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COMMENT

Area of residence and hypertension risk: need more evidence from low- and middle-income countries

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Sharma et al. aimed to determine the association between residential characteristics and hypertension in Nepalese population aged≥15 years [1]. The authors used nationally representative sample of the Nepal Demographic and Health Survey 2016. The authors developed an area deprivation (AD) index (52–146; mean ± standard deviation: 100 ± 20) using 15-item inventory [2, 3]. The authors divided the AD index into quartiles: least deprived areas/quartile 1, less deprived areas/quartile 2, moderate deprived areas/quartile 3, and highest deprived areas/quartile 4. After adjusting for age, sex, smoking status, alcohol intake, education, food insecurity, and body mass index (BMI), AD index was found to be significantly associated with hypertension among the study participants. Compared to residents in the highest deprived areas, the residents of least deprived, less deprived, and moderately deprived areas had higher odds of hypertension. A significant interaction was found between AD index and receiving formal education, although the direction of risk for moderate deprived and least deprived areas were in inverse direction.

The reason of higher odds of hypertension in the least to moderate deprived areas compared to highest deprived areas is probably related to wealth index. In low-and-middle-income countries (LMICs) like Nepal, the prevalence of non-communicable diseases including hypertension and overweight and obesity is higher among the higher wealth quintiles [4]. Similar findings were observed in neighboring India [5] and Bangladesh [6].

Opposite phenomenon has been observed in upper-income countries. In USA, the odds of hypertension increased with increasing AD index [7, 8]. Similar pattern of association was observed in Germany [9]. This might be due to higher prevalence of obesity and diabetes in the highest deprived areas in these upper-income nations [10].

An interaction between literacy and AD index was observed. In highly deprived areas, individuals with formal education had higher odds of hypertension compared to those who did not have any formal education. Opposite was observed in the less deprived area. The authors mentioned that this might be due to the 'local social inequality model'. During the analysis, the authors combined all the categories of formal education as one single category named 'literate' (i.e.: having formal education). The dose-response relationship between the categories of education and AD index with hypertension was not explored, which should be a focus of future studies. Since there is a scarcity of evidence from the LMICs, further evidence is warranted to understand the association between AD index and hypertension.

Compliance with ethical standards

Conflict of interest The author declares no competing interests.

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