

Determinants of mortality by sex among COPD patients: the French Palomb Cohort.

N. Jestin-Guyon¹, E.H. Ouaalaya¹, A. Bernady², E. Berteaud¹, J. Casteigt³, L. Falque⁴, F. Le Guillou⁵, J. Moinard², M. Molimard⁶, L. Nguyen⁷, C. Nocent⁸, A. Ozier⁷, M. Staali⁹, C. Raherison-Semjen^{1,10}

Author's affiliations: ¹Bordeaux University, INSERM, Bordeaux Population Health Research Center, team: EPICENE, UMR1219 - Bordeaux (France), ²Medical office in Bordeaux - Bordeaux (France), ³Medical office in Saint Médard en Jalles - Saint Médard en Jalles (France), ⁴Pulmonology Center Bordeaux Rive Droite - Cenon (France), ⁵Health Center L'Esquirol - Le Pradet (France), ⁶Pellegrin University Hospital Center - Bordeaux (France), ⁷Saint Augustin clinic - Bordeaux (France), ⁸Bayonne Hospital Center - Bayonne (France), ⁹Avicenne Rehabilitation Center - Libourne (France), ¹⁰Guadeloupe University Hospital Center - Pointe-à-Pitre (France)

INTRODUCTION

Chronic Obstructive Pulmonary Disease (COPD) is the **3rd** leading cause of death worldwide (WHO, 2022). According to trend projections for **2050** in France, COPD prevalence among men and women respectively will be nearly **11.5%** and **8.3%** (Pierre-Régis Burgel, 2018).

Prevalence of current smoking among adults men and women were **29.1%** and **22.0%** respectively (Baromètre Santé SPF, 2021). Gender differences among COPD patients exist regarding disease severity and clinical features (Raherison-Semjen, 2018).

AIM OF THE STUDY

The objective of the present study was to identify sex differences regarding clinical features and mortality among COPD patients in France.

METHODS

The Palomb Cohort

Prospective multi-centered study



Recruitment by
pulmonologists

Anonymized data
(CNIL)

Real-life follow-up
2013 - ongoing

Patients are recruited in the cohort by almost 50 pulmonologists (independent or hospital) in **2** French regions (Aquitaine and Charentes).

The vital status was updated on the **20th of June 2022**. Multivariable logistic regression stratified by sex was used to study the determinants of mortality (Benjamini-Hochberg correction for p-values).

We also studied **5-year** survival between men and women using Kaplan-Meier curves and Log-Rank test (all causes of death).

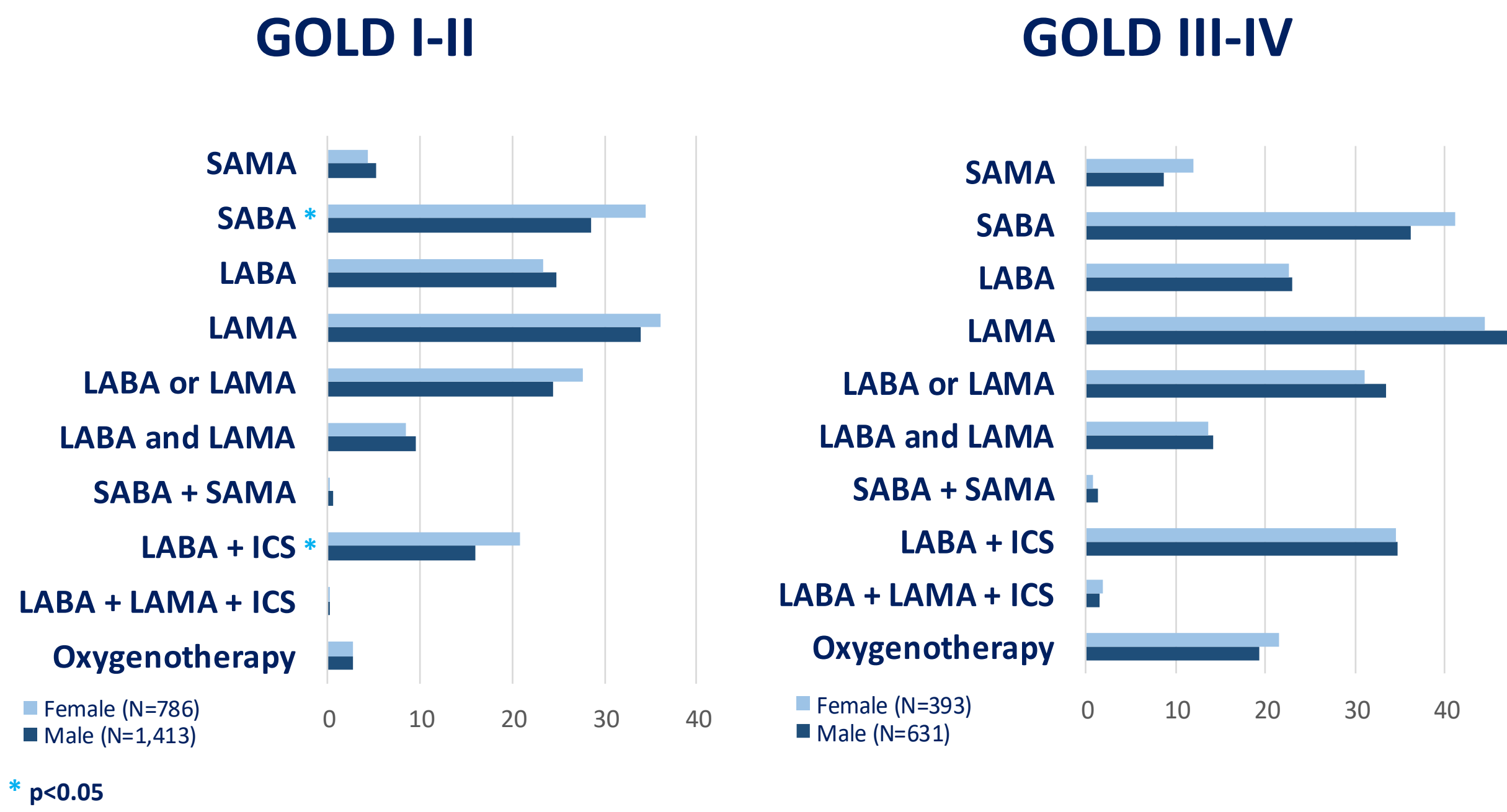
In **February 2022**, **3,228** COPD patients were recruited and **36.5%** were female. A total **27.2%** of patients died since inclusion in the study.

	Male N = 2,049	Female N = 1,179	p
SOCIODEMOGRAPHIC			
Age at inclusion (years)	66.8 [± 10.6]	64.3 [± 10.4]	<0.001
Patients deceased	640 (31.8)	219 (19.2)	<0.001
Age at death (years)	75.2 [± 10.1]	72.8 [± 10.8]	0.004
Smoking status			<0.001
Non-smoker	77 (3.8)	86 (7.3)	
Ex-smoker	1 247 (60.9)	555 (47.1)	
Smoker	725 (35.4)	538 (45.6)	
Pack/years*	38.6 [± 18.2]	33.0 [± 17.3]	<0.001
Exposed occupation	429 (20.9)	44 (3.7)	<0.001
Physical activity	426 (20.8)	223 (18.9)	0.217
CLINICAL FEATURES			
Pneumococcal vaccine	992 (48.4)	539 (45.7)	0.150
Influenza vaccine	921 (44.9)	490 (41.6)	0.062
Childhood respiratory infection	15 (0.7)	4 (0.3)	0.243
Adult respiratory infection			0.153
43 (2.1)	35 (3.0)		
BMI < 18.5	68 (3.3)	141 (12.0)	<0.001
Coughing	1 175 (57.4)	676 (57.3)	>0.9
Expectoration	886 (43.2)	449 (38.1)	0.004
Chest tightness	101 (4.9)	64 (5.4)	0.591
Dyspnea mMRC**			0.012
0 – 1	922 (45.0)	477 (40.5)	
≥ 2	1 126 (55.0)	701 (59.5)	
Exacerbations	0.94 [± 1.2]	1.20 [± 1.3]	<0.001
Exacerbations			<0.001
0	956 (46.7)	443 (37.6)	
1	625 (30.5)	370 (31.4)	
≥ 2	468 (22.8)	366 (31.0)	
Onset of symptoms***	59.0 [± 11.4]	55.7 [± 12.2]	<0.001
FEV ₁ predicted (%)	60.9 [± 20.2]	59.2 [± 19.5]	0.010
GOLD III-IV	633 (30.9)	393 (33.3)	0.172
ABE classification*			<0.001
A	754 (36.9)	354 (30.1)	
B	781 (38.2)	428 (36.3)	
E	511 (24.9)	396 (33.6)	
Emphysema	455 (22.2)	239 (23.6)	0.209

*Missing N=123, **Missing N=4, ***Missing N=1,676, #Missing N=4

RESULTS

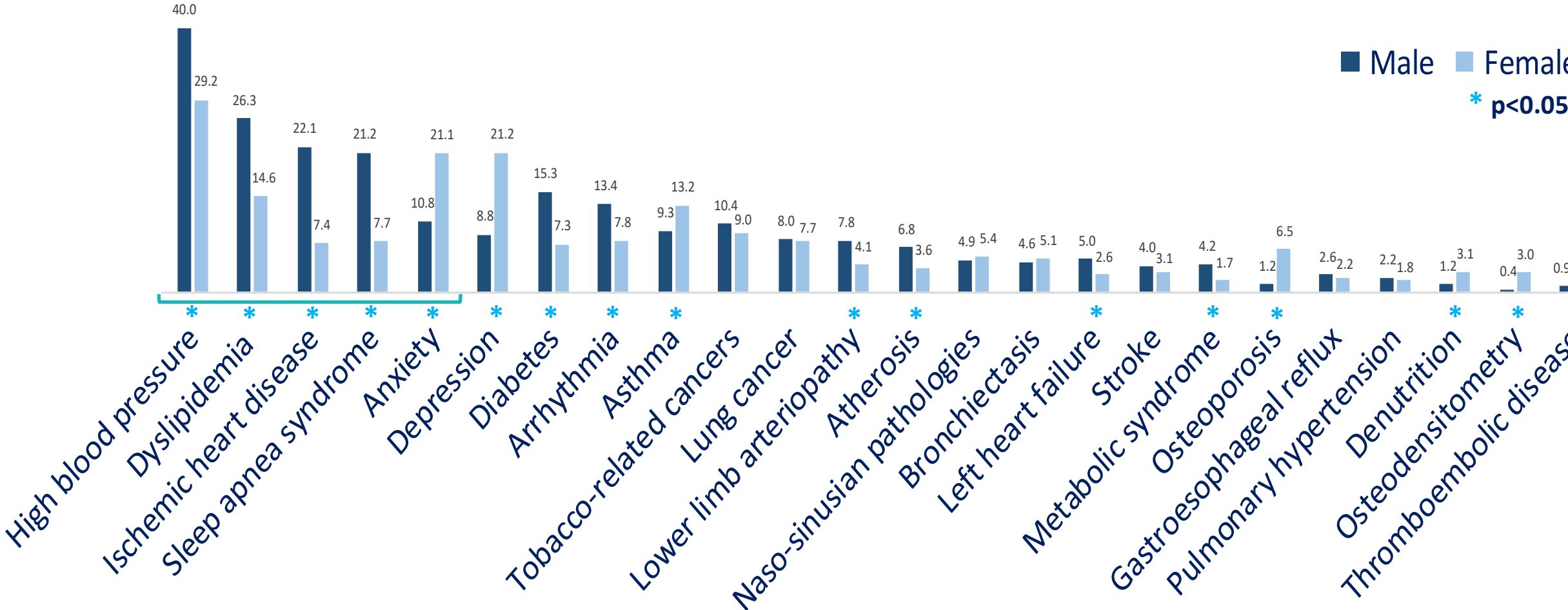
TREATMENTS



DETERMINANTS OF MORTALITY

aOR [CI95%]	Total N=859/2 364	Male N=640/1 404	Female N=219/959
Deceased/alive			
Sex (ref: female)	2.05 [1.67 – 2.51]	-	-
Age (years)	1.08 [1.07 – 1.09]	1.09 [1.07 – 1.10]	1.07 [1.05 – 1.08]
Smoking status (ref: non-smoker)			
Ex-smoker	1.39 [0.92 – 2.12]	1.63 [0.91 – 2.93]	
Smoker	1.98 [1.27 – 3.09]	2.65 [1.43 – 4.91]	
BMI < 18.5	2.45 [1.74 – 3.45]	2.66 [1.51 – 4.66]	2.20 [1.42 – 3.42]
mMRC ≥ 2	1.99 [1.63 – 2.43]	2.18 [1.72 – 2.74]	1.67 [1.14 – 2.44]
GOLD III-IV	1.59 [1.31 – 1.92]	1.67 [1.32 – 2.11]	1.49 [1.05 – 2.11]
Anxiety	1.40 [1.10 – 1.80]		1.76 [1.20 – 2.56]
Naso-sinusian pathologies	0.45 [0.28 – 0.74]	0.53 [0.30 – 0.93]	0.35 [0.14 – 0.89]
Diabetes	1.56 [1.21 – 2.01]	1.56 [1.18 – 2.07]	2.32 [1.36 – 3.96]
Atherosclerosis	1.63 [1.15 – 2.29]		2.37 [1.18 – 4.76]
Arrhythmia	1.32 [1.01 – 1.72]		
Left heart failure	1.67 [1.12 – 2.50]	1.73 [1.10 – 2.72]	2.47 [1.12 – 5.43]
Gastroesophageal reflux	0.36 [0.18 – 0.72]	0.35 [0.16 – 0.77]	
Metabolic syndrome	1.63 [1.03 – 2.58]		
Lung cancer	3.85 [2.87 – 5.18]	2.66 [1.86 – 3.81]	7.71 [4.68 – 12.71]
Tobacco-related cancers	1.66 [1.26 – 2.18]	1.67 [1.21 – 2.31]	

COMORBIDITIES

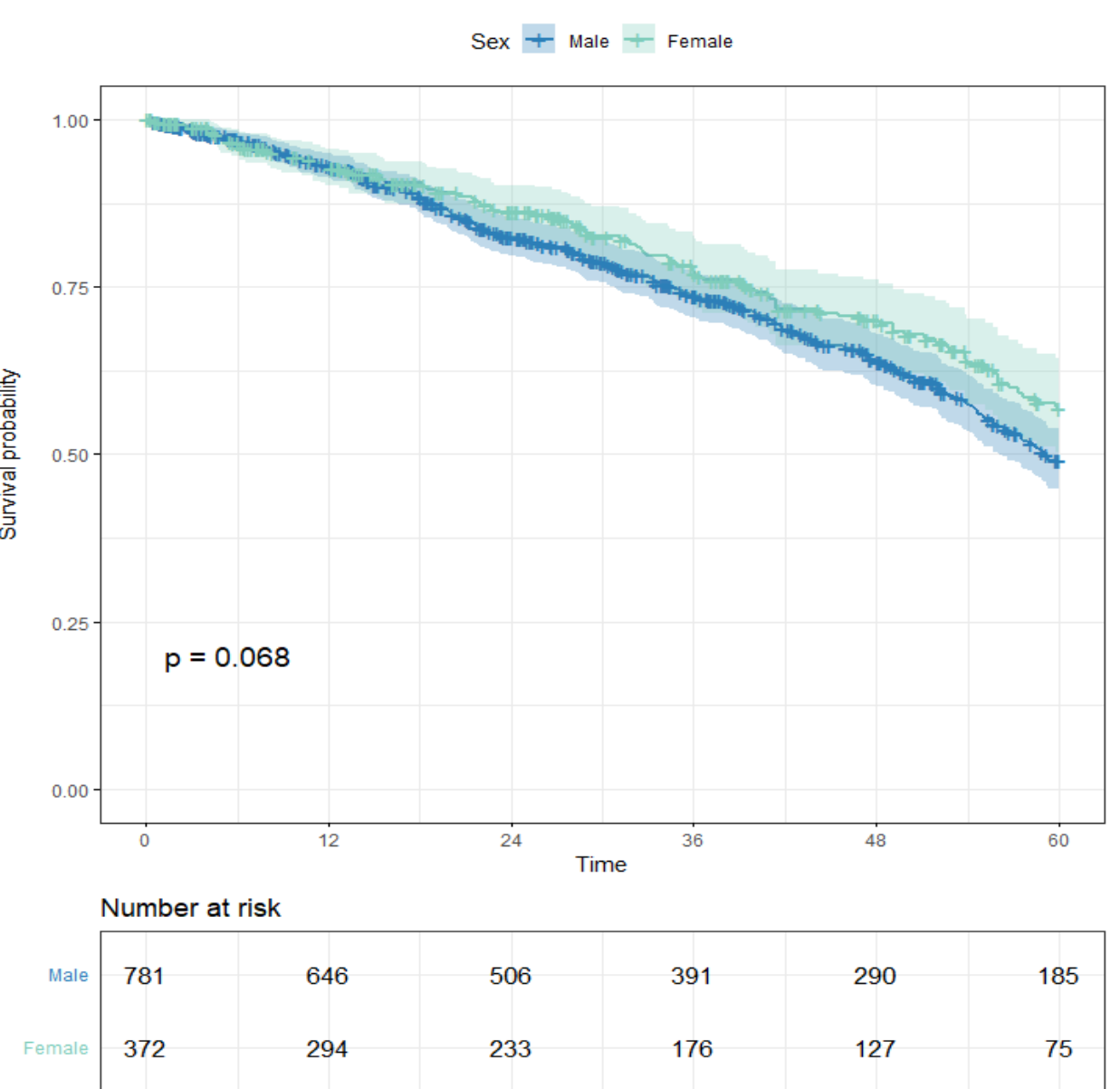


Men experienced more pulmonary diseases (**p<0.001**), cardiovascular diseases (**p<0.001**) and metabolic diseases (**p<0.001**), while women have more osteoarticular (**p<0.001**) and neuropsychiatric diseases (**p<0.001**).

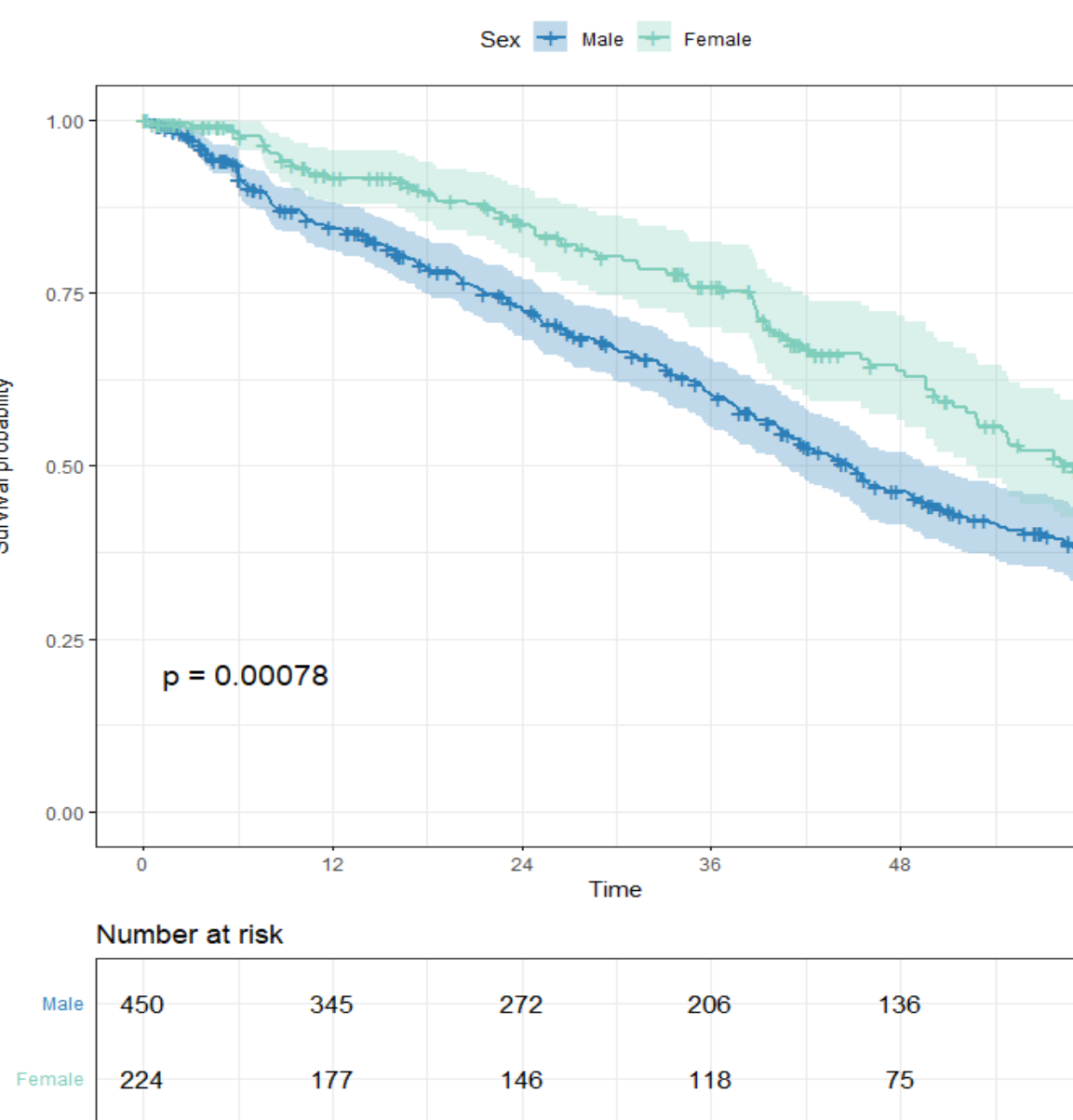
5-YEAR SURVIVAL

A total **1,828** patients were included in the survival analysis. At any stage of disease severity since the inclusion, the 5-year survival was higher among women (**log-rank p<0.001**).

GOLD I-II



GOLD III-IV



Research supported by:



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CONCLUSION

Men and women diagnosed with COPD in the French medical framework have clinical differences (age, smoking status, symptoms, FEV₁). Even if women have a more severe aspect of COPD, the burden of cardiovascular diseases among men is greater and male sex represent a higher risk of death and 5-year mortality. However, the determinants of mortality vary between men and women.