

# The prevalence of chronic obstructive pulmonary disease in Saudi Arabia: Where do we stand?

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Chronic obstructive pulmonary disease (COPD) is an important cause of morbidity and mortality worldwide. It is the fifth leading cause of death in high-income countries, accounting for 3.8 % of total deaths, and it is the sixth leading cause of death in low- and middle-income countries, accounting for 4.9 % of total deaths.<sup>[1,2]</sup>

The prevalence rate of COPD is different in many parts of the world. For example, in a study in Turkey involving a total of 1160 participants, 6.9% of the participants were found to have COPD, while the prevalence of COPD was 18.1% in current smokers over 40 years of age.<sup>[3]</sup> In Greece, a study involving 888 randomly identified adults (475 men and 413 women) showed that the overall prevalence of COPD among smokers aged > 35 was 8.4%, while the COPD prevalence was 11.6% for men and 4.8% for women.<sup>[4]</sup> A study carried out in the Netherlands among 7983 participants aged ≥ 55 years showed that 648 cases were determined to have incidental COPD after a median follow-up time of 11 years. The risk for the development of COPD for a 55-year-old man and woman still free of COPD was 24% and 16%, respectively.<sup>[5]</sup> In Austria, a gender-stratified, population-based sample of 1258 adults > 40 years of age had spirometry tests; the overall prevalence of mild COPD was 26.1%, while the prevalence of moderate or severe COPD was 10.7%. The prevalence of COPD increased with age and cigarette smoking, but it was equal in men and women.<sup>[6]</sup> An article by Stang *et al.* estimated the total cases of COPD in the United States to be 15,337,000 among subjects aged > 40 years.<sup>[7]</sup> The National Health and Nutrition Examination Survey (NHANES) III estimated 17,110,000 cases for the same age range in the United States. The proportion of cases of COPD that is currently diagnosed in the United States is between 14% (2.45 million of 17.1 million cases) and 46% (7.0 million of 15.337 million cases) of the actual number of cases of COPD in the population. A study in Japan performed to investigate the prevalence, severity, and burden of COPD in a primary-care setting among 2250 patients aged 40 years or more found that COPD

was diagnosed in 183 patients (9.3%).<sup>[8]</sup> In China, a cross-sectional survey study by Zhong *et al.* to determine the COPD prevalence based on spirometry among residents aged 40 years or older found that among 20,245 participants who completed a questionnaire and spirometry, 8.2% were diagnosed with COPD (men, 12.4%; women, 5.1%).<sup>[9]</sup> In a study carried out in India, the prevalence of COPD reported in different population-based studies was highly variable; the rounded-off median prevalence rates for COPD were 5% for males and 2.7% for females over 30 years of age.<sup>[10]</sup> A study carried out in Korea regarding the COPD prevalence among 3981 subjects showed that 240 subjects were diagnosed as COPD; only 61 subjects (25.4%) visited health care facilities and 179 subjects (74.6%) never utilized medical services for COPD during the study period.<sup>[11]</sup>

With regard to Saudi Arabia, unfortunately, the COPD prevalence rate is not known because of the lack of population-based epidemiological studies. However, in a study among 501 smokers more than 40 years of age attending primary healthcare clinics in the biggest three cities in Saudi Arabia, Al Ghobain *et al.* reported that 71 patients had COPD, comprising 14.2% of the study population; this prevalence rate is similar to the prevalence rate reported from many parts of the world.<sup>[12]</sup> In another study done in Saudi Arabia to determine the prevalence of respiratory diseases and the length of stay among 810 patients hospitalized with respiratory diseases, COPD was one of the leading causes of hospitalization among patients with respiratory disorders.<sup>[13]</sup>

Because smoking is the main risk factor for the development and progression of COPD and because of the alarming and growing evidence that the rate of smoking is steadily increasing among Saudis, we can expect that the COPD prevalence rate in Saudi Arabia is high.

Overall, the smoking prevalence in the adult Saudi population is 21.6%: 35% of Saudi males are smokers and 4.7% of Saudi females are smokers.<sup>[14]</sup>

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Moreover, the prevalence of smoking among Saudi adolescents is increasing. Teen smoking will become an alarming and serious health problem in the coming generation. In a study among secondary school students in Riyadh City, Al Ghobain reported the prevalence of cigarette smoking to be 31% among boys and 8.9% among girls.<sup>[15]</sup> In addition, the use of water pipes (shisha) and biomass fuel exposure, such as wood for cooking and coal, is very common in Saudi Arabia. These factors are associated with an increased risk of COPD and may be an important contributor to the higher COPD prevalence in our country. Old tuberculosis infection, outdoor air pollution, and respiratory infections during childhood are also important risk factors for development of COPD that are common in the Saudi population.

Not only data about the prevalence of COPD in Saudi Arabia is lacking but also data about disease severity, health care load, economic impact, social and family perceptions of care, and occupation risk are lacking in Saudi Arabia.

There is a need to plan a large population-based study to determine the prevalence of COPD in Saudi Arabia. Data about COPD in Saudi Arabia is needed to document its prevalence and to estimate its impact on quality of life, and disease costs and to influence public health planning. Such data will subsequently lead to enhance COPD research, improving disease management and patient education.

### References

1. Buist AS, Vollmer WM, Sullivan SD, Weiss KB, Lee TA, Menezes AM, *et al.* The burden of obstructive lung disease initiative (BOLD): rationale and design. *COPD* 2005;2:277-83.
2. Lopez AD, Mathers CD, Ezzati M, Jamison DT, Murray CJL. Global burden of disease and risk factors. Washington: The World Bank; 2006.
3. Gunen H, Hacievliyagil SS, Yetkin O, Gulbas G, Mutlu LC, Pehlivan E. Prevalence of COPD: First epidemiological study of a large region in Turkey. *Eur J Intern Med* 2008;19:499-504.
4. Tzanakis N, Anagnostopoulou U, Filaditaki V, Christaki P, Siafakas N. Prevalence of COPD in Greece. *Chest* 2004;125:892-900.
5. Van Durme Y, Verhamme K, Stijnen T, van Rooij F, Van Pottelberge G, Hofman A, *et al.* Prevalence, incidence, and lifetime risk for the development of COPD in the elderly the rotterdam study. *Chest* 2009;135:368-77.
6. Schirrhofer L, Lamprecht B, Vollmer WM, Allison MJ, Studnicka M, Jensen RL, *et al.* COPD prevalence in salzburg, Austria: Results from the burden of obstructive lung disease (BOLD) study. *Chest* 2007;131:29-36.
7. Stang P, Lydick E, Silberman C, Kempel A, Keating E. The prevalence of COPD using smoking rates to estimate disease frequency in the general population. *Chest* 2000;117:354S-9S.
8. Bednarek M, Maciejewski J, Wozniak M, Kuca P, Zielinski J. Prevalence, severity and underdiagnosis of COPD in the primary care setting *Thorax* 2008;63:402-7.
9. Zhong N, Wang C, Yao W, Chen P, Kang J, Huang S, *et al.* Prevalence of chronic obstructive pulmonary disease in china. *Am J Respir Crit Care Med* 2007;176:753-60.
10. Jindal SK, Gupta D, Aggarwal AN. Guidelines for management of chronic obstructive pulmonary disease (COPD) in india: A guide for physicians (2003). *Indian J Chest Dis Allied Sci* 2004; 46:137-53.
11. Kim, DS, Kim, YS, Jung, KS, Chang JH, Lim CM, Lee JH, *et al.* Prevalence of chronic obstructive pulmonary disease in Korea: A population-based spirometry survey. *Am J Respir Crit Care Med* 2005;172:842-7.
12. Al Ghobain M, Al-Hajjaj MS, Wali SO. Prevalence of chronic obstructive pulmonary disease among smokers attending primary healthcare clinics in Saudi Arabia. *Ann Saudi Med* 2011;31:129-33.
13. Alamoudi O. Prevalence of respiratory diseases in hospitalized patients in Saudi Arabia: A 5 years study 1996-2000. *Ann Thorac Med* 2006;1:76-80.
14. Al-Bedah A. Studies and research about smoking in Saudi Arabia. Riyadh: King Fahd national library; 2007.
15. Al Ghobain MO, Al Moamary MS, Al Shehri SN, AL-Hajjaj MS. Prevalence and characteristics of cigarette smoking among 16 to 18 years old boys and girls in Saudi Arabia. *Ann Thorac Med* 2011;6:137-40.

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