# Online Supplementary Material

This document includes the following web appendices for the submission ‘CAN ALCOHOL (POLICIES) MAKE YOU HAPPY? AN EMPIRICAL WELLBEING APPROACH’.

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These are relevant to the article but not essential for the print edition of the journal, which as per Elsevier policy on supplementary material, we intend to be “published online alongside the electronic version of your article”*.* They provide both details (e.g. derivation of and coefficients on control variables) and analyses (e.g. sensitivity analyses) that are referred to in the text. These are typically details that would otherwise often be stated as being ‘available on request’; our view is that transparency and replicability are improved by making these details publicly available alongside the main paper.

### Web Appendix S1 – Further details of BCS70 variables

#### Alcohol variables – derivation and descriptive statistics

The main text describes the main measure of alcohol consumption, primarily using drinking categories from the Sheffield Alcohol Policy Model (Purshouse et al., 2009), but also refers to complexities around the conversion of drinks (in the individual questions) to total alcohol consumption:

* The issue here is that in the early 2000s serving sizes and alcoholic strength of wine both increased, such that the main alcohol survey in the UK captured only 46.7% of recorded alcohol consumption in 2006 compared to 59.1% in 2000 (authors’ comparisons of HMRC clearance data with data from th­e General Household Survey, ‘GHS’). While there are no data in the GHS series specifically for 2004, most of this change had taken place by 2005 (when the GHS captured 48.5% of recorded consumption). Goddard’s review (2008) for the Office of National Statistics recommended changing standard practice for converting drinks into units for wine (so that an unspecified glass is 3 units, rather than 1) and strong beer (½ pint = 2 units, rather than 1.5). Goddard (2001) further suggests that the correct conversion for 2000 is 1.32 units per wine glass, although this was never implemented for official analyses.
* In our main analysis we use consistent conversion factors across waves, using the original conversions (½ pint, 1 glass wine, or 1 measure spirits/fortified wines =1 unit; 1 bottle alcopops or ½ pint strong beer =1.5 units). In our sensitivity analyses, we instead assume the most accurate conversion factors: this is 1.32 units per wine glass in 2000, and the updated conversion factors for both 2004 and 2012 (on the assumption that the change in drinks size and strengths had primarily occurred by 2004). In the sensitivity analysis we also use information on different wine glass sizes in 2012.

A further issue with this alcohol consumption measure in BCS70 is that it has been noted that some interviewers incorrectly recorded beer consumption in pints rather than half-pints in 2000 (Elliott & Dodgeon, 2007). However, this does not appear to have been widespread enough to create a major discontinuity in the data. For example, among people who reported beer consumption in both 2000 and 2004, and assuming that all responses were coded in half-pints, past-week beer consumption was reasonably similar at 7.6 units in 2000 and 8.4 units in 2004.

A final issue with the alcohol consumption variable is that there were slight changes at age 42 (i) to further split normal-strength from strong beer/cider; (ii) to ask all respondents rather than just those who reported drinking at least monthly; and (iii) to ask separately about small, standard and large glasses of wine. The first two changes have minimal impacts (only 5% of respondents reported drinking strong beer at 42, and over 98% of usual never-drinkers did not report any drinking in the past week), while for the third, we assume all glasses of wine at age 42 to be equally-sized for consistency.

Two further drinking measures are used in the main chapter: drinking frequency, and alcohol problems (CAGE):

* *Drinking frequency* was measured slightly differently across waves: in 2000 and 2004, people were asked their frequency of drinking in the main survey with the response categories, *“On most days," | "2 to 3 days a week," | "Once a week," | "2 to 3 times a month," | “Less often or only on special occasions" | "Never now a days" | “have you never had an alcoholic drink?”*. In 2012, people were asked their frequency of drinking in the PAPI self-completion survey, with the response categories *“Never | Monthly or less | 2-4 times a month | 2-3 times a week | 4 or more times a week.”* We have combined these into categories that are as comparable as possible as follows: (1) most days (2012 4+ days/wk 2000/4 most days); (2) 2-3times/wk (same in both); (3) a few times a month (2012: 2-4 times/mth, 2000/4 2-3 times/mth); (4) less often (2012: monthly or less, 2000/4 less often or only on special occasions); and (5) never nowadays (2012: never, 2000/4 never nowadays or never had). Furthermore, the main analyses using 2012 data are restricted to those who completed the self-completion questionnaire.
* *Alcohol problems* were measured using the CAGE questionnaire (CAGE refers to the four alcohol problems used in this screening questionnaire: whether they felt they ought to Cut down their drinking, whether people have Annoyed them by criticising their drinking, whether they felt bad or Guilty about their drinking, and whether they had a drink first-thing in the morning to steady their hands (an ‘Eye-opener’)); BCS70 also includes an additional question on whether people had an alcoholic drink during breaks in their daily work. Following standard practice (e.g. in previous studies using BCS70; Cable & Sacker, 2007; Huerta & Borgonovi, 2010), we construct a binary indicator of alcohol problems based on whether people reported 2+ of these problems in the past year. Note that this measure is available in 2000 and 2004 only (alcohol problems in the 2012 wave instead being measured using the AUDIT questionnaire).

The descriptive statistics for each of these measures of alcohol consumption in each wave is shown in Table S1 below:

Table S1: Descriptive statistics for alcohol variables in BCS70

|  |  |  |  |
| --- | --- | --- | --- |
|   | **2000** | **2004** | **2012** |
|   | **Age 30** | **Age 34** | **Age 42** |
| Alcohol problems (CAGE) | 8.4% | 12.8% | n/a |
| **Past 7 day consumption (units/wk)** |  |  |  |
| Main unit conversions | 10.2 | 10.9 | 9.6 |
| Revised unit conversions | 11.0 | 13.7 | 12.0 |
| **Past 7-day consumption** |  |  |  |
| Zero consumption | 28.2% | 27.1% | 29.0% |
| <1 unit/wk | 3.7% | 3.5% | 3.5% |
| 1-10 (male) / 1-7 (female) units | 30.9% | 30.2% | 33.3% |
| 10-21 (male) / 7-14 (female) units | 20.3% | 20.7% | 18.2% |
| 21-35 (male) / 14-21 (female) units | 9.7% | 10.6% | 8.8% |
| 35-50 (male) / 21-35 (female) units | 4.5% | 4.8% | 4.4% |
| 50+ (male) / 35+ (female) units | 2.8% | 3.2% | 2.8% |
| **Usual drinking frequency** |  |  |  |
| Never nowadays | 5.9% | 6.4% | 9.9% |
| Monthly or less | 13.8% | 13.0% | 20.1% |
| Several times a month | 35.0% | 31.5% | 23.6% |
| 2-3 times/wk | 32.4% | 32.4% | 30.0% |
| Most days | 12.8% | 16.8% | 16.3% |

#### Outcome variable – life satisfaction

The question on life satisfaction that we use is described in the main text. The descriptive statistics for the variable are given in the table overleaf.

Table S2: Descriptive statistics for life satisfaction variable in BCS70

|  |  |  |  |
| --- | --- | --- | --- |
|  | **2000** | **2004** | **2012** |
|   | **Age 30** | **Age 34** | **Age 42** |
| **Life satisfaction** |   |   |   |
| Mean response | 7.3 | 7.4 | 7.4 |
| ***Scores*** |  |  |  |
| 0 - Completely dissatisfied | 0.5% | 0.5% | 0.7% |
| 1 | 1.0% | 0.6% | 0.6% |
| 2 | 1.0% | 0.7% | 1.6% |
| 3 | 2.2% | 2.2% | 2.8% |
| 4 | 2.8% | 3.1% | 3.1% |
| 5 | 7.9% | 7.0% | 9.0% |
| 6 | 9.1% | 8.8% | 6.4% |
| 7 | 22.5% | 20.6% | 18.7% |
| 8 | 29.8% | 31.1% | 28.7% |
| 9 | 14.7% | 16.2% | 16.5% |
| 10 - Completely satisfied | 8.7% | 9.3% | 11.8% |

#### Control variables

While many of the control variables were asked in identical forms in each waves, others were asked in different forms; only control variables that were considered to be comparable enough between waves were included in the main analysis, with three additional variables included in the sensitivity analyses. The form of the control variables mentioned in the text is given in Table S2 below (further detail for those seeking to replicate the analyses are available in the Stata code made available on the author’s website):

Table S3: Derivation of control variables in BCS70

|  |  |
| --- | --- |
| Variable | Derivation |
| Survey wave | Dummy variables for each wave. |
| Gender | [OLS analyses only] A binary indicator of gender based on the response in the first wave available for each respondent. |
| Education  | [OLS analyses only] Six categories for each of ‘no qualifications’ and NVQ levels 1-5. This variable is based upon the code supplied by the Centre for Longitudinal Studies for use with the 2000 wave of BCS70, see <http://www.cls.ioe.ac.uk/page.aspx?&sitesectionid=847&sitesectiontitle=Data+Notes>, adapted for use with the 2004 wave, and taking the highest academic or vocational qualification reported in either wave. |
| Marital/cohabitation status | Four categories for (1) married, (2) cohabiting, (3) single and (4) separated, divorced or widowed. |
| Presence of children | Separate binary indicators for the presence of children aged 0-5 and children aged 6-17 in the household. |
| Economic status | Five categories for (1) employee; (2) self-employed; (3) unemployed or on a government scheme; (4) in full-time education; or (5) other inactive. This uses derived variables in each wave based on similar questions in each wave; the 2000 version was: “I would like to get a few details about what you are doing at the moment. Which of the things on this card best describes what you are currently doing?” The response options were: "Full-time paid employee (30 or more hours a week)" | "Part-time paid employee (under 30 hours a week)" | "Full-time self-employed" | "Part-time self-employed" | Unemp "Unemployed and seeking work" |"Full-time education" | On a government scheme for employment training" | "Temporarily sick/disabled" | "Permanently sick/disabled" | "Looking after home/family" | "Wholly retired" | "Other (Specify at next question)" |
| Housing tenure | Three categories for (1) owner-occupiers; (2) renters; and (3) others. |
| Religion | A binary indicator for weekly attendance, based on the following questions that vary slightly between waves:* 2000: “How often, if at all, do you attend services or meetings connected with your religion? Do you attend "...once a week or more," | "once a month or more," | "sometimes, but less than once a month," | "never or very rarely?”
* 2004: “How often, if ever, do you attend any kind of religious service or meeting? | Once a week or more | Two to three times a month | Once a month or less | Hardly ever | Never”
* 2012 (self-completion questionnaire): "How often, if ever, do you attend any kind of religious service or meeting? | Once a week or more | Once a month or more | Sometimes but less than once a month | Never or very rarely”
 |
| Household income | Income was created from series of questions on income from different sources (see Stata files for details). The greatest discontinuity between waves appears to be the introduction of ‘income from investments, including interest from savings’ in 2012; this was removed from income wherever possible (the 869 with ‘other income’ only in this category; but not the 260 people who report various sources of ‘other income’, from which investment income cannot be separated). The resulting trend in household income 2000-2004-2012 is then similar to the rise in household income given in official sources. These were then equivalised using the Modified OECD scale, and used in the analysis in log form. |
| Travel-to-work time | Five categories for (1) <15mins; (2) 15-30 mins; (3) 30-60mins; (4) >1hr; and (5) no fixed workplace. This was based on slightly different questions in the different waves:* 2000/2004: “On a typical day, how long does it take you to travel from home to work? Under 5 minutes | 5, under 15 minutes | 15,under 30 minutes | 30, under 45 minutes | 45, under 1 hour | 1 hour, under 1 1/2 hours | 1 1/2, under 2 hours | 2 or more hours | Works at home | No fixed place of work.”
* 2012: [IF cohort member has a fixed place of work]: “How long in total does it usually take you to travel from home to work?” Responses were given in hours and minutes.

People who work at home were treated as having a travel time of <15mins. |
| Hours of work | Three categories for (1) <30hrs/wk; (2) 30-44 hrs/wk; and (3) 45+hrs/wk. This was based on a series of questions in each wave on usual hours of work (exc. meal breaks and overtime), usual paid overtime, and usual unpaid overtime. Hours worked in second (and further) jobs is not included, as it is only available in 2012. |
| Longstanding illness | This is a binary indicator variable for people who answered yes to (i) “Do you have any long-standing illness, disability or infirmity? By long-standing I mean anything that has troubled you over a period of time, or that is likely to affect you over a period of time?” (2000/2004) or (ii) “Do you have any physical or mental health conditions or illnesses lasting or expected to last 12 months or more?” (2012). |
| Smoking status | Three categories for (1) non-smokers; (2) occasional smokers; and (3) daily smokers. |
| Smoking | Cigarettes smoked/day, asked in similar fashion in each wave. |
| Pregnancy status | A binary indicator for whether cohort members were pregnant. This was derived slightly differently in each wave (from the grid of complete pregnancy histories in 2000, on the grid of pregnancy history since the previous wave in 2004, and a single question on whether the cohort member is currently pregnant in 2012). |
| Variables only used in sensitivity analyses |
| Poor health | This variable was asked in different forms in different waves, making it difficult to include this in the FE models: * In 2000, respondents were asked: “How would you describe your health generally? Would you say it is ... excellent, good, fair, or poor?"
* In 2004, respondents were asked: “Please think back over the last 12 months about how your health has been. Compared to people of your own age, would you say that your health has on the whole been ...excellent good, fair, poor or very poor?”
* In 2012, respondents were asked: “In general, would you say your health is… excellent, very good, good, fair or poor?”

The sensitivity analysis uses the 2000 and 2004 versions made as comparable as possible, by creating a dummy variable for ‘poor’ (2000) or ‘poor and very poor’ (2004) health. |
| Social support | This variable was only asked in 2000 and 2004, and in different versions in each wave:* 2000: “Is there anybody who you think would listen to you and give you support or advice if you needed it?”
* 2004: “If you needed some support in your personal life, could you ask any of the following for help? Husband/wife/partner | Boyfriend | Girlfriend | Mother | Father | Brother | Sister | Female friend | Male friend | Neighbour | Other (PLEASE SPECIFY) | Would prefer not to ask for help”

The sensitivity analysis uses a binary indicator of whether people had anyone who provided support (2000) or responded positively to whether they could ask any of the people listed for help. |

Descriptive statistics for these control variables are given in the Table S3 below:

Table S4: Descriptive statistics for control variables in BCS70

|  |  |  |  |
| --- | --- | --- | --- |
|   | **2000** | **2004** | **2012** |
|   | **Age 30** | **Age 34** | **Age 42** |
| **Treated as time-invariant characteristics** |   |   |   |
| Male |  |  | 45.5% |
| Female |   |   | 54.5% |
| No qualifications |  |  | 11.4% |
| NVQ1 qualifications |  |  | 9.0% |
| NVQ2 qualifications |  |  | 26.5% |
| NVQ3 qualifications |  |  | 18.0% |
| NVQ4 qualifications |  |  | 30.8% |
| NVQ5 qualifications |   |   | 4.3% |
| Delinquency score (0-5 scale) at age 16 |  |  | 0.6 |
| **Time-varying characteristics** |   |   |   |
| Married/civil partnership | 43.6% | 54.1% | 62.4% |
| Cohabiting | 22.8% | 20.4% | 16.2% |
| Single | 29.2% | 19.5% | 13.4% |
| Separated/divorced/widowed | 4.4% | 6.0% | 7.9% |
| Any children aged 0-5 in household | 37.5% | 42.3% | 23.8% |
| Any children aged 6-17 in household | 20.3% | 37.1% | 66.0% |
| **Employment status** |  |  |  |
| Employee | 73.7% | 73.2% | 70.8% |
| Self-employed | 7.8% | 10.0% | 14.4% |
| Unemployed/government scheme | 3.4% | 2.1% | 2.5% |
| Full-time education | 1.3% | 0.9% | 0.4% |
| Other inactive | 13.8% | 13.9% | 12.0% |
| **Travel to work time** |  |  |  |
| <15mins | 48.2% | 49.0% | 44.0% |
| 15-30mins | 24.0% | 22.6% | 21.4% |
| 30-60mins | 18.1% | 17.9% | 16.9% |
| >1hr | 5.7% | 5.9% | 6.9% |
| No fixed workplace | 4.1% | 4.6% | 10.8% |
| **Usual hours of work** (exc. 2nd jobs) |  |  |  |
| <30 hrs/wk | 30.4% | 33.2% | 33.1% |
| 30-44 hrs/wk | 38.1% | 38.1% | 38.5% |
| 45+ hrs/wk | 31.5% | 28.8% | 28.4% |
| Longstanding illness | 23.2% | 28.2% | 29.1% |
| Weekly attendance at religious service | 4.5% | 4.7% | 5.7% |
| Owner-occupier | 64.4% | 74.6% | 74.2% |
| Renter | 26.5% | 19.5% | 22.1% |
| Other | 9.1% | 5.9% | 3.7% |
| Never-smoker | 63.0% | 68.7% | 74.2% |
| Occasional smoker | 7.7% | 6.7% | 5.6% |
| Daily smoker | 29.3% | 24.6% | 20.2% |
| Cigarettes smoked/day (among whole sample) | 4.3 | 3.6 | 2.9 |
| Pregnant (% of total sample of men & women) | 1.7% | 1.4% | 0.3% |
| Poor health | 15.0% | 21.0% | 15.2% |
| Any social support | 98.3% | 98.9% | n/a |

### Web Appendix S2 – BCS70 alcohol consumption transition matrix

The FE models in the main paper are identified by the wave-to-wave transitions in alcohol consumption categories for individuals within the sample (whether this wave 1→2, wave 2→3, or wave 1→3). The extent of these wave-to-wave transitions are shown in the table below.

Table S5: Transition matrix for alcohol consumption in BCS70

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | Zero | <1 unit/wk | 1-10 (m) / 1-7 (f) | 10-21 (m) / 7-14 (f) | 21-35 (m) / 14-21 (f)  | 35-50 (m) / 21-35 (f) | 50+ (m) /35+ (f)  | *n (transitions)* |
| Zero consumption | ***61.0%*** | 4.1% | 23.9% | 6.8% | 2.7% | 1.0% | 0.5% | *4,809* |
| <1 unit/wk | 33.5% | ***9.3%*** | 40.3% | 12.6% | 2.4% | 1.5% | 0.3% | *657* |
| 1-10 (male) / 1-7 (female) units | 19.3% | 4.7% | ***45.5%*** | 20.0% | 7.0% | 2.6% | 1.0% | *5,484* |
| 10-21 (male) / 7-14 (female) units | 10.3% | 2.0% | 33.0% | ***30.8%*** | 14.8% | 6.6% | 2.5% | *3,619* |
| 21-35 (male) / 14-21 (female) units | 8.8% | 1.5% | 22.7% | 29.6% | ***21.1%*** | 9.5% | 6.9% | *1,780* |
| 35-50 (male) / 21-35 (female) units | 7.5% | 1.1% | 16.8% | 27.0% | 21.3% | ***14.7%*** | 11.6% | *803* |
| 50+ (male) / 35+ (female) units | 8.8% | 0.6% | 11.0% | 19.6% | 22.5% | 17.6% | ***20.0%*** | *490* |
| *n (transitions)* | *4,841* | *627* | *5,695* | *3,462* | *1,718* | *813* | *486* | *17,642* |

Notes: grey boxes are used to emphasise NON-transitions, i.e. where individuals were in the same drinking category at two successive waves. Transitions are calculated for the 29,145 person-wave observations that are used for the unadjusted OLS and FE models in Table 1 of the main paper. The number of wave-to-wave transitions (17,642) is more than half the number of person-wave observations (29,145) because some person-wave observations constitute two transitions (wave 1→2 and wave 2→3).

The table shows that zero-consumers – about 25% of whom are never-drinkers – are the only category where a majority did not change their drinking category between waves. For all of those drinking at a baseline wave, a majority changed into a different drinking category (or became zero-consumer) at the next wave at which they were observed.

### Web Appendix S3 – Further details of BCS70 models

#### Main models – coefficients on control variables

The main text shows the relationship between life satisfaction and alcohol consumption (Table 1), drinking frequency, and drinking problems (Table 2), and refers to this Web Appendix for the coefficients on the control variables. These are shown in Table S4 below:

Table S6: Coefficients on control variables for regression of life satisfaction (0-10 scale) on drinking

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Past-week consumption** | **Usual frequency** | **Alcohol problems** |
|   | OLS | FE | OLS | FE | OLS | FE |
| *Alcohol variables* |
| Zero consumption (ref group) | 0 | 0 |  |   |  |  |
| <1 unit/wk | 0.0572 | 0.0277 |  |   |  |  |
| 1-10 (male) / 1-7 (female) units | 0.118\*\* | 0.0601 |  |   |  |  |
| 10-21 (male) / 7-14 (female) units | 0.132\*\* | 0.0264 |  |   |  |  |
| 21-35 (male) / 14-21 (female) units | 0.128\*\* | -0.0264 |  |   |  |  |
| 35-50 (male) / 21-35 (female) units | 0.140\* | -0.0469 |  |   |  |  |
| 50+ (male) / 35+ (female) units | -0.00158 | -0.132 |   |   |   |   |
| **Drinking frequency** |  |  |  |  |  |  |
| Never nowadays (ref group) |  |   | 0 | 0 |  |  |
| Monthly or less |  |   | 0.104 | -0.0365 |  |  |
| Several times a month |  |   | 0.234\*\* | 0.0440 |  |  |
| 2-3 times/wk |  |   | 0.271\*\* | 0.0467 |  |  |
| Most days |   |   | 0.295\*\* | -0.00366 |   |   |
| Alcohol problems (CAGE) |  |   |  |   | -0.361\*\* | -0.178\*\* |
| Never drink | -0.143\* | 0.0134 |  |  | -0.230\* | 0.00769 |
| *Control variables* |
| Log equivalised household income | 0.103\*\* | 0.0470\*\* | 0.103\*\* | 0.0473\*\* | 0.103\*\* | 0.0239 |
| Gender | -0.225\*\* | 0 | -0.230\*\* | 0 | -0.201\*\* | 0 |
| Education - none (ref) | 0 | 0 | 0 | 0 | 0 | 0 |
| Education - NVQ level 1 | 0.0792 | 0 | 0.0791 | 0 | 0.0963 | 0 |
| Education - NVQ level 2 | 0.0382 | 0 | 0.0352 | 0 | 0.0657 | 0 |
| Education - NVQ level 3 | 0.0566 | 0 | 0.0537 | 0 | 0.0775 | 0 |
| Education - NVQ level 4 | 0.158\*\* | 0 | 0.152\*\* | 0 | 0.222\*\* | 0 |
| Education - NVQ level 5 | 0.251\*\* | 0 | 0.245\*\* | 0 | 0.350\*\* | 0 |
| Wave - 2000 | -0.00305 | -0.0430+ | -0.000566 | -0.0415+ | -0.0311 | -0.0322 |
| Wave - 2004 (ref) | 0 | 0 | 0 | 0 | 0 | 0 |
| Wave - 2012 | -0.0147 | 0.00203 | -0.00299 | 0.0125 |   |   |
| Married/civil partnership | 0 | 0 | 0 | 0 | 0 | 0 |
| Cohabiting | -0.291\*\* | -0.0697+ | -0.290\*\* | -0.0707+ | -0.285\*\* | -0.0670 |
| Single | -0.772\*\* | -0.461\*\* | -0.771\*\* | -0.470\*\* | -0.729\*\* | -0.463\*\* |
| Separated/divorced/widowed | -0.973\*\* | -0.808\*\* | -0.971\*\* | -0.813\*\* | -0.900\*\* | -0.721\*\* |
| Any children aged 0-5 | 0.110\*\* | 0.0320 | 0.111\*\* | 0.0379 | 0.131\*\* | 0.0436 |
| Any children aged 6-17 | -0.0607\* | -0.0852\*\* | -0.0565\* | -0.0824\* | -0.0993\*\* | 0.0470 |
| **Employment status** |  |   |  |   |  |   |
| Employee | 0 | 0 | 0 | 0 | 0 | 0 |
| Self-employed | 0.175\*\* | 0.165\*\* | 0.172\*\* | 0.165\*\* | 0.181\*\* | 0.103 |
| Unemployed/government scheme | -0.553\*\* | -0.432\*\* | -0.559\*\* | -0.434\*\* | -0.617\*\* | -0.468\*\* |
| Full-time education | 0.162 | 0.233+ | 0.168 | 0.234+ | 0.178 | 0.0736 |
| Other inactive | -0.0958+ | 0.0312 | -0.0954+ | 0.0332 | -0.0831 | -0.0357 |
| **Travel to work time** |  |   |  |   |  |   |
| <15mins | 0 | 0 | 0 | 0 | 0 | 0 |
| 15-30mins | -0.0600\* | -0.0421 | -0.0597\* | -0.0424 | -0.0730\* | -0.0749 |
| 30-60mins | -0.140\*\* | -0.0968\* | -0.140\*\* | -0.0966\* | -0.136\*\* | -0.130\* |
| >1hr | -0.109\* | -0.0805 | -0.108\* | -0.0799 | -0.0977+ | -0.0921 |
| No fixed workplace | -0.00661 | -0.0666 | -0.00898 | -0.0716 | 0.0515 | -0.0444 |
| **Usual hours of work** |  |   |  |   |  |   |
| <30 hrs/wk | 0 | 0 | 0 | 0 | 0 | 0 |
| 30-44 hrs/wk | 0.132\*\* | 0.0543 | 0.132\*\* | 0.0543 | 0.136\*\* | -0.0105 |
| 45+ hrs/wk | 0.225\*\* | 0.0166 | 0.223\*\* | 0.0150 | 0.251\*\* | -0.0359 |
| Longstanding illness | -0.430\*\* | -0.178\*\* | -0.428\*\* | -0.179\*\* | -0.368\*\* | -0.109\* |
| Religious service attendance | 0.269\*\* | 0.179\* | 0.272\*\* | 0.177\* | 0.219\*\* | 0.187+ |
| Owner-occupier | 0 | 0 | 0 | 0 | 0 | 0 |
| Renter | -0.356\*\* | -0.204\*\* | -0.354\*\* | -0.204\*\* | -0.348\*\* | -0.186\*\* |
| Other | -0.246\*\* | -0.152\* | -0.246\*\* | -0.154\* | -0.179\*\* | -0.0564 |
| Never-smoker | 0 | 0 | 0 | 0 | 0 | 0 |
| Occasional smoker | -0.0862+ | 0.0611 | -0.0890\* | 0.0580 | -0.0575 | 0.0805 |
| Daily smoker | -0.156\* | -0.0894 | -0.150\* | -0.0874 | -0.166\* | -0.0401 |
| Cigarettes smoked/day | -0.00875\* | 0.00703 | -0.00941\* | 0.00644 | -0.00651 | 0.00491 |
| Pregnant | 0.308\*\* | 0.251\*\* | 0.292\*\* | 0.253\*\* | 0.269\*\* | 0.214\* |

*Significance: \*\*=p<0.01; \*=p<0.05; +=p<0.10.*

#### Sensitivity analyses

The main text also refers to other sensitivity analyses in which the results are unchanged, including using the quadratic form of alcohol consumption, using different assumptions for the unit content of different alcoholic drinks, and using additional controls only available in sub-samples (health and social support). These results are shown in the Table S5 overleaf.

Table S7: Regression of life satisfaction (0-10 scale) on quadratic alcohol consumption, including sensitivity analyses

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | **Main** | **Alternate unit conversions** | **Controlling for health** | **Controlling for social support** |
|   | OLS | FE | OLS | FE | FE | FE | FE | FE |
|   | Adjusted | Adjusted | Adjusted | Adjusted | Usual controls | Extra controls | Usual controls | Extra controls |
| Units/wk (main version) | 0.00548\*\* | -0.00324 |  |   | -0.00268 | -0.00276 | -0.00388 | -0.00400 |
| Units/wk squared (main version) | -0.0000703\*\* | 0.0000167 |  |   | 0.0000383 | 0.0000366 | 0.0000130 | 0.0000142 |
| *Joint test of terms* | *0.01* | *0.18* |  |  | *0.63* | *0.64* | *0.12* | *0.11* |
| Units/wk (alternate version) |  |   | 0.00585\*\* | -0.00248 |  |   |  |  |
| Units/wk squared (alternate version) |  |   | -0.0000679\*\* | 0.0000127 |  |   |  |  |
| *Joint test of terms* |  |  | *0.00* | *0.29* |  |  |  |  |
| *Turning point (units/wk)* | *39.0* | *97.0* | *43.1* | *97.2* | *35.0* | *37.6* | *148.9* | *140.9* |
| *∆ life sat. at turning point* | *0.21* | *-0.31* | *0.13* | *-0.12* | *-0.09* | *-0.10* | *-0.58* | *-0.56* |
| Poor health |  |   |  |   |  | -0.347\*\* |  |  |
| Social support |   |   |   |   |   |   |   | 0.432\*\* |
| *n (person-waves)* | *25920* | *25920* | *25920* | *25920* | *12884* | *12884* | *19931* | *19931* |
| *n (persons)* | *9469* | *9469* | *9469* | *9469* | *4724* | *4724* | *8472* | *8472* |

*Significance: \*\*=p<0.01; \*=p<0.05; +=p<0.10. See text for control variables in adjusted models.*

The main text also says the following about gender-stratified sensitivity analyses:

*“When splitting by gender, any association between alcohol consumption and wellbeing in the FE analyses is concentrated among men, as found by Massin & Kopp (2014). However, the effect solely in men does not reach significance (p=0.23 for grouped consumption, p=0.12 for quadratic consumption); the patterns in general are similar between genders; and when directly testing the differences between men and women, these are far from statistical significance.”*

The table that this refers to is shown below.

Table S8: Regression of life satisfaction (0-10 scale) on alcohol consumption, for men vs. women

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|   | Men | Women | Men | Women | Men | Women |
|   | OLS adjusted, categorical consumption | FE, categorical consumption | FE, quadratic consumption |
| Zero consumption (ref group) | 0 | 0 | 0 | 0 |  |   |
| <1 unit/wk | -0.0905 | 0.111 | -0.0113 | 0.0381 |  |  |
| 1-10 (male) / 1-7 (female) units | 0.124\* | 0.114\*\* | 0.0916 | 0.0374 |  |  |
| 10-21 (male) / 7-14 (female) units | 0.145\*\* | 0.116\* | 0.0433 | 0.0132 |  |  |
| 21-35 (male) / 14-21 (female) units | 0.143\* | 0.0948 | -0.0262 | -0.0134 |  |  |
| 35-50 (male) / 21-35 (female) units | 0.122 | 0.163+ | -0.0589 | -0.0174 |  |  |
| 50+ (male) / 35+ (female) units | 0.0265 | -0.0707 | -0.113 | -0.138 |  |  |
| *Joint test of terms* | *0.07* | *0.12* | *0.23* | *0.93* |  |  |
| Never drink | -0.145 | -0.130+ | 0.0407 | 0.00359 | -0.000590 | -0.00721 |
| Units/wk (main version) |  |   |  |   | -0.00476+ | -0.000136 |
| Units/wk squared (main version) |  |   |  |   | 0.0000318 | -0.0000226 |
| *Joint test of terms* | *0.07* | *0.12* | *0.23* | *0.93* | *0.12* | *0.84* |
| ***Test of difference in alcohol consumption coefficients by gender*** | ***0.49*** | ***0.98*** | ***0.70*** |
| n (person-waves) | 12276 | 13644 | 12276 | 13644 | 12276 | 13644 |
| n (persons) | 4464 | 5005 | 4464 | 5005 | 4464 | 5005 |

*Significance: \*\*=p<0.01; \*=p<0.05; +=p<0.10. See text for control variables in adjusted models.*

### Web Appendix S4 – Further details of the Mappiness app

This Web Appendix provides example screenshots and the full Mappiness questionnaire text. The following Web Appendix provides descriptive statistics for the variables used in the paper.

#### Example Mappiness questionnaire screens





#### The full Mappiness questionnaire

The questionnaires span multiple screens, delineated below by horizontal rules. Tapping an option suffixed by ’>’ immediately advances to the next screen. The first screen has a ’Cancel’ button that discontinues the questionnaire, and each subsequent screen has a ’Back’ button to return to the preceding screen.

**Registration questionnaire**

Satisfaction

How satisfied are you with your life as a whole nowadays?

Segmented control: (Not at all) 1 / 2 / 3 / 4 /

5 / 6 / 7/ 8 / 9 / 10 (Extremely)

Next >

Health

Is your health in general. . . ?

Excellent >

Very good >

Good >

Fair >

Poor >

Asthma

Do you suffer from asthma or other respiratory disease?

Yes >

No >

Gender

Are you. . . ?

Male >

Female >

Birth year

When were you born?

Scrolling picker: 1900 – 2010 (initial position:

1975)

Next >

Marriage

Are you. . . ?

Never married >

Married and living with spouse >

Married but separated >

Divorced >

Widowed >

Please choose the first that applies, and treat Civil Partnership like marriage

*[this screen is not shown if the participant answered ’married and living with spouse’ above]*

Relationship

And are you currently in a relationship?

Yes >

No >

Work status

Are you. . . ?

Employed or self-employed >

In full-time education >

Retired >

Unemployed and seeking work >

Long-term sick or disabled >

Looking after family or home >

Other >

Adults

In your household, including yourself, are there. . . ?

1 adult >

2 adults >

3 adults >

4 adults or more >

Please count as adults those aged 16 or above

Children

In your household, are there. . . ?

No children >

1 child >

2 children >

3 children >

4 children or more >

Please count as children those aged 15 or under

Household

Is your gross annual household income from all sources. . . ?

Under £8,000 >

£8,000 – £11,999 >

£12,000 – £15,999 >

£16,000 – £19,999 >

£20,000 – £23,999 >

£24,000 – £31,999 >

£32,000 – £39,999 >

£40,000 – £55,999 >

£56,000 – £71,999 >

£72,000 – £95,999 >

£96,000 or more >

Don’t know >

Prefer not to say >

We’d be very grateful if you could answer this question, since it’s important to our research

Income change

Compared to 3 years ago, is your gross annual household income now. . . ?

Higher than it was >

Just the same >

Lower than it was >

Don’t know >

Prefer not to say >

*[this screen is shown only if the participant answered ’higher than it was’ above]*

Income rise

And finally, compared to 3 years ago, is your

gross annual household income now. . . ?

Higher by up to £999 >

Higher by £1,000 – £1,999 >

Higher by £2,000 – £3,999 >

Higher by £4,000 – £7,999 >

Higher by £8,000 – £15,999 >

Higher by £16,000 or more >

Don’t know >

Prefer not to say >

*[this screen is shown only if the participant answered ’lower than it was’ above]*

Income fall

And finally, compared to 3 years ago, is your gross annual household income now. . . ?

Lower by up to £999 >

Lower by £1,000 – £1,999 >

Lower by £2,000 – £3,999 >

Lower by £4,000 – £7,999 >

Lower by £8,000 – £15,999 >

Lower by £16,000 or more >

Don’t know >

Prefer not to say >

*[the questionnaire dismisses itself immediately after this screen is displayed]*

Finished

Thank you!

**ESM questionnaire**

If a signal has been received, the app launches

directly into this questionnaire.

Feelings

Do you feel. . . ?

Happy

(slider: Not at all . . . Extremely)

Relaxed

(slider: Not at all . . . Extremely)

Awake

(slider: Not at all . . . Extremely)

Next >

People

Please tick all that apply

Are you. . . ?

Alone, or with strangers only >

Or are you with your. . . ?

[ ] Spouse, partner, girl/boyfriend

[ ] Children

[ ] Other family members

[ ] Colleagues, classmates

[ ] Clients, customers

[ ] Friends

[ ] Other people you know

Next >

Place

Are you. . . ?

Indoors >

Outdoors >

In a vehicle >

Place (2)

And are you. . . ?

At home >

At work >

Elsewhere >

If you’re working from home, please choose ‘At home’

*[the activities list is adapted from the American time use survey activity lexicon 2009 (us bureau of labor statistics) and the united kingdom 2000 time use survey (uk office for national statistics)]*

Activities

Please tick all that apply

Just now, what were you doing?

[ ] Working, studying

[ ] In a meeting, seminar, class

[ ] Travelling, commuting

[ ] Cooking, preparing food

[ ] Housework, chores, DIY

[ ] Admin, finances, organising

[ ] Shopping, errands

[ ] Waiting, queueing

[ ] Childcare, playing with children

[ ] Pet care, playing with pets

[ ] Care or help for adults

[ ] Sleeping, resting, relaxing

[ ] Sick in bed

[ ] Meditating, religious activities

[ ] Washing, dressing, grooming

[ ] Intimacy, making love

[ ] Talking, chatting, socialising

[ ] Eating, snacking

[ ] Drinking tea/coffee

[ ] Drinking alcohol

[ ] Smoking

[ ] Texting, email, social media

[ ] Browsing the Internet

[ ] Watching TV, film

[ ] Listening to music

[ ] Listening to speech/podcast

[ ] Reading

[ ] Theatre, dance, concert

[ ] Exhibition, museum, library

[ ] Match, sporting event

[ ] Walking, hiking

[ ] Sports, running, exercise

[ ] Gardening, allotment

[ ] Birdwatching, nature watching

[ ] Hunting, fishing

[ ] Computer games, iPhone games

[ ] Other games, puzzles

[ ] Gambling, betting

[ ] Hobbies, arts, crafts

[ ] Singing, performing

[ ] Something else

Next >

*[by default, this digital camera screen is shown only when outdoors]*

Please take a photo straight ahead

Or tap Cancel to skip this step

*[this screen is shown only if a photo was taken]*

Map

Add this photo to the public map?

Yes >

No >

*[this screen is shown only when outdoors and in the rare event that gps location accuracy is still worse than 100m. it advances automatically when accuracy reaches 100m or 60 seconds has elapsed.]*

Location

Improving location accuracy

Skip >

*[the questionnaire dismisses itself immediately after this screen is displayed]*

Finished

Thank you!

### Web Appendix S5 – Further details of Mappiness data

#### Alcohol variables

The main text describes how the ‘drinking alcohol’ variable was constructed. The activities that people reported drinking alcohol alongside are as follows:

Table S9: Main activities that people drink alongside (>2% drinking occasions only)

|  |
| --- |
| ***% of all drinking occasions*** |
| Talking/chatting/socialising | 49.2% |
| Watching TV/film | 31.2% |
| Eating/snacking | 27.9% |
| Listening to music | 10.4% |
| Sleeping/resting/relaxing | 7.4% |
| Smoking | 7.1% |
| Cooking/preparing food | 6.2% |
| Texting/email/social media | 5.2% |
| Browsing the Internet | 4.1% |
| Childcare/playing with children | 3.1% |
| Reading | 2.7% |
| Computer games/iPhone games | 2.5% |
| Pet care/playing with pets | 2.5% |
| Working/studying | 2.1% |

The times that people reported drinking are as follows:

Table S10: Times that people report drinking

|  |
| --- |
| ***% of occasions on which people are drinking*** |
| **Weekdays** |
| Weekday 00:00-05:59 (6hrs) | 5.5% |
| Weekday 06:00-11:59 (6hrs) | 0.1% |
| Weekday 12:00-14:59 | 0.8% |
| Weekday 15:00-17:59 | 1.8% |
| Weekday 18:00-20:59 | 9.9% |
| Weekday 21:00-23:59 | 14.1% |
| **Weekends and bank holidays** |
| Weekend 00:00-02:59 | 17.0% |
| Weekend 03:00-05:59 | 4.5% |
| Weekend 06:00-11:59 | 0.1% |
| Weekend 09:00-11:59 | 0.3% |
| Weekend 12:00-14:59 | 2.9% |
| Weekend 15:00-17:59 | 6.1% |
| Weekend 18:00-20:59 | 14.3% |
| Weekend 21:00-23:59 | 17.9% |

#### Control variables

This Web Appendix provides descriptive statistics for the sample used in this paper. The sample size for the descriptive statistics below is 2,049,120, other than for some of the time-invariant controls that are not used in the main analyses (for log income n=1,964,631 due to item refusal, and for home region n=1,884,979 where it was not possible to use geographical data from the iPhone’s GPS to reliably identify a respondent’s ‘home’ location).

Table S11: Descriptive statistics for control variables in Mappiness data

|  |
| --- |
| ***Time-varying characteristics*** |
| ***Activities*** |  |
| Working/studying | 25.0% |
| In meeting/seminar/class | 2.8% |
| Travelling/commuting | 8.9% |
| Cooking/preparing food | 4.3% |
| Housework/chores/DIY | 5.1% |
| Waiting/queueing | 2.3% |
| Shopping/errands | 3.1% |
| Admin/finances/organising | 3.8% |
| Childcare/playing with children | 4.5% |
| Pet care/playing with pets | 1.8% |
| Care/help for adults | 0.5% |
| Sleeping/resting/relaxing | 10.1% |
| Sick in bed | 1.6% |
| Meditating/religious activities | 0.3% |
| Washing/dressing/grooming | 3.6% |
| Talking/chatting/socialising | 15.2% |
| Intimacy/making love | 0.6% |
| Eating/snacking | 9.8% |
| Drinking tea/coffee | 6.1% |
| Smoking | 1.4% |
| Texting/email/social media | 5.4% |
| Browsing the Internet | 5.1% |
| Watching TV/film | 18.3% |
| Listening to music | 6.4% |
| Listening to speech/podcast | 1.9% |
| Reading | 3.2% |
| Theatre/dance/concert | 0.3% |
| Exhibition/museum/library | 0.2% |
| Match/sporting event | 0.6% |
| Walking/hiking | 1.4% |
| Sports/running/exercise | 1.2% |
| Gardening/allotment | 0.3% |
| Birdwatching/nature watching | 0.1% |
| Computer games/iPhone games | 3.0% |
| Hunting/fishing | 0.0% |
| Other games/puzzles | 0.4% |
| Gambling/betting | 0.1% |
| Hobbies/arts/crafts | 1.0% |
| Singing/performing | 0.4% |
| Something else(v<1.0.2) | 1.5% |
| Something else(V>=1.0.2) | 3.1% |
| ***Times of day*** |  |
| Weekday 00:00-05:59 (6hrs) | 0.2% |
| Weekday 06:00-11:59 (6hrs) | 17.1% |
| Weekday 12:00-14:59 | 15.0% |
| Weekday 15:00-17:59 | 15.6% |
| Weekday 18:00-20:59 | 15.8% |
| Weekday 21:00-23:59 | 6.6% |
| Weekend 00:00-02:59 | 0.1% |
| Weekend 03:00-05:59 | 0.0% |
| Weekend 06:00-08:59 | 1.1% |
| Weekend 09:00-11:59 | 5.7% |
| Weekend 12:00-14:59 | 6.5% |
| Weekend 15:00-17:59 | 6.8% |
| Weekend 18:00-20:59 | 2.8% |
| Weekend 21:00-23:59 | 7.0% |
| ***Location (1)*** |  |
| Inside | 84.6% |
| Outside | 8.3% |
| In vehicle | 7.2% |
| ***Location (2)*** |  |
| Home | 50.8% |
| Work | 25.4% |
| Other location | 23.7% |
| ***Month of response*** |  |
| January | 6.9% |
| February | 6.5% |
| March | 7.1% |
| April | 6.0% |
| May | 5.3% |
| June | 4.1% |
| July | 3.1% |
| August | 8.6% |
| September | 19.1% |
| October | 14.0% |
| November | 11.0% |
| December | 8.4% |
| ***Number of person responses to this point*** |  |
| 0 (first response) | 0.1% |
| 1-10 responses | 9.2% |
| 11-50 responses | 25.9% |
| 51-100 responses | 18.8% |
| 101-500 responses | 35.1% |
| 500+ responses | 10.9% |
| ***Person with*** |  |
| With spouse, partner, girl/boyfriend | 24.0% |
| With children | 10.6% |
| With other family members | 7.8% |
| With colleagues, classmates | 17.2% |
| With clients, customers | 1.6% |
| With friends | 9.3% |
| With other people you know | 1.6% |
| With no-one | 42.2% |
| ***Treated as time-invariant characteristics*** |
| Male | 51.0% |
| Age (average, years) |  35.1  |
| Gross annual household income (£, average) |  31,924  |
| ***Work status*** |  |
| Employed or self-employed | 81.8% |
| In full-time education | 8.9% |
| Retired | 1.2% |
| Unemployed and seeking work | 2.9% |
| Long term sick or disabled | 1.2% |
| Looking after family or home | 2.3% |
| Other | 1.7% |
| ***Marital status*** |  |
| Never married | 56.0% |
| Married and living with spouse | 34.6% |
| Married but separated | 3.5% |
| Divorced | 5.5% |
| Widowed | 0.5% |
| In a relationship (inc. marriage) | 72.3% |
| Number of children aged <=15 (average) |  0.46  |
| Single parents | 3.5% |
| ***Health*** |  |
| Excellent | 14.1% |
| Very good | 43.0% |
| Good | 31.6% |
| Fair | 9.4% |
| Poor | 1.9% |
| ***Region*** |  |
| North East | 3.1% |
| North West | 9.0% |
| Yorkshire and the Humber | 6.7% |
| East Midlands | 6.2% |
| West Midlands | 6.6% |
| East of England | 8.2% |
| London | 25.3% |
| South East | 15.9% |
| South West | 8.1% |
| Northern Ireland | 1.1% |
| Scotland | 6.4% |
| Wales | 3.4% |

### Web Appendix S6 – Further details of Mappiness models

#### Main models – coefficients on control variables

The main text shows the relationship between happiness on drinking alcohol at that moment (Table 3), and refers to this Web Appendix for the coefficients on the control variables. These are shown in the Table S11 below:

Table S12 – Regression of happiness (0-100 scale) on drinking alcohol at that moment, with controls

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|   | OLS | FE | FE | FE |
|   | Adjusted | Adjusted | Adjusted | Adjusted |
| Activity: Drinking alcohol | 3.65\*\* | 3.88\*\* | 3.64\*\* | 3.30\*\* |
| *Evening-only subsample* |  |  | *Y* | *Y* |
| *Control for reverse causation* |  |  |  | *Y* |
| n (person-waves) | 1,811,089 | 2,049,120 | 418,919 | 418,919 |
| n (persons) | 26,886 | 31,302 | 24,437 | 24,437 |
| ***Event-level control variables*** |   |   |   |   |
| Mean happiness before 6pm that day |   |   |   | 0.31\*\* |
| ***Other activities*** |  |   |  |  |
| Activity: Working/studying | -1.65\*\* | -1.59\*\* | -2.86\*\* | -2.64\*\* |
| Activity: In meeting/seminar/class | 0.86\*\* | 0.45\*\* | 0.11 | -0.07 |
| Activity: Travelling/commuting | -2.29\*\* | -2.03\*\* | -2.54\*\* | -2.31\*\* |
| Activity: Cooking/preparing food | 2.45\*\* | 2.11\*\* | 2.06\*\* | 1.91\*\* |
| Activity: Housework/chores/DIY | -0.82\*\* | -0.61\*\* | -1.45\*\* | -1.60\*\* |
| Activity: Waiting/queueing | -4.40\*\* | -3.71\*\* | -3.43\*\* | -3.39\*\* |
| Activity: Shopping/errands | 0.82\*\* | 0.77\*\* | -0.36+ | -0.42\* |
| Activity: Admin/finances/organising | -1.56\*\* | -1.28\*\* | -1.30\*\* | -1.39\*\* |
| Activity: Childcare/playing with children | 2.61\*\* | 2.60\*\* | 2.16\*\* | 1.92\*\* |
| Activity: Pet care/playing with pets | 3.23\*\* | 3.36\*\* | 2.94\*\* | 2.84\*\* |
| Activity: Care/help for adults | -3.40\*\* | -4.13\*\* | -5.96\*\* | -5.32\*\* |
| Activity: Sleeping/resting/relaxing | 0.91\*\* | 0.88\*\* | 1.23\*\* | 1.00\*\* |
| Activity: Sick in bed | -19.99\*\* | -18.81\*\* | -19.40\*\* | -15.38\*\* |
| Activity: Meditating/religious activities | 4.87\*\* | 4.05\*\* | 4.64\*\* | 4.42\*\* |
| Activity: Washing/dressing/grooming | 1.48\*\* | 1.85\*\* | 2.60\*\* | 2.35\*\* |
| Activity: Talking/chatting/socialising | 4.52\*\* | 4.08\*\* | 3.42\*\* | 3.18\*\* |
| Activity: Intimacy/making love | 12.80\*\* | 12.28\*\* | 11.24\*\* | 10.67\*\* |
| Activity: Eating/snacking | 2.16\*\* | 2.06\*\* | 2.12\*\* | 2.11\*\* |
| Activity: Drinking tea/coffee | 1.75\*\* | 1.36\*\* | 1.31\*\* | 1.17\*\* |
| Activity: Smoking | 0.73 | 0.35\* | 0.91\*\* | 0.75\*\* |
| Activity: Texting/email/social media | 0.31 | 1.04\*\* | 1.03\*\* | 0.95\*\* |
| Activity: Browsing the Internet | 0.38 | 0.84\*\* | 0.23+ | 0.14 |
| Activity: Watching TV/film | 2.14\*\* | 2.17\*\* | 1.89\*\* | 1.78\*\* |
| Activity: Listening to music | 3.71\*\* | 3.46\*\* | 3.11\*\* | 2.84\*\* |
| Activity: Listening to speech/podcast | 1.18\*\* | 1.89\*\* | 2.22\*\* | 2.03\*\* |
| Activity: Reading | 1.62\*\* | 1.85\*\* | 1.59\*\* | 1.28\*\* |
| Activity: Theatre/dance/concert | 6.99\*\* | 6.45\*\* | 5.73\*\* | 5.52\*\* |
| Activity: Exhibition/museum/library | 4.90\*\* | 5.30\*\* | 3.03\*\* | 2.34\*\* |
| Activity: Match/sporting event | 2.51\*\* | 2.08\*\* | 1.03\*\* | 1.03\*\* |
| Activity: Walking/hiking | 2.32\*\* | 2.66\*\* | 1.36\*\* | 1.28\*\* |
| Activity: Sports/running/exercise | 6.79\*\* | 6.72\*\* | 5.89\*\* | 5.97\*\* |
| Activity: Gardening/allotment | 5.44\*\* | 5.00\*\* | 5.87\*\* | 5.77\*\* |
| Activity: Birdwatching/nature watching | 5.23\*\* | 4.65\*\* | 3.99\*\* | 3.26\*\* |
| Activity: Computer games/iPhone games | 2.69\*\* | 2.77\*\* | 2.05\*\* | 1.82\*\* |
| Activity: Hunting/fishing | 4.51\*\* | 3.54\*\* | 5.23\* | 4.06\* |
| Activity: Other games/puzzles | 2.16\*\* | 2.35\*\* | 1.81\*\* | 1.79\*\* |
| Activity: Gambling/betting | 2.35\* | 1.63\* | 1.78\* | 1.30 |
| Activity: Hobbies/arts/crafts | 5.62\*\* | 5.25\*\* | 4.23\*\* | 3.87\*\* |
| Activity: Singing/performing | 6.85\*\* | 6.04\*\* | 5.94\*\* | 5.68\*\* |
| Activity: Something else(v<1.0.2) | -1.45\*\* | -1.15\*\* | -2.00\*\* | -2.15\*\* |
| Activity: Something else(V>=1.0.2) | -3.30\*\* | -2.95\*\* | -3.59\*\* | -3.54\*\* |
| ***Time of day*** |  |   |  |  |
| Weekend 18:00-20:59 (base category) |  |   |  |  |
| Weekday 00:00-05:59 (6hrs) | -1.67\* | -1.57\*\* |  |  |
| Weekday 06:00-11:59 (6hrs) | -1.02\*\* | -1.37\*\* |  |  |
| Weekday 12:00-14:59 | -0.10 | -0.43\*\* |  |  |
| Weekday 15:00-17:59 | -0.28\* | -0.59\*\* |  |  |
| Weekday 18:00-20:59 | -1.09\*\* | -1.19\*\* | -1.15\*\* | 0.44\*\* |
| Weekday 21:00-23:59 | -1.14\*\* | -1.07\*\* | -1.01\*\* | 0.55\*\* |
| Weekend 00:00-02:59 | 1.09 | 0.36 |  |  |
| Weekend 03:00-05:59 | -0.64 | -1.35 |  |  |
| Weekend 06:00-08:59 | -0.82\*\* | -1.01\*\* |  |  |
| Weekend 09:00-11:59 | 0.41\*\* | 0.23\*\* |  |  |
| Weekend 12:00-14:59 | 0.33\*\* | 0.28\*\* |  |  |
| Weekend 15:00-17:59 | 0.15 | 0.10 |  |  |
| Weekend 21:00-23:59 | -0.31\* | -0.16+ | -0.04 | -0.06 |
| ***Location (1)*** |  |   |  |  |
| Inside (base category) |  |   |  |  |
| Outside | 3.61\*\* | 3.04\*\* | 2.70\*\* | 2.48\*\* |
| In vehicle | 0.69\*\* | 0.16 | -0.21 | -0.32 |
| ***Location (2)*** |  |   |  |  |
| Home (base category) |  |   |  |  |
| Work | 1.29\*\* | 1.60\*\* | 2.44\*\* | 2.05\*\* |
| Other location | -2.27\*\* | -2.20\*\* | -2.63\*\* | -2.49\*\* |
| ***Number of person responses to this point*** |  |   |  |  |
| 0 (first response) | -7.43\*\* | -5.61\*\* |  |  |
| 1-10 responses | -5.23\*\* | -4.10\*\* | -2.38\*\* | -0.60\*\* |
| 11-50 responses | -1.93\*\* | -1.39\*\* | -0.61\*\* | -0.04 |
| 51-100 responses | -0.59\*\* | -0.41\*\* | -0.07 | 0.12 |
| 101-500 responses (base category) |  |   |  |  |
| 500+ responses | -0.87 | -0.44 | -0.50 | -0.46+ |
| ***Month of response*** |  |   |  |  |
| January | -0.74\*\* | -0.55\* | -0.22 | 0.02 |
| February | -1.25\*\* | -0.85\*\* | -0.60+ | -0.30 |
| March | -0.84\*\* | -0.55\* | -0.75\* | -0.55\* |
| April | 0.05 | 0.31 | 0.42 | 0.22 |
| May | -0.56\* | 0.01 | 0.10 | 0.13 |
| June | -1.07\*\* | -0.13 | -0.07 | -0.02 |
| July | -0.66\* | -0.02 | 0.32 | 0.21 |
| August (base category) |  |   |  |  |
| September | 0.10 | -0.07 | -0.09 | -0.10 |
| October | -0.48\* | -0.49\*\* | -0.44+ | -0.25 |
| November | -0.58\* | -0.66\*\* | -0.69\* | -0.42\* |
| December | -0.53\* | -0.46\* | -0.45 | -0.34 |
| ***Person with*** |  |   |  |  |
| With spouse, partner, girl/boyfriend | 2.66\*\* | 1.96\*\* | 1.96\*\* | 1.43\*\* |
| With children | -0.83\*\* | -0.73\*\* | -0.36\* | -0.38\* |
| With other family members | -0.32 | -0.69\*\* | -1.10\*\* | -1.30\*\* |
| With colleagues, classmates | -3.12\*\* | -2.77\*\* | -2.03\*\* | -1.80\*\* |
| With clients, customers | 0.74 | -0.10 | -0.21 | -0.08 |
| With friends | 3.20\*\* | 2.62\*\* | 2.44\*\* | 2.25\*\* |
| With other people you know | -1.89\*\* | -1.50\*\* | -1.71\*\* | -1.54\*\* |
| With no-one | -3.07\*\* | -3.10\*\* | -3.11\*\* | -3.05\*\* |
| ***Person-level control variables*** |   |   |   |   |
| Male | 0.52+ |   |  |  |
| Age | -0.20+ |   |  |  |
| Age squared | 0.00+ |   |   |   |
| ***Work status*** |  |   |  |  |
| Employed or self-employed (base category) | 0.00 |   |  |  |
| In full-time education | -0.09 |   |  |  |
| Retired | -0.70 |   |  |  |
| Unemployed and seeking work | -2.85\*\* |   |  |  |
| Long term sick or disabled | -4.89\*\* |   |  |  |
| Looking after family or home | -0.53 |   |  |  |
| Other | -0.91 |   |   |   |
| ***Marital status*** |  |   |  |  |
| Never married | 0.00 |   |  |  |
| Married and living with spouse | 0.53 |   |  |  |
| Married but separated | -0.79 |   |  |  |
| Divorced | 0.22 |   |  |  |
| Widowed | 0.08 |   |   |   |
| In a relationship (inc. marriage) | 1.08\*\* |   |  |  |
| Single parents | 0.54 |   |  |  |
| Log equivalised household income | 0.83\*\* |   |   |   |
| ***Number of children*** |  |   |  |  |
| No children (base category) | 0.00 |   |  |  |
| 1 child | 0.92+ |   |  |  |
| 2 children | -0.73 |   |  |  |
| 3 children | 0.89 |   |  |  |
| 4 children or more | -1.90 |   |   |   |
| ***Health*** |  |   |  |  |
| Excellent (base category) | 0.00 |   |  |  |
| Very good | -1.99\*\* |   |  |  |
| Good | -4.76\*\* |   |  |  |
| Fair | -8.59\*\* |   |  |  |
| Poor | -9.62\*\* |   |   |   |
| ***Region*** |  |   |  |  |
| North East | 0.00 |   |  |  |
| North West | -1.14 |   |  |  |
| Yorkshire and the Humber | -0.91 |   |  |  |
| East Midlands | -0.70 |   |  |  |
| West Midlands | -1.16 |   |  |  |
| East of England | -1.20 |   |  |  |
| London | -2.23\* |   |  |  |
| South East | -1.46 |   |  |  |
| South West | -2.01+ |   |  |  |
| Northern Ireland | -2.61+ |   |  |  |
| Scotland | -0.90 |   |  |  |
| Wales | -2.03+ |   |   |   |
| Constant | 66.33\*\* | 67.67\*\* | 67.80\*\* | 46.22\*\* |

*Significance: \*\*=p<0.01; \*=p<0.05; +=p<0.10.*

Table 3 in the main text provides details of the association between drinking and happiness, net of people’s happiness earlier in the day. It refers to the fact that happiness earlier in the day predicts people’s later drinking; the more detailed results that show this are:

Table S13: Regression of drinking alcohol after 6pm on average happiness earlier that day

|  |  |  |  |
| --- | --- | --- | --- |
|   | Logit RE | Logit FE | Predicted probability of drinking that evening1 |
| Average happiness earlier in the day (0-100) |  |  |  |
| 0-40 | (ref) | (ref) | 5.7% |
| 40-60 | 0.063 | 0.036 | 6.0% |
| 60-80 | 0.26\*\* | 0.23\* | 7.2% |
| 80-100 | 0.48\*\*\* | 0.45\*\*\* | 8.8% |
| n (person-waves) | 20,643 | 14,764 | 20,643 |

*Significance: \*\*=p<0.01; \*=p<0.05. Both models additionally control for weekend/bank holiday status. Logit RE and Logit FE models present the results as logit regression coefficients (note that the coefficients are not exactly comparable across models). 1 Predicted probabilities are taken from the logit RE model, and show the probability of drinking after 6pm for someone with that level of happiness earlier in the day, assuming that the random effect is zero.*

#### Sensitivity analyses – subgroups

The main text mentions a sensitivity analysis in which we ran the same models but interacting alcohol consumption against a series of other characteristics. The text summarises this as follows:

*“Perhaps surprisingly, there were few differences in the happiness-inducing effect of alcohol between men and women, or when looking at different times of day, on weekdays vs. weekends, or drinking with different types of people (friends/family/colleagues). However, there were some differences according to what people were doing while drinking. Drinking had the greatest impact when it came alongside otherwise unenjoyable activities (traveling/commuting, waiting), and only increased the happiness of already-enjoyable activities by smaller amounts (socialising, making love). The greatest differences, though, were by age: drinking made most difference to the happiness of younger people (8 points), and least happiness to the oldest (3 points). Given the biphasic response to alcohol (above), this may reflect different patterns of drinking by age (Office for National Statistics, 2013).”*

The Table S13 below shows the model coefficients relating to this:

Table S14: Regression of happiness (0-100 scale) on interaction of drinking alcohol with other characteristics

|  |  |
| --- | --- |
|   | FE |
| Drinking alcohol (inside, at 6-9pm on a weekend, for woman aged 18-24 with hhld income <£18.5k) | 9.60\*\* |
| **Interactions by activity** |  |
| Activity: Talking/chatting/socialising | -2.83\*\* |
| Activity: Watching TV/film | -2.72\*\* |
| Activity: Eating/snacking | -0.69\*\* |
| Activity: Listening to music | -1.21\*\* |
| Activity: Sleeping/resting/relaxing | 0.24 |
| Activity: Smoking | 0.11 |
| Activity: Cooking/preparing food | -0.86\*\* |
| Activity: Texting/email/social media | -1.25\*\* |
| Activity: Browsing the Internet | -1.94\*\* |
| Activity: Childcare/playing with children | -1.54\*\* |
| Activity: Something else(V>=1.0.2) | 3.18\*\* |
| Activity: Pet care/playing with pets | -1.47\*\* |
| Activity: Housework/chores/DIY | -1.83\*\* |
| Activity: Working/studying | -0.78\* |
| Activity: Drinking tea/coffee | -1.59\*\* |
| Activity: Reading | -2.23\*\* |
| Activity: Computer games/iPhone games | -1.88\*\* |
| Activity: Match/sporting event | -1.83\*\* |
| Activity: Travelling/commuting | 1.64\* |
| Activity: Theatre/dance/concert | -3.78\*\* |
| Activity: Waiting/queueing | 1.38\* |
| Activity: Other games/puzzles | -1.14\* |
| Activity: Admin/finances/organising | -1.38\* |
| Activity: Washing/dressing/grooming | -0.49 |
| Activity: Something else(v<1.0.2) | 3.50\*\* |
| Activity: Intimacy/making love | -5.00\*\* |
| Activity: Listening to speech/podcast | -1.88\*\* |
| Activity: Singing/performing | -1.44+ |
| **Interactions by others present** |  |
| With spouse, partner, girl/boyfriend | 0.03 |
| With children | 0.05 |
| With other family members | 0.15 |
| With colleagues, classmates | 2.03\*\* |
| With clients, customers | -1.18+ |
| With friends | -0.61\*\* |
| With other people you know | -0.08 |
| With no-one | -1.18\*\* |
| **Interactions by time of day** |  |
| Weekend 18:00-20:59 (base category) |  |
| Weekday 00:00-05:59 (6hrs) | 1.20 |
| Weekday 06:00-11:59 (6hrs) | -1.02 |
| Weekday 12:00-14:59 | -0.20 |
| Weekday 15:00-17:59 | -0.09 |
| Weekday 18:00-20:59 | -0.18 |
| Weekday 21:00-23:59 | 0.13 |
| Weekend 00:00-02:59 | 2.24+ |
| Weekend 03:00-05:59 | -0.20 |
| Weekend 06:00-08:59 | 0.13 |
| Weekend 09:00-11:59 | -0.55 |
| Weekend 12:00-14:59 | -0.14 |
| Weekend 15:00-17:59 | -0.19 |
| Weekend 21:00-23:59 | 0.17 |
| ***Interactions by location (1)*** |  |
| Inside (base category) |  |
| Outside | -0.80\*\* |
| In vehicle | -0.15 |
| ***Person-level characteristics*** |
| Interaction by male (vs. female) | 0.63\*\* |
| **Interactions by age group** |  |
| 18 to 24 (base category) |  |
| 25 to 30 | -1.31\*\* |
| 31 to 35 | -1.97\*\* |
| 36 to 40 | -2.86\*\* |
| 41 to 50 | -3.53\*\* |
| 51+ | -4.34\*\* |
| **Interactions by hhld equivalised gross income** |  |
| <£18.5k (base category) |  |
| £18.5-30.5k | 0.03 |
| £31-43k | -0.32 |
| £43k+ | -0.84\*\* |
| Person-wave observations | 1,964,631 |
| Persons | 29,693 |

*Significance: \*\*=p<0.01; \*=p<0.05; +=p<0.10. This model also includes the controls listed above/in the main text (not shown here).*

These are all regression coefficients – the final result (for interactions by household equivalised gross income) shows that drinking is associated with 0.84 points lowerwellbeing for those with an income above £43k compared to those under £18.5k, keeping everything else constant.

However, note that the text above said that “*drinking made most difference to the happiness of younger people (averaging across different types of drinking occasions, alcohol raised their happiness by 7.3 points), and least happiness to the oldest (3.0 points).*” This averaging across different types of drinking occasions is done by using average marginal effects (rather than regression coefficients) based on the model above. The results for the variable in the text (age) are shown in Table S14 below:

Table S15: Association of alcohol with happiness (0-100 scale) for respondents of different ages (average marginal effects based on the model in the preceding table)

|  |  |
| --- | --- |
| ***Age group*** |  |
| 18 to 24 | 7.3 |
| 25 to 30 | 6.0 |
| 31 to 35 | 5.4 |
| 36 to 40 | 4.5 |
| 41 to 50 | 3.8 |
| 51+ | 3.0 |

#### Sensitivity analyses – hangover analysis

The main text mentions that a sensitivity analysis tested for ‘hangover effects’ – that is, whether drinking alcohol on an evening (after 6pm) has an impact on people’s happiness the following morning (before midday). The results are shown in the Table S15 below.

As the main text states, there is little sign of any hangover effect after we control for people’s other activities the previous evening (Models 2-5): indeed, there appears to be a slightly *positive* association of past-evening drinking with happiness among younger people, although this is small. However, when we look at people’s self-reported levels of being ‘awake’ (rather than ‘happy’), then we do find a hangover effect (Model 6): people report being 1.29 points less awake (on a 0-100 scale) the morning after drinking. This fits the prior literature, where there is little evidence of hangover effects on mood, but greater evidence of hangover effects on fatigue and performance (McKinney, 2010).

Table S16: Regression of happiness (Models 1-5) / awakeness (Model 6) [both on 0-100 scale] on drinking alcohol on the previous evening

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|   | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
|   | FE | FE | FE | FE | FE | FE |
|   | Initial | Further controls | By age | Initial | Lagged happiness | Outcome =***Awake*** |
| Drinking alcohol | 4.86\*\* | 4.91\*\* | 4.90\*\* | 5.19\*\* | 5.33\*\* | 2.30\* |
| **Drinking the night before** | 0.43\*\* | 0.17 |   | 0.20 | -0.05 | -1.29\*\* |
| **…by age** |  |  |   |  |   |  |
| 18-24 |  |  | 0.67\* |  |   |  |
| 25-30 |  |  | 0.42+ |  |   |  |
| 31-35 |  |  | 0.25 |  |   |  |
| 36-40 |  |  | -0.20 |  |   |  |
| 41-50 |  |  | 0.02 |  |   |  |
| 51+ |  |  | -0.18 |  |   |  |
| *Controls for…* |  |  |   |  |   |  |
| *…event-level controls (as above)* | X | X | X | X | X | X |
| *…prev night activities* |  | X | X | X | X | X |
| *…prev day happiness before 6pm* |   |   |   |   | X |   |
| n (person-waves) | 262854 | 262854 | 262854 | 200752 | 200752 | 262854 |
| n (persons) | 23133 | 23133 | 23133 | 19515 | 19515 | 23133 |

*Significance: \*\*=p<0.01; \*=p<0.05; +=p<0.10. This model also includes the controls listed above/in the main text (not shown here).*

#### Sensitivity analyses – aggregating over weeks and months

The main text discusses the relationship between happiness on drinking alcohol on the level of weeks and months, and refers to this Web Appendix for the table of results. This is presented in Table S16 below.

Table S17: Regression of happiness (0-100 scale) on percentage of events where respondent is drinking, over weeks and months

|  |  |
| --- | --- |
| **By week, FE models** | **By month, FE models** |
|  | *M1* | *M2* |  | *M3* | *M4* |
|   | All events | Exc. drinking events |   | All events | Exc. drinking events |
| **% occasions drinking** |  |   |  |  |  |
| Zero occasions | 0.00 | 0.00 | Zero occasions | 0.00 | 0.00 |
| Quintile 1 (0.0% to 6.7%) | 0.32\* | 0.19 | Quintile 1 (0.0% to 2.7%) | 0.26+ | 0.21 |
| Quintile 2 (6.7% to 9.1%) | 0.53\*\* | 0.35\*\* | Quintile 2 (2.7% to 4.7% | 0.46\*\* | 0.37\*\* |
| Quintile 3 (9.1% to 12.5%) | 0.52\*\* | 0.25+ | Quintile 3 (4.7% to 7.1%) | 0.31\* | 0.14 |
| Quintile 4 (12.5% to 18.2%) | 0.75\*\* | 0.42\*\* | Quintile 4 (7.1% to 12.2%) | 0.51\*\* | 0.26\* |
| Quintile 5 (18.2%+) | 0.91\*\* | 0.43\* | Quintile 5 (12.2%+) | 0.77\*\* | 0.39\* |
| *n (person-waves)* | *91195* | *91195* | *n (person-waves)* | *57429* | *57431* |
| *n (persons)* | *16976* | *16976* | *n (persons)* | *22352* | *22352* |
| *Avg. waves per person* | *5.4* | *5.4* | *Avg. waves per person* | *2.6* | *2.6* |

*Significance: \*\*=p<0.01; \*=p<0.05. 1 Quintiles are calculated solely on those who have drunk during the period in question. All models control for period averages of time-varying controls (see text), and exclude periods in which the individual reports <5 non-drinking observations.*

As an aside, we may be interested in how the magnitude of the associations varies according to the time period we are looking at. This cannot be seen in the main tables above & in the paper as the drinking variables are not comparable (the main analyses use a binary measure of whether someone has been drinking, whereas these overspill analyses look at quintiles of drinking occasion frequency over this time period, excluding those who have not drunk in this period). The best way of making these comparable is to simply use a continuous measure of the percentage of occasions in that period in which the respondent was drinking. This is equivalent to the dummy variable in the main analyses (which can be thought of as the difference between 0% and 100% of the time drinking in the single occasion period). This results are shown in the table below.

Table S19: Regression of happiness (0-100 scale) on frequency of drinking alcohol over different time periods (the moment itself, weeks, months and years)

|  |  |
| --- | --- |
|  | **Adjusted FE models** |
|  | Moment | Week | Month | Year |
| Drinking alcohol *(estimated change in happiness for 0% vs. 100% of occasions)* | 3.88\*\* | 4.35\*\* | 4.08\*\* | 4.00 |
| n (person-waves) | 2,049,120 | 91,195 | 57,429 | 27.285 |
| n (persons) | 31,302 | 16,976 | 22,352 | 23,543 |
| Avg. waves per person | 65.5 | 5.4 | 2.6 | 1.2 |

There are two main conclusions from the table above. Firstly, the statistical significance is lower in the models looking at year-on-year variation compared to the other periods – primarily because the average number of years per person is so low. Secondly, though, it is striking how similar the results are when looking over different time periods. In the moment-by-moment models, people were about 4 points happier (on this 0-100 scale) when they were drinking than when they were not. Similarly, the models estimate that someone who reported drinking 100% of their Mappiness occasions in a week would be 4 points happier than someone who reported drinking in 0% of these occasions. While the models may be subject to differing levels of confounding (the Mappiness controls better capture moment-to-moment changes than year-to-year changes, as the main paper mentions), this does suggest that the differences between BCS70 and Mappiness are less likely to be about the different time period involved, and probably more about whether the moment of drinking itself is included (see main paper for discussion).

We should note that there is a greater chance of time-varying confounding than in other models – the available Mappiness controls are focused on moment-to-moment rather than month-to-month influences on happiness. Weeks/months in which people drank more frequently are weeks/months in which they do enjoyable tasks more often (e.g. socialising, eating/snacking) and unenjoyable activities less often (e.g. working, being sick in bed), with a few exceptions, which may indicate that there are other characteristics of these periods that explain the apparent overspill. (This is shown in the table overleaf).

There may also be reverse causality (as suggested by the main text), in which (un)happiness predicts drinking frequency within the period. Finally, it is difficult to construct the appropriate counterfactual for periods without alcohol; people are likely to replace drinking with a different leisure activity, but it is difficult to use the data to predict what this would be, whereas the BCS70 results can be considered net of these alternative lifestyle choices.

Table S18: Regression of whether people are drinking (% of responses) and happiness (0-100 scale) on percentage of events where respondent is doing particular activities, over weeks/months

|  |  |  |
| --- | --- | --- |
|  | **Association with drinking** | **Association with happiness** |
|   | By week | By month | By week | By month |
| Working/studying | -0.05\*\* | -0.06\*\* | -2.65\*\* | -2.98\*\* |
| In meeting/seminar/class | -0.02\*\* | -0.02\*\* | 0.23 | -0.96 |
| Travelling/commuting | -0.04\*\* | -0.04\*\* | -1.10\* | -3.79\*\* |
| Cooking/preparing food | 0.00 | 0.02\*\* | 4.11\*\* | 3.42\*\* |
| Housework/chores/DIY | -0.02\*\* | -0.00 | 0.25 | -0.93 |
| Waiting/queueing | -0.02\*\* | -0.01 | -6.28\*\* | -7.88\*\* |
| Shopping/errands | -0.03\*\* | -0.02\*\* | 2.87\*\* | 4.30\*\* |
| Admin/finances/organising | -0.01\* | -0.00 | -0.85+ | -1.80\* |
| Childcare/playing with children | -0.01\*\* | 0.00 | 3.38\*\* | 4.94\*\* |
| Pet care/playing with pets | 0.00 | 0.00 | 3.42\*\* | 4.38\*\* |
| Care/help for adults | -0.01\*\* | -0.01\*\* | -7.38\*\* | -5.72\*\* |
| Sleeping/resting/relaxing | -0.01 | 0.01 | 1.45\*\* | 1.73\*\* |
| Sick in bed | -0.04\*\* | -0.03\*\* | -25.85\*\* | -26.76\*\* |
| Meditating/religious activities | -0.01\*\* | -0.00 | 8.43\*\* | 7.80\*\* |
| Washing/dressing/grooming | -0.01 | -0.00 | 2.49\*\* | 3.09\*\* |
| Talking/chatting/socialising | 0.25\*\* | 0.26\*\* | 6.23\*\* | 6.69\*\* |
| Intimacy/making love | 0.00+ | 0.00 | 17.63\*\* | 17.67\*\* |
| Eating/snacking | 0.17\*\* | 0.20\*\* | 2.93\*\* | 2.50\*\* |
| Drinking tea/coffee | -0.03\*\* | 0.01 | 0.88\* | 1.53\* |
| Smoking | 0.05\*\* | 0.06\*\* | 0.54 | -2.50+ |
| Texting/email/social media | 0.01\* | 0.03\*\* | 1.30\*\* | 1.75\*\* |
| Browsing the Internet | 0.00 | 0.02\* | 0.80+ | 0.46 |
| Watching TV/film | 0.01 | 0.03\*\* | 1.87\*\* | 1.96\*\* |
| Listening to music | 0.06\*\* | 0.08\*\* | 5.42\*\* | 4.73\*\* |
| Listening to speech/podcast | 0.00 | 0.01\*\* | 3.39\*\* | 2.51\* |
| Reading | 0.00 | 0.00 | 2.98\*\* | 3.55\*\* |
| Theatre/dance/concert | -0.00 | -0.01\*\* | 9.39\*\* | 7.05\*\* |
| Exhibition/museum/library | -0.00\*\* | -0.00\*\* | 12.35\*\* | 11.73\*\* |
| Match/sporting event | 0.00 | 0.01\*\* | 5.60\*\* | 2.44 |
| Walking/hiking | -0.01\*\* | -0.01\*\* | 3.99\*\* | 2.39+ |
| Sports/running/exercise | -0.02\*\* | -0.02\*\* | 10.41\*\* | 10.10\*\* |
| Gardening/allotment | -0.00 | -0.00+ | 5.49\*\* | 2.98 |
| Birdwatching/nature watching | -0.00 | -0.00 | 2.69 | 5.83+ |
| Computer games/iPhone games | -0.01 | 0.00 | 3.30\*\* | 3.22\*\* |
| Hunting/fishing | -0.00+ | -0.00 | 0.21 | 7.51 |
| Other games/puzzles | 0.01\*\* | 0.00+ | 1.90 | -0.31 |
| Gambling/betting | 0.00\*\* | 0.00 | 1.43 | 11.66+ |
| Hobbies/arts/crafts | -0.00+ | -0.00 | 8.78\*\* | 10.09\*\* |
| Singing/performing | -0.00\*\* | 0.00 | 9.61\*\* | 9.04\*\* |
| Something else(v<1.0.2) | -0.00 | -0.01\*\* | -2.30\*\* | -1.38 |
| Something else(V>=1.0.2) | -0.02\*\* | -0.02\*\* | -5.34\*\* | -5.87\*\* |

*Significance: \*\*=p<0.01; \*=p<0.05; +=p<0.10. This model also includes the controls listed above/in the main text (not shown here).*

In summary: weeks and months where people drank were often were also periods in which they did enjoyable tasks more often (socialising, texting/emailing, listening to music, watching TV/films, eating/snacking, cooking) and unenjoyable tasks less often (working, travelling/commuting, waiting/queuing, caring for adults, sick in bed). However, there are several exceptions of other enjoyable tasks done less often in heavier-drinking periods, which seem to be those activities that alcohol substitutes for, rather than complements (shopping/errands, childcare, meditation/religious activities, singing/performing, theatre/concerts, walking, sports, drinking tea/coffee).

### Bibliography for Web Appendices

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