Association between smoking status and anxio-depressive symptoms in a pulmonary primary care sample of patients with COPD in Germany

- RESPIRO Study -

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The authors declare no conflict of interest.

COPD – smoking – psychological burden

- Data on the prevalence of psychological comorbodities in COPD patients in Germany are sparse

- No data on the association between tobacco dependence and the presence of anxio-depressive symptoms in COPD patients in Germany

Aims of study

1 To assess the prevalence of anxio-depressive symptoms stratified by the tobacco smoking status in a pulmonary primary care sample of patients with COPD in Germany

2 To assess the association between tobacco smoking status and the presence of anxio-depressive symptoms, adjusted for age, gender, education, subjective burden of disease, and lung function (Multivariable logistic regression)

3 Among **current** tobacco smokers with COPD: To assess, the association between the level of tobacco dependence and the presence of anxio-depressive symptoms adjusted for age, gender, education, subjective burden of disease, and lung function (Multivariable logistic regression)

Real-world" Effectiveness of Smoking cessation methods in Patients with chRonic Obstructive pulmonary disease' (RESPIRO)

- **Initial aim**: Assessing use and effectiveness of smoking cessation methods in COPD patients
- Cross-sectional survey (2018-2019), 21 pulmonary practices
- Included: Patients with clinically diagnosed COPD (ICD-10 J44.x and ratio FEV1/FVC <0.7)
- Self-administered questionnaire
  - Socio-demographic factors, lung function: most recent spirometry results (entered by practice nurse)
  - Patient Health Questionnaire – 4
  - Heaviness of Smoking Index (HSI) → tobacco dependence
  - Health-related quality of life (COPD Assessment Test, CAT)

- Included sample (N = 1164): Age: 66.2 years ± 9 (SD); Gender: 41.8% female (n = 486)
  - *Smoking status*
    - Current smoker: 31.2% (n = 363)
    - Ex-smoker <12m: 7.7% (n =   90)
    - Ex-smoker >12m: 52.6% (n = 612)
    - Never smoker: 5.4% (n =   63)

Patient Health Questionnaire-4 (PHQ-4)

[Cano-Vindel et al., 2018; Kroenke, Spitzer, Williams, & Löwe, 2009; Löwe et al., 2010]

Over the <u>last 2 weeks</u>, how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious or on edge	0	1	2	3
2. Not being able to stop or control worrying	0	1	2	3
3. Little interest or pleasure in doing things	0	1	2	3
4. Feeling down, depressed, or hopeless	0	1	2	3

Subscale „**Anxiety**"
Cut-off ≥ 3
Range 0-6

Subscale „**Depression**"
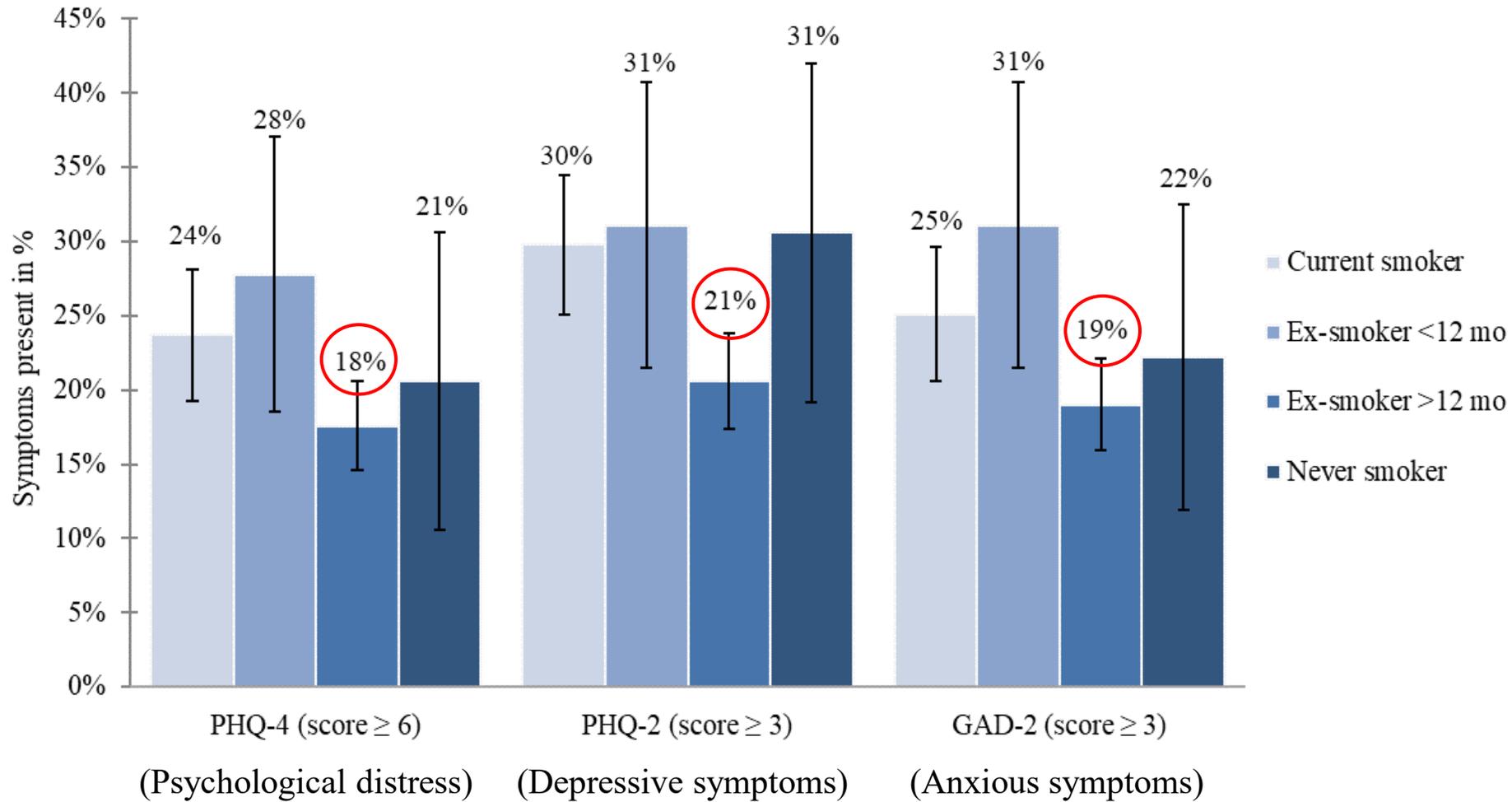Cut-off ≥ 3
Range 0-6

PHQ-4 total
Cut-off ≥ 6
Range 0-12

Prevalence of psychological symptoms stratified by smoking status

Prevalence: psychological distress total 20.7%, depressive symptoms 25.0%, anxious symptoms 22.3%

Results of multivariable logistic regression analyses

2)

	PHQ-4 total aOR (95%CI)	Depressive symptoms aOR (95%CI)	Anxious symptoms aOR (95%CI)
Smoking status			
Never smoker (reference)	1	1	1
Long-term ex-smoker	1.22 (0.51 – 2.93)	0.76 (0.35 – 1.66)	0.92 (0.41 – 2.04)
Recent ex-smoker	1.85 (0.67 – 5.11)	1.20 (0.47 – 3.04)	1.44 (0.56 – 3.71)
Current smoker	1.43 (0.58 – 3.55)	0.96 (0.43- 2.16)	1.07 (0.46 – 2.46)
Age	0.98 (0.96 – 1.00)	**0.98 (0.96 – 0.99)***	0.98 (0.96 – 1.00)
CAT score	**1.20 (1.16 - 1.24)***	**1.18 (1.15 – 1.22)***	**1.16 (1.13 – 1.19)***

3) Association between the level of tobacco dependence and anxio-depressive symptoms[a] (current smokers)

Tobacco dependence (HSI score)	**1.38 (1.09 – 1.75)**	**1.33 (1.07 – 1.64)**	**1.29 (1.03 – 1.62)***
CAT score	**1.23 (1.16 – 1.31)***	**1.21 (1.14 – 1.27)***	**1.21 (1.15 – 1.29)***

[a] **Adjusted for**: age, gender, level of education and burden of disease (lung function parameter FEV1% predicted and score of the COPD assessment test)

***p<.001, **p<.01, *p<.05

Limitations

- Major limitations:

  - **Symptoms** are **self-reported**; PHQ-4: **screening** instrument → no data on clinical diagnoses

  - **Non-response bias** → sociodemographic characteristics of non-responders might be associated with an increased likelihood for psychological distress

  - Information bias → no information on medication (psychoactive substances), comorbidities

Discussion of key findings

- About every fourth COPD patient in German pulmonary primary care reports anxio-depressive symptoms

- In current COPD smokers, these symptoms are strongly associated with tobacco dependence

This association should be considered when treating tobacco addiction in COPD patients, as the psychological burden can further impede life-saving tobacco abstinence

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