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## High salt intake linked to social inequalities - PR

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### High salt intake linked to social inequalities

People from low socio-economic positions in Britain eat more salt than the well off, irrespective of where they live, states a paper led by Warwick Medical School published on Tuesday in the *BMJ Open* journal .

The research was carried out by the World Health Organization Collaborating Centre for Nutrition , based in the Division of Mental Health & Wellbeing of Warwick Medical School at the University of Warwick.

The study looked at the geographical distribution of habitual dietary salt intake in Britain and its association with manual occupations and educational attainments, both indicators of socio-economic position and key determinants of health.

The researchers used the British National Diet and Nutrition Survey (2000-1), a national representative sample of 2,105 men and women aged 19-64 years living in Britain. Salt intake was assessed with two independent methods: a 7-day dietary record and the 'gold standard' 24h urine collections for sodium determination (direct marker of salt intake).

The study provides evidence for the first time that salt intake is significantly higher in those with low educational attainment and in manual occupations, when the effects of geographical variations are stripped out (people living in Scotland had higher salt intake than those in England & Wales).

Professor Francesco Cappuccio, senior author and Director of the WHO Collaborating Centre, said: "These results are important as they explain in part why people of low socio-economic background are more likely to develop high [blood pressure](#) (hypertension) and to suffer disproportionately from strokes, heart attacks and renal failure."

Ms Teresa Morris of The Bupa Foundation, which funded the study, said: "Habitual salt intake in most adult populations around the world exceeds 10 g per day and the World Health Organization recommends that daily intake should not exceed 5 g .

"Population salt reduction programmes are a cost-effective way of reducing the burden of [cardiovascular](#) disease nationally and globally."

Professor Cappuccio continued: "We have seen a reduction in salt intake in Britain from 9.5 to 8.1 g per day in the period 2004-2011, thanks to an effective policy which included awareness campaigns, food reformulation and monitoring.

"Whilst this is an achievement to celebrate, our results suggest the presence of social inequalities in levels of salt intake that would underestimate the health risks in people who are worse off - and these are the people who need prevention most.

"[The diet](#) of disadvantaged socio-economic groups tends to be made up of low-quality, salt-dense, high-fat, high-calorie unhealthy cheap foods.

"Behavioural approaches to healthy eating are unlikely to bring about the changes necessary to halt the

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cardiovascular epidemic and would also widen inequalities.

"Since the majority of dietary salt is added during commercial food production, widespread and continued food reformulation is necessary through both voluntary as well as regulatory means to make sure that salt reduction is achieved across all socio-economic groups", Professor Cappuccio concluded.

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#### Notes to editors

- Cardiovascular disease is the first cause of death and disability in the world among people aged over 60 years and the second among those aged 15 to 59 years old.
- According to the World Health Organization, 62% of all strokes and 49% of coronary heart disease events are attributable to [high blood pressure](#).
- There is a direct causal relationship between levels of dietary salt intake and levels of blood pressure and stroke.
- Most of the salt we eat is added to food in the manufacturing process by industry, caterers and food producers.
- The publication does not necessarily represent the decisions or the stated policy of the World Health Organization and the designations employed and the presentation of the material do not imply the expression of any opinion on the part of the World Health Organization.

Professor Cappuccio is available on 07876 218155 or [f.p.cappuccio@warwick.ac.uk](mailto:f.p.cappuccio@warwick.ac.uk)

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#### ABSTRACT

Spatial variation of salt intake in Britain and association with socioeconomic status

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Objectives: To evaluate spatial effects of variation and social determinants of salt intake in Britain.

Design: Cross-sectional survey.

Setting: Great Britain.

Participants: 2105 white male and female participants, aged 19 years, from the British National Diet and Nutrition Survey 2000.

Primary outcomes: Participants' sodium intake measured both with a 7-day dietary record and a 24-h urine collection. By accounting for important linear and non-linear risk factors and spatial effects, the geographical difference and spatial patterns of both dietary sodium intake and 24-h urinary sodium were investigated using Bayesian geo-additive models via Markov Chain Monte Carlo simulations.

Results: A significant north-south pattern of sodium intake was found from posterior probability maps after controlling for important socio demographic factors. Participants living in Scotland had a significantly higher dietary sodium intake and 24-h urinary sodium levels. Significantly higher sodium intake was also found in people with the lowest educational attainment (dietary sodium: coeff. 0.157 (90% credible intervals 0.003, 0.319), urinary sodium: 0.149 (0.024, 0.281)) and in manual occupations (urinary sodium: 0.083 (0.004, 0.160)). These coefficients indicate approximately a 5%, 9% and 4% difference in average sodium intake between socioeconomic groups.

Conclusions: People living in Scotland had higher salt intake than those in England and Wales. Measures of low socioeconomic position were associated with higher levels of sodium intake, after allowing for geographic location.

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