

Supplementary material

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Table S1 SRI results according to underlying diagnosis

Characteristic	N	Diagnosis					P-value ¹
		COPD, N = 56	OHS, N = 8	kyphoscoliosis, N = 20	Neuromuscular disease, N = 13	other, N = 13	
Respiratory complaints (SRI – RC) (Q1.)	110						0.005
Mean (SD)		45.71 (17.48)	53.12 (24.49)	58.44 (18.31)	68.48 (18.19)	51.44 (23.82)	
Median [IQR]		45.31 [31.92, 59.38]	48.44 [38.28, 67.19]	59.38 [43.75, 69.53]	65.62 [59.38, 81.25]	46.88 [31.25, 59.38]	
Range		0.00, 75.00	21.88, 96.88	25.00, 93.75	34.38, 96.88	21.88, 93.75	
Physical functioning (SRI – PF) (Q1.)	110						0.092
Mean (SD)		36.33 (19.15)	48.02 (26.00)	39.79 (17.55)	22.12 (24.02)	40.19 (29.02)	
Median [IQR]		35.42 [20.83, 50.00]	48.33 [32.29, 64.58]	37.50 [28.12, 54.17]	12.50 [0.00, 37.50]	35.00 [12.50, 66.67]	
Range		0.00, 79.17	12.50, 87.50	8.33, 70.83	0.00, 70.83	0.00, 83.33	
attendant symptoms and sleep (SRI – AS) (Q1.)	110						0.037
Mean (SD)		50.78 (18.04)	48.21 (28.89)	57.50 (20.27)	65.66 (14.91)	65.66 (22.57)	
Median [IQR]		48.21 [37.05, 64.29]	48.21 [20.54, 66.07]	60.71 [41.96, 68.75]	67.86 [57.14, 67.86]	60.71 [50.00, 89.29]	
Range		17.86, 89.29	17.86, 96.43	21.43, 96.43	42.86, 100.00	28.57, 96.43	

Characteristic	N	Diagnosis					P-value ¹
		COPD, N = 56	OHS, N = 8	kyphoscoliosis, N = 20	Neuromuscular disease, N = 13	other, N = 13	
Social relationships (SRI – SR) (Q1.)	110						0.862
Mean (SD)		68.06 (18.84)	67.19 (23.19)	67.92 (15.60)	73.40 (13.56)	68.40 (16.37)	
Median [IQR]		66.67 [55.73, 80.83]	68.75 [50.00, 82.29]	64.58 [58.33, 79.17]	79.17 [62.50, 79.17]	66.67 [62.50, 75.00]	
Range		35.00, 100.00	37.50, 100.00	45.83, 100.00	45.83, 91.67	33.33, 95.83	
Anxiety (SRI – AX) (Q1.)	110						0.015
Mean (SD)		37.25 (20.79)	47.50 (27.77)	52.25 (22.56)	56.54 (19.30)	38.94 (26.02)	
Median [IQR]		35.00 [23.75, 55.00]	45.00 [27.50, 61.25]	57.50 [35.00, 70.00]	55.00 [40.00, 70.00]	45.00 [15.00, 55.00]	
Range		0.00, 80.00	15.00, 100.00	0.00, 85.00	25.00, 95.00	6.25, 85.00	
Physiological wellbeing (SRI – WB) (Q1.)	110						0.920
Mean (SD)		49.74 (19.67)	55.56 (20.30)	52.36 (24.55)	52.14 (26.14)	51.23 (20.86)	
Median [IQR]		50.00 [40.97, 61.81]	58.33 [41.67, 61.81]	50.00 [36.11, 69.44]	58.33 [38.89, 69.44]	44.44 [38.89, 66.67]	
Range		5.56, 88.89	30.56, 94.44	5.56, 97.22	0.00, 83.33	25.00, 88.89	
Social functioning (SRI – SF) (Q1.)	110						0.717
Mean (SD)		43.13 (24.55)	51.00 (24.21)	47.95 (21.12)	40.56 (20.57)	48.87 (28.75)	
Median [IQR]		43.30 [20.31, 59.38]	53.12 [28.12, 60.60]	51.56 [31.25, 60.16]	37.50 [25.00, 50.00]	50.00 [21.88, 81.25]	
Range		0.00, 96.88	25.00, 96.88	12.50, 93.75	12.50, 75.00	7.14, 87.50	
Total (SRI – SS) (Q1.)	110						0.461
Mean (SD)		47.29 (15.37)	52.94 (23.56)	53.74 (16.43)	54.13 (14.59)	52.10 (20.85)	
Median [IQR]		47.78 [36.46, 58.39]	54.71 [34.21, 63.96]	56.08 [41.85, 61.73]	53.29 [47.16, 60.21]	44.82 [36.74, 74.23]	
Range		21.10, 78.58	24.25, 96.02	18.14, 83.71	22.94, 76.64	25.82, 82.96	

Characteristic	N	Diagnosis				P-value ¹
		COPD, N = 56	OHS, N = 8	kyphoscoliosis, N = 20	Neuromuscular disease, N = 13	

¹Kruskal-Wallis rank sum test

Abbreviations: Q1 – questionnaire 1. COPD – chronic obstructive pulmonary disease. OHS – obesity hypoventilation syndrome.

Table S2 SRI results according to the method of treatment

Characteristic	N	Treatment				P-value ¹
		LTOT, N = 47	IV, N = 15	NIV, N = 14	NIV+O2, N = 36	
Respiratory complaints (SRI – RC) (Q1.)	112					0.008
Mean (SD)		45.88 (19.89)	61.49 (20.68)	64.06 (17.45)	51.20 (19.03)	
Median [IQR]		43.75 [31.25, 59.38]	62.50 [51.56, 74.78]	60.94 [51.56, 71.09]	50.00 [37.50, 63.28]	
Range		0.00, 93.75	25.00, 96.88	40.62, 93.75	21.43, 96.88	
Physical functioning (SRI – PF) (Q1.)	112					<0.001
Mean (SD)		40.45 (21.26)	12.50 (16.96)	45.30 (21.27)	36.74 (18.68)	
Median [IQR]		37.50 [20.83, 56.25]	4.17 [0.00, 20.83]	39.58 [37.50, 60.62]	36.25 [23.96, 45.83]	
Range		4.17, 83.33	0.00, 58.33	8.33, 79.17	4.17, 87.50	
Attendant symptoms and sleep (SRI – AS) (Q1.)	112					0.022
Mean (SD)		50.27 (21.41)	66.67 (15.43)	60.97 (20.27)	56.51 (19.20)	
Median [IQR]		46.43 [35.71, 62.50]	67.86 [58.93, 73.21]	58.93 [51.79, 70.54]	58.93 [41.07, 71.43]	
Range		17.86, 96.43	42.86, 100.00	28.57, 96.43	17.86, 96.43	
Social relationships (SRI – SR) (Q1.)	112					0.841
Mean (SD)		68.26 (19.36)	64.17 (20.34)	72.02 (15.19)	68.30 (16.43)	
Median [IQR]		66.67 [56.25, 83.33]	62.50 [50.00, 79.17]	75.00 [58.33, 82.29]	66.67 [57.81, 79.17]	
Range		33.33, 100.00	20.83, 91.67	45.83, 95.83	37.50, 100.00	

Characteristic	N	Treatment				P-value ¹
		LTOT, N = 47	IV, N = 15	NIV, N = 14	NIV+O2, N = 36	
Anxiety (SRI – AX) (Q1.)	112					0.036
Mean (SD)		37.13 (22.19)	48.67 (21.83)	54.64 (17.81)	44.79 (24.35)	
Median [IQR]		35.00 [20.00, 55.00]	45.00 [35.00, 62.50]	57.50 [45.00, 68.75]	50.00 [30.00, 65.00]	
Range		0.00, 85.00	15.00, 95.00	15.00, 75.00	0.00, 100.00	
Psychological wellbeing (SRI – WB) (Q1.)	112					0.792
Mean (SD)		49.98 (21.43)	47.04 (25.19)	49.80 (20.91)	54.46 (19.40)	
Median [IQR]		50.00 [36.63, 63.89]	50.00 [26.39, 68.06]	51.39 [30.56, 69.44]	55.56 [46.53, 63.89]	
Range		5.56, 88.89	0.00, 83.33	13.89, 77.78	5.56, 97.22	
Social functioning (SRI – SF) (Q1.)	112					0.057
Mean (SD)		47.04 (25.89)	30.36 (14.83)	50.06 (20.77)	46.35 (23.11)	
Median [IQR]		43.75 [23.44, 62.50]	31.25 [18.75, 35.94]	51.56 [33.26, 64.29]	50.00 [30.47, 59.38]	
Range		7.14, 96.88	9.38, 65.62	14.29, 81.25	0.00, 96.88	
Total (SRI – SS) (Q1.)	112					0.406
Mean (SD)		48.43 (17.70)	47.27 (14.02)	56.69 (15.75)	51.19 (16.51)	
Median [IQR]		48.45 [35.40, 60.36]	47.16 [40.79, 53.39]	60.42 [40.14, 64.25]	51.37 [40.29, 60.94]	
Range		21.10, 78.58	22.94, 76.64	34.21, 82.96	18.14, 96.02	

¹Kruskal-Wallis rank sum test

Abbreviations: Q1 – questionnaire 1. LTOT – long-term oxygen therapy. NIV – non-onvasive ventilation, IV – invasive ventilation, O2 – supplementary oxygen. SD – standard deviation. IQR – interquartile range.

Table S3 Validity assessment - exploratory factor analysis

PCA method with a varimax rotation, using an eigenvalue >1 for extraction and further verified by scree plot: identified 11 components with eigenvalues >1, explains 68.97% of variance

SRI Item/PCA Component	RC1	RC5	RC3	RC2	RC7	RC11	RC9	RC6	RC4	RC8	RC10
SRI1_1	0.259	.	.	0.138	.	.	.	.	0.117	0.701	.
SRI1_2	0.446	0.431	0.338	0.274	0.102	.	0.195	.	0.104	0.105	-0.190
SRI1_3	0.431	.	.	.	.	.	0.108	.	0.184	0.169	0.629
SRI1_4	0.277	0.301	0.491	.	0.210	0.289	0.198	.	-0.153	-0.157	.
SRI1_5	0.440	0.512	.	0.389	0.181	.	0.136	.	.	.	-0.105
SRI1_6	0.135	0.248	.	.	0.171	.	0.801	0.111	.	-0.112	.
SRI1_7	0.109	.	0.122	.	.	.	.	0.254	0.709	0.138	.
SRI1_8	0.153	0.498	0.406	0.170	0.108	0.166	0.233	.	-0.145	0.165	.
SRI1_9	.	0.142	0.356	.	0.615	.	0.270	.	0.161	.	.
SRI1_10	.	-0.161	0.333	.	.	0.116	0.183	0.695	.	.	.
SRI1_11	0.126	0.359	.	0.216	0.402	0.114	0.467	0.142	.	.	-0.267
SRI1_12	0.169	0.550	.	0.379	0.349	.	0.206	0.210	.	-0.156	.
SRI1_13	0.161	0.689	.	0.216	0.161	0.183	0.179	.	.	.	0.139
SRI1_14	.	.	.	0.325	0.156	0.254	0.635	.	.	.	0.128
SRI1_15	0.680	0.197	0.118	.	.	0.152	0.114	.	0.152	0.421	0.160
SRI1_16	0.629	0.213	0.168	.	0.256	0.106	.	.	.	0.399	.
SRI1_17	.	0.131	.	0.263	0.775	0.219	.	.	.	.	.
SRI1_18	.	0.213	.	0.132	0.813	0.144	0.139	.	.	.	.
SRI1_19	0.242	0.378	.	0.676	0.100	.	0.189	.	.	.	.
SRI1_20	0.259	.	0.617	.	.	0.251	0.110	0.296	0.194	.	0.189
SRI1_21	.	0.224	0.488	.	0.237	0.171	-0.106	.	0.479	.	0.240
SRI1_22	0.301	0.257	.	0.400	0.189	.	0.187	0.166	.	0.363	-0.172
SRI1_23	0.159	0.321	.	0.312	0.239	0.258	0.282	.	0.343	0.245	.
SRI1_24	.	0.304	.	0.261	0.292	0.305	.	0.382	-0.252	0.103	0.230
SRI1_25	0.215	0.475	-0.101	-0.139	0.285	.	.	0.344	.	0.331	.
SRI1_26	.	0.642	.	.	0.105	0.257	.	-0.114	0.219	0.158	.
SRI1_27	0.140	0.248	0.151	.	.	.	.	0.708	0.336	.	.
SRI1_28	0.257	0.662	0.164	0.338	0.157	0.143	.	.	.	0.117	0.167
SRI1_29	.	0.199	.	0.822	0.139	.	.	.	.	.	.
SRI1_30	0.143	0.300	0.248	.	0.134	0.665	.	.	.	0.174	-0.164
SRI1_31	0.484	0.286	0.246	.	.	0.301	.	0.282	.	.	-0.398
SRI1_32	0.796	.	0.150	0.153	.	.	0.114	.	.	0.147	0.251
SRI1_33	0.661	.	0.246	.	0.109	.	.	0.144	-0.106	.	.
SRI1_34	0.270	0.194	0.334	0.123	0.115	0.578	0.297	0.116	.	.	0.162
SRI1_35	0.584	0.308	0.133	.	.	0.245	0.161	.	0.336	0.121	.
SRI1_36	0.235	.	0.762	.	.	.	.	0.171	.	.	.
SRI1_37	0.586	0.177	0.298	0.180	0.167	.	.	0.108	0.332	.	0.160

SRI Item/PCA Component	RC1	RC5	RC3	RC2	RC7	RC11	RC9	RC6	RC4	RC8	RC10
SRI1_38	.	0.223	0.499	0.199	0.248	0.495	.	.	0.200	.	.
SRI1_39	0.500	.	.	0.436	.	0.236	.	0.100	-0.135	0.226	.
SRI1_40	0.185	0.164	0.243	0.251	0.281	0.708	0.139	.	.	.	0.139
SRI1_41	0.530	.	0.183	-0.447	.	.	-0.280	0.179	-0.122	0.313	.
SRI1_42	0.255	.	0.147	0.501	0.392	0.303	.	.	.	0.143	.
SRI1_43	0.413	0.152	0.121	0.193	0.228	0.303	.	0.324	0.236	-0.187	.
SRI1_44	0.315	0.266	0.544	.	.	0.185	-0.148	.	.	.	0.325
SRI1_45	0.698	0.110	0.120	0.375	.	0.167	.	0.137	.	0.135	.
SRI1_46	0.542	0.496	0.212	.	.	0.370	.	0.159	.	-0.127	-0.195
SRI1_47	0.458	0.311	0.107	0.103	0.373	0.252	.	.	0.384	-0.115	.
SRI1_48	0.721	.	0.156	.	.	0.314	.	.	0.248	.	.
SRI1_49	0.256	.	0.813	.	.	.	.	.	.	0.138	-0.118

Table S4 Validity assessment - confirmatory factor analysis

Confirmatory factor analysis for SRI-RC (PCA with a varimax rotation, using an eigenvalue >1 for extraction): identified 2 components with eigenvalues >1, explains 60.03% of variance.

SRI Item/PCA Component	RC1	RC2
SRI1_2	0.667	0.263
SRI1_5	0.745	0.226
SRI1_12	0.661	0.444
SRI1_19	0.818	0.156
SRI1_22	0.645	0.218
SRI1_24	0.247	0.653
SRI1_25	.	0.889
SRI1_29	0.779	.

Confirmatory factor analysis for SRI-PF (PCA with a varimax rotation, using an eigenvalue >1 for extraction): identified 1 components with eigenvalues >1, explains 51.32% of variance.

Confirmatory factor analysis for SRI-AS (PCA with a varimax rotation, using an eigenvalue >1 for extraction): identified 2 components with eigenvalues >1, explains 62.55% of variance.

SRI Item/PCA Component	RC1	RC2
SRI1_6	0.144	0.851
SRI1_9	0.621	0.238
SRI1_11	0.520	0.571
SRI1_14	0.153	0.763
SRI1_17	0.838	0.179
SRI1_18	0.876	0.160
SRI1_42	0.665	0.139

Confirmatory factor analysis for SRI-SR (PCA with a varimax rotation, using an eigenvalue >1 for extraction): identified 2 components with eigenvalues >1, explains 59.12% of variance.

SRI Item/PCA Component	RC1	RC2
SRI1_7	.	0.783
SRI1_10	0.107	0.752
SRI1_21	0.500	0.387
SRI1_27	0.464	0.582
SRI1_43	0.809	0.135
SRI1_46	0.854	.

Confirmatory factor analysis for SRI-AX (PCA with a varimax rotation, using an eigenvalue >1 for extraction): identified 1 components with eigenvalues >1, explains 53.38% of variance.

Confirmatory factor analysis for SRI-WB (PCA with a varimax rotation, using an eigenvalue >1 for extraction): identified 2 components with eigenvalues >1, explains 65.58% of variance.

SRI Item/PCA Component	RC1	RC2
SRI1_4	0.600	0.373
SRI1_20	0.285	0.740
SRI1_30	0.748	0.180
SRI1_34	0.827	0.252

SRI Item/PCA Component	RC1	RC2
SRI1_36	0.185	0.864
SRI1_38	0.660	0.441
SRI1_40	0.881	0.151
SRI1_44	0.381	0.564
SRI1_49	0.193	0.851

Confirmatory factor analysis for SRI-SF (PCA with a varimax rotation, using an eigenvalue >1 for extraction): identified 1 components with eigenvalues >1, explains 50.21% of variance.