ONLINE SUPPLEMENTS

Figure E8. Forest plot for the correlation between health-related quality of life and anxiety.

Figure E9. Forest plot for the correlation between health-related quality of life and rate of hospital admissions.

Figure E10. Forest plot for the correlation between health-related quality of life and rate of infections/exacerbations.

Figure E11. Forest plot for the correlation between health-related quality of life and forced vital capacity (FVC).

Figure E12. Forest plot for the correlation between health-related quality of life and sputum colour.

Figure E13. Forest plot for the correlation between health-related quality of life and positive bacterial sputum culture.

Figure E14. Forest plot for the correlation between health-related quality of life and comorbidities.

Figure E15. Funnel plot of FEV_1% assessing the publication bias for the relevant meta-analysis studies.

Figure E16. Funnel plot of exercise capacity assessing the publication bias for the relevant meta-analysis studies.

References. References of supplementary material and additional references of the main paper.

ONLINE APPENDIX 1

QUALITY CRITERIA USED TO ASSESS ARTICLES INCLUDED IN THE REVIEW

A. Bronchiectasis Case Definition and HRQOL Study Subject Assembly

1. Were the inclusion and exclusion criteria reported?
2. Did all bronchiectasis subjects undergo CT or bronchography?
3. Inclusion criteria included symptoms and physical examination consistent with a diagnosis of bronchiectasis?
4. Did the authors state if acute or stable disease and definition of it?
5. Was cystic fibrosis excluded for bronchiectasis?
6. Did the authors state which subjects would complete the HRQOL instrument?

B. Clinical Characteristics of Bronchiectasis Subjects

7. For the subjects with bronchiectasis, is the age distribution given?
8. For the subjects with bronchiectasis, is the gender distribution given?
9. For the subjects with bronchiectasis, is the race/ethnicity distribution given?
10. For the subjects with bronchiectasis, are there data for FEV_1?
11. For the subjects with bronchiectasis, are there data for sputum microbiology?
12. For the subjects with bronchiectasis, are there data for pseudomonas chronic colonisation or intermittent infection?
13. For the subjects with bronchiectasis, are there data for sputum volume?
14. For the subjects with bronchiectasis, are there data for aetiology?
15. For the subjects with bronchiectasis, are there data for exacerbation rate?
16. For the subjects with bronchiectasis, are there data for medications?
17. For the subjects with bronchiectasis, are there data for oxygen requirements?
18. For the subjects with bronchiectasis, is there an objective measure (e.g. a CT scoring scale) for the degree of abnormality on CT?
19. Were potentially relevant comorbidities discussed?

C. HRQOL Instrument Selection

20. *****Was this study designed to evaluate, validate or develop a HRQOL questionnaire in bronchiectasis?
21. If this study is not designed to "validate" an instrument, did the authors provide a rationale for choosing the HRQOL instrument(s) studied?
22. Was the instrument(s) chosen for this study specifically designed to assess HRQOL in bronchiectasis patients?
23. If this study is not a study designed to "validate" an instrument, did the authors discuss (or reference) previously published data that supports the reliability (e.g. test-retest and internal consistency) of the chosen instrument(s) in bronchiectasis patients?
24. If a translated instrument was used, did the authors discuss (or reference) data that verifies the cultural validity of the translated instrument?

D. HRQOL Endpoints and Instrument Administration

25. *****Was the hypothesis regarding HRQOL stated?
26. Did the authors state which instrument scores (e.g. the total instrument score or specific domain scores) were specified as endpoints?
27. Was the instrument(s) administered in the format (e.g. self- or interviewer-administered) that the instrument developers intended?
28. Did the authors adequately describe the timing of instrument(s) administration (as applicable) in the context of a single administration, an individual study visit, and throughout the course of the study?
29. Did the authors provide details of the scoring methods used?
30. Did the authors provide information on how to interpret scores (e.g. do higher scores indicate better or worse HRQOL)?

E. Methods of Statistical Analysis

31. Did the authors provide documentation of sample size estimation?
32. Did the authors describe how missing data (e.g. items missing responses and data from drop-outs) would be accounted for (e.g. by using imputation methods)?
33. Did the authors define what would deem a subject's HRQOL data inadequate (or did they define what constitutes adequate data) for analysis?
34. Were the statistical methods used to assess (and if applicable, to compare) HRQOL described in enough detail that other researchers could repeat the analysis if the full data were made available?

F. Reporting Results

35. Was compliance (% of patients who were asked to complete the instrument and actually completed it) data for each administration given?
36. *****Did the investigators calculate Internal Consistency Reliability (i.e. Cronbach's alpha) for the instrument (and/or its subscales in this study's population?
37. *****Were the floor and ceiling effect levels reported?
38. Were the results of the primary and secondary HRQOL analyses presented adequately (e.g. mean or median scores) to support the conclusions drawn?
39. Were confidence intervals or p-values reported for the results of the hypothesized HRQOL endpoints?
40. Did the authors adequately report missing data (e.g. due to item non-response, due to non-completion of the instrument)?
41. Were subjects excluded from the HRQOL analysis?
    a. If "Yes" did the investigators describe the circumstances surrounding subjects excluded from the analysis?
42. Was the clinical significance of the HRQOL results addressed?

***Not applicable for the studies included in the meta-analysis of HRQOL correlations only.**

ONLINE APPENDIX 2

SUPPLEMENTAL ANALYSIS

The correlation coefficients were converted to Fisher's Z using $z = 2^{-1} \cdot l \{(1+r)/(1-r)\}$ and subjected to meta-analytic models (Borenstein et al. 2011). For the final interpretation of the findings, a mean r correlation coefficient for associations was calculated from Fisher's Z as per $r = \frac{\exp(2z) - 1}{\exp(2z) + 1} = \tanh(z),$. A random effects model was used to produce a pooled estimate of the correlation coefficients. Statistical heterogeneity was assessed using Cochran's Q test, which examines the null hypothesis that all studies are evaluating the same effect (Higgins et al. 2003). Statistical significance for heterogeneity was set as $p \leq 0.10$. Heterogeneity was quantified using the I^2 statistic, indicating the percentage of total variation across studies that is due to heterogeneity rather than chance (Higgins et al. 2003). I^2 value of 0% was considered to indicate no observed heterogeneity whilst a value >50% substantial heterogeneity (Higgins et al. 2002).

A funnel plot was created for the clinical measures with ≥10 studies (Cochrane Group). This is a scatter plot of the effect estimates from individual studies against a measurement of the study's sample size or precision. Resemblance of a symmetrical inverted funnel supports that findings are due to sampling variation alone; thus absence of bias (Sterne et al. 2011). For the funnel plots indicating publication bias, an Engel's test was performed (null hypothesis: studies are no subject to publication bias, significance $p<0.05$). Rosenthal's N expresses the number of un-retrieved or negative studies that are needed to overturn the results of the meta-analysis and create a non-significant meta-analytic result.

References in online supplement.

ONLINE APPENDIX 3

HEALTH-RELATED QUALITY OF LIFE QUESTIONNAIRES

Saint George's Respiratory Questionnaire (SGRQ): was originally developed to measure HRQOL of patients with Chronic Obstructive Pulmonary Disease (COPD) and asthma. It has 50 items (76 weighted responses) categorised into 3 domains: symptoms (8 items), activity (16 items) and impact (26 items). The total score ranges from 0 to 100, with 0 indicating no HRQOL impairment (Jones et al. 1992).

Leicester Cough Questionnaire (LCQ): is a cough-specific questionnaire, which assesses the impact of cough on HRQOL and was developed for adults with chronic cough. LCQ has 19 items with 7-point Likert response scales. LCQ is divided into 3 domains: physical (8 items), psychological (7 items) and social (4 items). The total score is calculated using the sum of the domain scores and ranges from 3 to 21, with lower scores indicating greater HRQOL impairment (Birring et al. 2003).

Chronic Obstructive Pulmonary Disease Assessment Tool (CAT): was developed for patients with COPD, using Rasch Analysis (a quantitative method of eliminating the instrument's items to create a linear scale). It consists of 8 items with 0-5 response scales. The total score ranges from 0 to 40, where 0 indicates no HRQOL impairment (Jones et al. 2009).

Chronic Respiratory Disease Questionnaire (CRDQ): is an interviewer-administered questionnaire measuring physical and emotional aspects of respiratory disease. It has 20 items categorised into the domains of dyspnoea, fatigue, emotional function and mastery. The higher score indicates no HRQOL impairment (Guyatt et al. 1987).

Quality of Life - Bronchiectasis (QOL-B): was developed specifically for assessing HRQOL in bronchiectasis. QOL-B Version 3.1 has 37 items in 8 domains: respiratory symptoms, physical functioning, vitality, role functioning, health perceptions, emotional functioning, social functioning and treatment burden Domain scores range from 0 to 100, with higher scores indicating better HRQOL, and no total score is calculated (Quittner et al. 2014).

Medical Outcomes Study 36-item Short-Form Health Survey (SF-36): is a generic HRQOL questionnaire that has 8 subscales: bodily pain, general health, mental health, physical functioning, role emotional, role physical, social functioning and vitality. These scales are grouped into either SF-36 Physical and SF-36 Mental Component scores that range from 0 to 100, with 0 indicating greater HRQOL impairment (Ware and Sherbourne 1992).

Cough Quality of Life Questionnaire (CQLQ): is a questionnaire specific to cough. It consists of 28 items and a 4-point Likert response scale and has 6 domains: physical complaints, psychosocial issues, functional abilities, emotional well-being, extreme physical complaints and personal safety fears. Higher scores indicate greater HRQOL impairment. Maximum score is 112 (French et al. 2002).

EuroQOL: is a generic health-related quality of life questionnaire consisting of 2 parts. The first is the EuroQOL 5 dimension component (EQ-5D) for mobility, self-care, usual activities, pain/discomfort and anxiety/depression, which has a 3-category response scale. Its scoring has a total of 243 possible health states defined in a 5 digit code, where each state is referred to in its place on the code (eg. 11111 indicates no problem in any domain). The second part is a 100 mm vertical scale, the EuroQOL visual analogue scale (EQ-VAS), where

100 indicates the best state you can imagine and 0 the worst state you can imagine. A single index can be generated (Brooks 1996).

20-Item Sino-Nasal Outcome Test (SNOT-20): is a health-related quality of life questionnaire developed for patients with rhinosinusitis. This is a modification of the 31-item Rhinosinusitis Outcome Measure, and contains 20 nose, sinus and general items. Greater score indicates poorer quality of life (Piccirillo et al. 2002).

References in online supplement.

ONLINE APPENDIX 4

THE VALIDATION OF TRANSLATED HEALTH-RELATED QUALITY OF LIFE QUESTIONNAIRES

Eighteen studies used a translated HRQOL questionnaire. Translated SGRQ was used in Spain (Chalmers et al. 2014, Guilemany et al. 2009, Giron Moreno et al. 2013), Italy (Chalmers et al. 2014), France (Chalmers et al. 2014), Belgium (Chalmers et al. 2014), Korea (Lee et al. 2012), Netherlands (Altenburg et al. 2014), Mexico (Galindo-Pacheco et al. 2013), Egypt (Morsi et al. 2014), China (Gao et al. 2014), Hong Kong (Chan et al. 2002) and Israel (Eshed et al. 2007); QOL-B in Italy, Belgium, Spain, France and Netherlands (Quittner et al. 2015); LCQ in Spain (Casilda Olveira et al. 2014), Belgium (Chalmers et al. 2014), Netherlands (Altenburg et al. 2014) and Turkey (Ozalp et al. 2012); SF-36 in Spain (Guilemany et al. 2006, Guilemany et al. 2009), Netherlands (Altenburg et al. 2014) and Brazil (Jacques et al. 2012b); and CAT in Korea (Lee et al. 2012). Eight out of 18 studies reported or referenced a validation of the translated questionnaire. The validation of translated HRQOL questionnaires has been reported for: SGRQ in Mexican (Galindo-Pacheco et al. 2013), Hong Kong Chinese (Chan et al. 2002), Chinese (Gao et al. 2014) and Korean (Lee et al. 2012), LCQ in Spanish (Giron Moreno et al. 2013), Dutch (Huisman et al. 2007) and Turkish (Kalpaklioglu et al. 2005), QOL-B in all aforementioned languages (Quittner et al. 2015); and SF-36 in Spanish (Guilemany et al. 2006, Guilemany et al. 2009) and Portuguese Brazilian (Jacques et al. 2012a). These studies validated the translated questionnaires in patients with bronchiectasis, with only exceptions being the Korean SGRQ (range of chronic respiratory diseases) (Lee et al. 2012); Dutch and Turkish LCQ (chronic cough) (Huisman et al. 2007, Kalpaklioglu et al. 2005) and the Brazilian SF-36 (COPD and rheumatoid arthritis) (Jacques et al. 2012a). One study used factor analysis to demonstrate

that the structure of the translated Spanish questionnaire was similar to the original SGRQ (Martinez Garcia et al. 2005).

References in online supplement.

ONLINE APPENDIX 5

FLOOR/CEILING EFFECTS AND MISSING DATA

Floor and ceiling effects and missing data were reported for only 2 HRQOL questionnaires, SGRQ and QOL-B. The floor and ceiling effects for SGRQ in English and Spanish versions were small for all domains (<3%) (Wilson et al. 1997a, Martinez Garcia et al. 2005). The floor effect for SGRQ Hong-Kong Chinese was <6.4% (activity domain 11.7%) and ceiling effect <1.1% (Chan et al. 2002). English and Spanish QOL-B floor effects were ≤5%, with the exception of 3 domains: vitality (7%), physical (6%) and social functioning (6%). The QOL-B ceiling effects were highest in 3 out of 8 domains: treatment burden 17%, social functioning 22%, role functioning 22%, and emotional functioning 24% (all other domains <14%) (Quittner et al. 2014, Quittner et al. 2015, Casilda Olveira et al. 2014). Martinez-Garcia et al and Chan et al reported missing data for SGRQ domains with a range 2.0-7.9% and 1.3-7.2% respectively (Martinez Garcia et al. 2005, Chan et al. 2002). Quittner et al also reported minimal missing data for QOL-B for all domains with the exception of treatment burden (up to 8.7%) (Quittner et al. 2014, Quittner et al. 2015).

References in online supplement.

ONLINE APPENDIX 6

ASSOCIATIONS BETWEEN HEALTH-RELATED QUALITY OF LIFE QUESTIONNAIRES

Several studies reported the strength of association between HRQOL questionnaires. The correlation coefficients ranged from weak to strong. The SGRQ total score correlated with CAT (Chalmers et al. 2014), SNOT-20 and LCQ (Murray et al. 2009, Munoz et al. 2013) ($r=0.72$, $r=0.72$ and $\rho=-0.70$ respectively, all $p<0.01$). SGRQ total correlated weakly to moderately with SF-36 Physical (range $r=-0.35$ to -0.68, $p<0.01$) (Wilson et al. 1997a, Chan et al. 2002) and QOL-B V2.0/V3.0 (range $r=-0.34$ to -0.81, $p<0.01$) (Quittner et al. 2010, Casilda Olveira et al. 2014, Quittner et al. 2014). The LCQ correlated strongly with SGRQ ($\rho=-0.70$, $p<0.01$) and CQLQ ($r=-0.88$, $p<0.001$) (Lee et al. 2010) and moderately with CRDQ total ($r=0.51$, $p<0.01$) (Lee et al. 2010) and EuroQOL ($r=0.52$ to 0.67, $p<0.001$) (Polley et al. 2008). The correlation between QOL-B domains and EuroQOL was weak to moderate ($r=0.29$ to 0.66, $p<0.001$) (Quittner et al. 2015).

References in online supplement.

ONLINE SUPPLEMENT Table E1. Systematic review search terms and number of retrieved studies for each database.

Keywords	Pubmed	Embase	Medline	Cochrane	PsycINFO
bronchiectasis AND quality of life	241	71[#]	207	11	7
bronchiectasis AND QOL	28	50	15	1	4
bronchiectasis AND health status	94	93	59	2	2
bronchiectasis AND psychometrics	2	0	1	0	1
bronchiectasis AND well being	86[#]	18	7	5	0
bronchiectasis AND psychology	39	12	2	1	0
bronchiectasis AND daily living	57	10	12	1	0
bronchiectasis AND HRQOL	8	22	8	2	0
bronchiectasis AND questionnaire	160	268	118	2	7
bronchiectasis AND validation	34	61	27	5	1
bronchiectasis AND validity	15	29	11	0	1

[#]: The search was conducted using the keyword "non-cystic fibrosis bronchiectasis" instead of "bronchiectasis". This more specific search was used to limit the number of studies obtained using "bronchiectasis" (the number of retrieved results using "bronchiectasis" was 1,303 and 542 for Pubmed and Embase respectively).

ONLINE SUPPLEMENT Table E2. Average health-related quality of life scores for Leicester Cough Questionnaire, St George's Respiratory Questionnaire and Quality of Life - Bronchiectasis.

Table E2-a. Leicester Cough Questionnaire (LCQ).

Author 1st, year	n	LCQ Total
Polley, 2008	26	14.1
Ozalp, 2012	20	14.7
Murray, 2009a	120	16.9
Munoz, 2013	259	15.1
Altenburg, 2014	30	17.2
Goeminne, 2014	63	15.3
Mandal, 2013	163	17.3
Total/Mean	681	15.8

Table E2-b. St George's Respiratory Questionnaire (SGRQ).

Author 1st, year	n	SGRQ Total
Wilson, 1997 & O'Leary, 2002	111	44.4
Wilson, 1997 & Wilson, 1998	87	44.4
Martinez-Garcia, 2005	102	45.8
Eshed, 2007	46	41.7
Guilemany, 2009	80	34.2
Batchelor, 2011	608	42.6
Chalmers, 2014	19	19.1
Oliveira, 2014a & 2014b	91	45.9
Loebinger, 2009	62	31.5
Lee, 2012	70	32.5
Moreno, 2013	60	38.2
Rowan, 2014	144	32.3
Ozalp, 2012	32	45.7
Murray, 2009b	141	35.4
Munoz, 2013	30	27.1
Total/Mean	1683	37.4

Table E2-c. Quality of Life - Bronchiectasis (QOL-B).

Author 1st, year	**n**	**QOL-B**							
		Physical Functioning	Vitality	Health Perceptions	Social Functioning	Role Functioning	Respiratory Symptoms	Treatment Burden	Emotional Functioning
McCullough, 2011	71	31.0	37.0	39.0	42.0	46.0	53.0	56.0	73.0
Quittner, 2014	89	44.7	46.7	42.1	47.8	58.4	49.5	66.2	79.8
Quittner, 2015	542	51.2	49.9	44.7	54.0	63.0	56.0	65.6	77.8
Oliveira, 2014a & 2014b	207	57.5	57.6	46.5	72.4	70.4	70.7	67.1	71.0
Total/Mean	909	46.1	47.8	43.1	54.1	59.5	57.3	63.7	75.4

Mean scores unless otherwise stated.
HRQOL scores not available from the included studies in the systematic review are not listed in this table.

For references see main paper and online supplement.

ONLINE SUPPLEMENT Table E3. Minimal clinically important difference (MCID) of health-related quality of life questionnaires utilized in bronchiectasis studies.

Questionnaire	MCID study disease population	MCID (units)	Studies
QOL-B	Bronchiectasis	0 to 13.3 (domains)	(Quittner et al. 2015, Casilda Olveira et al. 2014)
SGRQ	COPD	4.0	(Jones 2005)
	COPD	5.8	(Schunemann et al. 2003)
	IPF	7.0	(Swigris et al. 2005)
LCQ	Chronic cough	1.3	(Raj et al. 2009)
CQLQ	IPF	5.0 to 5.7	(Lechtzin et al. 2013)
	Chronic cough	10.6	(Fletcher et al. 2010)
CAT	COPD	1.2 to 3.8	(Kon et al. 2013)
SF-36	IPF	2.0 to 4.0	(Swigris et al. 2005)
EuroQOL (EQ-5D VAS)	COPD	8.0	(Zanini et al. 2015)
CRDQ	COPD	0.5	(Jaeschke et al. 1989)

COPD: chronic obstructive pulmonary disease, IPF: idiopathic pulmonary fibrosis, SGRQ: St George's Respiratory Questionnaire, LCQ: Leicester Cough Questionnaire, CQLQ: Cough Quality of Life Questionnaire, CAT: COPD Assessment Tool, SF-36: Short Form-36, CRDQ: Chronic Respiratory Disease Questionnaire.

References in online supplement.

ONLINE SUPPLEMENT Table E4. Standardised response mean for the included questionnaires, based on randomised-control trials identified in original study search.

Study	Quest.	Interv. (n)	Control (n)	Intervention	Age (yr)	FEV	Fm (%)	Total Sample SRM (95% CI)			Intervention Group SRM (95% CI)			Control Group SRM (95% CI)		
(Bilton et al. 2013)	SGRQ	231	112	Mannitol	62	74.7	65	-1.21	(-1.40,	-1.05)	-3.34	(-3.62,	-3.10)	-0.53	(-0.80,	-0.30)
(Bilton et al. 2014)	SGRQ	233	228	Mannitol	60	62.2	63	-0.69	(-0.80,	-0.56)	-0.78	(-0.97,	-0.60)	-0.60	(-0.80,	-0.40)
(Diego et al. 2013)	SGRQ	16	14	Azithromycin	59	62.0	53	-0.67	(-1.20,	-0.14)	-2.55	(-3.53,	-1.60)	1.08	(0.25,	1.91)
(Drobnic et al. 2005)	SGRQ	20	20	Tobramycin	65	51.8	NR	-0.15	(-0.60,	0.29)	-0.23	(-0.87,	0.41)	-0.12	(-0.80,	0.52)
(Haworth et al. 2014)	SGRQ	73	71	Colistin	59	56.7	58	-0.10	(-0.30,	0.13)	-0.13	(-0.46,	0.20)	-0.06	(-0.40,	0.27)
(Hernando et al. 2012)	SGRQ	37	33	Budesonide	67	64.6	51	-0.35	(-0.70,	-0.01)	-0.07	(-0.53,	0.39)	-1.60	(-2.20,	-1.00)
(Lavery et al. 2011)	SGRQ	32	32	S-management	60	61.0	55	-0.20	(-0.60,	0.15)	-0.46	(-0.96,	0.05)	0.06	(-0.40,	0.56)
(Liaw et al. 2011)	SGRQ	13	13	IMT	60	67.4	85	-0.62	(-1.20,	-0.05)	-0.51	(-1.32,	0.30)	-0.72	(-1.50,	0.11)
(Maa et al. 2007)	SGRQ	11	13	Acupressure	59	NR	40	-0.19	(-0.80,	0.39)	-0.32	(-1.20,	0.57)	-0.09	(-0.90,	0.71)
(Mandal et al. 2012)	SGRQ	12	15	Exercise	65	74.0	47	-0.81	(-1.40,	-0.25)	-1.23	(-2.15,	-0.30)	-0.33	(-1.10,	-0.41)
(Martínez-García et al. 2006)	SGRQ	29	28	Fluticasone propionate	69	61.0	29	-0.18	(-0.50,	0.19)	-0.24	(-0.76,	0.29)	-0.10	(-0.60,	0.44)
(Newall et al, 2005)	SGRQ	12	9	Exercise	60	67.5	91				-0.64	(-1.50,	0.22)			
(Nicolson et al. 2012)	SGRQ	20	20	HTS	57	82.6	63	-0.47	(-0.90,	-0.02)	-0.58	(-1.23,	0.07)	-0.34	(-1.00,	0.30)
(Serisier et al. 2013a)	SGRQ	22	20	Ciprofloxacin	65	56.9	55	-0.46	(-0.90,	-0.02)	-0.18	(-0.79,	0.42)	-0.70	(-1.40,	0)
(Serisier et al. 2013b)	SGRQ	59	58	Erythromycin	62	71.0	61	-0.28	(-0.50,	-0.02)	-0.45	(-0.82,	-0.10)	-0.17	(-0.50,	0.20)
(Stockley et al. 2013)	SGRQ	22	16	NEI	62	NR	55	-0.31	(-0.80,	0.15)	-0.43	(-1.04,	0.19)	-0.12	(-0.80,	0.60)
(Bilton et al. 2013)	LCQ	231	112	Mannitol	62	74.7	65	0.22	(0.07,	0.37)	0.28	(0.09,	0.46)	0.09	(-0.20,	0.35)
(Lee et al. 2014)	LCQ	43	42	Exercise	64	73.5	72	0.23	(-0.10,	0.54)	0.11	(-0.31,	0.54)	0.35	(-0.10,	0.78)
(Nicolson et al. 2012)	LCQ	20	20	HTS	57	82.6	63	2.48	(1.89,	3.08)	2.99	(2.05,	3.93)	2.10	(1.30,	2.90)
(Mandal et al. 2012)	LCQ	12	15	Exercise	65	74.0	47	0.68	(0.12,	1.24)	1.13	(0.22,	2.04)	0.14	(-0.60,	0.88)
(Mandal et al. 2014)	LCQ	30	30	Atorvastatin	60	76.1	52	0.11	(-0.20,	0.47)	0.35	(-0.17,	0.87)	-0.16	(-0.70,	0.36)
(Serisier et al. 2013b)	LCQ	59	58	Erythromycin	62	71.0	61	0.31	(0.05,	0.57)	0.39	(0.02,	0.76)	0.23	(-0.10,	0.60)

Study	Quest.	Interv. (n)	Control (n)	Intervention	Age (yr)	FEV	Fm (%)	Total Sample SRM (95% CI)			Intervention Group SRM (95% CI)			Control Group SRM (95% CI)		
(Quittner et al. 2015)-AIR-BX1	QOL-B	134	132	Aztreonam	65	62.5	68									
	Resp. S.							0.32	(0.15,	0.49)	0.29	(0.05,	0.53)	0.38	(0.13,	0.62)
	Phys. F.							-0.03	(-0.20,	0.14)	-0.08	(-0.32,	0.16)	0.05	(-0.20,	0.29)
	Vitality							0.05	(-0.10,	0.22)	0.02	(-0.22,	0.26)	0.10	(-0.10,	0.34)
	Role F.							0.02	(-0.20,	0.19)	-0.07	(-0.32,	0.17)	0.16	(-0.10,	0.41)
	Heal. P.							-0.01	(-0.20,	0.16)	0.03	(-0.21,	0.27)	-0.05	(-0.30,	0.19)
	Emot. F.							0.00	(-0.20,	0.17)	0.01	(-0.23,	0.25)	0.00	(-0.20,	0.24)
	Soc. F.							0.09	(-0.10,	0.26)	0.07	(-0.17,	0.31)	0.12	(-0.10,	0.37)
	Treat. B.							-0.18	(-0.30,	-0.01)	-0.12	(-0.37,	0.12)	-0.22	(-0.50,	0.02)
(Quittner et al. 2015)-AIR-BX2	QOL-B	136	138	Aztreonam	63	63.6	69									
	Resp. S.							0.37	(0.20,	0.54)	0.47	(0.22,	0.71)	0.27	(0.03,	0.50)
	Phys. F.							-0.01	(-0.20,	0.16)	-0.06	(-0.30,	0.17)	0.07	(-0.20,	0.30)
	Vitality							0.03	(-0.10,	0.20)	-0.03	(-0.27,	0.21)	0.10	(-0.10,	0.34)
	Role F.							-0.08	(-0.30,	0.09)	-0.11	(-0.35,	0.13)	-0.05	(-0.30,	0.19)
	Heal. P.							0.08	(-0.10,	0.25)	0.05	(-0.19,	0.29)	0.11	(-0.10,	0.35)
	Emot. F.							0.16	(0,	0.33)	0.10	(-0.14,	0.34)	0.23	(0 ,	0.47)
	Soc. F.							0.09	(-0.10,	0.25)	0.03	(-0.21,	0.26)	0.15	(-0.10,	0.39)
	Treat. B.							-0.29	(-0.50,	-0.12)	-0.24	(-0.48,	0)	-0.33	(-0.60,	-0.10)
(Quittner et al. 2015)-AIR-BX1	EQ-5D	134	132	Aztreonam	65	62.5	68	0.10	(-0.10,	0.27)	0.17	(-0.07,	0.41)	0.01	(-0.20,	0.25)
(Quittner et al. 2015)-AIR-BX2	EQ-5D	136	138	Aztreonam	63	63.6	69	0.04	(-0.10,	0.21)	0.13	(-0.10,	0.37)	-0.05	(-0.30,	0.19)

Data presented as means, unless otherwise stated.

Quest.: Questionnaire, Interv.: Intervention, Emot. F.: Emotional functioning, Fm: Female, FB: formoterol-budesonide combined, FEV: Forced Expiratory Volume in the first second % predicted, Heal. P.: Health perceptions, HTS: hypertonic saline, IMT: inspiratory muscle training, NEI: neutrophil elastase inhibitor, NR: Not reported, Phys. F.: Physical functioning, PR: pulmonary rehabilitation, Resp. S: Respiratory symptoms, Role F.: Role functioning, S-management: self-management, Soc. F.: Social functioning, Treat. B.: Treatment burden.

Data presented from Quittner et al, 2015 also include relevant data by Baker et al, 2014.

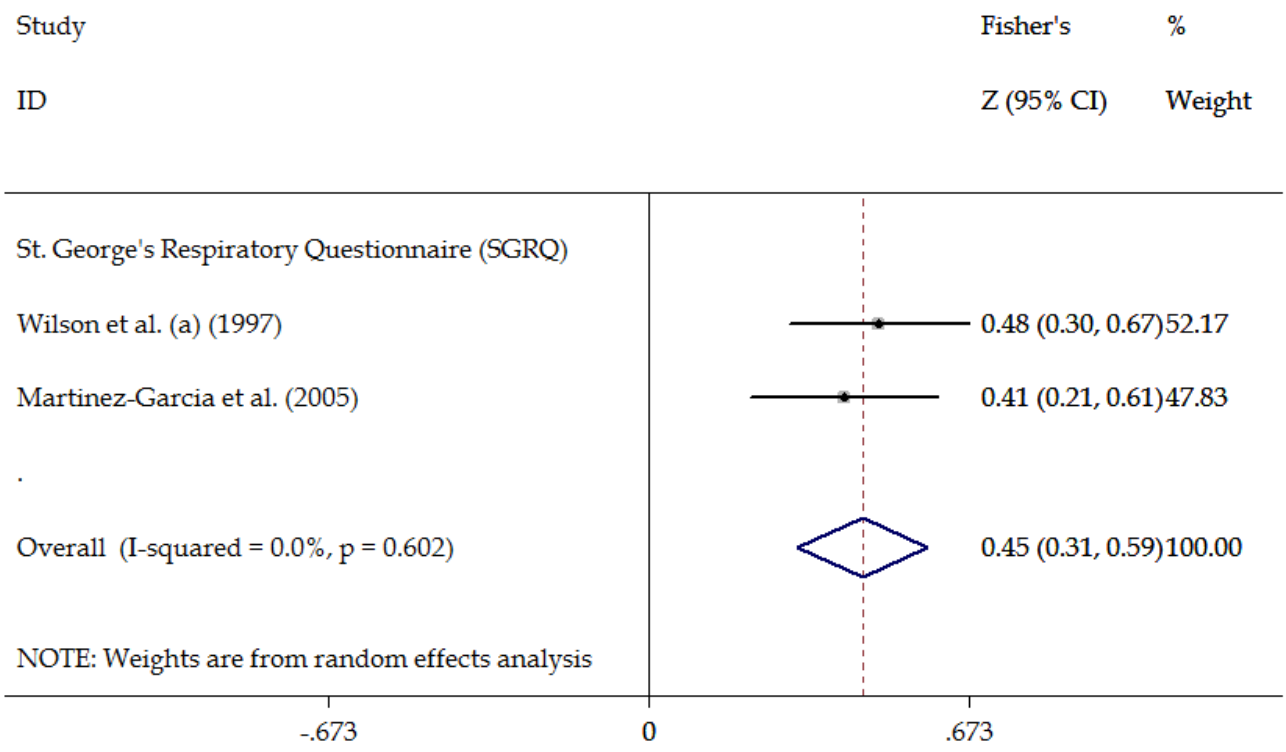
References in online supplement.

ONLINE SUPPLEMENT Table E5. Correlations of health-related quality of life with other clinical measures reported in single studies (not included in the meta-analysis).

Clinical Measures	**N**	**Correlation coefficient**
Chronic rhinosinusitis	80	0.96*
Nasal symptoms	80	0.67*
Maximum expiratory pressure	20	-0.51*
Short-acting β_2-agonist	86	0.49*
Oral steroids cycles	86	0.41*
Respiratory failure	86	0.36*
Cough reflex sensitivity	86	0.32
Karnofsky performance scale (functional impairment)	93	-0.30*
Long-acting β_2-agonist	86	0.27*
Number of lobes affected by bronchiectasis	46	0.25*
Fibrogen	86	0.24
Timed up and go (mobility and balance test)	20	-0.15

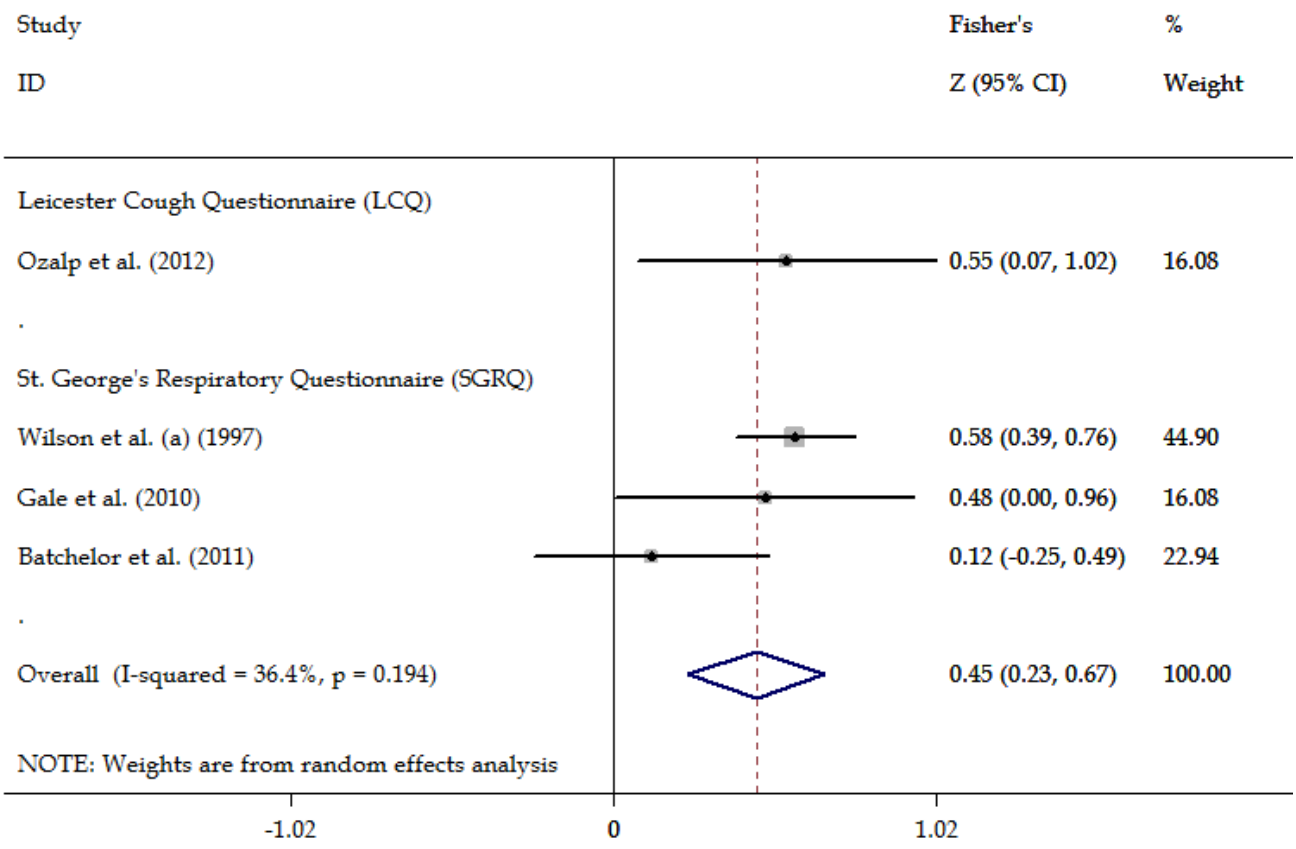
N: number of study subjects; * $p<0.05$

ONLINE SUPPLEMENT Figure E1. Forest plot for the correlation between health-related quality of life and wheeze.



For references see main paper and online supplement.

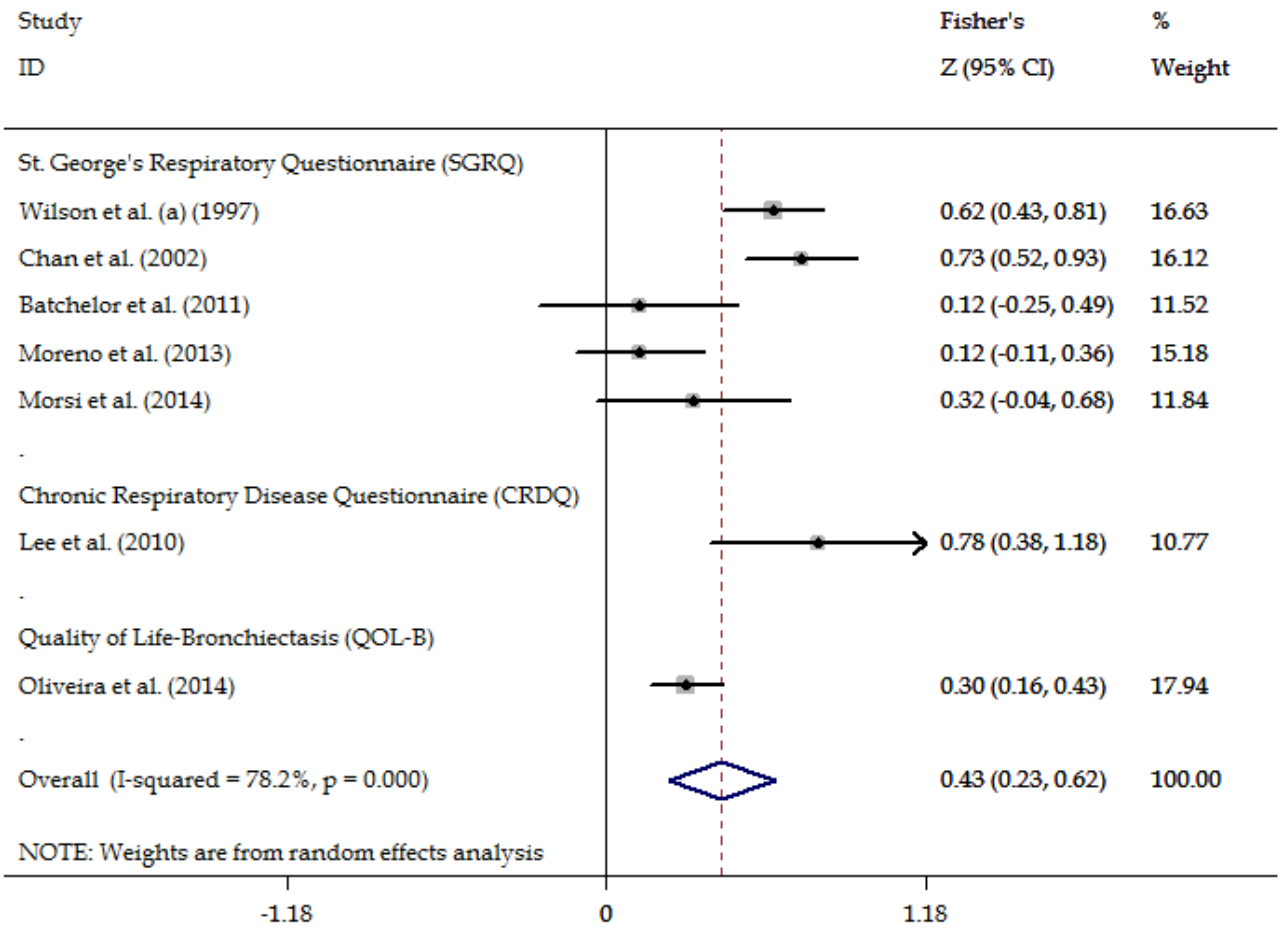
ONLINE SUPPLEMENT Figure E2. Forest plot for the correlation between health-related quality of life and fatigue.



Measurements of fatigue used: 14-point fatigue scale (Wilson et al. 1997a), fatigue severity scale (Ozalp et al. 2012), multidimensional fatigue inventory (Gale et al. 2010) and functional assessment of chronic illness therapy - fatigue questionnaire (Batchelor et al. 2011).

For references see main paper and online supplement.

ONLINE SUPPLEMENT Figure E3. Forest plot for the correlation between health-related quality of life and depression.

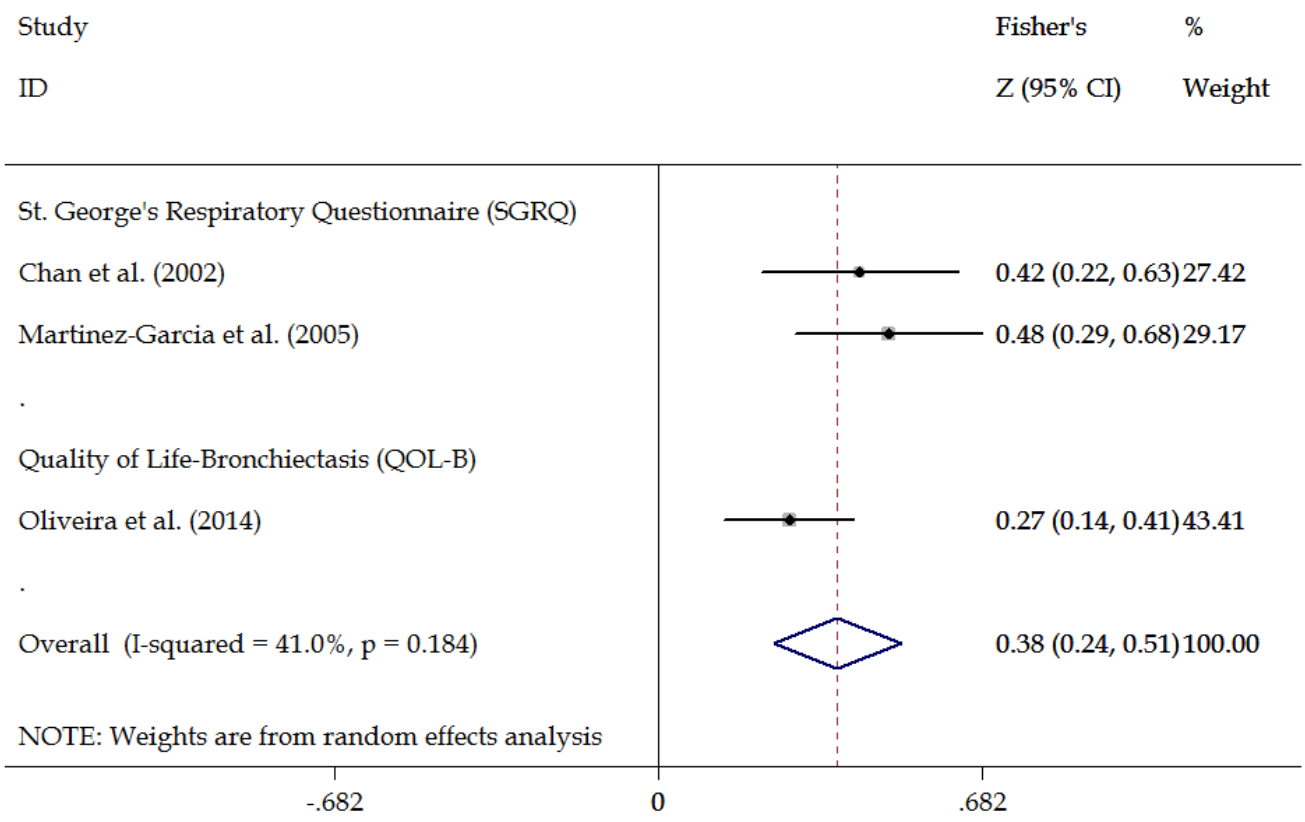


Arrow indicates that the confidence intervals extent the limits of the current graph.

Measurements of depression used: hospital and anxiety scale (Wilson et al. 1997a, Chan et al. 2002, Lee et al. 2010, C. Olveira et al. 2014), centre for epidemiologic studies depression scale (Batchelor et al. 2011), state-trait anxiety inventory (Giron Moreno et al. 2013), Hamilton depression rating scale (Morsi et al. 2014).

For references see main paper and online supplement.

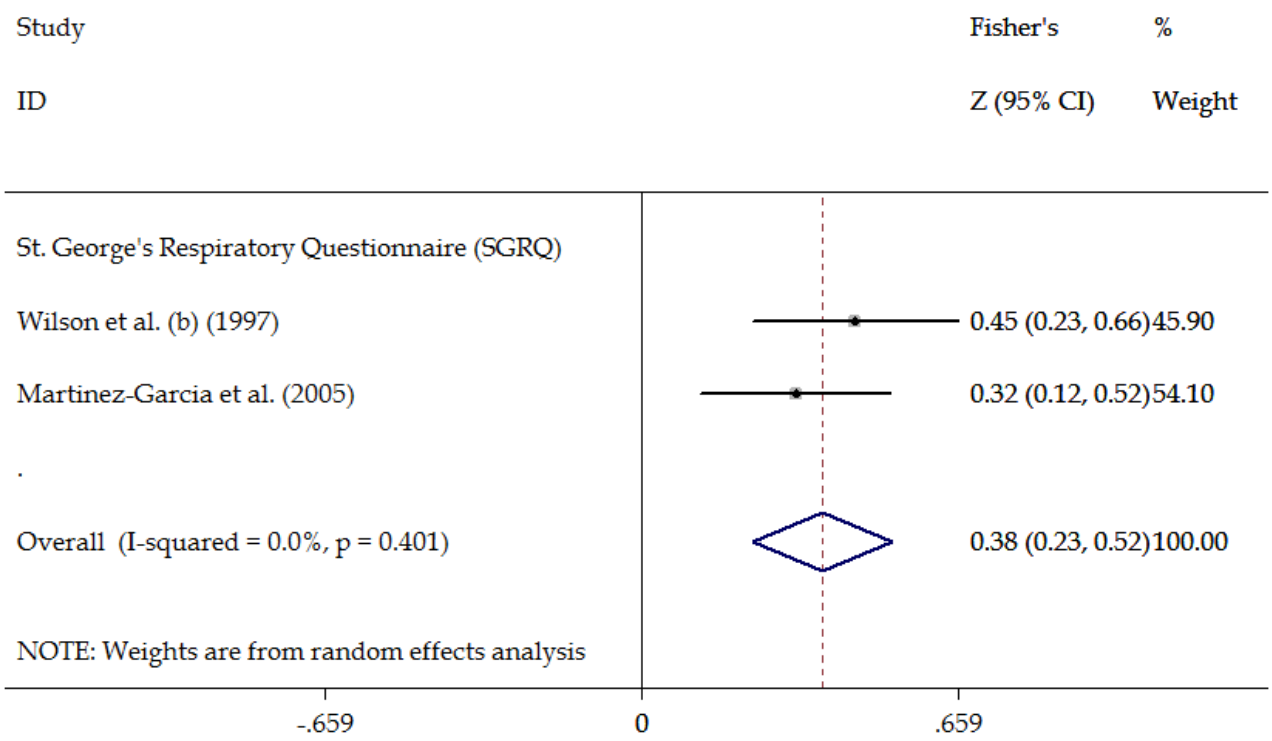
ONLINE SUPPLEMENT Figure E4. Forest plot for the correlation between health-related quality of life and sputum volume.



Measurements of sputum volume used for all studies: mean volume of sputum collected every 24 hours on three successive days.

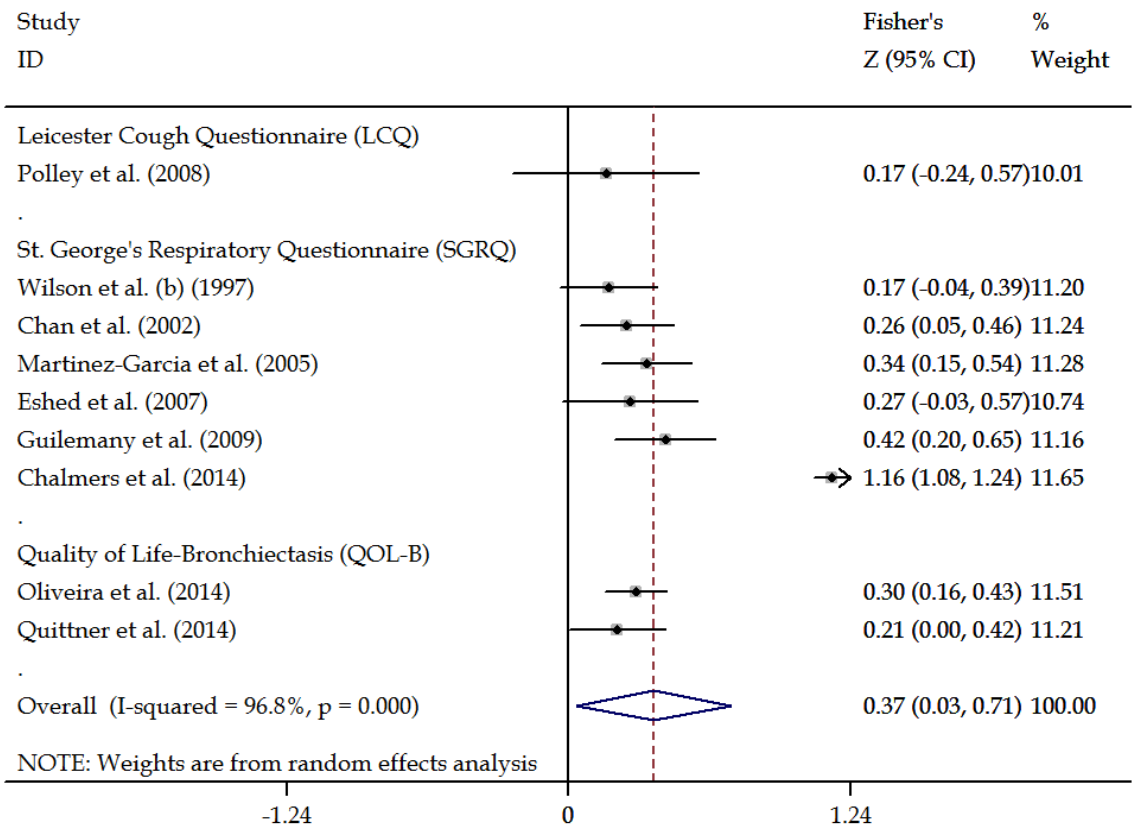
For references see main paper and online supplement.

ONLINE SUPPLEMENT Figure E5. Forest plot for the correlation between health-related quality of life and presence/colonisation with pseudomonas aeruginosa.



For references see main paper and online supplement.

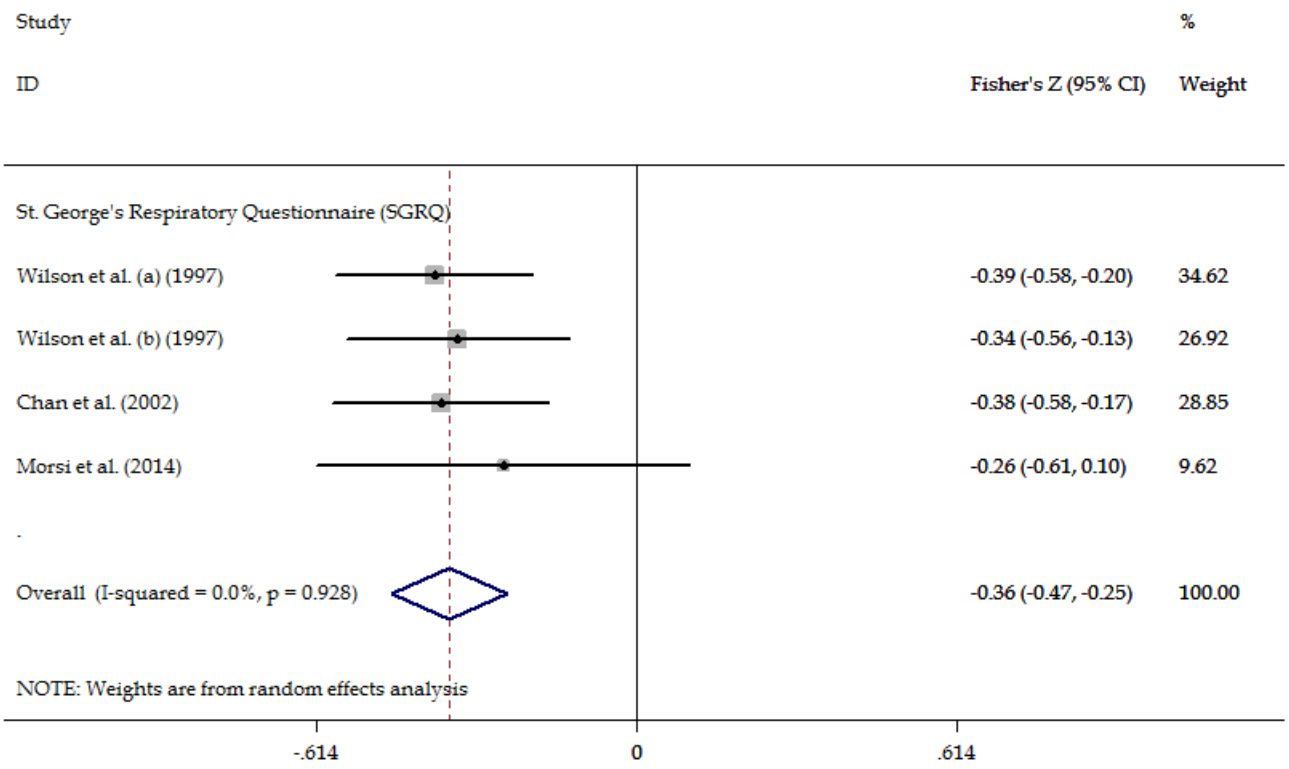
ONLINE SUPPLEMENT Figure E6. Forest plot for the correlation between health-related quality of life and extent of bronchiectasis on computed tomography scan.



Measurements of extent of bronchiectasis used: Bhalla score (Eshed et al. 2007, Polley et al. 2008, Martinez Garcia et al. 2005, Casilda Olveira et al. 2014), Reiff score (Wilson et al. 1997b, Chalmers et al. 2014), other specified scores (Guilemany et al. 2009, Quittner et al. 2014) and number of bronchiectatic lobes (Chan et al. 2002).

For references see main paper and online supplement.

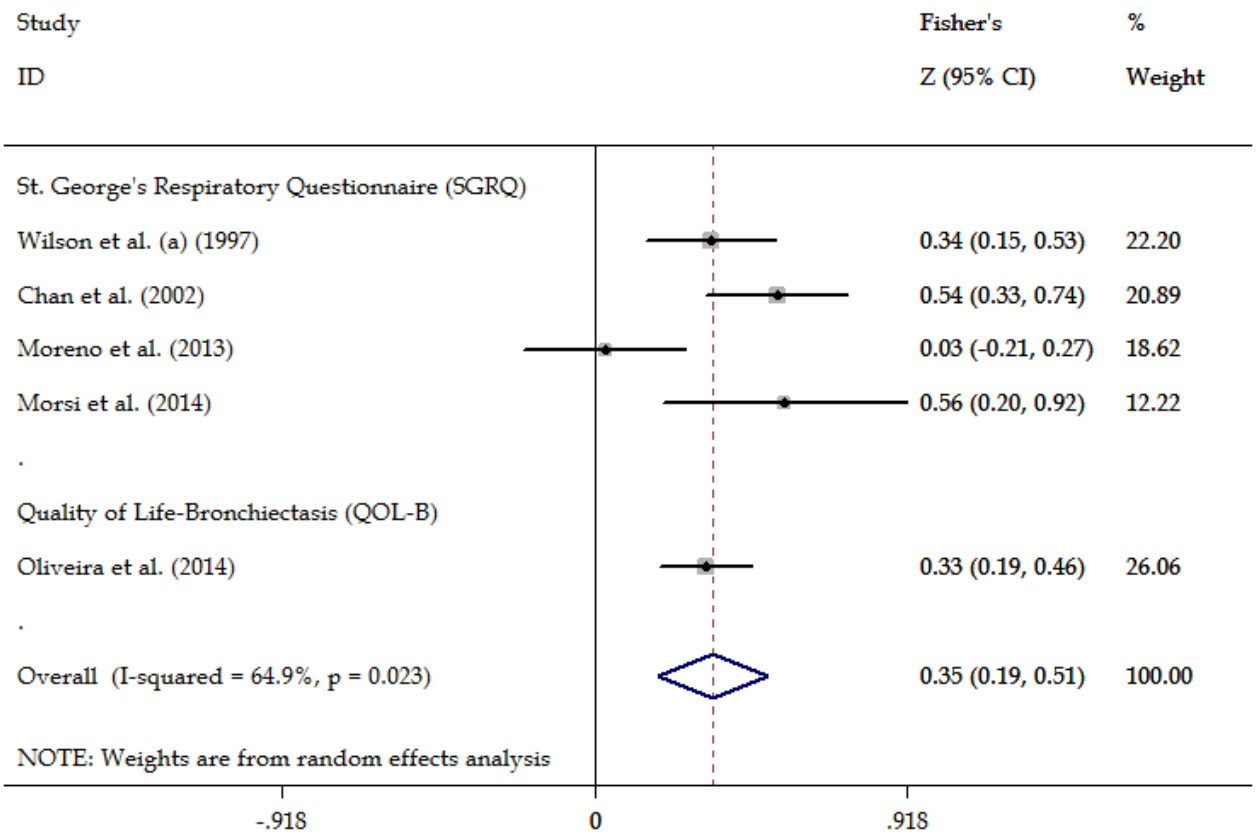
ONLINE SUPPLEMENT Figure E7. Forest plot for the correlation between health-related quality of life and oxygen saturation.



Measurements of oxygen saturation used: earlobe sampling (Wilson et al. 1997a, Wilson et al. 1997b) and pulse oximetry (Chan et al. 2002, Morsi et al. 2014) .

For references see main paper and online supplement.

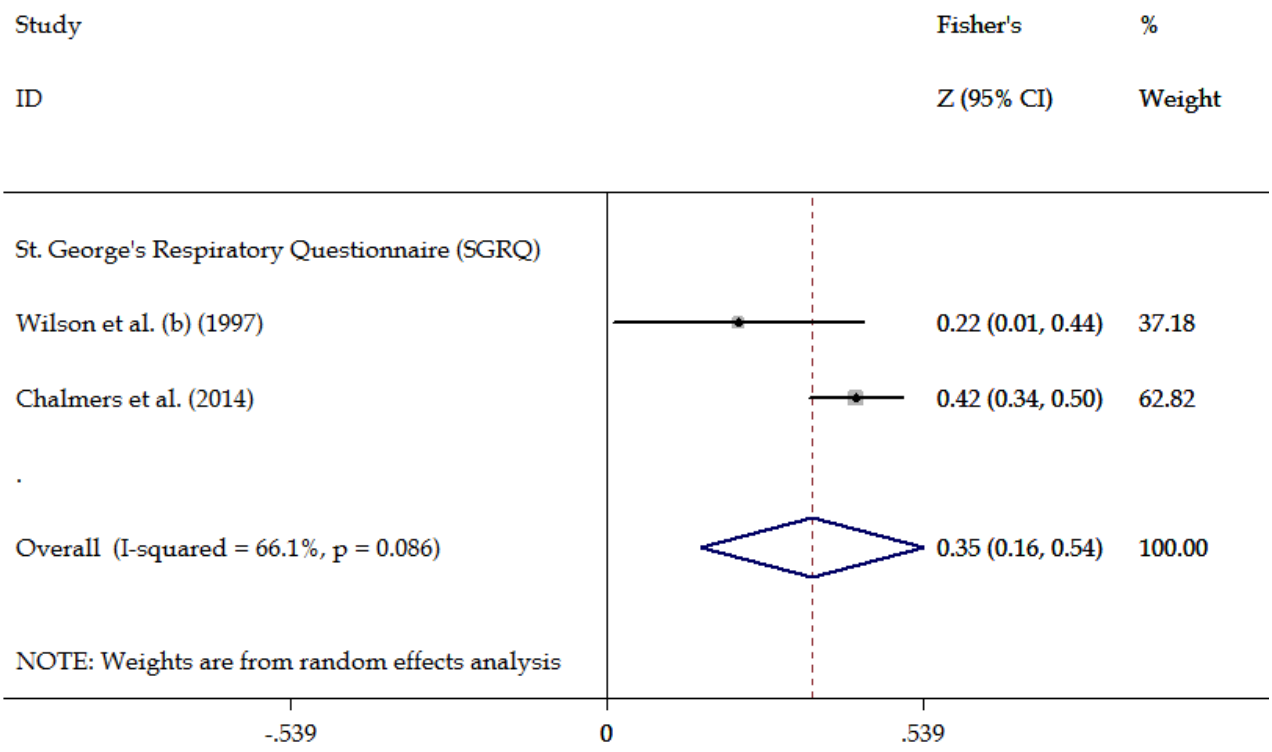
ONLINE SUPPLEMENT Figure E8. Forest plot for the correlation between health-related quality of life and anxiety.



Measurements of anxiety used: hospital anxiety and depression scale (Chan et al. 2002, Wilson et al. 1997a, C. Olveira et al. 2014), Hamilton anxiety rating scale (Morsi et al. 2014) and state trait anxiety inventory (Giron Moreno et al. 2013) .

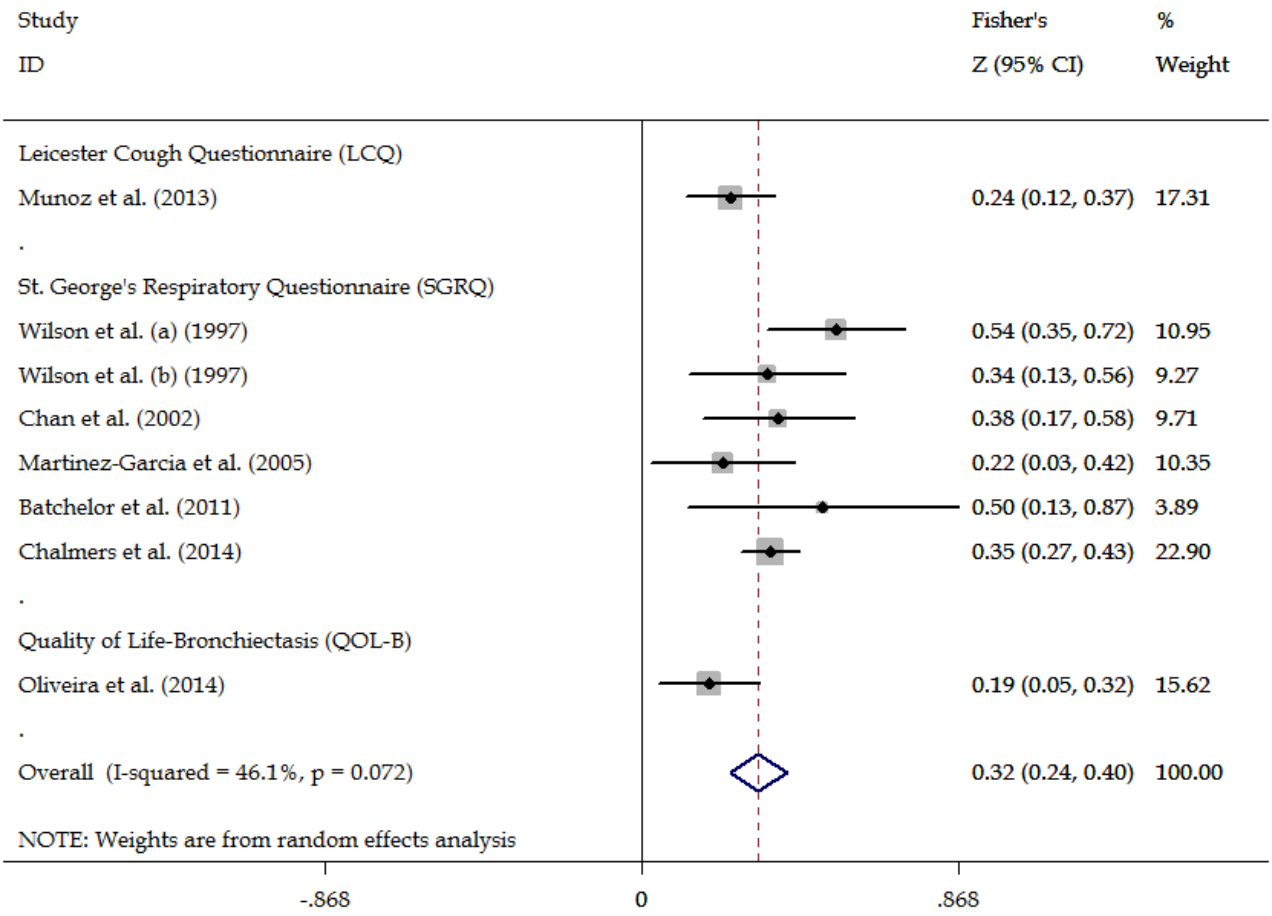
For references see main paper and online supplement.

ONLINE SUPPLEMENT Figure E9. Forest plot for the correlation between health-related quality of life and rate of hospital admissions.



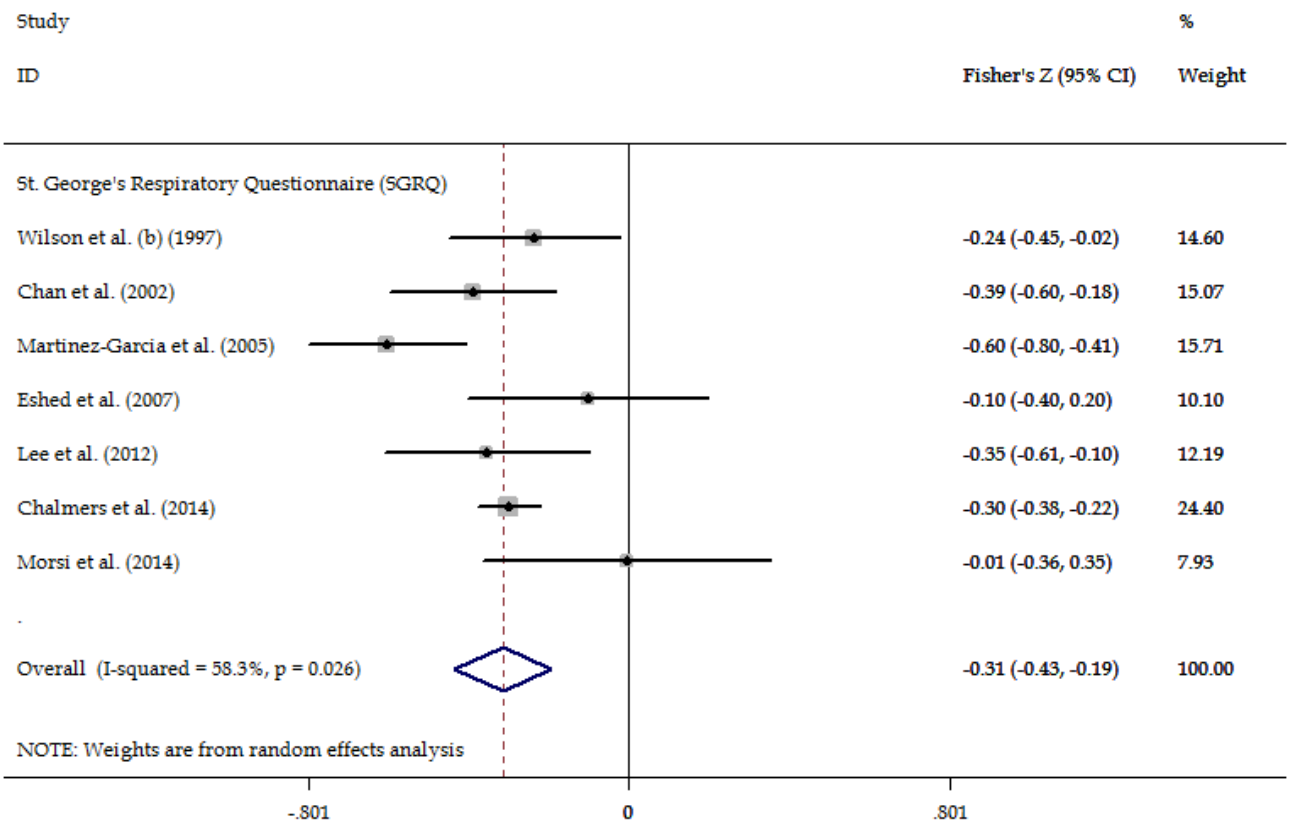
For references see main paper and online supplement.

ONLINE SUPPLEMENT Figure E10. Forest plot for the correlation between health-related quality of life and rate of infections/exacerbations.



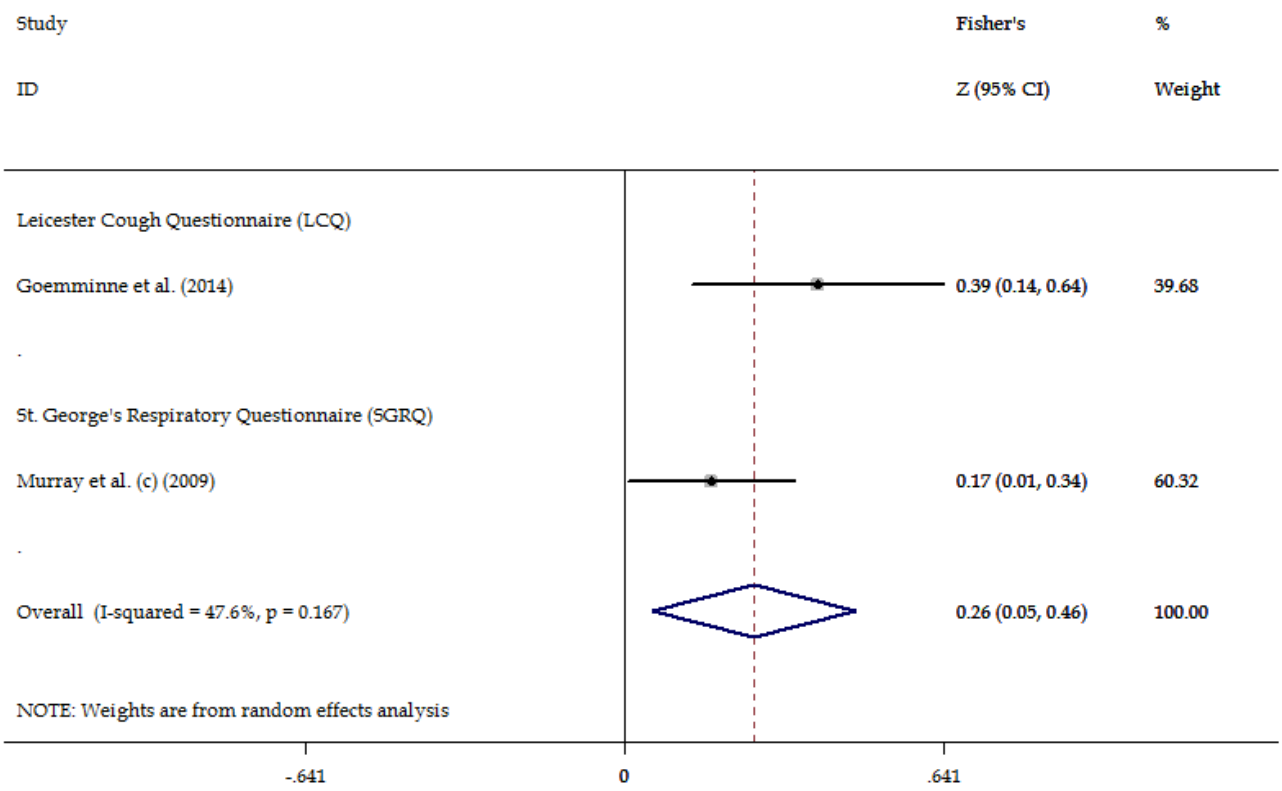
For references see main paper and online supplement.

ONLINE SUPPLEMENT Figure E11. Forest plot for the correlation between health-related quality of life and forced vital capacity (FVC).



For references see main paper and online supplement.

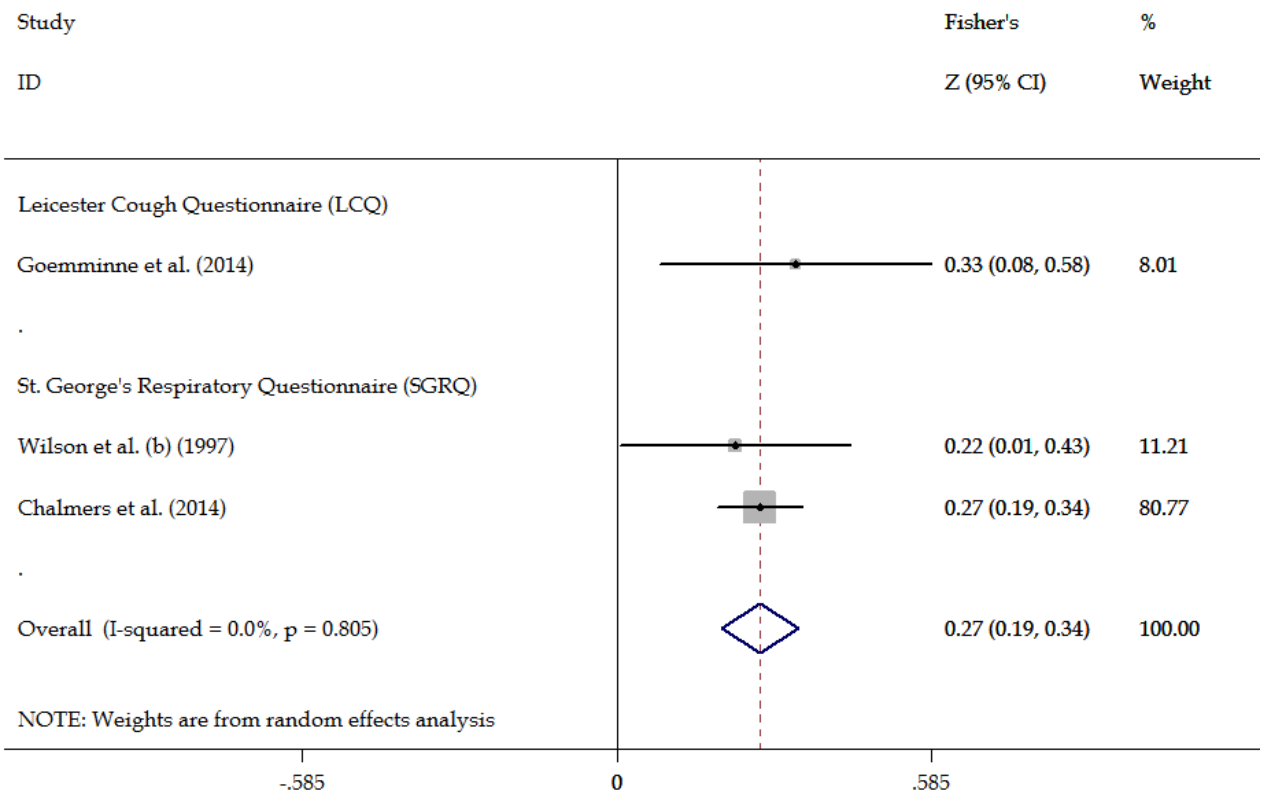
ONLINE SUPPLEMENT Figure E12. Forest plot for the correlation between health-related quality of life and sputum colour.



Measurements of sputum colour used for both studies: sputum colour chart.

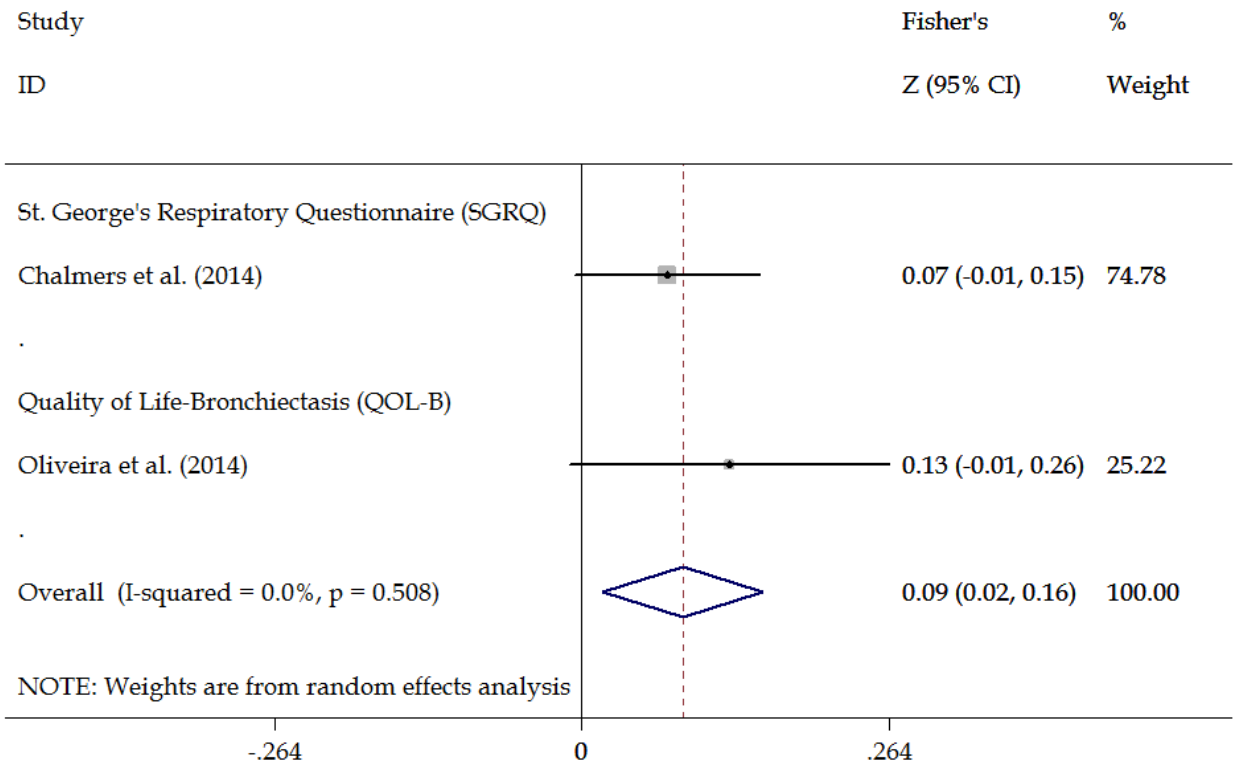
For references see main paper and online supplement

ONLINE SUPPLEMENT Figure E13. Forest plot for the correlation between health-related quality of life and positive bacterial sputum culture.



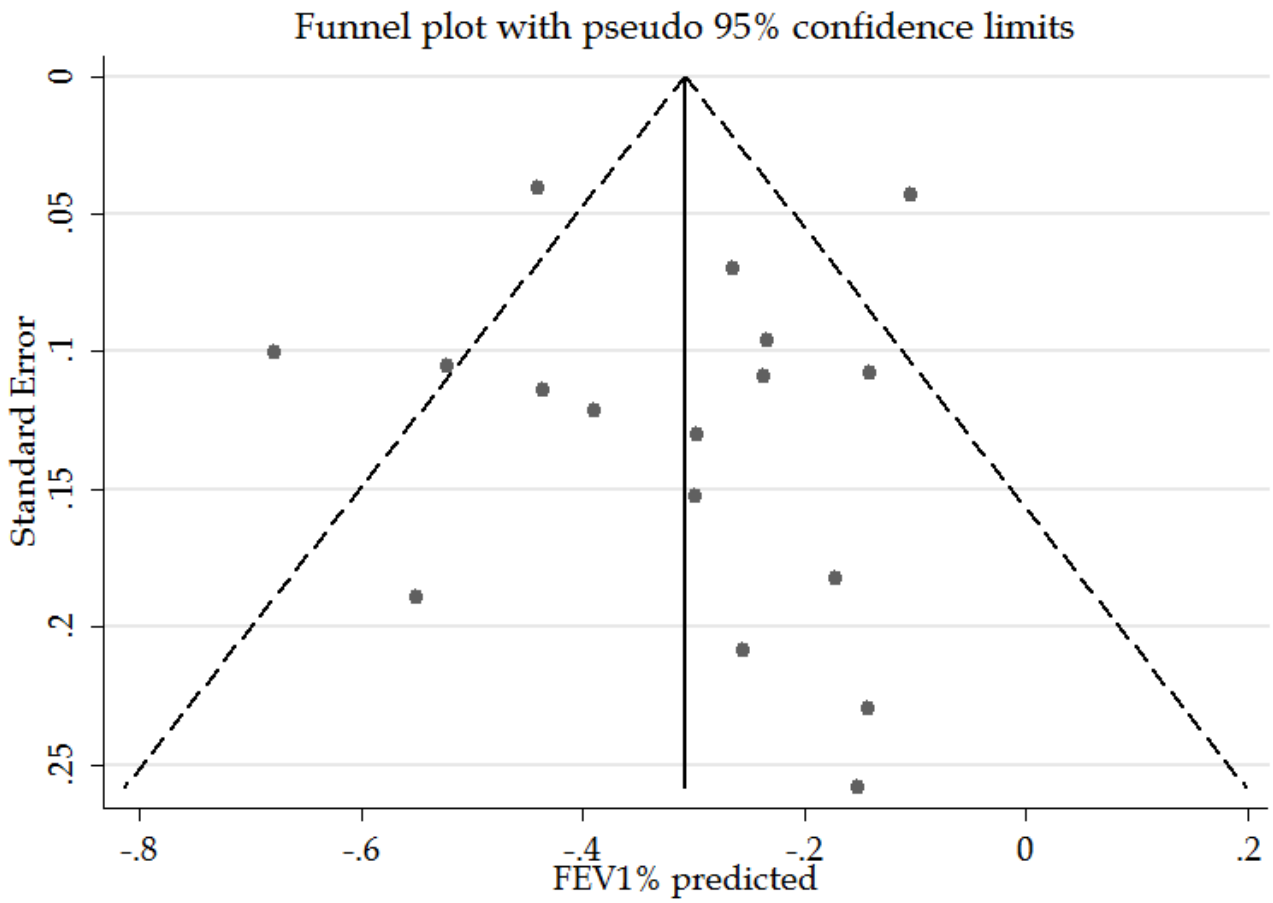
For references see main paper and online supplement.

ONLINE SUPPLEMENT Figure E14. Forest plot for the correlation between health-related quality of life and comorbidities.



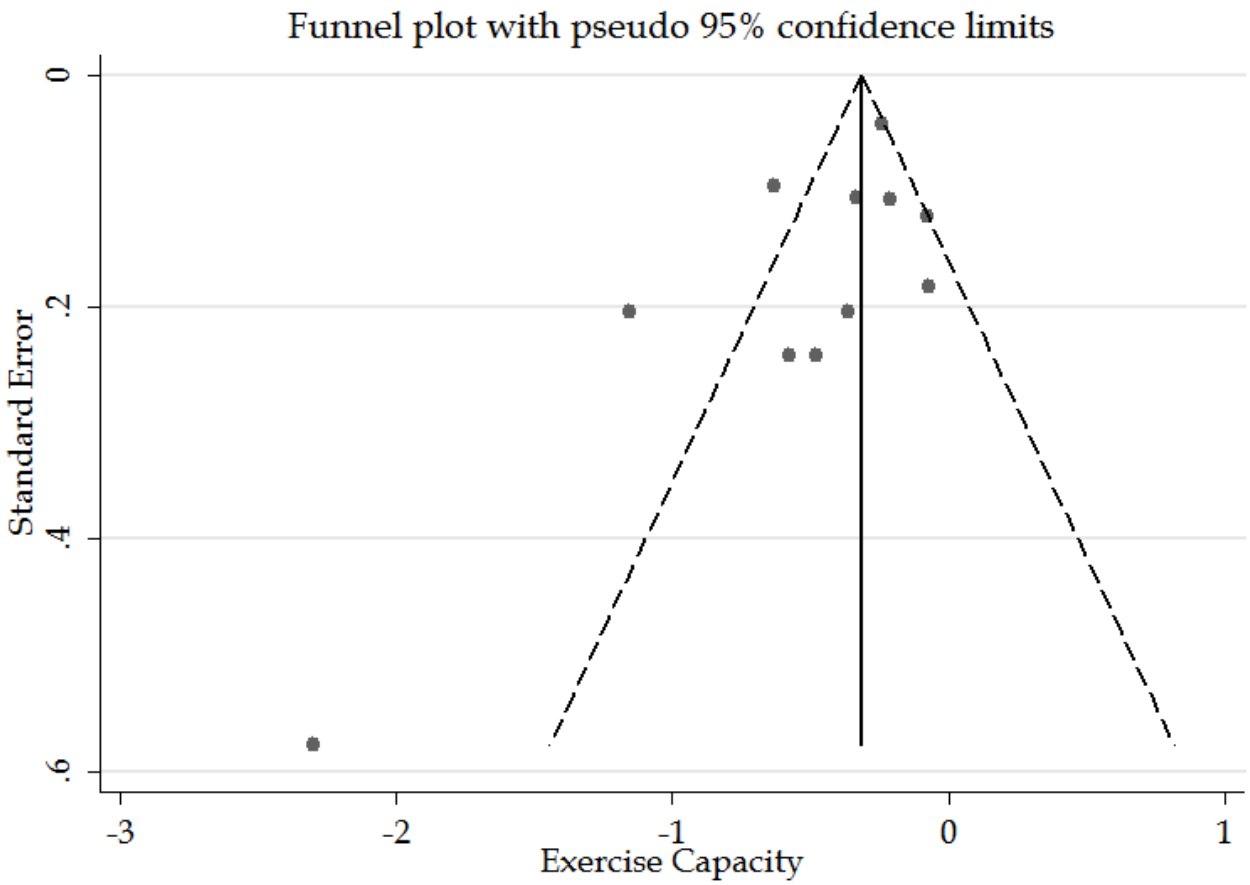
For references see main paper and online supplement.

ONLINE SUPPLEMENT Figure E15. Funnel plot of FEV_1% assessing the publication bias for the relevant meta-analysis studies.



Each study is illustrated as a dot. Symmetric image of the funnel plot studies distribution indicates no publication bias.

ONLINE SUPPLEMENT Figure E16. Funnel plot of exercise capacity assessing the publication bias for the relevant meta-analysis studies.



Each study is illustrated as a dot. Asymmetric image of the funnel plot studies distribution indicates possibility of publication bias.

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