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Title: The effect of body mass on COPD in non-smoking women

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Body: Rationale: Smoking is the strongest COPD risk factor, however it has been recognised that a substantial proportion of COPD cases arises in non-smokers. Many studies suggest that obesity is more prevalent in patients with COPD, but it has not been elucidated whether this is also true for never-smokers. Aim of the current study was to assess the effect of change in BMI on incidence and persistence of COPD in never smoking women. Methods: The current study used pooled data from the population based SAPALDIA and SALIA cohorts. Weight status was defined based on BMI at baseline and change in BMI. Pre-bronchodilator ratio of forced expiratory volume in one second over forced vital capacity (FEV1/FVC) was measured in both studies at baseline and follow-up. COPD was defined according to the GOLD criteria or having FEV1/FVC < lower limit of normal and percent predicted FEV1 < 80%. Mixed regression models with random intercept for study area were used to assess the association between BMI change and COPD prevalence and incidence in non smoking women after adjustment for selected confounders. Results: Lung function data and information on potential confounders were available in 9662 women. The majority of women were never smokers (62.5%). The average BMI between baseline and follow-up ranged between 15.48-53.89 kg/m². The incidence of COPD according to the GOLD criteria stage 1 was 3.2% and the incidence in the combined stage 2 and higher was 2.52%. The odds of developing COPD stage 2 increased by a factor of 1.3 per unit increment in BMI. Menopausal status did not influence this association. Conclusion: The results of our analysis suggest that a change in BMI influences the development of COPD in non-smoking women.