Supplementary Table S1. Study characteristics.

Study	Country	Data source	Study duration	N participants
Cacciapaglia 2023 (1)	Italy	Four Italian rheumatology units	2009 - 2020	912
Fairley 2023 (2)	Australia	Australian Scleroderma Cohort Study	2007 - Oct 2019	1,561
Liem 2023 (3)	Netherlands	Leiden Combined Care in Systemic Sclerosis cohort	NR - Jan 2022	517
Moinzadeh 2023 (4)	Germany	German Network for Systemic Sclerosis	2003 – Mar 2022*	3,257
Nevskaya 2023 (5)	Canada	Canadian Scleroderma Research Group registry	Sep 2005 - Feb 2020	208
Rosato 2023 (6)	Italy	Centre at Sapienza University	2017 - NR	101
Caetano 2022 (7)	Portugal	Patients' medical files unit and from the National Healthcare Registry Platform	2011 - 2020	95
de Oliveira Martins 2022 (8)	Brazil	Federal University of São Paulo's Medical School	1982 - 2020	380
González Garcia 2022 (9)	Spain	RESCLE (Registro de ESCLErodermia) Registry	NR - Jun 2019	1,517
Morrisroe 2022 (10)	Australia	Australian Scleroderma Cohort Study	Jan 2008 - Jun 2021	2,039
Paik 2022 (11)	USA	Johns Hopkins Scleroderma Centre Research Registry	NR - Jun 2017	272
Uddin 2022 (12)	USA	National Emergency Department Sample	2009 - 2014	180,435
Vos 2022 (13)	Netherlands	Radboud University Medical Centre and Leiden University Medical Centre	Jan 2009 - Jul 2021	100
Xiang 2022 (14)	Singapore	Systemic Sclerosis Cohort in Singapore, scleroderma clinic in Singapore General Hospital	Oct 2017 - Jan 2020*	111
Chen 2022 (15)	China	First Affiliated Hospital of Guangxi Medical University (Nanning)	Oct 2012 - Jan 2019	470
Coffey 2021 (16)	USA	Rochester Epidemiology Project (for Olmsted County residents only)	1980 - 2018	85
De Almeida Chaves 2021 (17)	France	Systemic Scleroderma Toulouse Cohort	Jan 2000 - May 2018	375
Dwivedi 2021 (18)	India	Rheumatology Unit of a University Hospital in North-India	Jan 2014 - Sep 2018	94
Fairley 2021 (19)	Australia	Australian Scleroderma Cohort Study	NR	1,728
Khadra 2021 (20)	Australia	South Australian Scleroderma Register	1985 - 2018	30
Leeuwen 2021 (21)	Netherlands	Leiden University Medical Centre	2009 - 2019	492
Allanore 2020 (22)	Europe[¥]	European Scleroderma Trials and Research (EUSTAR)	Jan 1995 - Feb 2019	4,822
Chung 2020 (23)	USA	Kaiser Permanente Northern California	2006 - Dec 2016	609
Foocharoen 2020 (24)	Thailand	Scleroderma Clinic at Srinagarind Hospital, Khon Kaen University	Jan 2013 - Jun 2019	566
Gayle 2020 (25)	England	Clinical Practice Research Datalink linked to Hospital Episode Statistics	Jan 2005 - Mar 2016	675
Morrisroe 2020 (26)	Australia	Australian Scleroderma Cohort Study	2008 - 2015*	1,128
Noviani 2020 (27)	Singapore	Systemic Sclerosis Cohort in Singapore (SCORE), three tertiary rheumatology centres in Singapore	Jan 2008 - Oct 2016	490
Ariani 2019 (28)	Italy	NR	NR	470
Castellví 2019 (29)	Spain	Tertiary or secondary hospitals	Sep 2012 - Jan 2013	199
Hoffmann-Vold 2019 (30)	Norway	Databases of all public hospitals in Norway, and of all private rheumatologists in the country	2000 - 2018	815
Hsu 2019 (31)	USA	Pulmonary Hypertension Assessment and Recognition of Outcomes in Scleroderma registry	2005 - 2014	236
Morrisroe 2019a (32)	Australia	Australian Scleroderma Cohort Study	2008 - 2015*	1,128
Morrisroe 2019b (33)	Australia	Australian Scleroderma Cohort Study	2008 - 2015*	1,085
Park 2019 (34)	South Korea	Seoul National University Hospital	Mar 2018 - Jun 2018	120
Pokeerbux 2019 (35)	France	University hospitals, Lille, Paris (two centres), Nantes, and Lyon	Jan 2000 - Jul 2016	625
Sierakowska 2019 (36)	Poland	11 rheumatology centres in Poland	NR	231
Wu 2019 (37)	Europe[†]	European Scleroderma Trials and Research (EUSTAR) database	Jan 2009 - Aug 2017	1,021
Yang 2019 (38)	China	Peking Union Medical College Hospital	Aug 2010 - Aug 2011*	65
Apipattarakul 2018 (39)	Thailand	Srinagarind Hospital, Khon Kaen University	2006 - 2010	350
Fischer 2018 (40)	USA	Truven Health MarketScan Commercial and Medicare Supplemental healthcare claims databases	2003 - 2014	11,752 (4,605 for mortality analyses)
Hu 2018 (41)	China	Scleroderma Trials and Research Group (EUSTAR) and Chinese Rheumatism Data Centre (CRDC) database of the Peking Union Medical College Hospital	Feb 2009 - Dec 2015*	448
Li 2018 (42)	China	Peking University People's Hospital	Sep 2002 - Sep 2014*	201
Moon 2018 (43)	South Korea	11 university hospitals representing each geographic area of Korea	1986 - 2016	751
Panopoulos 2018 (44)	Greece	NR	Jan 1997 - Jun 2014	115
Rubio-Rivas 2018 (45)	Spain	Spanish Scleroderma Registry	1955 - Dec 2015	1,625
Morrisroe 2017 (46)	Australia	Australian Scleroderma Cohort Study	2011 - 2015*	531
Morrisroe 2016 (47)	Australia	Australian Scleroderma Cohort Study	Dec 2007 - Jun 2015*	802

* enrolment period (study duration was not reported); [†] exact countries not specified.

Supplementary Table S2. Patient characteristics.

Study	Population	N	dcSSc %	lcSSc %	Other SSc%	Age in years	Age timepoint	% female
Cacciapaglia 2023 (1)	All	912	20%	80%	NA	Mean (SD): 45.2 (16)	Onset	91.6%
Fairley 2023 (2)	All	1,561	25.9%	NA	NA	Median (IQR): 47.1 (36.2, 56.4)	Onset	86.4%
Liem 2023 (3)	All	517	23%	NA	NA	Mean (SD): 54 (14)	Onset	81%
Moinzadeh 2023 (4)	All	3,257	31.4%	54.2%	NA	Mean (SD): 47.94 (14.58)	Diagnosis	80.2%
Nevskaya 2023 (5)	All	208	26%	NA	NA	Mean (SD): 52.1 (11.9)	NR	82.7%
Rosato 2023 (6)	All	101	42.6%	NA	NA	Median (IQR): 55 (47, 66)	NR	85.1%
Caetano 2022 (7)	Hospitalized	53	45.3%	54.7%	NA	Mean (SD): 52.9 (16.5)	Diagnosis	81.10%
	Non-hospitalized	42	23.8%	76.2%	NA	Mean (SD): 50.7 (15.6)	Diagnosis	92.90%
de Oliveira Martins 2022 (8)	All	380	32.1%	67.9%	NA	Mean (SD): 55.5 (13.0)	Baseline	89.7%
González Garcia 2022 (9)	All	1,517	61.1%	20.1%	scSSc: 11.5%	Mean (SD): 46.4 (16.5)	Onset	88.7%
Morrisroe 2022 (10)	GAVE	216	35.3%	NA	NA	Median (IQR): 49.51 (40.04, 58.21)	Onset	87%
	No GAVE	1,823	24.1%	NA	NA	Median (IQR): 46.70 (35.97, 56.70)	Onset	85.9%
Paik 2022 (11)	Troponin positive	83	55.4%	NA	NA	Mean (SD): 45.7 (14.2)	Onset	72.3%
	Troponin negative	189	37%	NA	NA	Mean (SD): 43.9 (13.8)	Onset	81.5%
Uddin 2022 (12)	Renal crisis	771	NA	NA	NA	Mean (SD): 59.6 (15.5)	NR	75.4%
	Without renal crisis	179,669	NA	NA	NA	Mean (SD): 57.9 (16.1)	NR	85%
Vos 2022 (13)	All	100	50%	NA	NA	Median (IQR): 54 (46, 64)	Baseline	58%
Xiang 2022 (14)	All	111	34.2%	43.2%	NA	Mean (SD): 49.4 (10.5)	Questionnaire	87.4%
Coffey 2021 (16)	All	85	82%	14%	scSSc: 4%	Mean (SD): 55.4 (16.0)	Diagnosis	91%
Chen 2022 (15)	All	470	70.2%	29.7%	NA	Mean (SD): 50.44 (12.31)	NR	60.5%
De Almeida Chaves 2021 (17)	All	375	17%	74%	scSSc: 9%	Mean (SD): 55.3 (14.2)	Onset	77.9%
Dwivedi 2021 (18)	Renal crisis	15	80%	NA	NA	Mean (SD): 47.3 (9.6)	Baseline	87%
	Without renal crisis	30	63%	NA	NA	Mean (SD): 40.0 (11)	Baseline	93%
Fairley 2021 (19)	No mixed connective tissue disease	1,505	27%	73%	NA	Mean (SD): 46.8 (14.1)	Onset	85.9%
	Mixed connective tissue disease	97	15.5%	84.5%	NA	Mean (SD): 38.4 (14.4)	Onset	85.6%
	Overlap	126	16.7%	83.3%	NA	Mean (SD): 46.5 (15.2)	Onset	89.7%
Khadra 2021 (20)	Scleroderma renal crisis	30	93%	7%	NA	Mean (SD): 51.2 (15.9)	NR	NR
Leeuwen 2021 (21)	All	492	24%	NA	NA	Mean (SD): 55 (14)	Baseline	79%
Allanore 2020 (22)	No HAQ-DI score at any time	4,132	100%	NA	NA	Mean (SD): 52.2 (13.6)	Baseline	77.8%
	≥1 HAQ-DI score	690	100%	NA	NA	Mean (SD): 53.8 (12.9)	Baseline	77.8%
	≥2 HAQ-DI scores	424	100%	NA	NA	Mean (SD): 53.1 (12.7)	Baseline	75.5%
Chung 2020 (23)	All	609	19%	NA	NA	Mean (SD): 55.4 (14.8)	Diagnosis	89.3%
Foocharoen 2020 (24)	All	566	73%	27%	NA	Mean (SD): 50.0 (11.8)	Onset	62.9%
Gayle 2020 (25)	No ILD	127	NA	NA	NA	Mean (SD): 62 (17)	Diagnosis	79%
	ILD	477	NA	NA	NA	Mean (SD): 71 (13)	Diagnosis	75%
	Other organ involvement	103	NA	NA	NA	Mean (SD): 65 (18)	Diagnosis	79%
Morrisroe 2020 (26)	ILD	355	42.5%	57.5%	NA	Mean (SD): 46.2 (14.7)	Onset	80.3%
	No ILD	793	19.2%	80.8%	NA	Mean (SD): 46.2 (13.9)	Onset	83.1%
Noviani 2020 (27)	ILD	92	48.9%	31.5%	NA	Mean (SD): 46.9 (2.4)	Diagnosis	82.6%
	PAH	50	26.5%	46.9%	NA	Mean (SD): 51.1 (16.4)	Diagnosis	88.0%
	ILD-PH	43	26.2%	47.6%	NA	Mean (SD): 53.8 (15.2)	Diagnosis	88.4%
	No/mild pulmonary involvement	305	33.4%	38.5%	NA	Mean (SD): 46.4 (14.6)	Diagnosis	88.5%
Ariani 2019 (28)	All	470	NA	NA	NA	Mean (95% CIs): 59.2 (57.2, 60.5)	NR	80.85%
Castellví 2019 (29)	All	199	31%	64%	scSSc: 2%	Mean (range): 54 (21–90)	Baseline	82%
Hoffmann-Vold 2019 (30)	All	815	18%	NA	NA	Mean (SD): 53 (14.8)	Diagnosis	84%
Hsu 2019 (31)	All	236	NA	NA	NA	NR	NA	88%
Morrisroe 2019a (32)	PAH	153	NA	75.2%	NA	Mean (SD): 49.3 (13.9)	Onset	87.6%
	Without PAH	975	NA	73.4%	NA	Mean (SD): 45.7 (13.9)	Onset	81.40%
Morrisroe 2019b (33)	Digital ulcer	527	81.8%	65%	NA	Mean (SD): 43.6 (13.9)	Onset	81.9%
	No digital ulcer	558	18.2%	34.9%	NA	Mean (SD): 48.8 (14.0)	Onset	88.5%
Park 2019 (34)	All	120	65.8%	34.2%	NA	Mean (SD): 57.2 (11.2)	Baseline	88.3%
Pokeerbux 2019 (35)	All	625	28.8%	71%	NA	Mean (SD): 50.6 (14.5)	Onset	79%
Sierakowska 2019 (36)	All	231	50.6%	49.4%	NA	Mean (SD): 55.82 (12.55)	Questionnaire	85.7%
Wu 2019 (37)	All (dcSSc)	1,021	100%	0%	NA	Mean (SD): 52.0 (13.7)	Baseline	75.7%

Study	Population	N	dcSSc %	lcSSc %	Other SSc%	Age in years	Age timepoint	% female
Yang 2019 (38)	All	65	61.5%	38.5%	NA	Mean (SD): 47.8 (13.3)	Baseline	92.3%
Apipattarakul 2018 (39)	Adult-onset SSc	297	76.1%	NA	NA	<60	First SSc symptom	65%
	Elderly-onset SSc	53	75.5%	NA	NA	≥60	First SSc symptom	60.4%
Fischer 2018 (40)	Incident SSc (newly diagnosed, no manifestations)	11,752	NA	NA	NA	Mean (SD): 54.9 (14.7)	Diagnosis	84.8%
	Newly diagnosed ILD	1,808	NA	NA	NA	Mean (SD): 57.0 (12.7)	Diagnosis	80.8%
	Newly diagnosed PAH	1,223	NA	NA	NA	Mean (SD): 59.9 (12.1)	Diagnosis	86.8%
Hu 2018 (41)	All	448	43.3%	56.7%	NA	Mean (SD): 39.0 (12.5)	At onset	90.4%
Li 2018 (42)	All	201	50%	30.3%	NA	Mean (SD): 41.6 (13.5)	At onset	91%
Moon 2018 (43)	All	751	35.2%	64.8%	NA	Mean (SD): 46.0 (14.2)	At onset	86.7%
Panopoulos 2018 (44)	All	115	47%	NA	NA	Mean (SD): 48.1 (13.5)	Diagnosis	84.3%
Rubio-Rivas 2018 (45)	All	1,625	22%	60%	scSSc: 11%	Mean (SD): 45.5 (16.4)	Onset	89%
Morrisroe 2017 (46)	Hospitalization: admitted	432	NA	70.8%	NA	Mean (SD): 46.3 (14.4)	Onset	86.6%
	Hospitalization: not admitted	99	NA	73.7%	NA	Mean (SD): 46.1 (12.9)	Onset	87.9%
	ED presentation	284	NA	70.7%	NA	Mean (SD): 46.5 (14.9)	Onset	86.4%
	No ED presentation	231	NA	72.1%	NA	Mean (SD): 45.9 (13.0)	Onset	87.5%
	Ambulatory care: utilized MBS listed service	494	NA	71.7%	NA	Mean (SD): 46.2 (14.1)	Onset	87.9%
	Ambulatory care: attended public outpatient	263	NA	70.3%	NA	Mean (SD): 47.7 (14.4)	Onset	86.3%
	Medication use	531	NA	71.4%	NA	Mean (SD): 46.3 (14.1)	Onset	86.8%
Morrisroe 2016 (47)	Employed	642	25.4%	67.8%	NA	Mean (SD): 50.4 (10.7)	Recruitment	83.80%
	Unemployed	160	38.1%	53.8%	NA	Mean (SD): 51.9 (10.4)	Recruitment	82.50%

SSc: systemic sclerosis; dcSS: diffuse cutaneous SSc; DU: digital ulcer; ED: emergency department; sSSc: extensive SSc; GAVE: gastric antral vascular ectasia; HAQ-DI: Health Assessment Questionnaire-Disability Index; IQR: interquartile range; ILD: interstitial lung disease; lcSSc: limited cutaneous SSc; MBS: Medicare Benefits Schedule; NA: not applicable; NR: not reported; PH: pulmonary hypertension; SRC: scleroderma renal crisis; scSSc: sine cutaneous SSc; SD: standard deviation.

Supplementary Table S3. Kaplan-Meier survival estimates of patients with SSc and organ involvement.

Study	Manifestation description	N participants at baseline	Length of estimate	*p*-value for decreased survival (compared to SSc patients without manifestation)
Interstitial lung disease				
Cacciapaglia 2023 (19)	ILD	380	10 years	0.23
Fairley 2023 (2)	ILD	345	25 years	**<0.001**
	ILD and PAH (lcSSc)	229	12 years	NR
	ILD and PAH (dcSSc)	86	12 years	NR
Moinzadeh 2023 (4)	ILD	923	5 years	**<0.001**
de Oliveira Martins 2022 (8)	ILD	216	15 years	**0.006**
Foocharoen 2020 (24)	Lung fibrosis	265	30 years	NR
Ariani 2019 (28)	ILD	196	5 years	0.1
Hoffmann-Vold 2019 (30)	Lung fibrosis	61	10 years	**<0.001**
Fischer 2018 (40)	ILD	715	10 years	NR
Hu 2018 (41)	ILD	358	30 years	**<0.001**
Pulmonary hypertension				
Cacciapaglia 2023 (1)	Group 1 PH	36	10 years	**<0.001**
Fairley 2023 (2)	PAH	109	25 years	**<0.001**
Moinzadeh 2023 (4)	PAH	148	5 years	**<0.001**
Foocharoen 2020 (24)	PAH	102	30 years	NR
Fischer 2018 (40)	PAH	525	10 years	NR
Hu 2018 (41)	PAH	67	30 years	**<0.001**
PH-ILD				
Cacciapaglia 2023 (1)	Group 3 pulmonary hypertension	NR	10 years	**<0.001**
Fairley 2023 (2)	ILD and PAH	107	25 years	**<0.001**
	ILD and PAH (lcSSc)	55	12 years	NR
	ILD and PAH (dcSSc)	48	12 years	NR
Moinzadeh 2023 (4)	ILD and PH	200	5 years	**<0.001**
Cardiac				
González Garcia 2022 (9)	Left ventricular diastolic dysfunction	272	30 years	**0.048**
Foocharoen 2020 (24)	Impaired left ventricular function	7	30 years	NR
Moon 2018 (43)	Cardiovascular involvement	84	25 years	**<0.001**
Hu 2018 (41)	Arrhythmia	16	30 years	**0.000**
	Pericardial effusion	57	30 years	**0.009**
Renal involvement				
Dwivedi 2021 (18)	Renal crisis	15	80 months	**<0.001**
Khadra 2021 (20)	Renal crisis	30	60 years	**0.0002**
Foocharoen 2020 (24)	Renal crisis	11	30 years	NR
Hu 2018 (41)	Renal crisis	5	30 years	**0.001**
Gastrointestinal				
Morrisroe 2022 (10)	GAVE	216	30 years	0.390
Foocharoen 2020 (24)	Intestinal involvement	99	30 years	NR
Hu 2018 (41)	Gastrointestinal	NR	30 years	0.87
Musculoskeletal				
Hu 2018 (41)	Joint involvement	121	30 years	0.09
	Muscular involvement	44	30 years	0.315
Peripheral vascular				
Morrisroe 2019b (33)	Digital ulcers	505	40 years	**≥0.05**
Hu 2018 (41)	Vascular involvement	430	30 years	0.121
Skin				
Hu 2018 (41)	Modified Rodnan's score ≤15	370	20 years	**0.005**

GAVE: gastric antral vascular ectasia; ILD: interstitial lung disease; NR: not reported; PAH: pulmonary arterial hypertension; PH: pulmonary hypertension.

Supplementary Table S4. Healthcare resource use of patients with SSc manifestations.

Study	Country	Summary of reported impact on healthcare resource use compared to SSc patients without manifestation
ILD		
Caetano 2022 (7)	Portugal	No significant association with hospitalisation
Gayle 2020 (25)	England	**Higher inpatient stays, emergency department attendances, general practitioner visits and outpatient stays**, but similar SSc-related inpatient stays
Noviani 2020 (27)	Singapore	No significant association with hospitalisation
Morrisroe 2019a (32)	Australia	**Significantly higher hospitalisation, emergency department, and medical benefits schedule use**
Fischer 2018 (40)	USA	**A higher percentage of SSc-ILD patients required inpatient admission (53% vs 44%) or emergency room visits (74% vs 61%) over five years of follow-up**
Morrisroe 2017 (46)	Australia	**Significant association with emergency room visits**, but no significant association with hospitalization
Pulmonary hypertension		
Caetano 2022 (7)	Portugal	No significant association with hospitalization
Fischer 2018 (40)	USA	**A higher percentage of SSc-PAH patients required inpatient admission (64% vs 44%) or emergency room visits (72% vs 61%) over five years of follow-up**
Morrisroe 2017 (46)	Australia	No significant association with hospitalisation (p=0.27) or emergency room visits.
Morrisroe 2019a (32)	Australia	**Significantly higher hospitalisation, emergency department, and medical benefits schedule use**
Noviani 2020 (27)	Singapore	No significant association with hospitalisation
PH-ILD		
Noviani 2020 (27)	Singapore	**Significant association with hospitalization ($p<0.001$) by univariate analysis**, however, no significant association in multivariate analysis
Cardiac involvement		
Caetano 2022 (7)	Portugal	**Significant association between diastolic dysfunction of left ventricle and hospitalisation**, however no significant as sociation between right ventricle dysfunction and hospitalisation
Noviani 2020 (27)	Singapore	**Significant association between right heart failure and hospitalisation**
Renal involvement		
Noviani 2020 (27)	Singapore	**Significant association with hospitalisation**
Morrisroe 2017 (46)	Australia	No significant association with emergency room visits or hospitalisation
Gastrointestinal involvement		
Caetano 2022 (7)	Portugal	No significant association with hospitalisation
Morrisroe 2017 (46)	Australia	No significant association with hospitalisation or emergency room visits
Noviani 2020 (27)	Singapore	No significant association with higher hospitalisation
Peripheral vascular involvement		
Nevskaya 2023 (5)	Canada	**Significant increase in total number of healthcare visits, including rheumatologist visits and internal medicine specialist visits, total number of tests or diagnostic procedures performed, number of aids purchased/received**
Caetano 2022 (7)	Portugal	**Significant association with hospitalisation**
Noviani 2020 (27)	Singapore	**Significant association with hospitalisation for digital ulcer/gangrene**, but not for telangiectasia or Raynaud phenomenon
Morrisroe 2019b (33)	Australia	**Significant association with hospitalisation, emergency department visits and medical benefits schedule service utilization rate**
Morrisroe 2017 (46)	Australia	**Significant association with emergency department visits**, but not with hospitalisations

References

1. CACCIAPAGLIA F, AIRÒ P, FORNARO M *et al*.: Survival and prognostic factors from a multicentre large cohort of unselected Italian systemic sclerosis patients. *Rheumatology* 2023; 62(4): 1552-58. https://doi.org/10.1093/rheumatology/keac512
2. FAIRLEY JL, HANSEN D, ROSS L *et al*.: Clinical characteristics and survival of pulmonary arterial hypertension with or without interstitial lung disease in systemic sclerosis. *Arthritis Res Ther* 2023; 25(1): 77. https://doi.org/10.1186/s13075-023-03059-x
3. LIEM SI, BERGSTRA SA, CIAFFI J *et al*.: The long-term course of the Health Assessment Questionnaire in patients with systemic sclerosis. *J Scleroderma Relat Disord* 2023; 8(3): 192-202. https://doi.org/10.1177/23971983231181719
4. MOINZADEH P, BONELLA F, OBERSTE M *et al*.: Impact of systemic sclerosis-associated interstitial lung disease with and without pulmonary hypertension on survival: a large cohort study of the German Network for Systemic Sclerosis. *Chest* 2024; 165(1): 132-45. https://doi.org/10.1016/j.chest.2023.08.013
5. NEVSKAYA T, CALDERON LM, BARON M *et al*.: Health care utilization in systemic sclerosis patients with digital ulcers. *Arthritis Care Res* 2023; 75(5): 1071-8. https://doi.org/10.1002/acr.24902
6. ROSATO E, GIGANTE A, COLALILLO A, PELLICANO C, ALUNNI FEGATELLI D, MUSCARITOLI M: GLIM-diagnosed malnutrition predicts mortality and risk of hospitalization in systemic sclerosis: a retrospective study. *Eur J Intern Med* 2023; 117: 103-10. https://doi.org/10.1016/j.ejim.2023.07.017
7. CAETANO J, BATISTA F, AMARAL MC, OLIVEIRA S, ALVES JD: Acute hospitalization in a cohort of patients with systemic sclerosis: a 10-year retrospective cohort study. *Rheumatol Int* 2022; 42(8): 1393-402. https://doi.org/10.1007/s00296-021-04983-4
8. DE OLIVEIRA MARTINS LV, OLIVEIRA SM, SILVATTI J *et al*.: Mortality in systemic sclerosis-associated interstitial lung disease in Brazil: a real-life, long-term follow-up observational study. *J Clin Rheumatol* 2022; 28(2): e532. https://doi.org/10.1097/RHU.0000000000001792
9. GONZÁLEZ GARCÍA A, FABREGATE M, MANZANO L *et al*.: Left ventricular diastolic dysfunction in systemic sclerosis: clinical, immunological and survival differences in the Spanish RESCLE registry. *Semin Arthritis Rheum* 2022; 55: 152033. https://

doi.org/10.1016/j.semarthrit.2022.152033
10. MORRISROE K, HANSEN D, STEVENS W *et al*.: Gastric antral vascular ectasia in systemic sclerosis: a study of its epidemiology, disease characteristics and impact on survival. *Arthritis Res Ther* 2022; 24(1): 103. https://doi.org/10.1186/s13075-022-02790-1
11. PAIK JJ, CHOI DY, MUKHERJEE M *et al*.: Troponin elevation independently associates with mortality in systemic sclerosis. *Clin Exp Rheumatol* 2022; 40(10): 1933-40. https://doi.org/10.55563/clinexprheumatol/fytfmy
12. UDDIN M, MIR T, SURAPANENI S *et al*.: Scleroderma hypertensive renal crisis among systemic sclerosis patients: A national emergency department database study. *Am J Emerg Med* 2022; 53: 228-35. https://doi.org/10.1016/j.ajem.2022.01.020
13. VOS JL, BUTCHER SC, FORTUNI F *et al*.: The prognostic value of right atrial and right ventricular functional parameters in systemic sclerosis. *Front Cardiovasc Med* 2022; 9: 845359. https://doi.org/10.3389/fcvm.2022.845359
14. XIANG L, KUA SMY, LOW AHL: Work productivity and economic burden of systemic sclerosis in a multiethnic Asian population. *Arthritis Care Res* 2022; 74(5): 818-27. https://doi.org/10.1002/acr.24521
15. CHEN Y, WU L, HERNÁNDEZ-MUÑOZ J *et al*.: The economic burden of systemic sclerosis. A systematic review. *Int J Rheum Dis* 2022; 25(2): 110-20. https://doi.org/10.1111/1756-185X.14270
16. COFFEY CM, RADWAN YA, SANDHU AS *et al*.: Epidemiology and trends in survival of systemic sclerosis in Olmsted County (1980-2018): a population-based study. *J Scleroderma Relat Disord* 2021; 6(3): 264-70. https://doi.org/10.1177/23971983211026
17. DE ALMEIDA CHAVES S, POREL T, MOUNIÉ M *et al*.: Sine scleroderma, limited cutaneous, and diffused cutaneous systemic sclerosis survival and predictors of mortality. *Arthritis Res Ther* 2021; 23(1): 295. https://doi.org/10.1186/s13075-021-02672-y
18. DWIVEDI P, MB A, ACHARYA N *et al*.: Scleroderma renal crisis is associated with high mortality: a real-world study from India. *J Assoc Physicians India* 2021; 69(10): 11-2.
19. FAIRLEY JL, HANSEN D, PROUDMAN S *et al*.: Clinical features of systemic sclerosis–mixed connective tissue disease and systemic sclerosis overlap syndromes. *Arthritis Care Res* 2021; 73(5): 732-41. https://doi.org/10.1002/acr.24167
20. KHADRA Y, WALKER JG, HAKENDORF P *et al*.: Scleroderma renal crisis: observations from the South Australian Scleroderma Register. *Intern Med J* 2021; 51(2): 235-42. https://doi.org/10.1111/imj.14772
21. VAN LEEUWEN NM, CIAFFI J, LIEM SIE *et al*.: Health-related quality of life in patients with systemic sclerosis: evolution over time and main determinants. *Rheumatology* 2021; 60(8): 3646-55. https://doi.org/10.1093/rheumatology/keaa827
22. ALLANORE Y, BOZZI S, TERLINDEN A *et al*.: Health Assessment Questionnaire-Disability Index (HAQ-DI) use in modelling disease progression in diffuse cutaneous systemic sclerosis: an analysis from the EUSTAR database. *Arthritis Res Ther* 2020; 22(1): 257. https://doi.org/10.1186/s13075-020-02329-2
23. CHUNG MP, DONTSI M, POSTLETHWAITE D *et al*.: Increased mortality in Asians with systemic sclerosis in Northern California. *ACR Open Rheumatol* 2020; 2(4): 197-206. https://doi.org/10.1002/acr2.11126
24. FOOCHAROEN C, PEANSUKWECH U, MAHAKANUKRAUH A *et al*.: Clinical characteristics and outcomes of 566 Thais with systemic sclerosis: A cohort study. *Int J Rheum Dis* 2020; 23(7): 945-57. https://doi.org/10.1111/1756-185X.13859
25. GAYLE A, SCHOOF N, ALVES M *et al*.: Healthcare resource utilization among patients in England with systemic sclerosis-associated interstitial lung disease: a retrospective database analysis. *Adv Ther* 2020; 37(5): 2460-76. https://doi.org/10.1007/s12325-020-01330-0
26. MORRISROE K, STEVENS W, SAHHAR J *et al*.: The clinical and economic burden of systemic sclerosis related interstitial lung disease. *Rheumatology* 2020; 59(8): 1878-88. https://doi.org/10.1093/rheumatology/kez532
27. NOVIANI M, SAFFARI SE, TAN JL *et al*.: Mortality and hospitalization outcomes of interstitial lung disease and pulmonary hypertension in the Singapore systemic sclerosis cohort. *Semin Arthritis Rheum* 2020; 50(3): 473-9. https://doi.org/10.1016/j.semarthrit.2019.11.005
28. ARIANI A, SILVA M, BRAVI E *et al*.: Overall mortality in combined pulmonary fibrosis and emphysema related to systemic sclerosis. *RMD Open* 2019; 5(1): e000820. https://doi.org/10.1136/rmdopen-2018-000820
29. CASTELLVÍ I, EGUILUZ S, ESCUDERO-CONTRERAS A *et al*.: LAUDES Study: impact of digital ulcers on hand functional limitation, work productivity and daily activities, in systemic sclerosis patients. *Rheumatol Int* 2019; 39(11): 1875-82. https://doi.org/10.1007/s00296-019-04436-z
30. HOFFMANN-VOLD AM, FRETHEIM H, HALSE AK *et al*.: Tracking impact of interstitial lung disease in systemic sclerosis in a complete nationwide cohort. *Am J Respir Crit Care Med* 2019; 200(10): 1258-66. https://doi.org/10.1164/rccm.201903-0486oc
31. HSU VM, CHUNG L, HUMMERS LK *et al*.: Risk factors for mortality and cardiopulmonary hospitalization in systemic sclerosis patients at risk for pulmonary hypertension, in the PHAROS Registry. *J Rheumatol* 2019; 46(2): 176-83. https://doi.org/10.3899/jrheum.180018
32. MORRISROE K, STEVENS W, SAHHAR J *et al*.: The economic burden of systemic sclerosis related pulmonary arterial hypertension in Australia. *BMC Pulm Med* 2019; 19(1): 226. https://doi.org/10.1186/s12890-019-0989-1
33. MORRISROE K, STEVENS W, SAHHAR J *et al*.: Digital ulcers in systemic sclerosis: their epidemiology, clinical characteristics, and associated clinical and economic burden. *Arthritis Res Ther* 2019; 21(1): 299. https://doi.org/10.1186/s13075-019-2080-y
34. PARK EH, STRAND V, OH YJ *et al*.: Health-related quality of life in systemic sclerosis compared with other rheumatic diseases: a cross-sectional study. *Arthritis Res Ther* 2019; 21(1): 61. https://doi.org/10.1186/s13075-019-1842-x
35. POKEERBUX MR, GIOVANNELLI J, DAUCHET L *et al*.: Survival and prognosis factors in systemic sclerosis: data of a French multicenter cohort, systematic review, and meta-analysis of the literature. *Arthritis Res Ther* 2019; 21(1): 86. https://doi.org/10.1186/s13075-019-1867-1
36. SIERAKOWSKA M, DOROSZKIEWICZ H, SIERAKOWSKA J *et al*.: Factors associated with quality of life in systemic sclerosis: a cross-sectional study. *Qual Life Res* 2019; 28(12): 3347-54. https://doi.org/10.1007/s11136-019-02284-9
37. WU W, JORDAN S, GRAF N *et al*.: Progressive skin fibrosis is associated with a decline in lung function and worse survival in patients with diffuse cutaneous systemic sclerosis in the European Scleroderma Trials and Research (EUSTAR) cohort. *Ann Rheum Dis* 2019; 78(5): 648-56. https://doi.org/10.1136/annrheumdis-2018-213455
38. YANG H, XU D, LI MT *et al*.: Gastrointestinal manifestations on impaired quality of life in systemic sclerosis. *J Dig Dis* 2019; 20(5): 256-61. https://doi.org/10.1111/1751-2980.12720
39. APIPATTARAKUL R, FOOCHAROEN C, NETWIJITPAN S *et al*.: Clinical characteristics and mortality rate of Thai elderly-onset systemic sclerosis. *Clin Exp Rheumatol* 2018; 36 (Suppl. 113): S76-81.
40. FISCHER A, KONG AM, SWIGRIS JJ *et al*.: All-cause healthcare costs and mortality in patients with systemic sclerosis with lung involvement. *J Rheumatol* 2018; 45(2): 235-41. https://doi.org/10.3899/jrheum.170307
41. HU S, HOU Y, WANG Q *et al*.: Prognostic profile of systemic sclerosis: analysis of the clinical EUSTAR cohort in China. *Arthritis Res Ther* 2018; 20(1): 235. https://doi.org/10.1186/s13075-018-1735-4
42. LI X, QIAN Y Q, LIU N *et al*.: Survival rate, causes of death, and risk factors in systemic sclerosis: a large cohort study. *Clin Rheumatol* 2018; 37(11): 3051-6. https://doi.org/10.1007/s10067-018-4291-z
43. MOON KW, LEE SS, LEE YJ *et al*.: Clinical and laboratory characteristics and mortality in Korean patients with systemic sclerosis: a nationwide multicenter retrospective cohort study. *J Rheumatol* 2018; 45(9): 1281-8. https://doi.org/10.3899/jrheum.171443
44. PANOPOULOS S, BOURNIA VK, KONSTANTONIS G *et al*.: Predictors of morbidity and mortality in early systemic sclerosis: Long-term follow-up data from a single-centre inception cohort. *Autoimmun Rev* 2018; 17(8): 816-20. https://doi.org/10.1016/j.autrev.2018.02.008
45. RUBIO-RIVAS M, CORBELLA X, PESTAÑA-FERNÁNDEZ M *et al*.: First clinical symptom as a prognostic factor in systemic sclerosis: results of a retrospective nationwide cohort study. *Clin Rheumatol* 2018; 37(4): 999-1009. https://doi.org/10.1007/s10067-017-3936-7
46. MORRISROE K, STEVENS W, SAHHAR J *et al*.: Quantifying the direct public health care cost of systemic sclerosis. *Medicine* (Baltimore) 2017; 96(48): e8503. https://doi.org/10.1097/md.0000000000008503
47. MORRISROE K, HUQ M, STEVENS W *et al*.: Determinants of unemployment amongst Australian systemic sclerosis patients: results from a multicentre cohort study. *Clin Exp Rheumatol* 2016; 34 (Suppl. 100): S79-84.