



# Gender Differences and Obesity Influence on Pulmonary Function Parameters

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Dear Editor,

It was with great interest that I read the study by Zakaria et al. published in the January 2019 issue of the *Oman Medical Journal*.<sup>1</sup>

The authors studied the gender differences in pulmonary function test (PFT) parameters and examined the relationship between the body mass index (BMI) and PFT parameters in a Malaysian cohort.<sup>1</sup> Using spirometry, they found that female patients exhibited lower mean values for all PFT parameters compared to male patients. The forced vital capacity (FVC) predicted was less than 80% for all patients, while the ratio of forced expiratory volume in one second (FEV1)/FVC was higher with increased BMI. BMI was positively correlated with peak expiratory flow in all patients, and with FEV1/FVC ratio in males but not in females.<sup>1</sup> The authors ultimately concluded that males had higher mean values of PFT parameters than females, and the higher BMI seemed to be associated with a restrictive pattern on spirometry.<sup>1</sup>

I presume that these results ought to be taken cautiously due to the presence of the following methodological limitation. It is worthy of mentioning that the evaluation of PFT in a given population is usually accomplished by examining the absolute values of various PFT parameters, comparing them with the predicted values, and examining the shape of the curves. Such a precise interpretation of PFT necessitates the employment of population-specific reference values (RV). It is explicit that the normal lung function tends to be

controlled by genetic, physiological, nutritional, environmental, psychological, socioeconomic, and ethnic determinants.<sup>2</sup> Accordingly, many population-specific RV of PFT have been constructed to be employed in the clinical settings and researches.<sup>3,4</sup> The authors mentioned in the study methodology that "spirometry was performed to measure pulmonary function by experienced laboratory technicians using automated testing equipment (Cosmed Pony FX Desktop Spirometer, USA) according to recommended standards by the American Thoracic Society".<sup>1</sup> However, they did not mention exactly which RV they employed in their study. To the best of my knowledge, Malaysian population-specific prediction equations for RV of PFT have been already constructed.<sup>5</sup> I presume that if the national RV of PFT were employed in the study<sup>1</sup> more precise results might be yielded.

## REFERENCES

1. Zakaria R, Harif N, Al-Rahbi B, Aziz CB, Ahmad AH. Gender differences and obesity influence on pulmonary function parameters. *Oman Med J* 2019 Jan;34(1):44-48.
2. Ruppel GL, Enright PL. Pulmonary function testing. *Respir Care* 2012 Jan;57(1):165-175.
3. Rufino R, Costa CH, Lopes AJ, Maiworm AI, Maynard K, Silva LM, et al. Spirometry reference values in the Brazilian population. *Braz J Med Biol Res* 2017 Mar;50(3):e5700.
4. Zhang J, Hu X, Shan G. Spirometry reference values for population aged 7-80 years in China. *Respirology* 2017 Nov;22(8):1630-1636.
5. Singh R, Singh HJ, Sirisinghe RG. Spirometric studies in Malaysians between 13 and 69 years of age. *Med J Malaysia* 1993 Jun;48(2):175-184.