VARIABLE	NEOPLASIA (n=94)	NO NEOPLASIA (n=427)	P
General Characteristics			
SEX (M/F)	8/86 (9/91%)	51/376 (12/88%)	0.73
AGE >65 AT DIAGNOSIS	24 (26%)	102 (24%)	0.34
MORTALITY	34 (36%)	119 (28%)	0.10
SMOKERS	6 (6%)	36 (8%)	0.50
SUBTYPE (LIMITED /DIFFUSE /SINE)	65/16/13 (70/16/14%)	282/94/51 (66/22/12%)	0.54
CAPILLAROSCOPY PATTERN (SLOW /ACTIVE)	57/6 (60/6%)	236/68 (55/16%)	0.04/ 0.02
Clinical manifestation			
RAYNAUD'S PHENOMENON	88 (93%)	415 (97%)	0.08
SKIN ULCERS	38 (40%)	214 (50%)	0.08
TELANGIECTASIAS	70 (74%)	325 (76%)	0.73
CALCINOSIS CUTIS	22 (23%)	91 (21%)	0.65
ESOPHAGEAL INVOLVEMENT (PATHOLOGICAL MANOMETRY)	57 (61%)	292 (68%)	0.36
ARTHRALGIA	44 (47%)	236 (55%)	0.13
ARTHRITIS	17 (18%)	81 (19%)	0.84
PULMONARY HYPERTENSION	43 (46%)	184 (43%)	0.63
ILD	25 (27%)	103 (24%)	0.72
CARDIAC AFFECTATION	58 (62%)	285 (67%)	0.38
Immunology pattern			
AC SCL70 (ATA I)	11 (12%)	88 (21%)	0.02
ACA +	37 (39%)	139 (33%)	0.18
ANTI- RNA POL III +	7 (7%)	25 (6%)	0.65
ANTI PM/SCL +	9 (10%)	18 (4%)	0.04
Treatment			
CYCLOPHOSPHAMIDE	9 (10%)	36 (8%)	0.72
AZATHIOPRINE	6 (6%)	88 (21%)	0.000 06
MYCOPHENOLATE	10 (11%)	61 (14%)	0.35
METHOTREXATE	0 (0%)	23 (5%)	0.68
ANTIPLATELET	40 (43%)	231 (54%)	0.09
ACEIs	32 (34%)	125 (29%)	0.36
ARBs	20 (21%)	54 (12%)	0.03
CCBs	57 (60%)	304 (71%)	0.04
CORTICOSTEROIDS	40 (42%)	172 (40%)	0.95
PROSTAGLANDINS	4 (4%)	37 (9%)	0.15

TYPES OF CANCER	(n=94)	%
BREAST CANCER	22	24%
HEMATOLOGIC MALIGNANCIES	21	23%
LUNG CANCER	13	14%
NON MELANOMA SKIN CANCER	6	6%
MELANOMA	2	2%
COLON CANCER	5	5%
ENDOMETRIAL CANCER	5	5%
GASTROESOPHAGEAL CANCER	4	4%
THYROID CANCER	4	4%
UROTHELIAL CANCER	2	2%
OVARIAN CANCER	1	1%
OTHERS	9	10%

Results: We included 521 patients with diagnosis from January 1985 to August 2016. 88.7% were women, with an average age of 53. 94 patients were diagnosed with neoplasia. The analyzed variables and their statistical significance and the types of cancer developed by our cohort patients are shown in Fig 1.

Conclusion: In the analyzed cohort, a slow pattern in capillaroscopy, positivity for Pm/Scl and the use of ARBs is associated with the development of neoplasia in patients with SSC. It has an inverse association the positivity of Scl70 (ATA I), the active pattern in capillaroscopy and the use of azathioprine and CCBs. In our cohort 94 patients with SSC have developed cancer. The most prevalent types of cancer were breast cancer, hematologic malignancies and lung cancer, as shown in the literature.

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SAT0277 THE 100 MOST INFLUENTIAL PUBLICATIONS IN SYSTEMIC SCLEROSIS: A BIBLIOMETRIC STUDY

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Background: In recent years, a large volume of important clinical and scientific papers about systemic sclerosis can be found in the most

influential journals. Bibliometric analysis is a statistical method that enables researchers to analyze citation patterns and highlight characteristics of highly cited scholarly work. It has been infrequently utilized in Rheumatology^{1,2}. Prior studies have not addressed the bibliometric literature gap in the field of systemic sclerosis.

Objectives: This study aims to identify the 100 most cited papers in systemic sclerosis and to describe their characteristics.

Methods: We sought to assess the characteristics of the top 100 most referenced citations in systemic sclerosis. We searched the Scopus and Web of Science databases to identify all articles relating to 'Scleroderma', 'limited' or 'diffuse Systemic Sclerosis' and 'CREST syndrome'. Articles were arranged in descending order of citations and were scrutinized by two independent reviewers. Selected articles were analyzed with respect to number of citations, publication year, journal characteristics, research type, focus area, authors and countries of authors of publications.

Results: Retrieved articles were published mostly in rheumatology journals (n=42) with impact factors ranging between 3.47 and 12.35 in these journals, followed by journals in general medicine, pulmonology, and experimental biomedical research. Journals with the highest number of top-cited articles included *Arthritis and Rheumatism* (n=25), followed by the *The New England Journal of Medicine* (n=9) and *Annals of the Rheumatic Diseases* (n=8). Studies conducted in USA, UK, and Italy that were published in high-impact journals had the highest citation count. Temporal analysis indicated that the majority of top-cited articles were published between 1998 and 2014 (n=65). The most productive 5-year time period was between 2000 and 2005 when 23 of the 100 most cited publications were produced. Among retrieved citations, guidelines and recommendations comprised 5% of all articles, narrative reviews 21%, randomized clinical trials 12%, observational studies 35%, non-randomized clinical studies (basic and translational research) 24%, case series 1%, and meta-analyses 2%. Our analysis shows that articles defining the classification criteria of Systemic Sclerosis were among the most cited work followed by those describing the pathophysiology of the disease. Other highly cited areas included cellular and molecular mechanisms of fibrosis (with special emphasis on the role of TGF-β) and Randomized Controlled Trials for Bosentan and Epoprostenol in the treatment of pulmonary hypertension. Regarding individual organ manifestations, Pulmonary and Cardiac complications (pulmonary hypertension, lung disease, myocardial effects) (n=21) were of highest interest, while other articles focusing on Cutaneous (ulcers, skin changes, Raynaud's phenomenon) (n=16), Renal (renal crises) (n=3) and Gastrointestinal complications (dysmotility) (n=1) were cited to a lesser extent. Interestingly, articles primarily describing hematopoietic stem cell transplant as a viable treatment option did not feature on this list.

Conclusion: Our study provides the first bibliometric overview of the most highly cited scientific papers on systemic sclerosis. These findings provide useful insights into trends of published work and may serve as a useful guide to researchers in this field.

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SAT0278 STUDY OF QUALITY OF LIFE IN PATIENTS WITH SYSTEMIC SCLEROSIS- A CROSS-SECTIONAL STUDY

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Background: There has been no study on quality of life (QoL) in patients with systemic sclerosis (SSc) in India.

Objectives: 1) To determine the difference in QoL in patients with SSc compared to general population. 2) To determine the difference in QoL in subsets of patients with SSc between a) Limited cutaneous SSc (lcSSc) and diffuse cutaneous SSc (dcSSc); b) SSc with and without interstitial lung disease (ILD) c) SSc with disease duration of ≤ 5 yrs and > 5 yrs.

3) To find out the contributing factors to impaired QoL with the help of a newly developed patient reported questionnaire.

Methods: In this cross-sectional study, all consecutive adult patients with SSc, satisfying 2013 ACR/EULAR classification criteria, attending a tertiary rheumatology clinic in Western India from January 2016 to March 2017 were compared to age and sex-matched controls. A new questionnaire [Indian Systemic Sclerosis QoL questionnaire (Indian SyS-QoL)] was developed to identify the contributing factors to impaired QoL with feedback from 15 SSc patients and 11 rheumatologists. This questionnaire had 10 factors and each was scored by individual patients between 0-3 (0=no impact; 3=severe impact on QoL in previous month). Demographic data, clinical profile and relevant investigations were recorded. Patients filled Medical Outcomes Trust Short Form 36 version 2 (SF-36v2) questionnaire, Indian SyS-QoL questionnaire and Indian Health Assessment Questionnaire –(Indian HAQ).

Results: 94 SSc patients (7 males; 87 females) were compared to 100 age and sex-matched controls. QoL was significantly impaired in patients with SSc compared to healthy controls in all 8 domains of SF-36 ($p<0.001$), the finding similar to other studies (Table 1). There was no statistically significant difference in mean scores in any domain between patients with dcSSc [56 patients (59.6%)] and lcSSc [38 patients (40.4%)] between patients with disease duration ≤ 5 yrs [43 patients (45.7%)] and >5 years [51 patients (54.3%)] and in those with ILD [56 patients (59.6%)] and without ILD [38 patients (40.4%)]. Two most important factors responsible for poor QoL based on Indian SyS-QoL questionnaire score (mean $\pm$ SD) were 'feeling of dependency on family' (1.4 $\pm$ 1.3) and 'cost of treatment' (1.3 $\pm$ 1.2) (Fig 1).

Table 1. SF-36 Scores in SSc patients among different studies:

	Present study	Frantz et al	Georges et al	Danieli et al	Cossutta et al
N	94	1902	89	76	95
SF-36v2 domain	mean $\pm$ SD	mean $\pm$ SD	mean $\pm$ SD	median (Range)	mean $\pm$ SD
Physical function	55.2 $\pm$ 25.4	52.7 $\pm$ 28.3	50 $\pm$ 31	57.5 (35-80)	61.3 $\pm$ 25.1
Role physical	53.2 $\pm$ 32.0	35.6 $\pm$ 40.6	40 $\pm$ 42	50 (0-100)	39 $\pm$ 40.3
Role emotional	62.5 $\pm$ 30.9	54.1 $\pm$ 44.0	46 $\pm$ 44	66.6 (0-100)	49.1 $\pm$ 41.2
Energy/vitality	45.7 $\pm$ 22.9	36.1 $\pm$ 22.0	39 $\pm$ 22	50 (35-60)	50.3 $\pm$ 19.7
Mental health	55.7 $\pm$ 23.0	61.0 $\pm$ 20.5	-	56 (38-68)	55.7 $\pm$ 21.2
Social function	60.5 $\pm$ 33.9	56.8 $\pm$ 26.2	58 $\pm$ 28	87.5 (56.2-100)	66.5 $\pm$ 23.2
Pain	58.4 $\pm$ 31.2	50.8 $\pm$ 25.5	47 $\pm$ 28	61 (41-76.5)	50.2 $\pm$ 25.6
General health	40.3 $\pm$ 23.6	35.7 $\pm$ 18.4	41 $\pm$ 22	35 (23.7-45)	40.0 $\pm$ 20.8

Figure 1: Factors contributing to impaired QoL in descending order of Indian SyS-QoL mean scores:

Conclusion: This maiden study from India showed that QoL was significantly affected in patients with SSc compared to the general population; but there was no significant difference in QoL in patients with different subsets of SSc; disease duration ≤ 5 yrs and > 5 yrs, and presence or absence of ILD. The new graded scale devised to assess the impact of SSc on QoL using a simple patient-reported questionnaire showed 'Feeling of dependency' and 'cost of treatment' as the 2 most important factors affecting QoL in Indian patients with SSc. This would help direct more resources to support the patients both mentally and financially.

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SAT0279

MULTICENTER DOUBLE-BLIND, PROOF-OF-CONCEPT, RANDOMIZED PLACEBO-CONTROLLED TRIAL OF RIOCIQUAT IN SYSTEMIC SCLEROSIS-ASSOCIATED DIGITAL ULCERS (RESCUE)

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Background: The soluble guanylate cyclase stimulator riociguat (RIO) is a vasodilator and has antifibrotic effects in animal models and efficacy in patients with pulmonary arterial hypertension associated with connective tissue diseases.

Objectives: We present results from a randomized placebo-controlled trial (NCT02915835), which evaluated the efficacy and safety of RIO in patients with systemic sclerosis-associated digital ulcers (SSc-DU).

Methods: Eligible subjects (with active or painful indeterminate DUs) were randomized in 1:1 ratio to either placebo (PLA, n = 8) or RIO (n = 9) in individualized doses (maximum of 2.5 mg three times daily) during an 8-week titration period, followed by an 8-week stable dosing period. PDE5 inhibitors were not allowed. The primary end point was the change from baseline to week 16 in net ulcer burden (NUB), analyzed using an ANCOVA model, accounting for baseline NUB. Other outcome measures included change from baseline to week 16 in the Raynaud's Condition Score (RCS), RP attack number, symptom severity during RP attack, patient global assessment, and proportion of subjects with treatment-emergent adverse events (AEs). Eleven plasma biomarkers were measured by ELISA and changes were tested using ANCOVA, after testing for normality.

Results: We randomized 17 participants with SSc-DUs between January 2017 and March 2018. Baseline characteristics were comparable between treatment groups, except participants randomized to PLA were older (mean 61 vs. 43 yrs) and had longer disease duration (mean 17.5 vs. 7.1 yrs). At baseline, the mean (SD) NUB was 2.5 (2.0) in the PLA and 2.4 (1.4) in the RIO. No significant difference was observed between RIO and PLA in change from baseline to 16 weeks in NUB [$p=0.70$; Table]. No significant treatment effect was observed in the secondary outcome measures. All 17 participants reported ≥ 1 adverse event, with the vast majority being mild or moderate. There were 4 SAEs, 3 in RIO (worsening DU, NSTEMI, and non-Hodgkin's lymphoma) and 1 in PLA (digital ischemia; none of SAE's were related to the study medication). Statistically significant elevation of cGMP was observed at 16 weeks [$p=0.05$]; no other biomarkers showed statistically significant changes.

Conclusion: In patients with SSc-DU, treatment with RIO did not reduce the number of NUB compared with PLA. The safety profile of RIO was similar to that previously reported. There is evidence of target engagement. The negative results may reflect small number of patients, low number of NUB at baseline, moderate-to-severe vasculopathy with long term disease, and difficulty to recruit patients in the era of widespread use of PDE5 inhibitors.

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	Placebo (N=8)	Riociguat (N=9)	Treatment Difference (95% CI)	p-value
Net Ulcer Burden, mean*#	-0.98	-1.22	-0.24 (-1.46 to 0.99)	0.70
Patient assessment, mean*#				
Severity of RP (0-10)	-1.41	-3.47	-2.06 (-4.63 to 0.51)	0.11
Severity of DU (0-10)	-4.00	-4.63	-0.63 (-3.68 to 2.41)	0.66
Pain during RP attack (0-100)	-7.01	-0.30	6.71 (-14.01 to 27.43)	0.49
Numbness during RP attack, mean (SD) (0-100)	-15.44	-19.73	-4.28 (-33.44 to 24.87)	0.75
Tingling during RP attack, mean (SD) (0-100)	-7.49	1.18	8.67 (-13.75 to 31.09)	0.41
Raynaud's Condition Score, mean (SD) (0-10)	-0.82	-1.15	-0.33 (-2.60 to 1.94)	0.76
Number of Raynaud's attacks per day, mean	-0.96	-1.24	-0.28 (-1.36 to 0.79)	0.57
Plasma Biomarkers, mean*				
cGMP nM	41.2	198.5	157.3 (3.1 to 311.5)	0.046

*A higher number denotes worse symptoms