from a large prospective cohort, the Million Women Study (MWS), with the nationwide NHS Cervical Screening Programme records.

Methods Using linked NHS Cervical Screening Programme records for women before they were recruited into the MWS study, participants were classified as non-attenders or attenders for routine cervical screening. Logistic regression models were used to calculate odds ratios (OR) and 95% confidence intervals (CI) of non-attendance versus attendance by deprivation status, smoking history, body mass index (BMI), parity, age at first birth, oral contraceptive (OC) use and menopausal hormone therapy (MHT) use. All analyses were stratified by year of birth and year of recruitment into the MWS and adjusted for other factors, where appropriate.

Results Of 871,732 study participants who were eligible to have been invited for cervical cancer screening, 25,261 were non-attenders and 846,471 were attenders. The odds of being a non-attender were increased with deprivation (OR [95%CI] 1.46 [1.40–1.53] for most versus least deprived fifth), obesity (1.38 [1.33–1.43] for BMI ≥30 versus 20–25/kgm²) and smoking (1.25 [1.19–1.30] for heavy current smokers versus never smokers). Nulliparous women were much more likely to be non-attenders (5.80 [5.28–6.38]) and women who were younger at their first birth were also less likely to attend (1.24 [1.12–1.37] for <17 versus ≥25 years at first birth). By contrast, women who had used OCs or MHT were much less likely to be non-attenders (0.38 [0.37–0.40] for ≥10 years versus never OC use and 0.33 [0.32–0.35] for current versus never MHT use).

Conclusion In this large cohort of women in England, attendance for cervical screening varied considerably, not only by deprivation, as had been reported previously, but also by lifestyle, reproductive and hormonal factors. Non-attendance was associated with obesity, heavy current smoking, nulliparity, giving birth at younger ages, and non-use of OCs or MHT.

Results Carotenoids, retinol and tocopherols were not significantly related to risk of prostate cancer death. The only statistically significant finding was an inverse association between toenail selenium concentrations and risk of prostate cancer death (OR for the highest compared with the lowest fifth 0.37, 95% CI 0.26–0.52, the median time of follow-up from blood collection to death from prostate cancer for cases was 11.8 years); however, circulating selenium concentrations were not associated with risk (OR for highest fifth 0.94, 0.64–1.38).

Conclusion Although we found that men with higher concentrations of toenail selenium had a lower risk of dying from prostate cancer, this should be interpreted cautiously due to the inconsistency between the results for toenail and blood measures of selenium.

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Wednesday 9 September

Food: Industry

Background There is increasing awareness of the impact of corporate policies on health and how the consumption of unhealthy products contributes to the global burden of non-communicable disease. Public health academics are reviewing the activities of commercial actors that influence the disease burden and comparing the strategies of these unhealthy commodity industries which include the alcohol, food and beverage and gambling industries. The English Premier League (EPL) is considered to be the most viewed sports league internationally and is broadcast to 212 territories; a truly ‘global football league’. The league’s commodification and huge audience has enabled a rise in commercial activities and an increased income for clubs through their sponsorship and broadcasting arrangements.

Methods Five EPL matches in 2019 (in the 2018/19 and 2019/20 football seasons) were recorded as broadcast on BT Sport and Amazon Prime in the UK. This study quantified visual marketing references to unhealthy products in the broadcasting. All segments of broadcast (including commercial breaks) were manually coded using a content analysis for marketing references to unhealthy products. Coding variables included location (e.g. pitch border and shirt front) and format (e.g. electronic).

Results In these five EPL matches, a mean of 24.46% of all footage included at least one reference to an unhealthy commodity. However, this varied considerably between matches with a high of 38.97% at the Newcastle United v
Quantifying the Potential Health Impact of Factors Influencing Women's Food Choices and Support They Require to Make Healthier Food Choices in Supermarkets – A Qualitative Study

Background Supermarkets are a major source of food for families and women remain primarily responsible for food shopping tasks. The factors women perceive to influence their food shopping choices are poorly understood, particularly in relation to in-store layout. We aimed to examine women’s perceptions of factors that influence their food shopping choices, including product placement in-store, and identify ways that supermarkets could support healthier food shopping choices.

Methods In this qualitative cross-sectional study, semi-structured telephone interviews were conducted with a random sample of 20 women customers aged 18–45 years. Women were recruited from six supermarkets across England. Participants were asked to describe the reasons for their choice of supermarket and factors in-store that prompted their food selections. The actions supermarkets, governments and customers can take to encourage healthier food shopping choices were explored. Thematic analysis was conducted using QSR NVivo software to identify key themes. Four researchers were involved in developing the initial coding framework, double coding of six interview transcripts and refining the coding framework.

Results Participants had a median age of 39.5 years (IQR: 35.1, 42.3), median weekly grocery spend of £70 (IQR: 50, 88), and 44% had left school aged 16 years. Six key themes were identified: 1) Physical Environment, 2) Value for Money, 3) Influence of Family, 4) Physiological/Psychological State, 5) Healthy Eating Priorities and 6) Level of Awareness of Food Decisions. Women reported that achieving value for money, health status (DALYs). Monte Carlo analysis was used to estimate 95% uncertainty intervals.

We compared three scenarios:
A. All HFSS advertising between 0530 and 2100 is withdrawn
B. All HFSS advertising between 0530 and 2100 is displaced to 2100 to 0530
C. No intervention

Results If all HFSS advertising between 0530 and 2100 was withdrawn, we estimate that UK children would decrease caloric intake by 9.1 kcal (95% CI: 0.5 kcal-17.7 kcal), which would reduce the number of children with obesity by 40,000 (12,000–81,000) or 4.6% (1.4%-9.5%) compared to no intervention. This would avert 240,000 (65,000–530,000) DALYs across the cohort’s lifetime. Under a scenario where all HFSS advertising is displaced to 2100 to 0530, we estimate that the benefits would be reduced by around two-thirds.

Conclusion Measures to reduce exposure to less-healthy food advertising on television, such as restricting HFSS advertising between 0530 and 2100, could make a meaningful contribution to reducing childhood obesity. The impact of this policy may be reduced if adverts are displaced to after 2100 rather than being withdrawn.