CO191

Health-Related Quality of Life and Health State Utility Values in Moderate to Very Severe COPD: A Systematic Literature Review

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This SLR highlights the **significant impact of disease severity and exacerbations** on **health-related quality of life** in patients with **COPD**

Digital poster

SCAN ME

Background

- COPD is a leading cause of morbidity and mortality worldwide, and is associated with substantial economic and healthcare burden[1]
- COPD exacerbations are associated with reduced health status and long-lasting negative effects, including a significant impact on patients' health-related quality of life[2,3]
- Burden of disease not only affects patients with COPD but also their caregivers[4,5]

Aims

This SLR aimed to identify health state utility values and disutilities in patients with moderate to very severe COPD and their caregivers

Study design

GSK ID: 223395

SLR approach

- This SLR was conducted in accordance with PRISMA standards and the Centre for Reviews and Dissemination guidance[6,7]
- Studies were included based on predefined eligibility criteria in terms of the PICOS framework

Population

- Adult patients with a diagnosis of moderate to very severe COPD
- Caregivers to adults with moderate to very severe COPD

Study designs

- Non-RCTs except if the RCT was non-pharmacological*
- PK/PD studies, economic evaluations, reviews and meta-analyses, comment/letter to the editor were excluded

Intervention/comparators

- Not restricted (non-pharmacological intervention or none)

Sources (last searched July 26, 2024)

- MEDLINE, Embase, and Cochrane databases (searched from 2018–current)
- Conference proceedings from 2021–2024 (ISPOR, CHEST, ATS, ERS)
- Additional sources (including EQ-5D website, reference lists of included studies checked for further studies, HERC database of mapping studies)

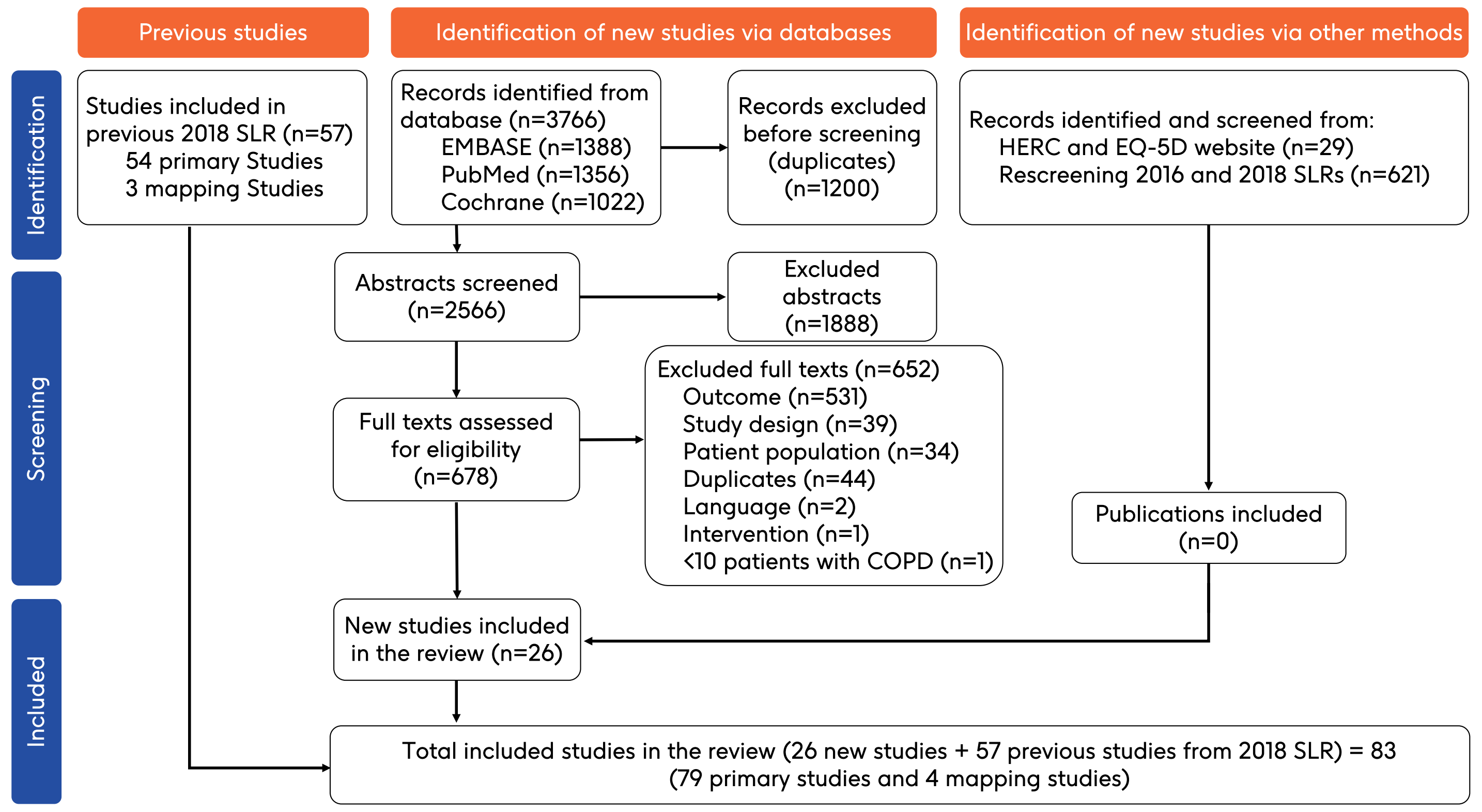
Outcomes

- Utility values were described separately for health states during COPD exacerbations and for stable COPD
- For stable COPD, utility values were further stratified by GOLD severity and by history of exacerbations when the study reported them
  - Health-state utility is the value given to a specific health-related quality of life measure, where a value of 1 represents full health and 0 represents dead, with negative values indicating states worse than death[8]

*RCTs assessing non-pharmacological interventions such as home care or pulmonary rehabilitation have been included in this SLR

Results

Figure 1: **Seventy-nine primary studies were identified**



Previous studies | Identification of new studies via databases | Identification of new studies via other methods

Identification

Studies included in previous 2018 SLR (n=57)
54 primary Studies
3 mapping Studies

Records identified from database (n=3766)
EMBASE (n=1388)
PubMed (n=1356)
Cochrane (n=1022)

Records excluded before screening (duplicates) (n=1200)

Records identified and screened from:
HERC and EQ-5D website (n=29)
Rescreening 2016 and 2018 SLRs (n=621)

Screening

Abstracts screened (n=2566)

Excluded abstracts (n=1888)

Full texts assessed for eligibility (n=678)

Excluded full texts (n=652)
Outcome (n=531)
Study design (n=39)
Patient population (n=34)
Duplicates (n=44)
Language (n=2)
Intervention (n=1)
<10 patients with COPD (n=1)

Publications included (n=0)

Included

New studies included in the review (n=26)

Total included studies in the review (26 new studies + 57 previous studies from 2018 SLR) = 83
(79 primary studies and 4 mapping studies)

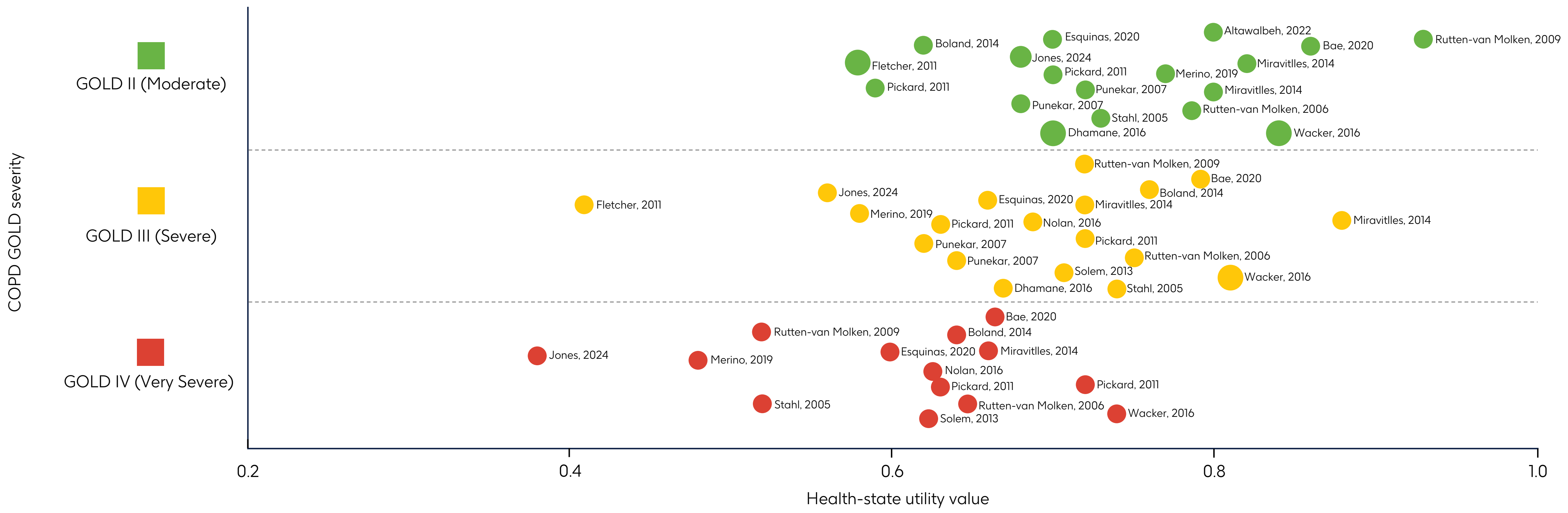
- Of the 79 primary studies identified, 64 reported utility values for patients with stable moderate to very severe COPD, with 36 of these studies utilizing EQ-5D (utilities ranging from 0.25 to 0.86)

Table 1: **Across 6 studies that reported utility values for patients with stable COPD stratified by the number of exacerbations in the previous year, lower utility values were consistently associated with a greater frequency of prior exacerbations**

Study/country	Number exacerbations in previous year	Utility, mean (SD) or median (95% CI)	Sample size
Rutten-van Molken, 2009/ Netherlands	1 non-serious exacerbation	0.010 (utility decrement)	NR
	2 non-serious exacerbation	0.021 (utility decrement)	NR
	1 serious exacerbation	0.042 (utility decrement)	NR
	1 serious and 1 non-serious exacerbation	0.088 (utility decrement)	NR
Altawalbeh, 2022/ Jordan	All patients regardless of exacerbation	0.68 (0.36)	203
	≥1 hospital admission for COPD	0.48 (0.4)	41
	≥1 ER visit for COPD	0.53 (0.4)	89
Esquinas, 2020/ Spain	COPD hospital admission: 0	0.73 (0.2)	NR
	COPD hospital admission: 1	0.65 (0.3)	NR
	COPD hospital admission: 2	0.54 (0.3)	NR
	COPD hospital admission: >2	0.45 (0.3)	NR
Miravitlles, 2014/ Spain	1–2 exacerbations	0.78	NR
	<2 exacerbations	0.84	NR
	≥2 exacerbations	0.74	NR
Punekar, 2007/ France, Germany, Italy, Spain, UK, US	No exacerbations	0.78 (0.75–0.80)*	NR
		0.75 (0.72–0.77)†	NR
	1–2 exacerbations	0.74 (0.72–0.77)*	NR
		0.73 (0.71–0.76)†	NR
	≥3 exacerbations	0.61 (0.59–0.64)*	NR
		0.57 (0.54–0.60)†	NR
Solem, 2013/ US	1 moderate/severe exacerbation	0.727 (0.175)	82
	2 moderate/severe exacerbations	0.684 (0.204)	84
	3+ moderate/severe exacerbations	0.638 (0.212)	148

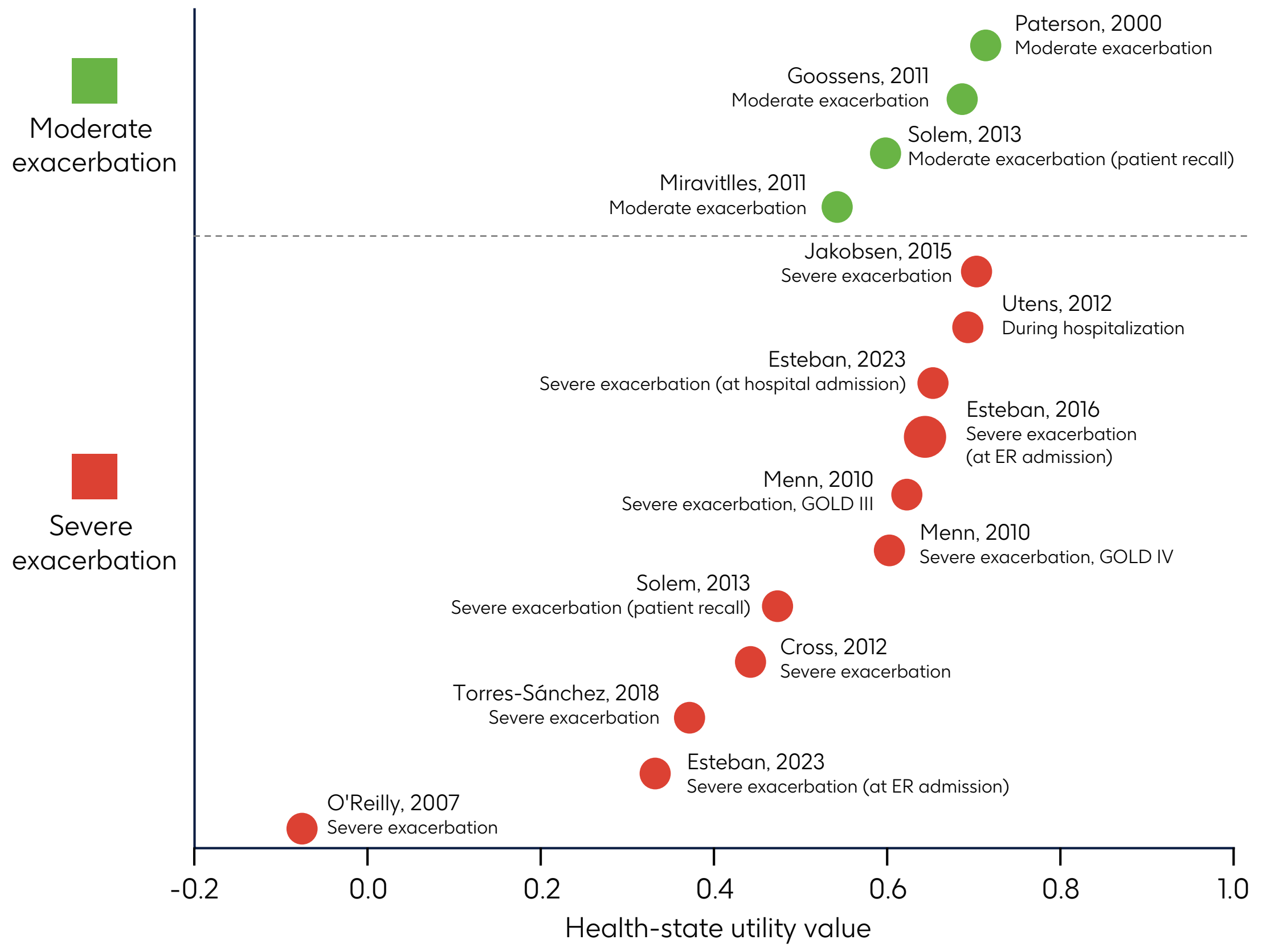
*Patients seeking care from primary care physicians; †patients seeking care from respiratory specialists

Figure 2: **Seventeen reported utilities stratified by COPD severity defined using GOLD grades. Within all studies reporting severity-specific utilities, patients with more severe COPD consistently reported lower utility values**



Each circle represents a study-specific estimate. Circle area is proportional to sample size. NR sample sizes are displayed using minimum marker size

Figure 3: **Twelve studies reported utilities during an exacerbation. Mean utilities for exacerbations ranged from −0.120 (assessed at visit to treat exacerbation; patients admitted to hospital during an exacerbation) to 0.71 (assessed at the first visit to treat exacerbation; patients with acute exacerbation at a general practice), with worsening utilities following severe exacerbation (i.e., a COPD-related hospitalization)**



Each circle represents a study-specific estimate. Circle area is proportional to sample size. NR sample sizes are displayed using minimum marker size

Table 2: **Caregiver utilities were reported in 3 different studies, ranging from 0.76 to 0.88**

Study/country	Participant description	No. of participants with response	Utility, mean (SD)
EQ-5D			
Majellano, 2021/ Australia	Caregivers, ≥18 years, providing unpaid care (denoting informal caregiver) to a relative/friend who with severe asthma or COPD and had been in the caring role for ≥6 months	48	0.85 (0.17)
Nakken, 2016/ Netherlands	Closest relatives who spent most time with the patient and/or provided most of the care, assistance and support	193	0.88 (0.15)
Rehman, 2021/ Malayasia	Caregivers of patients with COPD (unpaid voluntary family members and friends) assist the patients to perform daily activities	127	0.76 (0.36)
AQoL			
Nakken 2016/ Netherlands	Closest relatives who spent most time with the patient and/or provided most of the care, assistance and support	193	0.78 (0.14)

Conclusions

This SLR highlights the **significant impact of COPD severity and exacerbations** on **health-related quality of life**. The findings provide valuable **health state utility values** for economic modeling and emphasize the need for **tailored interventions** to **improve health-related quality of life** in patients with COPD and their caregivers

Abbreviations

AQoL, The Assessment of Quality of Life; ATS, American Thoracic Society; CHEST, American College of Chest Physicians; CI, confidence interval; COPD, chronic obstructive pulmonary disease; EQ-5D, EuroQol Five Dimension; ER, emergency room; ERS, European Respiratory Society; GOLD, Global Initiative for Chronic Obstructive Lung Disease; HERC, Health Economics Research Centre; ISPOR, International Society for Pharmacoeconomics and Outcomes Research; NR, not reported; PD, pharmacodynamics; PICOS, Population, Intervention and Comparators, Outcomes and Study design; PK, pharmacokinetics; PRISMA, Preferred Reporting Items for Systematic reviews and Meta-Analyses; RCT, randomized controlled trial; SD, standard deviation; SLR, systematic literature review; US, United States

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Disclosures

IN and **AL-M** are employees of ICON, which received payment from GSK to conduct the study. **AM, CR, KU,** and **SY**, are employed by GSK and hold financial equities in GSK.

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