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Title: Long term air pollution exposure and COPD in SALIA: Discrepancies between ESCAPE results and published evidence in SALIA

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Body: Background: In a cross-sectional study in 1985 and 1994, women from the SALIA study showed a strong association of air pollution with COPD. In the ESCAPE project, 2008-2012, where data of lung function and exposure were used from a follow-up study in 2008, this association could not be replicated. Aim: To explore and identify the responsible changes explaining the discrepancies between ESCAPE results and published evidence. Method: Multiple regression analyses were used. Factors that differ between the two analyses were changed step by step to identify factors that are responsible for the discrepancies. Results: The baseline analysis showed a significant positive association between COPD and PM₁₀ (OR: 1.68 (95%CI: 1.01-2.78)) per 10 µg/m³. The ESCAPE project analysis showed a non-significant OR of 0.93 (95% CI: 0.72-1.21) for the outcomes. Differences in the ESCAPE analysis compared to the baseline analysis were the following: inclusion of a subgroup of surviving women (N=541 vs. N=2095), use of lung function data of 2008 with different spirometer, use of a more detailed exposure assessment in 2008 and use of a different set of covariates. The differences in result were due to the inclusion of surviving women as the prevalence of COPD at baseline was already lower in this subgroup in comparison to the whole group (2.1% compared to 3.5%) and the use of the lung function from 2008 as lung function deteriorates between baseline and 2008. Conclusion: The association of air pollution on COPD was less pronounced in the surviving women at follow-up than in all women from baseline. This might be due to the strong decline in PM₁₀ pollution between 1984 and 2008.