Comparison of the EQ-5D-5L and AQoL-8D in a Cohort of People with Idiopathic Pulmonary Fibrosis in Australia

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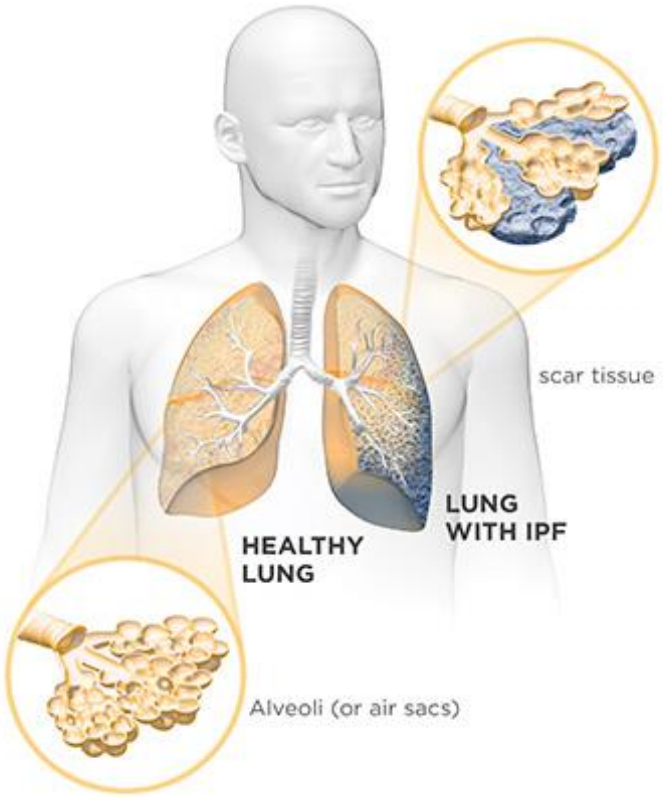
What is Idiopathic Pulmonary Fibrosis?

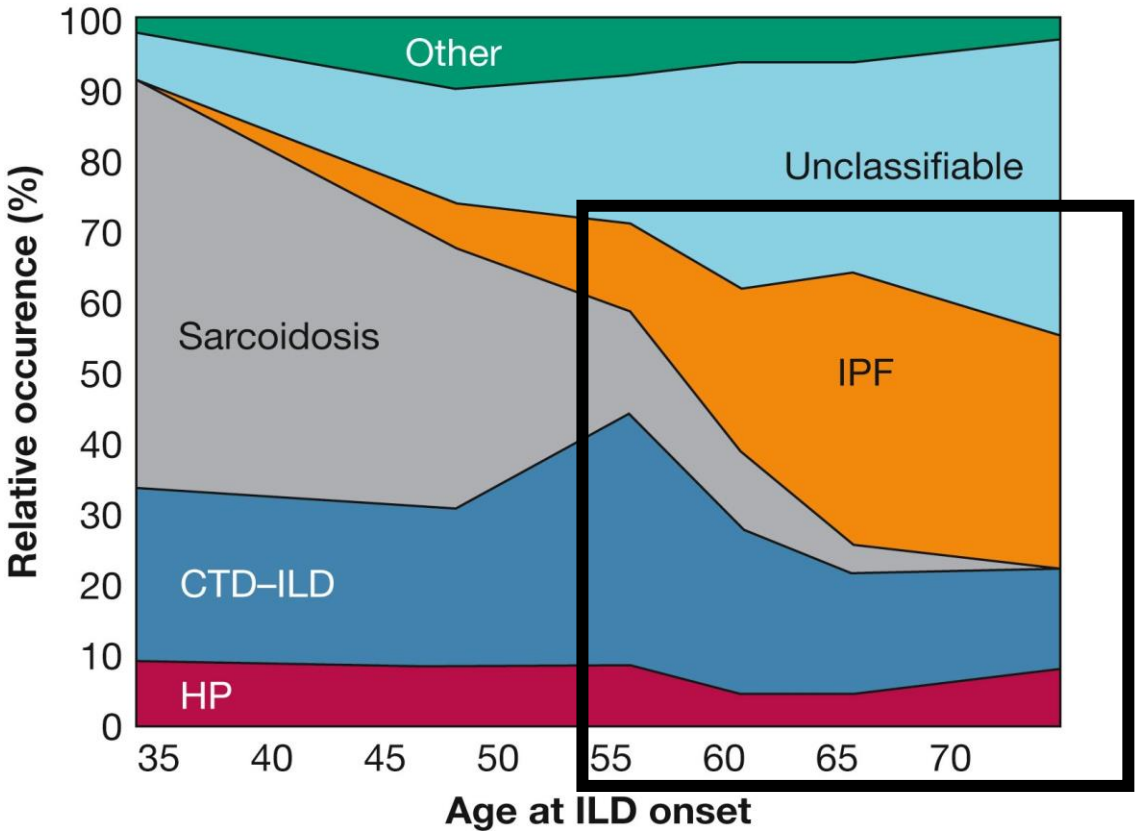


Idiopathic	Of unknown aetiology
Pulmonary	Of, or relating to, the lung(s)
Fibrosis	An increase of scar tissue

https://www.thecommongood.org.au/article/a-new-treatment-for-lung-disease-around-the-corner

Epidemiology

IPF is one of the most common forms of interstitial lung disease (ILD) in the elderly

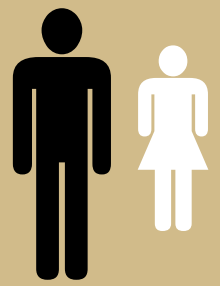


HP-Hypersensitivity pneumonitis
CTD- Connective tissue disease related

Patterson KC, Shah RJ, Porteous MK, Christie JD, D'Errico CA, Chadwick M, et al. Interstitial Lung Disease in the Elderly. CHEST. 2017;151(4):838-44.

Epidemiology

Sex



IPF affects more males than females. (1.6:1 – 2:1) [1]

Age

> 50 years

IPF is rarely seen in those under 50 years of age [2]

Survival

2-5 years

Median survival [2]

1. Han MK, Murray S, Fell CD, Flaherty KR, Toews GB, Myers J, et al. Sex differences in physiological progression of idiopathic pulmonary fibrosis. European Respiratory Journal. 2008;31(6):1183-8.
2. Hutchinson J, Fogarty A, Hubbard R, McKeever T. Global incidence and mortality of idiopathic pulmonary fibrosis: A systematic review. European Respiratory Journal. 2015;46(3):795-806.

Epidemiology

Incidence

- USA: 6.8-36.6 per 100 000 population[1,3]
- Europe: 0.22-11.8 per 100 000 population[1,3]
- Australia: 10.4-11.2 per 100 000 population[4]

Prevalence

- USA :14-63 per 100 000 population[1]
- Europe:1.25-23.4 per 100 000 population[1]
- Australia: 32.6-35.1 per 100 000 population[4]

Mortality

- USA: 3.65-7.57 per 100 000 population[2,3]
- Europe: 2.54-9.3 per 100 000 population[2,3]
- Australia: 5.9-6.1 per 100 000 population[4]

1. Nalysnyk L, Cid-Ruzafa J, Rotella P, Esser D. Incidence and prevalence of idiopathic pulmonary fibrosis: review of the literature. European respiratory review : an official journal of the European Respiratory Society. 2012;21(126):355-61
2. Hutchinson JP, McKeever TM, Fogarty AW, Navaratnam V, Hubbard RB. Increasing Global Mortality from Idiopathic Pulmonary Fibrosis in the Twenty-First Century. Annals of the American Thoracic Society. 2014;11(8):1176-85.
3. Hutchinson JP, McKeever TM, Fogarty AW, Navaratnam V, Hubbard RB. Increasing global mortality from idiopathic pulmonary fibrosis in the twenty-first century. Annals of the American Thoracic Society. 2014;11(8):1176-85.
4. Cox IA, Otahal, P,de Graaff, B,Corte, T. J,Moodley, Y,Zappala, C,Glaspole, I, Hopkins, P,Macansh, S,Walters, EH,Palmer, A.J. Incidence, prevalence and mortality of idiopathic pulmonary fibrosis in Australia. Respirology. 2021.

Risk Factors

- Genetics [1]
- Smoking[1]
- Environmental exposure[1] (air pollution)
- Occupational exposure (mining, farming, animal rearing) [1]
- Viral Infections[1]
- Comorbidities[1] (such as Gastroesophageal Reflux Disease and Diabetes)

1. Nakamura Y, Suda T. Idiopathic pulmonary fibrosis: Diagnosis and clinical manifestations. Clinical Medicine Insights: Circulatory, Respiratory and Pulmonary Medicine. 2016;9:163-71.

Clinical presentation

- **Chronic non-productive cough**[1]
- **Progressive dyspnoea**[1]
- Clubbing of the fingers and toes[1]
- Weight loss[1]
- Low-grade fevers[1]
- Fatigue[1]
- Pain in the joints and muscles[1]

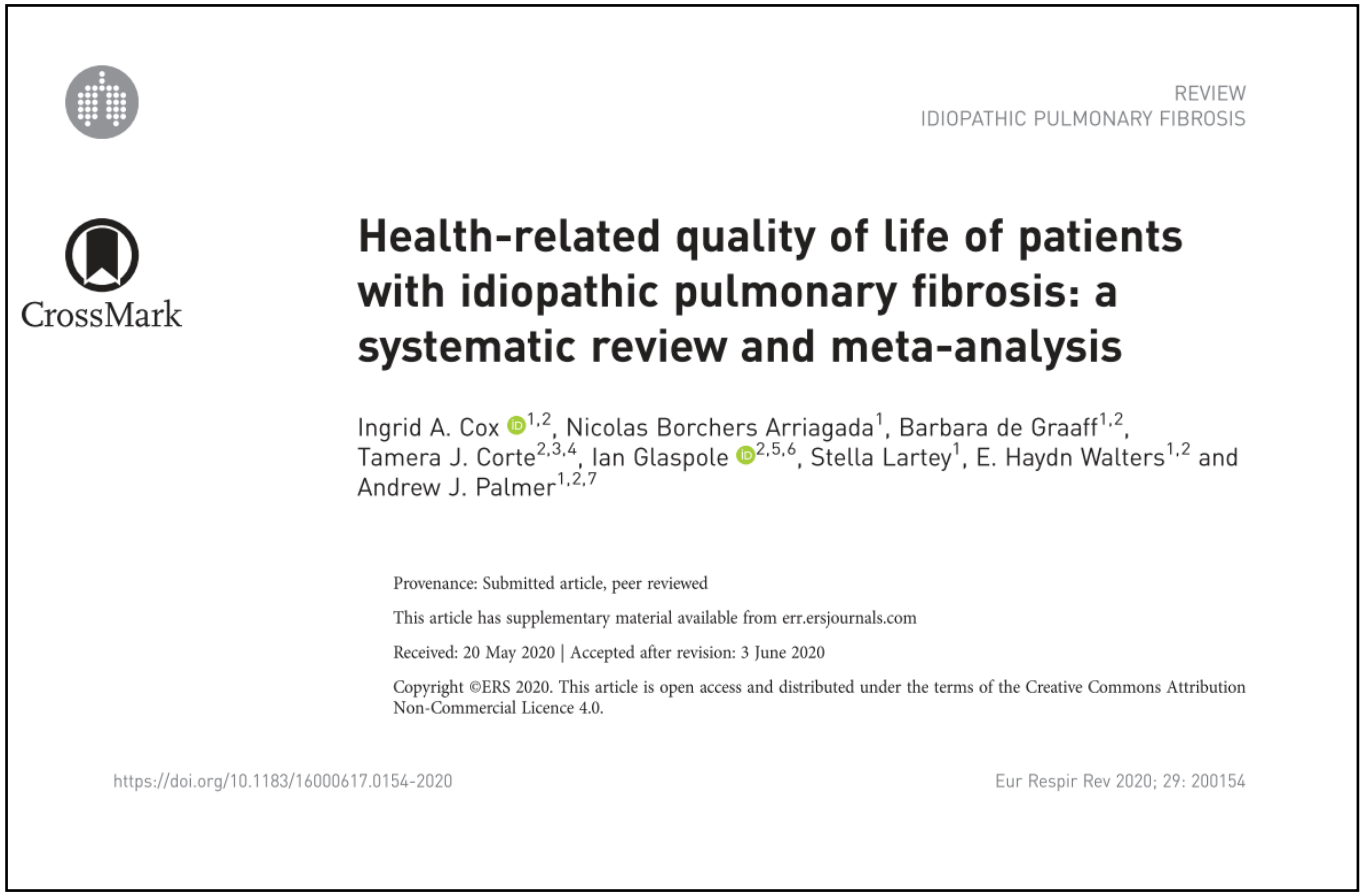
1. Nakamura Y, Suda T. Idiopathic pulmonary fibrosis: Diagnosis and clinical manifestations. Clinical Medicine Insights: Circulatory, Respiratory and Pulmonary Medicine. 2016;9:163-71.

Treatment

- Treatment options are limited and expensive
- Two antifibrotic medications: pirfenidone and nintedanib
- Combination therapy being researched
- Clinical trials on emerging therapies

Health Related Quality of Life (HRQoL)

- Worse with increasing disease severity
- Deficiencies predominantly in physical domains
- No standardized measure/guidelines for measuring HRQoL for persons with IPF
- No preference based tool validated for use in people with IPF, to assess health state utility values (HSUVs)



REVIEW
IDIOPATHIC PULMONARY FIBROSIS

Health-related quality of life of patients with idiopathic pulmonary fibrosis: a systematic review and meta-analysis

Ingrid A. Cox[1,2], Nicolas Borchers Arriagada[1], Barbara de Graaff[1,2], Tamera J. Corte[2,3,4], Ian Glaspole[2,5,6], Stella Lartey[1], E. Haydn Walters[1,2] and Andrew J. Palmer[1,2,7]

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Eur Respir Rev 2020; 29: 200154

Study Objective

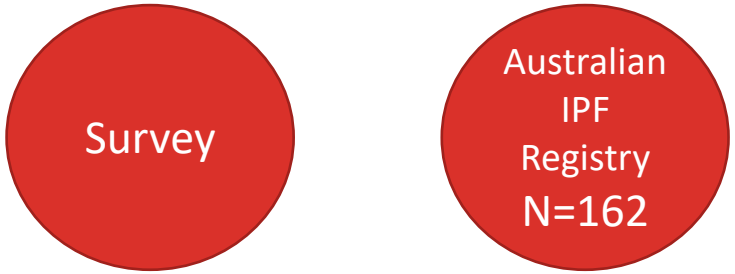
Conduct a head-to-head comparison between the EuroQoL five dimension-five level (EQ-5D-5L) and the Assessment of Quality of Life eight-dimension (AQoL-8D) instrument to assess the performance of the two instruments to derive HSUVs in an Australian cohort of persons living with IPF

Comparison of AQOL-8D and EQ-5D-5L

EQ-5D-5L	AQoL-8D
Mobility	Mental health
Pain/discomfort	Coping
Depression/anxiety	Happiness
Self-care	Relationships
Usual activities	Self-worth
	Pain
5 items	Independent living
	Senses
Visual analogue scale (VAS):	**35 items**
Rates health on a scale of 0-100 (worst to best)	
	Super dimensions:
	Physical health (pain, independent living, senses)
	Psychosocial health (mental health, coping, happiness, relationships, self-worth)

Methods

Study population



HSUVs

1. EQ-5D-5L HSUVs were derived using 3 methods
   - Australian value set (experimental)
   - UK value set
   - EQ-5D-5L mapped to EQ-5D-3L (Australian value set)

2. AQoL 8D HSUVs were derived using Australian value set

Statistical analysis

Questionnaire practicality	Completion rates
Agreement between instruments	Bland Altman test, Intraclass correlation coefficients (ICC), floor and ceiling effects, Tobit regression models
Test performance: Internal validity	Cronbach alpha
Test performance: Construct validity	Convergent validity: Spearman's rank correlation coefficient (disease or symptom specific measures of QoL-SGRQ, HADS, SOBQ) Divergent Validity: Kruskal-Wallis test, Effect size, relative efficiency and the area under receiver operating characteristics curves (disease severity measures)

Results : Quality of life of persons with IPF in Australia

Instrument	N	Mean(SD)	Study range	General population	Theoretical range
AQoL 8D	157	0.69 (0.20)	0.16-1.00	0.83 (AUS)	0.04-1.00 (1-best)
EQ5D-5L	155	0.65 (0.28)	-0.57-1.00	0.87(AUS)	-0.59-1.00 (1-best)
SGRQ	122	46.9(20.6)	0-90.2	11.6 (Spain)	0-100 (0-best)
SOBQ	122	40.2 (27.6)	0-107	56 (lung disease)	0-120 (0-best)
HADS Anxiety HADS Depression	122	4.8(4.1) 4.0(3.0)	0-17 0-18	5 (UK) 3(UK)	0-21 (0-best)

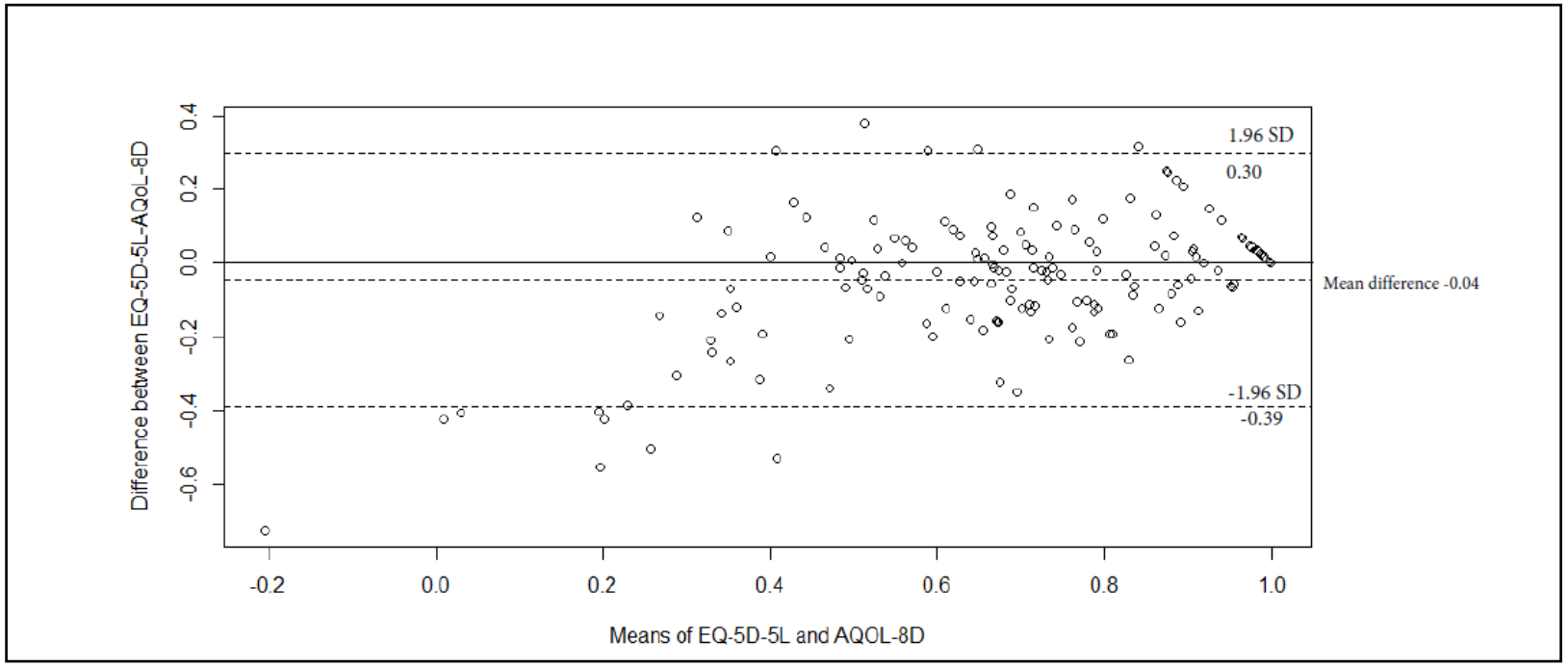
Questionnaire Completion:

EQ-5D-5L : 96%

AQoL-8D: 85%

Results

Bland Altman plot for differences in means for EQ-5D-5L and AQOL-8D utilities.



Strong correlation between the two instruments: Spearman's rank correlation coefficient :0.80

Summary results

Evaluation parameter	EQ-5D-5L	AQOL-8D
Questionnaire practicality	X	
Internal consistency		X
Divergent validity (Kruskal-Wallis test)	X	
Divergent validity (Effect size and relative efficiency)	X	
Convergent validity (Correlation with Shortness of Breath questionnaire and St George's Respiratory Questionnaire)	X	
Convergent validity (Correlation with Hospital Anxiety and Depression Scale questionnaire)		X
Floor effect (sensitivity to severe disease)	X	

Strengths and Weaknesses

Strengths

First study to conduct a comparison of the two instruments in persons with IPF

Limitations

- Small cohort
- Cross sectional study
- Registry may not be representative of the Australian population as it is an opt in registry
- Data on disease specific questionnaires and clinical data were within 12 months of the EQ-5D-5L and AQoL-8D data collection

Conclusions

- The EQ-5D may be more suitable for HSUV estimation in persons with IPF in Australia.
- Full validation of the instrument is necessary

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Thank you

Questions?