

Objectives: To investigate the impact of medication on 20-year trends in BP and blood lipids in older British men.

Design: Longitudinal study.

Setting: 24 British towns.

Participants: 4231 men from a socially and geographically representative cohort of older British men, examined at baseline (1978–80, aged 40–59 years) and after 20 years (1998–2000).

Main Outcome Measures: 20-year trends in systolic blood pressure (SBP), diastolic blood pressure (DBP), and total, non-HDL and HDL cholesterol according to medication use, derived from linear regression with generalised estimating equations, adjusting for age and risk factors for dyslipidemia and hypertension.

Results: Over 20 years from 1978–80 to 1998–2000, overall age-adjusted mean SBP fell: mean change -7.6 mm Hg (95% CI -9.7 to -5.4), whilst mean DBP rose: mean change $+3.3$ mm Hg ($+2.2$ to $+4.5$). Among 1573 men (37%) who reported taking BP-lowering medication during the follow-up, mean SBP fell significantly by -12.3 mm Hg (-14.7 to -9.9) and DBP fell non-significantly by -1.2 mm Hg (-2.5 to $+0.07$). In contrast, men not using BP-lowering medication experienced a non-significant fall in SBP of -1.6 mm Hg (-3.7 to $+0.5$) and an increase in DBP of $+7.7$ mm Hg ($+6.6$ to $+8.8$) ($p < 0.001$ for medication-time interaction for both SBP and DBP). Overall mean total cholesterol fell by -0.2 mmol/L (-0.3 to -0.08), and mean non-HDL cholesterol fell by -0.4 mmol/L (-0.5 to -0.2). Total and non-HDL cholesterol fell significantly by -1.6 mmol/L (-1.8 to -1.4) and -1.8 mmol/L (-2.0 to -1.6) respectively among 302 men (8%) reporting use of lipid-regulating drugs, but fell by only -0.1 mmol/L (-0.2 to $+0.03$) and -0.2 mmol/L (-0.4 to -0.1) respectively among men not using lipid-regulating medication ($p < 0.001$ for medication-time interactions). Mean HDL cholesterol levels rose overall by $+0.16$ mmol/L ($+0.13$ to $+0.19$). The trend did not vary appreciably according to lipid-regulating drug use ($p = 0.15$ for interaction).

Conclusions: A marked cohort-wide increase in HDL levels occurred, independent of medication use, therefore probably reflecting changes in health behaviours. Decreases in SBP and total and non-HDL cholesterol were largely confined to medication users suggesting limited implementation of population-wide lifestyle strategies to reduce these coronary risk factors. Greater efforts are needed to reduce BP and cholesterol among the general population if the potential benefits of population strategies for CHD prevention are to be realised.

Alcohol

033 ALCOHOL CONSUMPTION AND THE U-SHAPE RELATIONSHIP WITH MORTALITY: 8-YEAR FOLLOW-UP OF MORE THAN 6000 OLDER MEN IN THE WHITEHALL STUDY

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Objective: To assess the relevance of alcohol consumption for cause-specific mortality in old age.

Design: Prospective cohort study of 6157 older men (mean age: 77 yrs) followed for cause-specific mortality for an average of 8 years.

Methods: Current and past alcohol consumption were collected by means of a postal questionnaire in 1997/98 among surviving participants in the 1970 Whitehall study of London Civil Servants. Mortality rates in each of six alcohol consumption groups (including a group for reduced or ex-drinking due to ill-health) were estimated after standardisation for age, smoking and employment grade. Cox proportional hazards models were used to estimate hazard ratios.

Results: Of the 6157 men, 1578 men (26%) with a prior history of vascular disease (myocardial infarction, angina or stroke) were excluded. About one quarter of the remaining men reported drinking less than they had done 5 years earlier, with half of these having reduced or given up alcohol for health reasons ("sick quitters"). Alcohol consumption was strongly related to plasma HDL cholesterol concentrations (1% (0.01 mmol/L) higher concentration per unit per week), and also with higher levels of blood pressure and rates of cigarette smoking. During follow-up, 2220 men died (annual rate: 56/1000/yr), including 825 from a vascular cause (21/1000/yr) and 1395 from a non-vascular cause (35/1000/yr). There was a U-shaped relation between alcohol consumption and mortality from all-causes and vascular causes, with the highest mortality observed among sick quitters and men who drank more than 28 units a week. Compared with men who drank 1–7 units a week (standardised death rate: 48/1000/yr), the adjusted HR (95% CI) for all-cause mortality was 1.45 (1.26 to 1.66) for sick quitters, 1.25 (1.11 to 1.41) for non-drinkers, and 1.32 (1.11 to 1.57) for those who drank more than 28 units a week. The risks associated with heavy drinking were even more extreme for vascular mortality (HR 1.48, 95% CI 1.13 to 1.95).

Conclusion: While the excess mortality among non-drinkers may not be causal, as is very likely for sick quitters, the excess mortality for heavy drinkers may well be causal. If so, some of this 50% excess vascular mortality among the 1 in 10 older men who drank more than 28 units per week could have been avoided.

034 LIGHT DRINKING DURING PREGNANCY: STILL NO RISK FOR SOCIOEMOTIONAL DIFFICULTIES OR COGNITIVE DEFICITS AT 5 YEARS OF AGE? FINDINGS FROM THE UK MILLENNIUM COHORT STUDY

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Background: We recently reported that light alcohol consumption during pregnancy was not associated with an increased risk of behavioural difficulties or cognitive deficits at 3 years of age. However, it is not clear whether these associations remain constant or change over time.

Objective: To examine the relationship between light drinking during pregnancy and the risk of socio-emotional problems and cognitive deficits at age 5 years.

Design and Setting: Data from sweeps 1 and 3 of the nationally representative prospective UK Millennium Cohort Study were used.

Participants: 11 512 white singleton cohort members born in 2000–2002.

Comparison Groups: Cohort members were grouped according to mothers' reported alcohol consumption during pregnancy: abstainer; light, not more than 1–2 units per week or per occasion; moderate, not more than 3–6 units per week or 3–5 units per occasion; heavy/binge, 7 or more units per week or 6 or more units per occasion.

Main Outcome Measures: At age 5 the Strengths and Difficulties Questionnaire (SDQ) and British Ability Scales (BAS) tests were administered during home interviews. Behavioural problems were indicated by scores falling above defined clinically relevant cut-offs on the SDQ. Standardised scores for the BAS Naming Vocabulary, Pattern Construction and Picture Similarities scales were used.

Results: Boys and girls born to light drinkers were less likely to have high total difficulties (for boys 6.6 vs 10.0%, OR 0.65, for girls 4.2 vs 6.3%, OR 0.67) and hyperactivity (for boys 10.1 vs 13.7%, OR

0.72, for girls 5.5 vs 7.7%, OR 0.72) scores compared with those born to abstainers. For boys the association for total difficulties remained statistically significant in fully adjusted models. Boys born to light drinkers had higher mean cognitive test scores compared to those born to abstainers: Naming Vocabulary (58 vs 55), Picture Similarities (56 vs 55), and Pattern Construction (52 vs 50) and the differences for Naming Vocabulary and Picture Similarities remained statistically significant in fully adjusted models. Girls born to light drinkers compared to those born to abstainers had higher mean scores on the Pattern Completion sub-scale (53 vs 52) but this difference was attenuated in fully adjusted models.

Conclusions: At age 5 years cohort members born to mothers who drank up to 1–2 drinks per week or per occasion during pregnancy were not at increased risk of clinically relevant behavioural difficulties or cognitive deficits compared with children of abstinent mothers.

035 LONGITUDINAL LATENT CLASS ANALYSIS OF ALCOHOL CONSUMPTION

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Objective: We aim to use longitudinal latent class analysis (LLCA) to explore patterns of alcohol consumption over time, while considering the impact of associated covariates.

Background and Data: Data were collected to investigate the social impact of drinking in students at a UK University, during the period 2006–2007. The number of units of alcohol consumed each day, over a period of seven days, is the outcome measure, giving differing patterns of consumption over time (trajectories) for each student. Non-drinkers ($n = 289$) were excluded, giving a total of 3183 students available for analysis.

Methods: Alcohol consumption may vary according to many other factors related to the student or their course, such as: gender, age, smoking status and year of study. We use LLCA to classify the study participants into latent classes, to investigate how these trajectories are associated with covariates of interest. Instead of undertaking analysis over all students, this method simplifies by looking at natural clusterings of trajectories of alcohol consumption over time and the emerging classes then contain types of students rather than all individuals. LLCA model fit was explored comparing log-likelihood statistics and misclassification rates.

Results: As the number of latent classes is increased, the model fit continues to improve. Selecting only a few classes provides a clear picture of behaviour whereas including many classes has the ability to express more diversity in the associated alcohol consumption trajectories. To provide a balance between simplicity and sufficient expression, the model with four latent classes was chosen. The model contained one class of heavy drinkers, with a high number of units consumed daily; two classes of moderate drinkers, with differing patterns of consumption; and one class of light drinkers, with a low number of units consumed at the weekend only. Class profiles differed by student characteristics (sex, age, smoking status, ethnicity, number of dependents, UK resident status) and by course characteristics (faculty, mature student status, year of study).

Conclusions: The longitudinal latent class structure was informative: the model suggests differing natural clusterings of trajectories of alcohol consumption over time and these trajectories may be associated with characteristics of the student and/or their course. By assessment of these characteristics, there may be an opportunity to identify those students who might consume excess alcohol, and so permit the targeting of a social intervention.

036 DO IMPRECISE MEASURES OF ALCOHOL INTAKE INFLUENCE DRINKING RECOMMENDATIONS RELATING TO ISCHAEMIC HEART DISEASE?

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Objective: To establish whether measurement error introduced by imprecise measurement of alcohol intake introduces may lead to incorrect guidance on safe levels of alcohol consumption.

Design and Setting: Using repeat alcohol intake from the United Kingdom Women's Cohort Study, a prospective, longitudinal cohort of UK women recruited in 1995.

Participants: 33 732 women reporting alcohol intake using both frequency and quantity of specific drinks flagged with the Office for National Statistics. Repeat questionnaires were available on 1918 women (5%).

Main Outcome Measures: Death from ischaemic heart disease, fitting a fractional polynomial logistic regression model to the expected nonlinear curve, adjusting just for age at baseline.

Results: The mean age of the women at baseline (in 1995) was 52 (SD = 9). Mean alcohol intake was 9 (SD = 11) g/day, i.e. a mean of approximately one unit of alcohol per day, or seven units per week. The intraclass correlation between repeat measures of alcohol intake was 0.79 (95% CI 0.77 to 0.80). 133 women died from ischaemic heart disease. Without correction for measurement error, the estimated range of protective effect of alcohol consumption (compared to non-consumers) was from 0 to 89 g/day (11 units/day), statistically significant ($p < 0.05$) up to 46 g/day (6 units/day), and with the lowest point of the curve at 13 g/day (1.6 units/day). With correction for measurement error, the estimated range of protective effect of alcohol consumption (compared to non-consumers) was lower than without adjustment for measurement error, from 0 to 55 g/day (7 units/day), statistically significant up to 37 g/day (5 units/day), and with the lowest point of the curve at 8 g/day (1 unit/day).

Conclusions: Adjusting for measurement error led to protective effects at substantially lower intakes than ignoring measurement error. Current guidelines recommend limiting alcohol intake for women to less than 16 to 24 g/day, stating that 1 to 2 units/day can help protect against coronary heart disease, but these ignore measurement error. Correction for imprecise measures of long term alcohol intake may lead to substantially reduced recommended limits.

Adolescents

037 SOCIAL HIERARCHIES IN YOUTH: SCHOOL-BASED PEER HIERARCHIES ARE MORE IMPORTANT THAN FAMILY SOCIOECONOMIC STATUS FOR STRESS (CORTISOL)

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Background: Psychosocial explanations for socioeconomic status (SES) differences in health draw on non-human primate research to demonstrate how position in the social hierarchy is related to stress, as measured by cortisol. In stable social systems, stress is elevated in subordinate positions; in less stable systems, higher positions may also be stressful. In addition to their SES position, young people are involved in multiple school-based social hierarchies, each of which may have different implications for stress.

Objective: To examine the relationship between morning cortisol and social position in school-based peer hierarchies compared with that of family SES in youth.