

CONCLUSION

- This review underscores the high transition rate from systemic lupus erythematosus (SLE) to lupus nephritis (LN), as well as the significant risk of LN-associated morbidities among affected patients
- Despite recent advances in SLE management, LN remains a prevalent and serious complication, highlighting the need for early detection and timely intervention to improve clinical outcomes

INTRODUCTION

- Systemic lupus erythematosus (SLE) is an autoimmune disease of unclear etiology characterized by autoantibody production and protean systemic manifestations
- Affecting women predominantly, the incidence and prevalence of SLE varies widely among populations<sup>1</sup>
- Lupus nephritis (LN) is one of the most serious manifestations of SLE, posing a considerable risk of morbidity and mortality
- LN symptoms can range from being clinically silent to end-stage renal disease (ESRD), and it is often present at the time of SLE diagnosis<sup>2</sup>

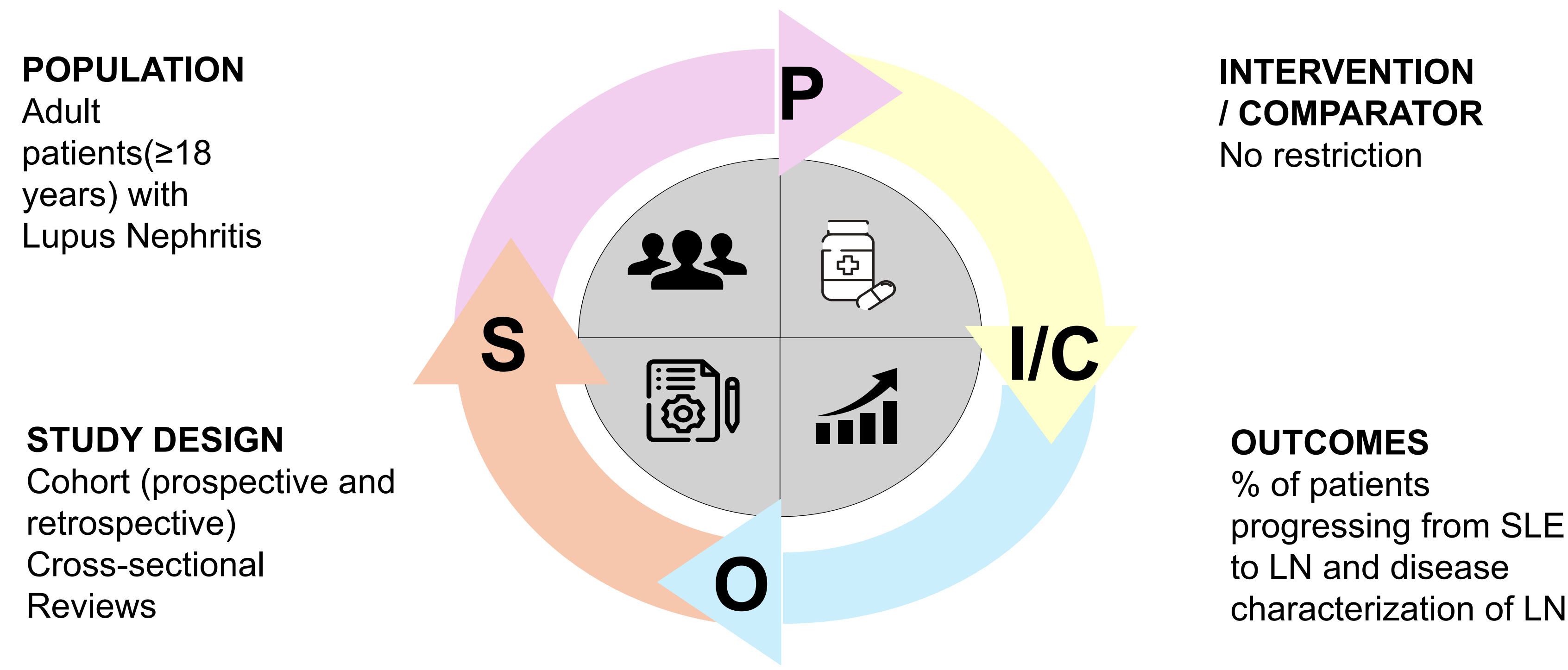
OBJECTIVE

- To understand the progression of SLE patients to LN, focusing on key characteristics of LN via the conduct of an SLR

METHODS

- This review followed the standard methodology for conducting SLR as per guidelines provided by the National Institute for Health and Care Excellence (NICE) and Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)<sup>3</sup>
- Key biomedical databases (EMBASE<sup>®</sup>, PubMed) were searched from database inception to December 2024 to identify relevant evidence reporting progression in SLE patients
- Figure 1** presents the pre-specified eligibility criteria for this SLR
- Each publication was reviewed by two independent reviewers with conflicts resolved by a third reviewer

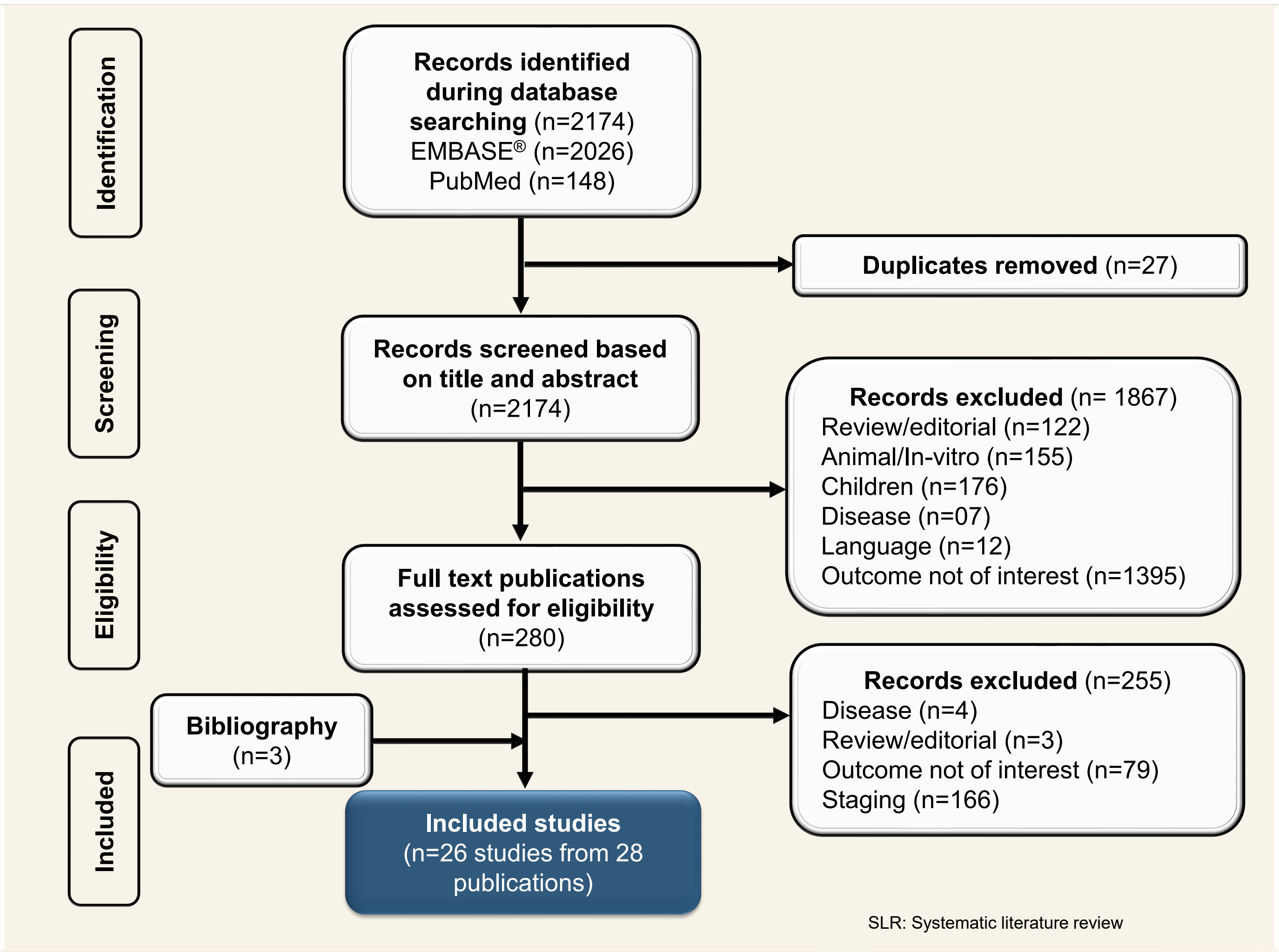
Figure 1: Prespecified PICOS eligibility criteria for the selection of evidence



References

1. Reppe Moe SE et al., *Lupus*; 28 (7)
2. Barber MRW et al., *Arthritis Care Res*; 70 (9)
3. Moher D et al., *Systematic Reviews*; 4(1)
4. Sharma H et al., *Indian J Nephrol*; 32 (7)
5. Jorge A et al., *Arthritis Rheum*; 74
6. Kandane-Rathnayake R et al., *Lupus*; 28 (14)
7. Karolia S et al., *Clin Exp Rheumatol*; 34 (4)
8. Pons-Estel GJ et al., *Lupus*; 26 (1)
9. Medina-Gomez JV et al., *Lupus*; 5
10. Hanly JG et al., *Rheumatol*; 55(2)
11. Sekar G et al., *Indian J Nephrol*; 33

Figure 2: Flow of studies in the SLR



RESULTS

- Of the 2174 identified citations, 26 studies provided information on the progression of SLE patients toward LN (**Figure 2**)
- A total of 16 of the 26 studies were published as journal articles, whereas the remaining were conference abstracts
- The sample size of the SLE patients ranged from 53 to 25,009, with a median follow-up period ranging between 2 to 15 years<sup>4-6</sup>
- 14 studies were retrospective cohort in design, followed by eight prospective cohort, three cross-sectional, and one ambispective study
- The majority of the evidence originated from Asia (n=11), North/ Latin America (n=7), and Europe
- Figure 3** presents the characteristics of the included studies
- Globally, the prevalence of LN among SLE patients ranged from a minimum of 9.6% (India) to 65% (South Africa)<sup>4, 7</sup>
- The highest rates of LN were observed in North/ Latin America, ranging from 24.1 to 59%, with the majority of events developing in the initial 2-3 years of diagnosis<sup>8,9</sup>
- The cumulative incidence of LN in the United States ranged from 6% at 1 year to 34.4% at 15 years<sup>5</sup>
- During the review period, 7.3 to 61.1% of the overall SLE population progressed towards LN<sup>10,11</sup>
- The highest rate of progression was observed across Asia ranging between 15 to 61.1% followed by the Americas with progression rates between 24.1 to 59% (**Table 1**)

RESULTS (CONT'D)

- Class IV LN was the most common (43.2%) presentation, followed by Class V (31.8%) and Class III (26.8%)<sup>10</sup>
- A significant predominance of young, male, black, and Hispanic populations was observed across the LN patients, with the majority (>70%) presenting Class IV and V lesions.
- Low socioeconomic status was associated with significantly higher rates of LN, with dialysis being the costliest component
- LN was associated with a >2-fold increased risk of mortality and was 1.5 times more likely to accrue any organ damage compared to non-LN SLE patients

Figure 3: Study characteristics of the included evidence

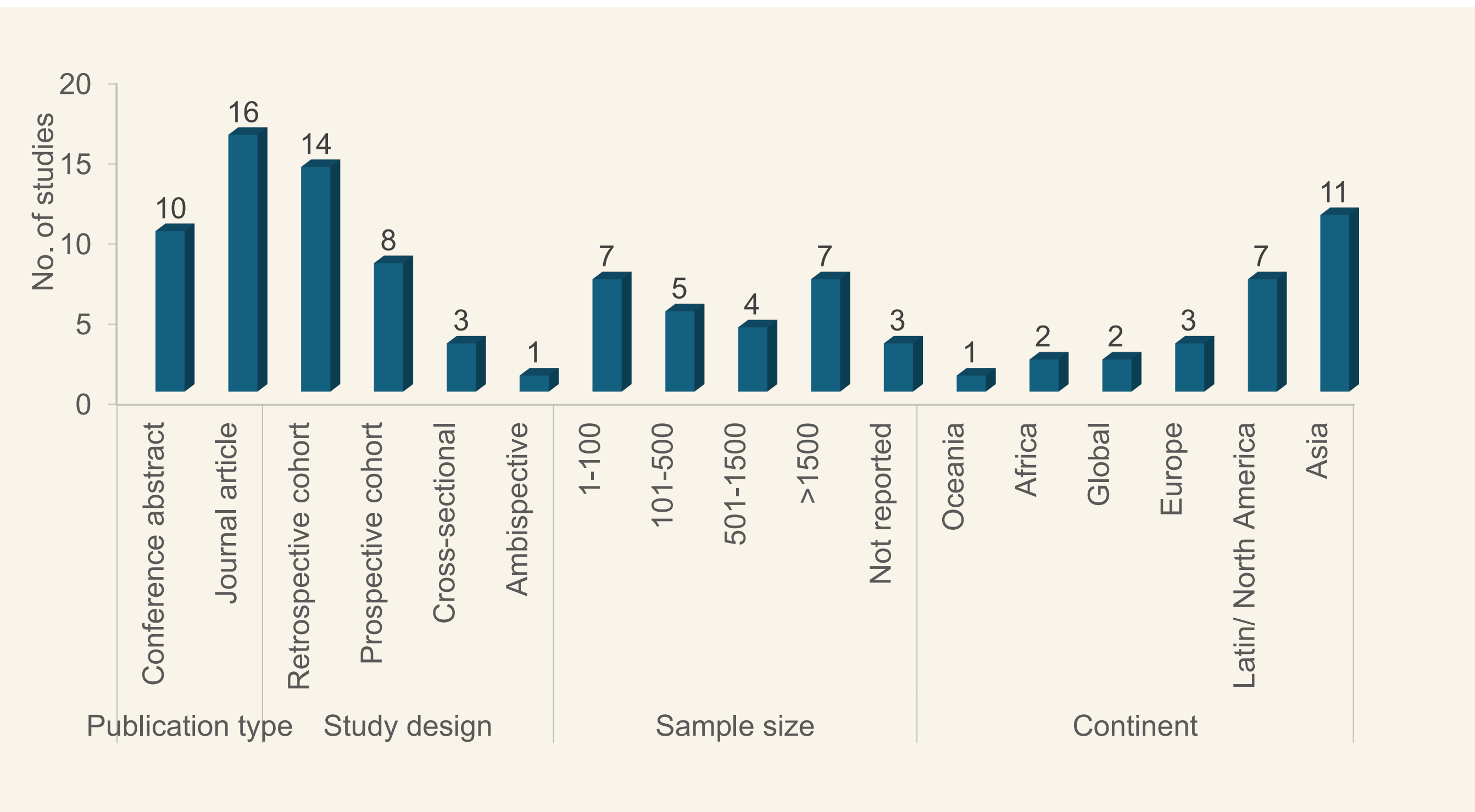


Table 1: Continent-wise rate of progression of SLE patients towards LN

Study name	Sample size	Follow up (years)	Country	% Progression
Global				
Hanly 2016	1,827	4.6	Global	7.30
Barber 2018	1,545	6.3	Global	13.25
Latin/ North America				
Estel 2017	1,480	5	Latin American countries	24.10
Zhou 2022	25,009	15	US	28.60
Hanly JG 2016	1,826	4.6	Canada	38.30
Florenciano 2018	71	1	Brazil	49.30
Gomez 2018	223	9.95	Mexico	59.00
Europe				
Moe 2019	325	11	Norway	14.30
Galindo 2016	1,092	--	Spain	30.50
Africa				
Ammouri 2024	511	13	Morocco	38.35
Asia				
Dai 2023	1,509	5.2	China	12.40
Kwon 2018	278	3.74	South Korea	15.00
Cho 2023	3,779	10	South Korea	50.00
Sekar 2023	--	2	India	61.10