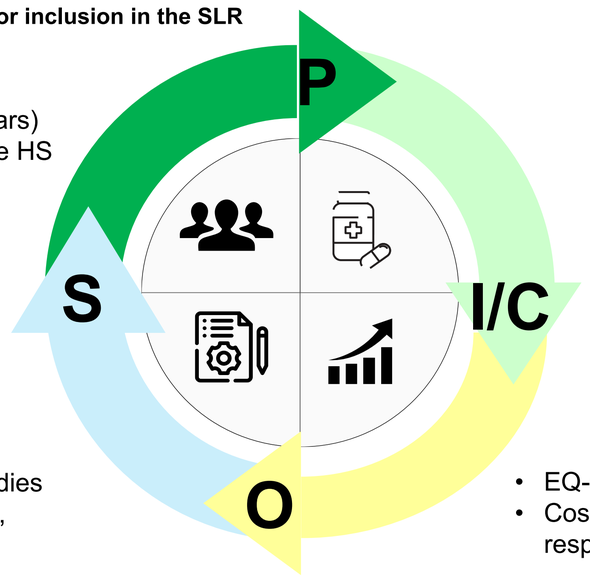
OBJECTIVE

- This systematic literature review (SLR) aims to summarize evidence regarding economic evaluations (EEs) and health utility values (HUVs) in moderate-to-severe HS

METHODS

- The current study adhered to National Institute for Health and Care Excellence (NICE)[5] and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines for SLRs, following standard methodology with a transparent, reproducible, and unbiased approach
- Key biomedical databases, including EMBASE® and MEDLINE® were searched for English-language articles from database inception to June 2026 using relevant keywords
- A standard two-independent review and quality control process was followed during data collection. The prespecified eligibility criteria is presented in **Figure 1**

Figure 1. PICOS criteria for inclusion in the SLR



POPULATION
Adult patients (≥18 years) with moderate-to-severe HS

INTERVENTION/ COMPARATOR
No restriction

STUDY DESIGN
RCTs, Observational studies
CUA, CEA, CBA, BIA, economic models

OUTCOMES
- EQ-5D index scores, cTTO, HUI3
- Cost per QALY gained, Cost per responder achieved, ICER

RESULTS

- Out of 565 publications screened, 11 studies were included in the SLR (HUV=6; EEs=5)
- **Figure 2** summarizes the review process adopted to retrieve the studies, and the characteristics of the included studies are depicted in **Figure 3**

Figure 2. Flow of studies in the SLR [A] Health utility values [B] Economic evaluations

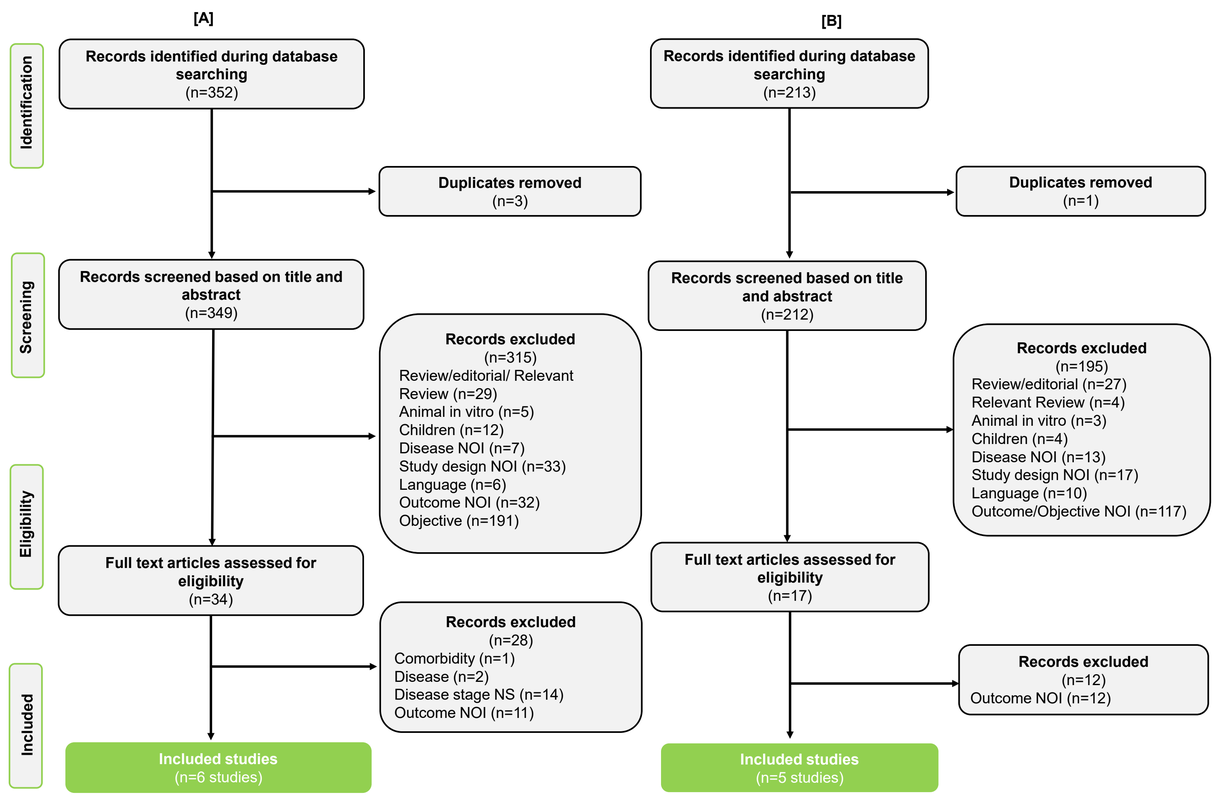
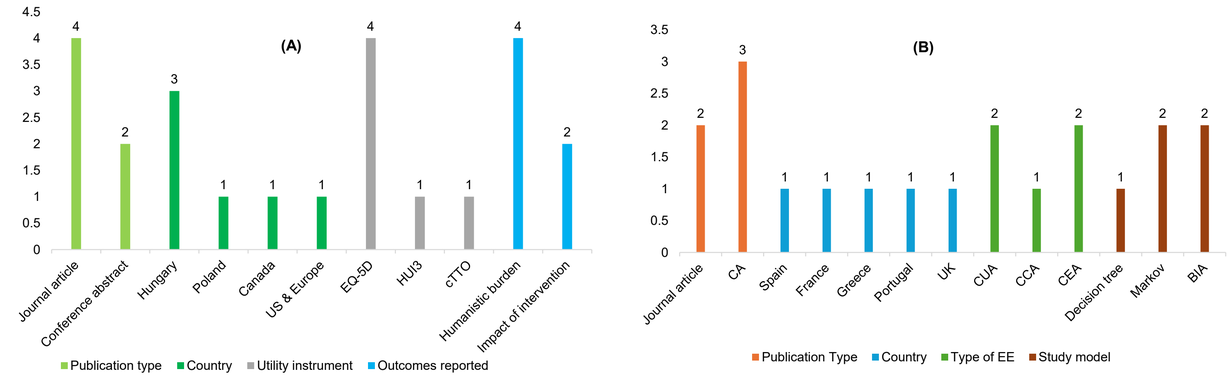


Figure 3. Characteristics of Included studies [A] Health utility values [B] Economic evaluations



ADA: Adalimumab; BIA: Budget Impact Analysis; CA: Conference Abstract; CBA: Cost-Benefit Analysis; CCA: Cost-Consequence Analysis; CEA: Cost-Effectiveness Analysis; CI: Confidence Interval; cTTO: Composite Time Trade-Off; CUA: Cost-Utility Analysis; EE: Economic Evaluation; EOPYY: National Organisation for the Provision of Healthcare Services, Greece; EQ-5D: EuroQol 5-Dimension Questionnaire; HRQoL: Health-Related Quality of Life; HS: Hidradenitis Suppurativa; HS-PGA: Physicians' Global Assessment of HS Severity; HUI3: Health Utilities Index Mark 3; HUV: Health Utility Value; ICER: Incremental Cost-Effectiveness Ratio; NHS: National Health Service; NICE: National Institute for Health and Care Excellence; NOI: Not of Interest; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; PSA: Probabilistic Sensitivity Analysis; PSS: Personal Social Services; Q2W: Every 2 Weeks; Q4W: Every 4 Weeks; QALY: Quality-Adjusted Life Year; RCTs: Randomised Controlled Trials; SLR: Systematic Literature Review; SoC: Standard of Care; UK: United Kingdom; US: United States

Health Utility Values

- A total of six studies reported HUVs in moderate-to-severe HS patients. In terms of publication type, four studies were journal articles, and the remaining two studies were conference abstracts (CAs) (Figure 3)
- Majority of the studies reported utility values using EQ-5D scale (n=4), whereas one study each used health utility index (HUI3) and composite time trade-off (cTTO)
- Baseline mean EQ-5D HUVs ranged from 0.50-0.78, declining with disease severity (**Figure 4**). By Hurley stage, Matusiak et al. reported mean EQ-5D-3L utilities of 0.80 for Hurley I, 0.70 for Hurley II and 0.35 for Hurley III (p<0.01; **Figure 5**). Utility values correlated negatively with disease stage (R=-0.57; p<0.0001)

Figure 4. Mean baseline utility scores by study and instrument

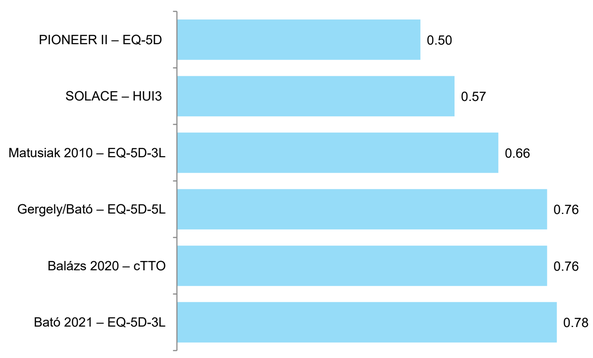
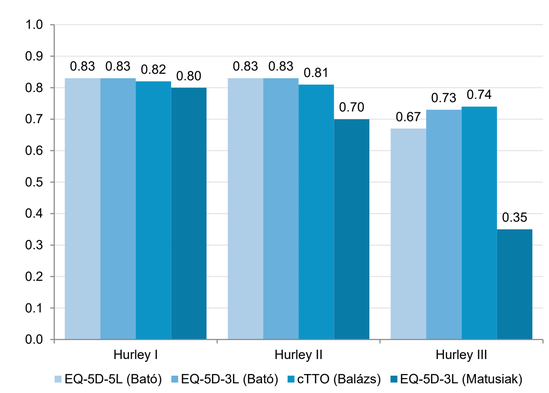


Figure 5. Mean utility scores by Hurley stage



- In the cross-sectional study by Bató et al., mean EQ-5D-3L and 5L utility scores were higher in Hurley stages I and II (0.83 for both stages and scales) and lower in Hurley stage III, falling to 0.67 with the EQ-5D-5L (p=0.001) and 0.73 with the EQ-5D-3L (p<0.001)
- According to the Physicians' Global Assessment of HS severity (HS-PGA), EQ-5D utility values declined with increasing disease severity. Mean EQ-5D-5L utility decreased from 0.91 in clear/minimal disease to 0.53 in very severe disease, with intermediate values of 0.85, 0.79, and 0.73 for mild, moderate, and severe disease, respectively. A similar pattern was observed for EQ-5D-3L, with utility decreasing from 0.90 in clear/minimal disease to 0.62 in very severe disease **(Figure 6)**

Figure 6. EQ-5D utility scores by HS-PGA severity

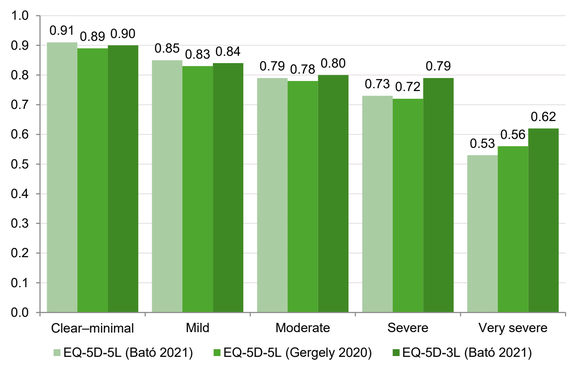
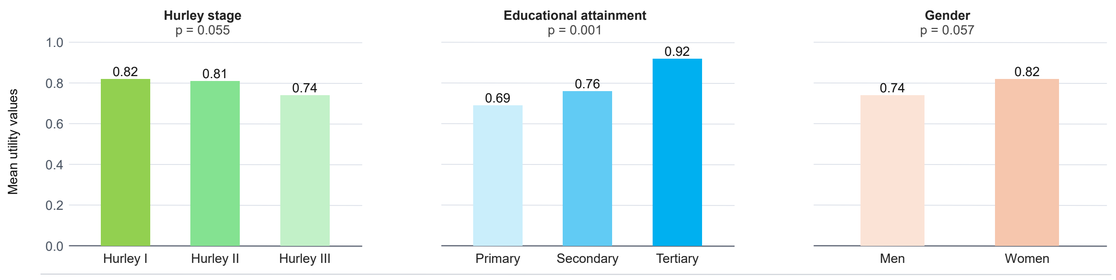


Table 1. Summary of key findings

Study	Instrument	n	Key findings
Matusiak 2010	EQ-5D-3L	54	Mean 0.66; stage I/II/III 0.80/0.70/0.35
Bató 2021	EQ-5D-3L, 5L	200	Mean 0.78 (3L), 0.76 (5L)
Gergely 2020	EQ-5D-5L	200	Mean 0.76; 0.89 clear-minimal to 0.56 very severe
Balázs 2020	cTTO	194	Mean 0.76; stage I/II/III 0.82/0.81/0.74
Armstrong 2015	EQ-5D	-	Baseline 0.50; ADA+0.1 vs 0 at wk 12 (p<0.001)
Gulliver 2022	HUI3	122	Baseline 0.568; ADA 0.070 (week 24; p=0.0023) and +0.078 (week 52; p=0.0002)

- Further, in the Hungarian cohort, mean cTTO utility was 0.76, ranging from -1.00 to 1.00. Mean utility scores decreased with increasing disease severity and differed significantly by educational attainment (**Figure 7**)

Figure 7. cTTO utility scores by Hurley stage, educational attainment and gender



- Two studies reported improvements in utility following adalimumab treatment. In PIONEER II, patients receiving adalimumab showed a significantly greater improvement in EQ-5D index at week 12 than those receiving placebo (mean change: 0.10 vs 0.00; p<0.001). In SOLACE, mean HUI3 overall utility significantly improved from baseline by 0.070 at week 24 (p=0.0023) and 0.078 at week 52 (p=0.0002)

Economic Evaluation

- Five EEs in moderate-to-severe HS were identified: two journal articles (Spain, UK) and three CAs (France, Greece, Portugal) (**Figure 3**)
- Most EEs employed cost effectiveness and budget-impact analyses (n=2 each), followed by one cost-consequence analysis. Bimekizumab and secukinumab (n=2 each) were the most commonly assessed treatments; adalimumab was primary comparator across most studies (n=4)
- Secukinumab was cost-effective versus standard of care in Portugal (ICER: €9,463/QALY) and cost-saving versus adalimumab in Spain (€16,858 vs. €19,701 per responder). The introduction of bimekizumab was projected to generate a manageable incremental budget impact in France (€1.1-1.8 million/year over 5 years) and Greece (average €1.57 million/year; **Table 2**)
- Key drivers of incremental cost-effectiveness ratio were treatment discontinuation rates, health-state utility values, resource utilisation patterns, time horizon; budget impact drivers were drug unit costs and adult population size

Table 2. Summary of economic evaluations

Study	Setting / perspective	Analysis / model	Intervention vs comparator	Horizon	Results
Willems 2020	UK · NHS & PSS	**CEA** 3-state Markov	Hypothetical candidate vs adalimumab	Lifetime	ICER £132,952/QALY - not cost-effective at £30k; Q4W dosing dominant
Malhadeiro 2025	Portugal · NHS	**CEA** Markov, 4-week cycles	Secukinumab Q4W and Q4W→Q2W vs SoC	Lifetime	ICER €9,463 and €18,826/QALY; cost-effective in 89% / 95% of PSA runs
Martorell 2026	Spain · NHS	**CCA** Decision tree	Secukinumab-first vs adalimumab-first	52 weeks	Cost per responder €16,858 vs €19,701 (-14.4%)
Ezzano 2025	France · payer	**BIA** Budget impact model	Bimekizumab added vs adalimumab (+ biosimilars), secukinumab	5 years	+€1.1M to +€1.8M per year; ≈5% budget increase in year 5
Koulentaki 2025	Greece · EOPYY	**BIA** Budget impact model	Bimekizumab added vs adalimumab (+ biosimilar), secukinumab	5 years	Cumulative €7.85M (avg €1.57M/year)

CONCLUSION

Substantial and severity-driven burden: Moderate-to-severe HS markedly reduces quality of life (baseline EQ-5D utilities 0.50-0.78, falling to 0.35 in Hurley III), although adalimumab improved utility beyond the minimal important difference

Favourable value, limited evidence: Secukinumab (ICER €9,463/QALY, Portugal) and bimekizumab (manageable budget impact) appear economically viable, but with only 11 studies, mostly European, more country-specific data are needed for HTA

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Disclosures

AS, GK, and BS are employees of Pharmacoevidence, and have no conflicts of interest to declare

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