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Study analysis of urbanization and frequency of chronic kidney disease association in Haryana state population

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Objectives:

With increasing life expectancy and prevalence of life style diseases, India has seen a significant increase in prevalence of Chronic Kidney Disease (CKD).

Aim of present study was to investigate association analysis of urbanization and frequency of chronic kidney disease in Haryana state population, India

Methods: We investigated the association between urbanization and estimated glomerular filtration rate (eGFR), an important CKD risk marker. Data came from the India Health and Nutrition Survey wave 2018, in which we collected fasting serum, individual and household data along with community level urbanization data, which was used to derive a study-specific urbanization measure, in 48 communities across Haryana state in India. A total of 2754 men and 2566 women participants aged 18 years or older were included in the analysis. Reduced renal function was defined as eGFR of less than 60 mL/min/1.73 m² measured using serum creatinine concentration (mg/dL).

Results: After adjusting for socio-demographic (e.g., age, education and household income), a sex-stratified multilevel logistic model revealed that living in a more urbanized community was associated with higher odds of reduced eGFR (odds ratio [OR] = 1.38 per one-standard deviation [SD] increase in the Haryana state specific urbanization index, 95% confidence interval [CI] = 1.11-1.73 for men; OR = 1.35, 95% CI = 1.11-1.62 for women). After adjusting for behavioral variables (i.e., alcohol consumption, smoking, physical activity and diet), as well as obesity and cardiometabolic risk factors, the association was attenuated in men (OR = 1.25, 95% CI = 0.98-1.59), but remained statistically significant in women (OR = 1.24, 95% CI = 1.01-1.52).

Conclusions: Our findings suggest that living in an urban environment is linked with higher odds of reduced renal function independently of behavioral and cardiometabolic risk factors, which have been shown to increase along with urbanization.