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| **Race and ethnicity in lung function reference equation for spirometry: a systematic review** |
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| **Introduction:**There have been concerns regarding the inclusion of race and ethnicity as factors in reference equations used for interpreting lung function test results in respiratory medicine. The aim of this review was to assess differences in lung function amongst different racial and ethnic groups and to identify potential contributing factors.  **Methods:**We systematically searched in Ovid Medline, PubMed, Embase and Scopus using keywords related to lung function reference equations, race and ethnicity and identified 1317 full-text articles. The study quality was assessed, and finally, we included 31 articles that fulfilled the eligibility criteria.  **Results:** There were significant differences in FEV1 and FVC values amongst various racial and ethnic populations. Individuals who are of White European ancestry tend to show higher FEV1 and FVC compared to individuals of African or Asian ancestry. Race-specific equations resulted in a higher FEV1 z-score in African and Asian ancestry compared to the multiracial approach, possibly underestimating mortality risk in these groups. While most studies relied on self-identification of race or ethnicity, this approach lacked clear definitions, compromising this metric's validity. The definition of "healthy" primarily encompassed asymptomatic individuals who are non-smokers. Adjusting for potential confounding variables such as chest size, standing height, socioeconomic status, or a combination of both can attenuate some of the observed differences in lung function between racial and ethnic groups. This suggests that some of the disparities may be related to these factors.  **Conclusion:** It has been observed that there are significant differences in spirometry amongst people of different races and ethnic groups. However, it is still unclear to what extent these differences can be attributed to determinants of lung function. The reason for this is the heterogeneity amongst studies included regarding lack of longitudinal data, definition of race, ethnicity, and measurement of lung function, leading to inconclusive findings. |