

**Supplementary table 1**

As described in the Methods section, for every medication, odds ratios (OR) between the medication of interest and each of all other 367 medications were calculated. The 10 medications with highest OR were selected as covariates in the linear model. The table shows all studied medication (total 368 rows) and their top 10 OR medications (10 columns: highest on the left). To avoid anomalously high OR values in the low frequency medications, medications with less than 10 co-prescriptions with the medication of interest (e.g. if Medication of interest A and Medication B were taken together by only 3 participants, Medication B was not considered as a covariate regardless of its OR) were excluded. Due to this exclusion, few medications had less than 10 medications in the model (displayed as NA, not available).

medication (total 368

medication (total 368 rows) and their top 10 OR diagnoses (10 columns: highest on the left). To avoid anomalously high OR values in the low frequency medications, diagnoses with less than 10 co-occurrences with the medication of interest (e.g. if Medication of interest A and Diagnosis B co-occurred in only 3 participants, Diagnosis B was not considered as a covariate regardless of its OR) were excluded. Due to this exclusion, few medications had less than 10 diagnoses in the model (displayed as NA, not available).

	cardiovascular	immune/cancer	nervous system	respiratory system	GI & metabolism	urinary	supplements	blood organs	antiinfectives	hormones and modulators	ophthalmologicals	musculo-skeletal	dermatologicals
<b>Age (years)</b>	61.12 ± 6.51**	56.84 ± 8.17**	57.01 ± 8.15	57.42 ± 8.2**	59.7 ± 7.41**	62.06 ± 6.26**	59.01 ± 7.54**	61.24 ± 6.81**	58.49 ± 7.97**	57 ± 7.94	61.97 ± 6.37**	61.57 ± 6.33**	57.25 ± 7.73
<b>Gender (women)</b>	46.7%**	60.5%**	64.5%**	59.3%**	53.5%**	24%**	65.1%**	38.6%**	55.7%**	90.4%**	59%**	55.3%*	78.8%**
<b>Education</b>													
A-levels and above	33.8%**	41%**	36.1%**	39.5%**	31.8%**	37%**	40.3%**	35.4%**	37.9%**	41.7%**	37.7%**	35.2%**	38.7%**
Other educational qualifications	32.2%**	33.7%**	33.9%**	32.3%*	33.3%**	30.5%**	33%	30.7%**	31.6%**	33.8%**	30.2%**	32.10%	34.9%**
Professional qualifications only	6.2%**	5.3%*	5.3%**	5.20%	6.2%**	6%**	5.9%**	5.9%**	5.40%	5.8%**	6.4%**	6%**	5.20%
None of the above	25.5%**	18.4%**	22.9%**	20.9%**	26.4%**	24.6%**	19%**	25.8%**	23.2%**	16.80%	23.1%**	24.8%**	19.5%**
Prefer not to answer	2.3%**	1.7%**	1.9%**	2.1%	2.3%**	1.9%	1.8%**	2.3%**	2%	1.8%**	2.5%**	1.9%	1.7%*
<b>Household income (GBP/year)</b>													
< 18,000	27%**	21.7%**	26.9%**	25%**	29.3%**	28%**	22.4%**	27.8%**	27.3%**	20.8%**	27.9%**	27.4%**	23%**
18,000-30,999	24%**	21.5%*	21.6%*	21.3%*	22.6%**	24.9%**	23.9%**	23.8%**	21.80%	21.80%	24%**	24.2%**	22.40%
31,000-51,999	18.3%**	21.5%**	19.2%**	20%**	17.4%**	19%**	20.7%**	17.9%**	18.3%**	21.2%**	16.4%**	16.8%**	20.9%**
52,000-100,000	11.1%**	16.4%**	13%**	14.7%**	10.5%**	11.3%**	13.4%**	11.4%**	13%**	15.7%**	9.6%**	10.3%**	13.7%**
> 100,000	2.8%**	4.1%**	2.9%**	3.4%**	2.4%**	2.6%**	3%**	3.1%**	3.2%**	4.2%**	2.3%**	3%**	2.9%**
Do not know	5.4%**	4.7%**	6%**	5.4%**	6.3%**	4.3%	5.1%**	5.2%**	6%**	5.2%**	6.7%**	6.2%**	5.7%**
Prefer not to answer	11.4%**	9.9%	10.4%**	10.10%	11.5%**	9.8%	11.6%**	10.7%**	10.5%	11.1%**	13%**	12%**	11.5%**

**Supplementary Table 3. Baseline characteristics of drug users** The table shows summary statistics for all users of drugs belonging to each anatomical category. As in Table 1, values indicate mean ± standard deviation for age, or percentages for gender, education and household income. Age of drug users (row two) is compared with the average age of all participants (row three column two of Table 1) with a Wilcoxon test. All other proportions in the table (which were calculated for drug users) are compared with those corresponding to all participants (i.e. drug users and non-drug users, column 2 of supplementary Table 2) using a binomial test. FDR corrected p-value below .005 is indicated with two stars, while p-value below .05 is indicated with one star.

	All participants	Participants completed cognitive test		
		Verbal-numerical reasoning	Memory	Reaction time
cardiovascular	28.3%	29%**	28%**	28.2%
immune/cancer	25.2%	24.8%**	25.4%	25.3%
nervous system	28.2%	27.1%**	28%*	28.1%
respiratory system	9.3%	9.2%	9.3%	9.3%
GI & metabolism	16.7%	16.6%	16.5%**	16.6%
urinary	2.7%	2.8%*	2.7%	2.7%
supplements	19.5%	14.8%**	19.5%	19.5%
blood organs	15.4%	13.7%**	15.2%**	15.3%
antiinfectives	2.8%	2.7%**	2.8%	2.8%
hormones and modulators	10.6%	10.7%	10.6%	10.6%
ophthalmologicals	1.8%	1.8%	1.7%	1.7%
musculo-skeletal	3.1%	3.4%**	3.1%	3.1%
dermatologicals	2.7%	1.9%**	2.7%	2.7%

**Supplementary Table 4. Drug users per cognitive test.** For the participants of each cognitive test (columns two, three and fourth), the table shows the proportion of them that was using drugs belonging to each anatomical category (rows). The total proportion of drugs users is shown in column two. A binomial test was used to compare columns three-fourth with column two. FDR corrected p-value below .005 is indicated with two stars, while p-value below .05 is indicated with one star.