Lung function

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The influence of socio-economic status on lung function in boys and young men from Tanzania.

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Background: Socio-economic status (SES) has profound influence on health. Lower SES is associated with increased morbidity and mortality. This may be due to many factors, including smoking, poor housing conditions, low physical activity, obesity, which are all related to SES. This study analysed spirometry results in relation to SES.

Materials and methods: 295 males from Tanzania were divided into two age groups: group I aged between 13 and ≤17.5 years (n=189) and group II aged 17.6–25 (n=106). SES was assessed from family information (birth order, number of children in the family, parents" education, occupation) and estimation of family material status (land holding, household possessions, consumption patterns of meat, fish, fruit and vegetables). Age groups were analysed for differences in spirometry results in SES categories: very good/good – average – bad/very bad. Anthropometric measurements were performed, too: height (B-v) and weight. Spearman"s rank correlation analysis was performed to investigate how spirometry results reflected socio-economic data. Between-group differences in spirometry results were analysed using the Mann-Whitney U test and Kruskal-Wallis H test. Linear regression was used to assess trend. Simple regression analysis was performed for FEV1, FVC, PEF and %FEV1/FVC.

Results: In the group ≤17.5 years, correlation analysis revealed statistically significant dependence of %FEV1/FVC and PEF vs. SES (respectively: RS=-0.15, p=0.04; RS=-0.14, p=0.05). However, the Kruskal-Wallis H test failed to confirm these significant differences. In the older group, correlation analysis demonstrated statistically significant dependence of FEV1, FVC and PEF vs. SES. (respectively: RS=0.22, p=0.02; RS=0.25, p=0.01; RS=0.24, p=0.01), but the Kruskal-Wallis H test did not confirm the differences in FEV1 scores according to SES category. Average FVC was 31.7% higher in high-SES participants (3.87 L) than those with low SES. In regression analysis, SES was statistically significant (B=0.46, p=0.04) in explaining FVC variability (R2=0.26). The average %FEV1/FVC was 3% higher in participants with high SES (98.67) than those with low SES.

Conclusions: Spirometry results are sensitive to change in the living environment and depend on many diverse environmental factors. They also predict respiratory and cardiovascular disorders. Adult SES is linked to the SES from childhood. Spirometry results can provide a credible indication of the influence exerted by the environment in which the studied young people grew up.