# Deprivation strongly linked to hospital admissions

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Credit: Rosmarie Voegtli

People who live in areas of higher than average deprivation are more likely to be admitted to hospital and to spend longer in hospital, according to new research from the University of Cambridge. The difference was particularly pronounced among manual workers and those with lower education level.

Despite increases in overall life expectancy there is still an inequality,

with lower life expectancy observed more often in disadvantaged groups. It is well known that those in higher social classes have a typical life expectancy several years longer than those with the lowest. Similarly, life expectancy and levels of good health vary between UK cities and regions, with large variations in expected years of life in good health.

In research published in *BMJ Open*, a team led by researchers at the Cambridge Institute of Public Health examined whether there was a link between living in an area of deprivation and subsequent hospital use. To do so, they examined data from almost 25,000 individuals (11,000 men and 14,000 women) from the EPIC-Norfolk cohort across almost two decades, between 1999 and 2018.

The researchers used the Townsend Index to measure the deprivation of individuals' residential areas, stratifying people into five levels. The Index looks at levels of unemployment, number of households without a car, the percentage of households not owner-occupied, and the percentage of households with more than one person per room.

Participants completed a lifestyle questionnaire that included questions about their own and their partner's current and past employment and a list of qualifications. The researchers used the employment information to assign each participant to either non-manual or manual social classes. Non-manual social class included those individuals who worked in professional, managerial, technical and non-manual skilled occupations; manual social class included those who worked in skilled, partly skilled and unskilled manual occupations. The qualifications marked were used to assign participants to lower or higher educational attainment categories.

The researchers found that people who lived in areas of highest deprivation spent the most time in hospital, but the risk of a long hospital stay is seen disproportionately in people who also had low educational

attainment or were in manual social class. While the average amount of time spent in hospital over the two decade period was around 28 days for people with high educational attainment, for those with low educational attainment, the average was around 37 days, rising steeply to 43 days in the group living in areas of highest deprivation.

The picture relating to social class was similar, though the differences between social classes was not as pronounced as those between educational attainments. Those individuals in non-manual social classes spent between 29 and 31.5 days in hospital; in manual social classes, people in areas of less deprivation spent around 32 days in hospital, rising to 39.5 days in areas of highest deprivation.

"Regardless of your age and gender, or even lifestyle factors such as smoking and obesity, living in an area of high deprivation is a significant risk factor for spending time in hospital," said Dr. Robert Luben from the Department of Public Health and Primary Care at the University of Cambridge, the study's first author. "People living in areas at or below the national average for deprivation were more likely to spend more than 20 days in hospital or be admitted to hospital on more than seven occasions during the two decades that we examined."

Senior author Professor Kay-Tee Khaw, also from the Department of Public Health and Primary Care, said: "People working in a manual occupation or with lower education level and living in more deprived areas had the greatest risk of hospitalization. This suggests that hospitalization is greatest when poorer individual socioeconomic factors are combined with residential deprivation.

"It isn't clear why this should be the case, though we can speculate that it could in part be down to better education improving an individual's ability to live a healthier life."

Previous research from the group has examined the link between lifestyle factors, education and hospitalization. This is the first to look at the link between deprivation at an area level and hospitalization.

"It clearly is not enough just to focus on educating people and improving lifestyle factors at an individual level," added Dr. Luben. "A poor environment affects those least able to cope. Effective NHS and government policy also needs to address deprivation infrastructural levels—improving housing, transport, access to recreation and green space, for example."

**More information:** Robert Luben et al. Residential area deprivation and risk of subsequent hospital admission in a British population: the EPIC-Norfolk cohort, *BMJ Open* (2019). DOI: 10.1136/bmjopen-2019-031251

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