Global comparisons of responses to alcohol health information labels: a cross sectional study of people who drink alcohol from 29 countries

Emma L. Davies, David R. Foxcroft, Cheneal Puljevic, Jason A. Ferris, Adam R. Winstock

ABSTRACT

Aims: The aim of this paper was to explore responses to alcohol health information labels from a cross sectional survey of people who drink alcohol from 29 countries.

Design: This paper draws on findings from the Global Drug Survey (GDS) – an annual cross sectional online survey.

Participants: 75,969 (64.3% male) respondents from 29 countries were included in the study.

Measures: Respondents were shown seven health information labels (topics were heart disease, liver, cancer, calories, violence, taking two days off and myth of benefits of moderate drinking). They were asked if the information was new, believable, personally relevant, and if it would change their drinking. A multivariate multilevel Bayesian logistic regression model was used to estimate predicted probabilities for newness , believability, relevance and if messages would change drinking behaviour by country and information label.

Findings: Predicted probabilities showed substantial variability in responses across countries. Respondents from Colombia, Brazil and Mexico were more likely to consider drinking less as well as have lower levels of previous awareness. Those from Denmark and Switzerland were not as likely to say the labels would make them consider drinking less. The cancer message was consistently the newest and most likely to make people consider drinking less across countries.

Conclusions: Country differences in responses to messages can be used to create targeted harm reduction measures as well as inform what should be on labels. The provision of such health

information on alcohol product labels may play a role in raising awareness of the risk of drinking.

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INTRODUCTION

Alcohol misuse is responsible for a large share of death and disability around the world [1]. In 2016, 2.8 million deaths were directly attributable to alcohol consumption [2]. In addition to causing health problems to the consumer, alcohol misuse has detrimental indirect impacts on wider society [3, 4]. Prevention of these harms is a global challenge requiring a combination of strategies, which may be universal, selective or targeted [5]. One universal approach, which aims to intervene at the point of purchase and consumption, is to provide health information on product labels.

Although most current health information labels are limited to describing the dangers of drinking while pregnant, others may warn about cancer, depression, or drink driving [6]. These messages rely on similar mechanisms as graphic warning pictures on tobacco packaging [7]. Although there are mixed findings on the impact of such labels on drinking behaviour [8, 9] several studies have found that this low-cost, population-level approach can be effective in increasing knowledge [9, 10] decrease positive product perceptions [11]and consumers support their inclusion on products [12, 13].

Compared to tobacco packaging, research on factors that increase the effectiveness of alcohol labels is more limited [6] and most studies investigate labels with very diverse formats [14]. Findings suggest the most effective labels are prominently placed [15] benefit from specific rather than general messages [16, 17] strongly worded [15, 18] negatively-framed (e.g. “every drink of alcohol harms your brain”), [19] or posed as questions (e.g. “Do you really want alcohol to help you loosen your inhibitions?" [20]. Other studies support the effectiveness of including images [21], including graphic [22] or pictorial warning designs [20]. Some evidence from drink choice experiments shows that labels including text or image based information about cancer risks can change attitudes and behaviour [23, 24]. For example, in an online drink choice study, cancer messages increased negative emotional arousal leading to a lower desire to consume products [23]. However, such negative emotions failed to translate into behaviour change in a shopping laboratory task by the same group [25].

The International Alliance for Responsible Drinking [26] lists 37 countries where alcohol health information labels are mandatory, including the United States, and some countries in Asia, Europe, Africa and South America. The restrictions on these labels vary widely, with examples including those based on size (e.g. El Salvador, where warnings must occupy 10% of the label's surface area), type of beverage (e.g. Germany, where labels are only mandatory on alcopops) or % Alcohol by Volume (ABV; e.g. Mexico, where one restrictions apply based on ABV). In other countries such as Japan, Australia and New Zealand the inclusion of these labels is voluntary [26, 27]. In the United Kingdom (UK), the alcohol industry supported a voluntary Responsibility Deal with the Government in 2011, committing to labelling at least 80% of alcoholic beverages with unit content, low-risk guidelines, pregnancy warnings and responsibility statements [28]. However, this pledge was often not met, with labels falling short of size and placement requirements [29].

In a previous study, we explored responses to seven health messages, finding that respondents were less aware of the links between alcohol and cancer, but that this information on a label was more likely to encourage respondents to consider drinking less, compared to six other messages [30]. Prior awareness of information on the label was related to whether it would encourage behaviour change, with newer messages more likely to make respondents consider drinking less [30].

As there is such variation around the world – in terms of drinking culture [31, 32] label policy requirements [12, 30] and motivations to reduce drinking [33], exploring and comparing responses to health warnings between countries is warranted in order to understand if these variations lead to any differential impacts on knowledge and behaviour. Results from our study can be used to identify countries who would benefit from adding the labels to their alcohol products, and identifying which labels would be most beneficial when introduced alcohol labels within countries. Thus, the current study thus aimed to explore differences in perceptions of alcohol health information labels between respondents from different countries in terms of newness, believability, personal relevance, and potential behaviour change.

METHODS

The Global Drug Survey (GDS) is the world's largest annual, anonymous, online, cross-sectional survey of people who use alcohol and other drugs. GDS2018 took place from November 2017-January 2018, and was available in 18 languages; English, German, Serbian, Czech, Georgian, Azerbaijani, Hebrew, Polish, French, Italian, Spanish (S American Spanish), Portuguese, Flemish, Hungarian, Turkish, Finnish and Danish. GDS is promoted by media partners and harm reduction organisations such as The Guardian and Vice (UK), Zeit Online (Germany) and Stuff.nz (New Zealand). Thus, it is not representative of the populations in the countries included, and due to the reach of partners there, a large proportion of the sample is from Germany [34]. Nonetheless, compared to general population surveys in Australia, Switzerland and the U.S, GDS recruits people with similar demographic characteristics as those who use cannabis and alcohol in that country [35].

Ethical approval was obtained from the Joint South London and Maudsley and Institute of Psychiatry NHS (no:141/02), The University of Queensland (No: 2017001452) and The University of New South Wales (HREC HC17769) Research Ethics Committees.

Participants

In total, 130,761 respondents took part in GDS 2018; 98.7% reported lifetime use of alcohol. Of those, 77,974 completed alcohol label questions. This dropout rate is usual for GDS, where additional sections add to what is already a long survey. This is in line with national surveys on drug use [36] . Inclusion criteria for analyses were males and females aged between 16-85 years without missing data on label questions, and reporting last month alcohol consumption. Furthermore, to ensure there was sufficient variation in responses to variables from respondents within country to effectively model both the fixed and random effects of the data, this paper only draws on data from countries/regions with at least 250 respondents, with some linked countries collapsed together to give N>250 (e.g. Balkan countries).

Measures

Seven health messages were developed by the authors, based on previous literature and discussions with experts (see Box 1). Two of three messages addressing specific diseases (cancer and liver disease) were framed positively, with reduction of drinking linked to a reduction in risk. Respondents were asked if the information was new to them (no/yes) if they believed it (no/unsure/yes – combining no/unsure for subsequent analysis) if it was personally relevant (1-totally irrelevant, 2, - not very relevant, 3 –unsure, 4- a bit relevant and – 5 very relevant – for subsequent analysis 1,2 and 3 were combined and 4 and 5 were combined), and if it would make them consider drinking less (- named 'drinkless) no/unsure/maybe/yes – for subsequent analysis no and unsure were combined and maybe and yes were combined).

[Insert Box 1]

GDS2018 included the Alcohol Use Disorders Identification Test [AUDIT; 37], scored from 1-40 (0-7= low risk, 8-15= increasing risk 16-19= higher risk; 20+= possible dependence). Socio-demographic data were collected on age, sex, and country of residence.

Analyses

We used a multivariate multilevel Bayesian logistic regression model to estimate predicted response on each of the four outcome measures: new, believe, relevance and drinkless. Bayesian analysis has advantages over classical frequentist analysis [38]: the ability to specify prior distributions with a set of identifying restrictions and that reflect the researcher's ideas about parameter values and uncertainties; the calculation of exact parameter estimates without reliance on large sample sizes at all grouping levels for balanced and unbalanced designs; all parameters can be estimated simultaneously without the need to fine-tune any parameters to guarantee convergence; direct estimation of any functions of parameters or any quantities of interest; it obeys the likelihood principle; it provides interpretable answers (credible intervals have more intuitive meanings); can be applied to a range of models, e.g. multivariate and hierarchical models; and handling of incomplete designs with data missing at random.

Responses were coded as 0 (No) and 1 (Yes). A model is regarded as multivariate if it contains multiple response variables, each being predicted by its own set of predictors. Sex, age and AUDIT score were specified as fixed (population) effects and alcohol message type, country and person as random (group) effects. We specified message type as a random (group) effect because although there were just seven different alcohol message types directly measured we regard these as being drawn from a much larger set of possible alcohol messages [39]. We included the interaction between message type and country as a random (group) effect.

We used the *brms* package in R for Bayesian regression modelling using Stan [40-42]. Code is openly available [43] including version and software package information. We followed the convention of specifying weakly informative priors for the analysis [44, 45] and used a student-t prior with df=3, location=0 and scale=2.5 for fixed effects [45]. Priors for other parameters took the defaults specified in *brms*. Initial values were set at "0". We used the *brms* default setting of four chains, with 3000 iterations per chain and 1000 warmup iterations that were discarded for subsequent processing of results.

RESULTS

Descriptive statistics

The final sample included 75,969 respondents from 28 countries (Table 1). A large proportion (39.6%) were from Germany. Two thirds were male, and most (45.6%) classified as low risk drinkers. Denmark and Scotland had greater proportions of respondents in the AUDIT 16+ categories. Age ranged from 16-85 (*Median*= 24; *IQR*=11) with 40,460 (53.3%) under 25 and 35,509 (46.7%) 25+.

[Insert Table 1]

Model results

Overall, the Monte Carlo Markov Chain (MCMC) estimation converged effectively, and Bayesian workflow diagnostics were good [46]. $\hat{R}$ and Effective Sample Size (ESS) were good for all parameters (see Table 2). Binned error plots showed a good fit between predicted and observed values (Appendix Figures A1 to A4), posterior distributions were normal (Appendix Figure A5) and traceplots (Appendix Figure A6) showed good mixing across all parameters and chains. No problems with autocorrelation were identified (Appendix Figure A7). MCMC divergence and parallel co-ordinates plots indicated no problems with divergent transitions (Appendix FiguresA8, A9 and A10) and pair plots showed no marked problems with collinearity or with multiplicative non-identifiabilities (Appendix Figures A11, A12 and A13).

Model estimates are shown in Table 2. For the drinkless outcome, the Bayes R^2 (Gelman et al 2018) indicates that 38% of variability in the outcome is accounted for by the model. The effect of age and AUDIT score was small, and for the new and believe outcomes the effect of sex was also small. However, there was a notable effect of sex for both the relevance and the drinkless outcomes, with an estimate of -0.34 (95% credible interval -0.44, -0.23) (Odds Ratio: 0.71 (0.64,0.79) indicating that males were much less likely than females to say they would drink less. Group effect estimates indicate significant within group variability for all random effects used in the model, for all outcomes. For example, for the drinkless outcome the random effects standard deviation (s.d.) for message type was 0.98 (95% credible interval 0.53,1.90), the s.d. for country was 0.0.52 (0.39,0.71), and the s.d. for individual was 1.84 (1.79, 1.90).

[Insert Table 2]

We used the brms posterior predict function to get predicted values from the posterior for each outcome, with partial pooling using message type and country random (group) effects, both individually and combined. Thus, for each outcome, predicted values incorporating group-level effects were calculated, i.e. the estimated intercepts for each group were used in making predictions for the same group. We specified that predicted values should be calculated from the model for each combination of country, sex, message type and across the age range 16 to 80 years and the AUDIT score range 1 to 40. 8000 predicted values of either no (coded "0") or yes (coded "1") were calculated for each combination, and the mean value across these 8000 predictions was calculated to give a predicted probability of responding "Yes" for each of the four outcomes given the model and partial pooling. This can be understood as the predicted probability of responding "Yes" for a person of the same sex, age and AUDIT score within each message type and country. Given limitations of the survey sampling and comparability across countries, these predicted probabilities can indicate likely response by country and therefore provide a useful basis for making comparisons across countries.

Given the complexity of the results (four outcomes, seven message types and 29 country areas) we have presented the findings in figures using the *ggplot* package in R [47] (Wickham 2016). The predicted probability of responding "Yes" (for newness, believe, relevant and drinkless) is presented for each outcome and compared by AUDIT score (1-15 compared to 16+), sex and age group. Observed and predicted probabilities can be seen in Appendix Tables A1-A4., and predicted probabilities for each outcome by message type, across age, sex, country and AUDIT score groups, are shown in Figures 1-4.

[Insert Figures 1-4]

Figure 1 (interactive plot: *https://davidfoxcroft.github.io/publicimages/plot_new.html)* displays the predicted probabilities of saying 'yes' if the information in the label was new (the closer to 1 the greater the predicted probability of an affirmative response). The cancer message was most likely to be perceived as new while the violence message was least likely. Fewer respondents from Finland and Switzerland felt messages were new, whilst respondents from Poland and Colombia were more likely to say the messages were new. Cross-country differences were more noticeable for the cancer, freedays and calorie messages. For example, the predicted probability of females aged 16-24 who scored 1-15 from Finland saying that the cancer message was new was 0.52, and for those scoring 16+ on the AUDIT score it was 0.51, and in the same sex and age groups the probabilities for those scoring 16+ on the AUDIT score in Poland and Colombia were 0.75 and 0.74, respectively.

Figure 2 (https://davidfoxcroft.github.io/publicimages/plot_believe.html *)* displays the predicted probabilities of saying 'yes' the information in the label was believable. The violence message was most believable and the myth message the least. Respondents from Poland and Slovakia were least likely to say messages were believable, whilst respondents from Finland and Canada felt the messages were more believable. Cross-country differences in believability of the messages were generally small, but most noticeable for the cancer message. For example, the predicted probability of Polish females aged 16-24 who were in the 16+ AUDIT score group was 0.43, compared with 0.78 for Finland.

Figure 3 (*https://davidfoxcroft.github.io/publicimages/plot_relevant.html)* displays the predicted probabilities of saying 'yes' the information in the label was relevant. There were no clear differences across age or sex, but those in the 16+ AUDIT score group had consistently higher predicted probabilities of saying 'yes' the information in the label was relevant. Cancer and violence messages elicited the strongest response (most relevant), and the myth message the weakest response (least relevant). Respondents from Israel and Denmark felt the messages were less relevant, whilst respondents from Mexico and Colombia felt the messages were more relevant. Cross-country differences in relevance of the messages were quite marked for most of the messages apart from myth, and especially for cancer and calories. For example, the predicted probability of Israeli females aged 16-24 who were in the 1-15 AUDIT score group was 0.13, compared with 0.94 for Colombian females aged 16-24 in the 16+ AUDIT score group .

Figure 4 (*https://davidfoxcroft.github.io/publicimages/plot_drinkless.html*) shows the predicted probabilities for the drinkless outcome measure. Across all countries, the myth and heart messages were the least likely to make respondents consider drinking less (as the labels closest to zero). The cancer message was most likely to be rated as having the potential to change behaviour. Respondents from Denmark and Switzerland were not as likely to say the labels would make them consider drinking less. Respondents from Colombia and Poland were more likely to say labels would make them consider drinking less. The predicted probability of males aged 16-24 who scored 1-15 from Colombia saying that the cancer message would make them drink less was 0.58, and for those who scored 16+ it was 0.75. For some messages and countries the difference was bigger. For example, the predicted probability of females aged 16-24 who scored 1-15 from United States saying that the calories message would make them drink less was 0.23 and for those who scored 16+ it was 0.39. Interestingly, the largest range across countries occurred with the violence and liver messages; for example the predicted probability of females aged 16-24 who were in the AUDIT 16+ group saying they would drink less due to the violence message was 0.19 in Denmark, 0.42 in Hungary, and 0.81 in Columbia.

DISCUSSION

This paper aimed to explore country differences in perceptions of alcohol health warning labels and found variability in the outcomes across responses to labels. Respondents from Finland and Switzerland were less likely to rate the messages as new, whereas whilst respondents from Poland and Colombia were more likely to say the messages were new. There were only small cross-country differences in believability of the messages, but these differences were most notable for the cancer message. Across countries, respondents from Israel and Denmark felt the messages were less relevant, whilst respondents from Mexico and Colombia felt the messages were more relevant. There was wide variation in ratings of relevance for cancer and calories messages. Respondents from Denmark and Switzerland were less likely to say the labels would make them consider drinking less, whereas those from Colombia and Poland were more likely to say the labels would make them consider drinking less. Differences in ratings were not related to AUDIT scores. Respondents from Denmark, generally a heavier drinking country were the least likely to say that the cancer information would make them consider drinking less. Respondents from Switzerland, who had lower AUDIT scores, were less likely to say the messages would make them consider drinking less.

At present, only South Korea has mandated cancer warnings for alcohol products and a real world study that attempted to test the effectiveness of labels warning about cancer risks in Canada was halted by the alcohol industry [48]. However, findings from the Canadian study showed that novel labels did reduce alcohol sales at a population level, lending strong support for their inclusion [49]. Our findings this support an urgent need to implement the use of alcohol warning labels that increase awareness of the association between alcohol consumption and cancer, especially in light of findings from a recent large population-based study showing that approximately 4% of all new cases of cancer in 2020 were attributable to alcohol consumption [50].

Other variations may be explained by cultural norms relating to drinking. Previous studies have found that there are county differences in the likelihood of suffering adverse consequences from drinking, such as violence [51]. This may be unrelated to actual levels of consumption, but rather to cultural norms on how to behave when drinking [52]. Thus, in places where violence is more common, we might expect to see higher levels of agreement that such messages would change behaviour.

Limitations

Although the GDS sample is large, it is not representative of the included countries. Compared to the general population, respondents are younger, and GDS, by purpose, recruits a higher proportion of people who use illicit drugs [35]. There is also a high dropout rate. German respondents comprise a large proportion of the sample with far fewer from other countries. However, the predicted probabilities based on our hierarchical model with partial pooling should take account of country level effects. We presented the alcohol labels using text, when other research suggests that labels that include images are more effective [53]. Our measure of potential behaviour change was categorical and subsequently collapsed to compare those saying no and unsure, with yes and maybe. This limited the range of responses, and ignores possible important differences between people responding in the collapsed categories. It may be preferable to use a Likert scale from 1-7, although this would be similarly unable to capture actual behaviour change. GDS also does not included a measure of SES.

Given the wide variability between countries in terms of their approach to health information on alcohol products, further research is required to assess whether labelling is more or less effective under different jurisdictions. The best available evidence should be used to create optimal messages that are targeted to different cultures and contexts. Whilst we acknowledge that product labelling is unlikely to bring about large changes in behaviour, it can be a tool to raise awareness of the health effects associated with excessive drinking and therefore play a vital role in reducing alcohol-related harms. Our study adds to the growing evidence that providing information (via labels) about the links between alcohol consumption and associated risks (e.g. cancer) has the potential to encourage people to reduce their consumption volume. Moreover, the study provides valuable insight into which countries are most likely to benefit from including warning labels on their alcohol products, and highlights which label messaging content is most likely to increase awareness of specific risks of alcohol use within each countries.

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TABLES AND FIGURES

Table 1: *Demographic information about the sample including country, age, sex and median AUDIT score % low risk and % 16%*

Country	N (%)	Age Median (IQR)	% male	AUDIT Median(IQR)	% AUDIT 1-15	% AUDIT 16+
Australia	1721 (2.3)	21 (10)	67.0	10 (9)	78.8	21.2
Austria	2520 (3.3)	25 (11)	60.6	8 (6)	89.6	10.4
Belgium	507 (.07)	22 (8)	66.9	10 (8)	84.0	16.0
Brazil	1201 (1.6)	28 (13)	66.1	7 (8)	86.8	13.2
Canada	1019 (1.3)	24 (11)	64.8	8 (7)	85.8	14.2
Columbia	951 (1.3)	25 (11)	69.4	7 (7)	89.8	10.2
Czech Republic	631 (.08)	22 (7)	66.7	8 (7)	86.1	13.9
Denmark	8608 (11.3	18 (5)	61.8	11 (7)	75.3	24.7
Finland	912 (1.2)	26 (10)	70.3	9 (9)	78.9	21.1
France	396 (0.5)	25 (9)	62.9	9 (8)	84.3	15.7
Germany	30057 (39.6)	27 (12)	60.5	7 (7)	89.7	10.3
Hungary	1258 (1.7)	25 (10)	75.6	8 (7)	87.6	12.4
Republic of Ireland	306 (0.4)	23(11)	69.3	9 (8)	83.0	17.0
Israel	939 (1.2)	23 (9)	72.9	5 (5)	94.5	5.5
Italy	1413 (1.9)	24 (9)	70.8	7 (7)	89.9	10.1
Mexico	250 (0.3)	24 (10)	65.2	7 (9)	83.2	16.8
Netherlands	2164 (2.8)	22 (5)	51.2	9 (7)	85.4	14.6
New Zealand	1932 (2.5)	39 (23)	56.3	7 (7)	88.5	11.5
Norway	254 (0.3)	23 (10)	75.2	8 (6)	88.2	11.8
Poland	4530 (6.0)	18 (4)	83.0	8 (7)	86.0	14.0
Russian Federation	299 (0.4)	22 (7)	53.5	7 (7)	88.6	11.4

Scotland	823 (1.1)	24 (10)	74.5	11 (9)	73.1	26.9
Slovakia	2353 (3.1)	21 (8)	66.1	8 (8)	84.5	15.5
Spain	270 (0.4)	26 (16)	61.5	7.5 (8)	87.8	12.2
Sweden	375 (0.5)	24 (10)	75.2	8 (7)	88.0	12.0
Switzerland	3136 (4.1)	26 (13)	65.7	8 (7)	88.7	11.3
England	2346 (3.1)	23 (11)	67.1	9 (7)	81.8	18.2
United States	3621 (4.8)	21 (9)	73.3	6 (7)	89.5	10.5
Balkans	1177 (1.5)	23 (10)	58.1	6 (6)	91.2	8.8
Whole sample	**75969**	**24 (11)**	**64.3**	**8 (7)**	**86.5**	**13.5**

Box 1: The seven messages about alcohol health harms that were included in GDS2018.

1 Heart disease is a major cause of death among people with heavy alcohol use (negative frame).
2 Even people with heavy alcohol use can reduce their risk of liver disease by cutting down by even a small amount (positive frame).
3 Drinking less reduces your risk of 7 different sorts of cancer (positive frame).
4 A bottle of wine or 6 bottles of beer contain as many calories as a burger and fries (specific).
5 Experts recommend having at least 2 alcohol free days per week. This can help you reduce and control your drinking (specific).
6 Most people get little or no health benefit from alcohol use, even at low levels of drinking (general).
7 Alcohol use increases the risk of violence and abuse (negative frame).

Table 2: *Model Fit, Population Effect and Random Effect s.d. Estimates (with 95% Credible Intervals) for each outcome measure: new, believe, relevant and drinkless. Rhat ($\hat{R}$) and ESS figues are also shown.*

	new				believe				relevant				drinkless			
	Est	*95% CI*	*Rhat*	*ESS*	*Est*	*95% CI*	*Rhat*	*ESS*	*Est*	*95% CI*	*Rhat*	*ESS*	*Est*	*95% CI*	*Rhat*	*ESS*
Model Fit																
bayes_R2	0.27	0.27,0.28			0.27	0.23,0.24			0.39	0.38,0.39			0.38	0.38,0.39		
Population Effects																
Intercept	−0.16	−1.12,0.80	1.00	3,630	1.11	0.29,1.89	1.00	2,758	−1.68	−2.32,−1.03	1.00	3,276	−1.54	−2.34,−0.68	1.00	2,752
age	−0.02	−0.02,−0.01	1.00	6,494	0.01	0.01,0.02	1.00	6,804	0.00	0.00,0.01	1.00	4,785	0.00	−0.01,0.00	1.00	4,277
AUDIT	0.00	−0.01,0.00	1.00	6,549	0.00	−0.01,0.00	1.00	6,293	0.05	0.05,0.06	1.00	3,959	0.04	0.03,0.05	1.00	4,566
Sex [1]	0.00	−0.07,0.07	1.00	5,902	0.02	−0.05,0.10	1.00	6,297	−0.35	−0.46,−0.24	1.00	4,628	−0.34	−0.44,−0.23	1.00	3,892
Random Effects (Est = sd)																
message: country	0.30	0.26,0.34	1.00	5,095	0.31	0.27,0.36	1.00	4,685	0.39	0.35,0.45	1.00	4,867	0.29	0.25,0.34	1.00	5,211
message	1.18	0.64,2.27	1.00	4,646	0.97	0.51,1.92	1.00	4,262	0.73	0.39,1.41	1.00	3,952	0.98	0.53,1.90	1.00	4,268
country	0.35	0.26,0.49	1.00	3,881	0.31	0.22,0.43	1.00	3,940	0.66	0.49,0.88	1.00	3,588	0.52	0.39,0.71	1.00	3,533
id	1.05	1.01,1.09	1.00	5,743	1.11	1.07,1.15	1.00	5,277	1.85	1.79,1.90	1.00	4,750	1.84	1.79,1.90	1.00	4,749

[1] *females:males*

Figure 1: **Predicted probability of <u>newness</u> of the information on the message labels for respondents in each country and Audit score group, by age and sex *(interactive online plot: <u>https://davidfoxcroft.github.io/publicimages/plot_new.html</u>)***

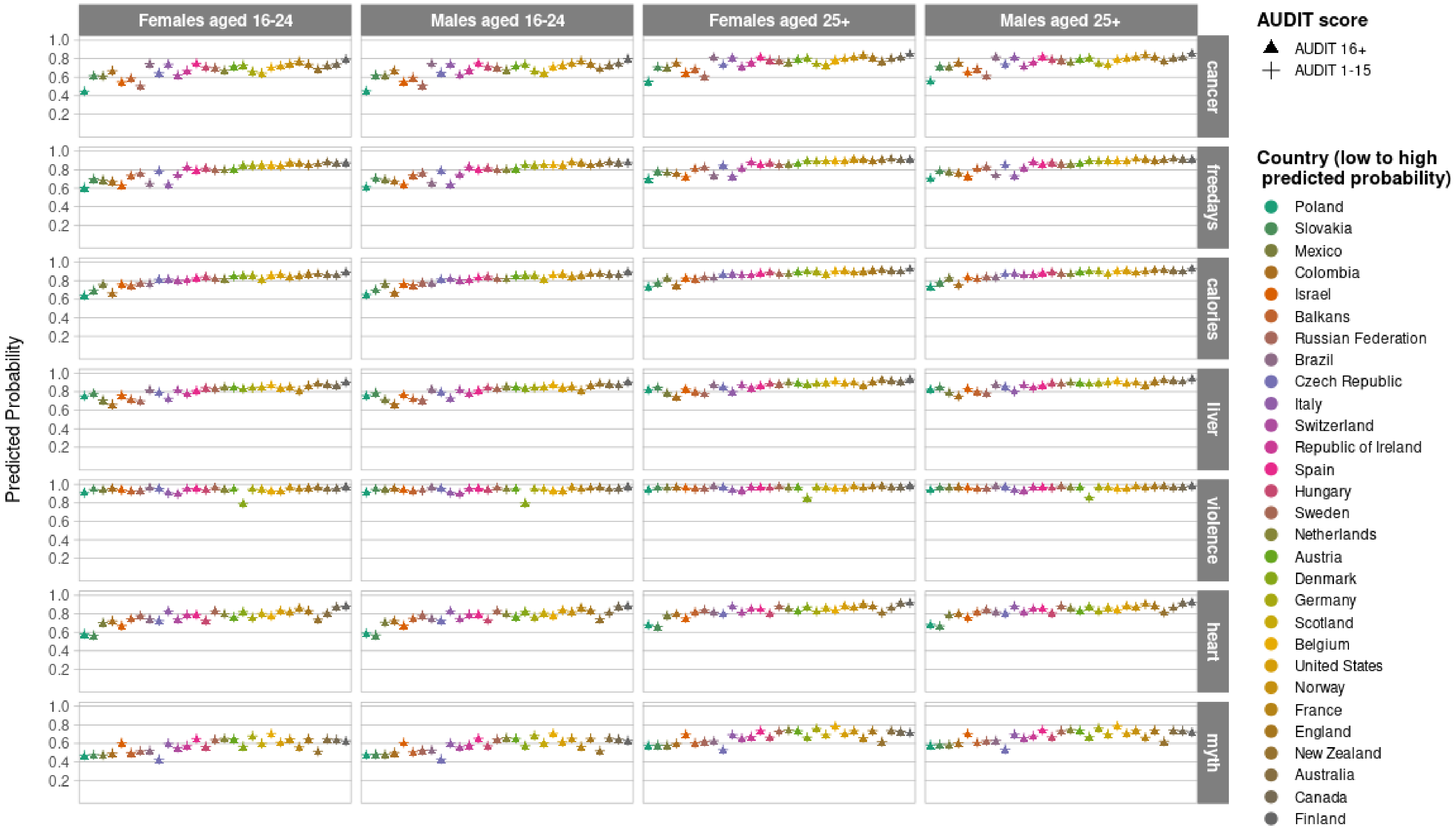

Figure 2: **Predicted probability for each country and Audit score group, of whether the information on the message labels <u>is believable</u>, by age and sex *(interactive online plot: <u>https://davidfoxcroft.github.io/publicimages/plot_believe.html</u>)***

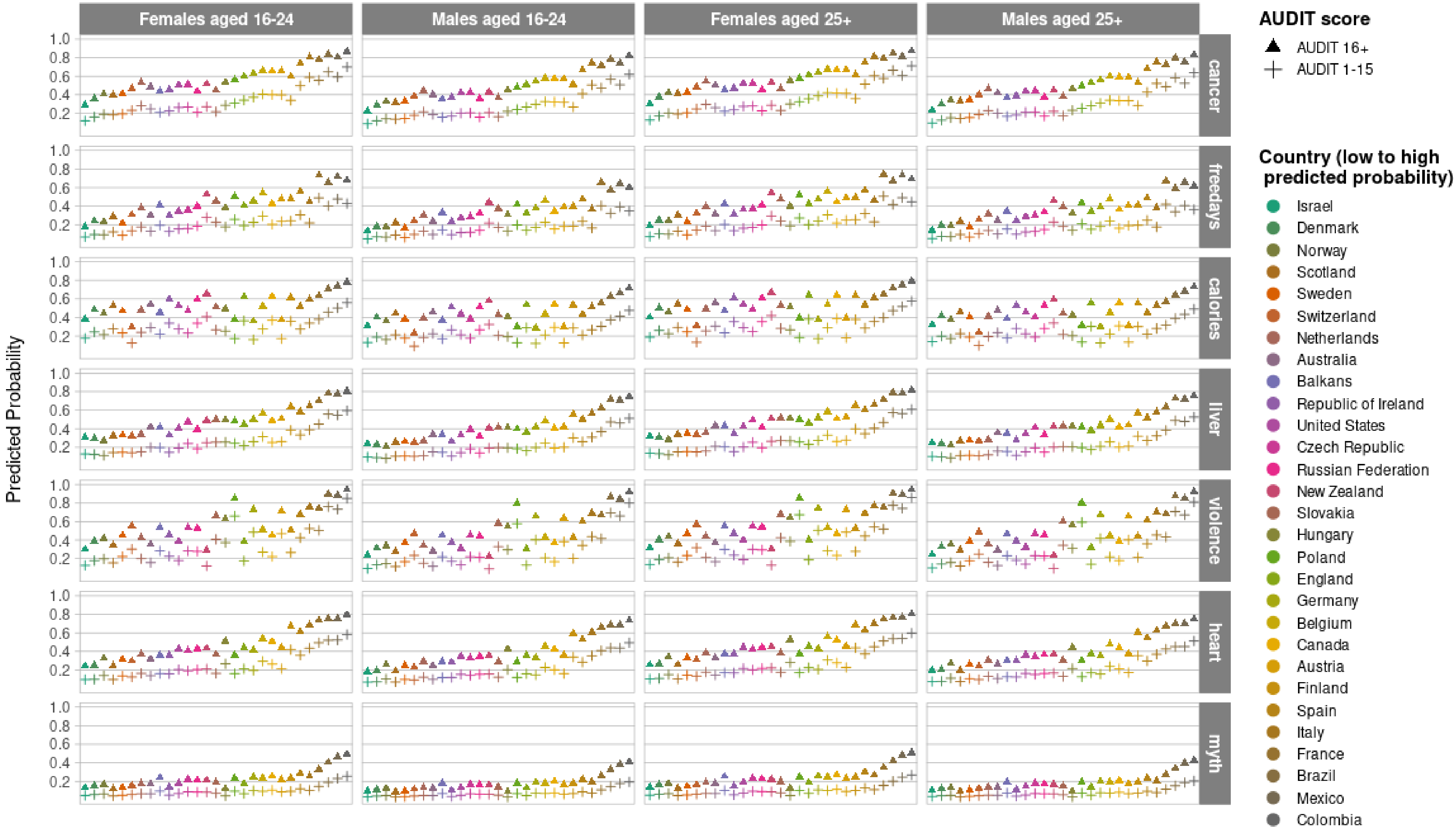

Figure 3: **Predicted probability of whether the information on the message labels is relevant to the respondents in each country and Audit score group, by age and sex *(interactive online plot: https://davidfoxcroft.github.io/publicimages/plot_relevant.html)***

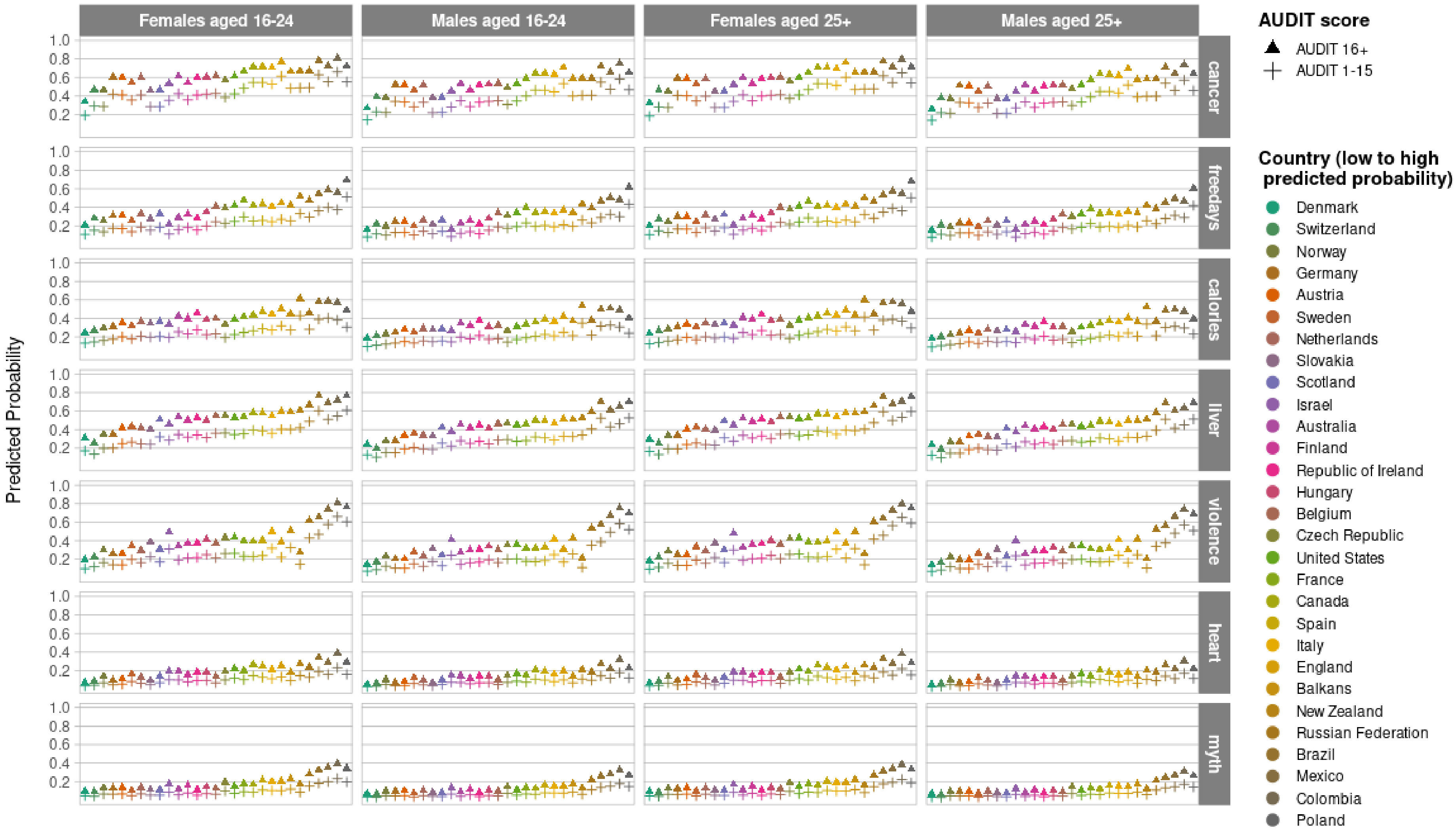

Figure 4: **Predicted probability of whether the information on the message labels would make respondents in each country and Audit score group <u>consider drinking less</u>, by age and sex *(interactive online plot: <u>https://davidfoxcroft.github.io/publicimages/plot_drinkless.html</u>)***

Appendix: Comparing observed and predicted probabilities by country

Observed data and predicted probability by country for 'new' measure[†]

	calories		cancer		freedays		heart		liver		myth		violence	
	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability
Australia	34.4%	25.3%	52.8%	47.0%	46.4%	31.5%	24.8%	16.8%	22.4%	15.3%	37.6%	24.0%	10.0%	3.5%
Austria	33.6%	19.6%	67.2%	55.3%	34.0%	25.9%	30.4%	21.5%	22.4%	14.0%	29.2%	20.7%	6.0%	3.1%
Balkans	36.8%	37.1%	57.6%	53.8%	61.6%	54.7%	30.0%	21.6%	37.2%	24.0%	51.2%	36.4%	14.4%	7.2%
Belgium	32.8%	21.9%	62.0%	52.0%	51.2%	38.3%	40.0%	26.1%	30.8%	18.0%	32.4%	21.1%	10.8%	5.3%
Brazil	52.0%	46.0%	55.2%	59.1%	69.6%	66.8%	34.8%	32.5%	39.6%	31.1%	39.6%	35.5%	10.0%	8.3%
Canada	41.2%	30.5%	59.6%	53.3%	54.0%	40.5%	29.2%	21.0%	32.4%	19.0%	34.0%	27.9%	8.8%	3.9%
Colombia	64.4%	56.1%	69.2%	64.3%	72.4%	66.8%	40.8%	34.6%	50.4%	42.4%	55.2%	46.9%	18.0%	8.8%
Czech Republic	41.2%	29.8%	64.0%	53.3%	58.8%	47.9%	32.4%	19.8%	26.8%	18.1%	54.4%	38.8%	9.2%	5.5%
Denmark	37.6%	28.0%	56.4%	42.7%	57.6%	44.4%	20.4%	13.1%	30.8%	16.2%	44.8%	28.0%	20.0%	11.1%
England	37.2%	19.9%	57.6%	50.5%	41.6%	28.4%	26.8%	18.4%	27.6%	16.8%	37.2%	26.1%	10.8%	4.3%
Finland	26.8%	20.7%	47.6%	39.4%	45.2%	32.6%	21.2%	12.5%	15.6%	11.0%	33.2%	19.3%	7.6%	4.0%
France	42.8%	27.4%	55.2%	43.6%	56.0%	41.8%	27.6%	16.9%	36.0%	23.6%	46.4%	32.8%	13.6%	6.4%
Germany	30.8%	21.9%	64.0%	56.0%	32.0%	27.2%	32.4%	23.0%	20.8%	13.2%	24.4%	18.4%	8.8%	3.8%
Hungary	38.4%	29.3%	53.6%	44.3%	54.8%	43.4%	22.0%	13.4%	29.6%	19.7%	44.0%	32.4%	14.0%	6.2%
Israel	46.4%	32.9%	66.8%	60.9%	69.6%	53.3%	33.6%	24.3%	31.6%	17.3%	35.2%	26.1%	5.2%	3.9%
Italy	41.6%	27.2%	66.8%	48.4%	65.6%	58.1%	42.0%	24.6%	47.2%	38.0%	48.4%	30.1%	15.6%	8.9%
Mexico	53.6%	42.4%	61.6%	54.9%	70.0%	61.9%	37.2%	26.3%	43.6%	31.5%	48.8%	38.0%	14.4%	7.7%
Netherlands	25.2%	27.6%	61.2%	52.3%	53.6%	40.8%	40.8%	26.5%	32.0%	18.9%	36.8%	21.2%	12.0%	5.8%
New Zealand	25.2%	23.0%	51.6%	48.4%	36.4%	33.7%	36.8%	23.9%	25.6%	18.3%	40.0%	31.1%	8.4%	4.8%
Norway	35.2%	24.7%	61.6%	52.3%	55.2%	45.0%	29.2%	18.8%	31.2%	20.5%	36.4%	26.3%	7.2%	3.9%
Poland	62.4%	48.2%	75.6%	65.0%	76.0%	63.8%	57.2%	43.3%	44.8%	33.7%	57.6%	47.7%	24.4%	17.0%
Republic of Ireland	40.0%	27.9%	52.4%	45.8%	47.6%	39.1%	26.0%	15.6%	34.8%	24.3%	38.8%	29.6%	7.2%	4.1%
Russian Federation	40.0%	26.8%	71.2%	61.6%	67.6%	56.9%	18.8%	12.2%	36.8%	23.4%	39.6%	27.8%	17.2%	7.7%
Scotland	33.6%	24.9%	55.6%	45.9%	37.6%	29.5%	18.8%	14.3%	23.6%	16.0%	37.2%	26.2%	9.6%	4.4%
Slovakia	50.0%	37.6%	59.2%	50.2%	71.2%	55.9%	35.6%	20.0%	32.0%	16.6%	54.0%	37.2%	10.8%	7.1%
Spain	37.6%	27.1%	56.4%	49.6%	50.8%	41.7%	29.6%	20.6%	28.4%	19.7%	37.6%	27.1%	9.6%	4.9%
Sweden	32.8%	22.8%	64.0%	54.1%	53.2%	41.0%	26.0%	18.5%	33.6%	23.0%	36.0%	22.6%	8.0%	3.9%
Switzerland	25.6%	17.1%	56.4%	51.1%	34.0%	32.2%	26.4%	17.9%	21.6%	12.2%	28.4%	20.8%	8.4%	5.9%
United States	42.8%	27.4%	61.2%	46.5%	56.0%	46.3%	27.6%	16.8%	31.6%	19.2%	39.2%	29.0%	7.2%	4.4%

[†] predicted probability estimates are aggregates across equally weighted age, sex and AUDIT score categories, whereas observed data may be skewed to particular demographic groups

Table A1: Observed data and model predicted probabilities by country for the ‘new’ outcome measure

Observed data and predicted probability by country for 'believe' measure[1]														
	calories		cancer		freedays		heart		liver		myth		violence	
	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability
Australia	84.8%	89.5%	70.4%	78.4%	80.8%	90.7%	80.0%	85.1%	86.4%	90.8%	61.2%	71.6%	92.0%	95.8%
Austria	82.8%	88.3%	66.4%	77.3%	76.4%	84.9%	74.0%	81.4%	83.2%	88.1%	62.8%	71.5%	93.6%	95.9%
Balkans	71.2%	80.2%	60.0%	66.4%	71.6%	79.2%	71.2%	80.1%	68.8%	77.8%	49.6%	57.9%	90.8%	94.4%
Belgium	81.2%	89.0%	67.6%	76.7%	78.4%	88.2%	76.8%	82.6%	81.6%	90.2%	71.2%	76.6%	91.6%	94.4%
Brazil	77.2%	81.9%	78.0%	79.9%	69.2%	71.8%	78.4%	79.9%	83.2%	86.1%	53.6%	60.1%	94.8%	97.1%
Canada	81.6%	89.2%	70.0%	79.7%	84.8%	90.0%	86.0%	90.4%	81.6%	89.8%	66.8%	70.8%	88.4%	96.3%
Colombia	65.6%	73.2%	67.2%	73.3%	61.2%	73.7%	67.2%	78.0%	66.4%	72.8%	49.2%	57.4%	94.4%	96.4%
Czech Republic	75.6%	85.7%	58.8%	71.4%	72.0%	83.3%	64.8%	78.3%	77.2%	83.8%	42.4%	50.6%	95.2%	96.5%
Denmark	77.6%	88.7%	62.4%	78.6%	74.8%	88.1%	74.8%	86.1%	76.8%	87.0%	49.6%	64.3%	68.0%	83.9%
England	80.0%	90.0%	75.2%	79.3%	84.0%	88.5%	82.0%	87.0%	85.2%	89.6%	62.4%	71.5%	93.2%	96.8%
Finland	82.4%	91.8%	76.8%	83.9%	79.2%	90.1%	83.6%	91.0%	84.0%	92.6%	61.2%	69.4%	98.0%	97.7%
France	78.4%	88.6%	73.2%	82.0%	84.0%	89.9%	80.0%	89.2%	75.6%	85.3%	54.8%	63.6%	90.8%	95.9%
Germany	83.6%	88.6%	64.0%	72.6%	82.4%	87.8%	78.0%	81.1%	85.2%	87.9%	65.6%	74.1%	93.2%	95.9%
Hungary	80.0%	87.7%	64.4%	76.7%	81.2%	85.7%	70.0%	78.7%	78.4%	87.7%	57.6%	64.2%	88.8%	95.4%
Israel	73.6%	81.4%	56.0%	62.5%	63.2%	70.4%	66.0%	73.5%	72.4%	81.4%	61.6%	67.6%	93.2%	95.3%
Italy	77.6%	85.8%	72.0%	79.3%	62.4%	70.8%	72.4%	86.7%	66.8%	78.3%	58.0%	67.1%	88.0%	92.9%
Mexico	72.8%	81.2%	60.4%	68.4%	65.6%	75.1%	67.6%	76.3%	67.2%	76.9%	48.8%	55.5%	92.4%	95.4%
Netherlands	84.4%	86.0%	60.0%	73.8%	72.4%	84.3%	70.0%	84.3%	77.6%	88.5%	66.0%	72.3%	88.8%	95.7%
New Zealand	89.2%	90.4%	71.6%	75.1%	85.6%	89.5%	76.4%	79.5%	91.2%	91.5%	58.4%	59.2%	97.2%	97.3%
Norway	80.8%	87.7%	73.2%	79.8%	85.6%	90.4%	78.4%	85.8%	83.2%	88.4%	64.0%	71.6%	95.2%	97.1%
Poland	58.8%	71.3%	42.0%	52.9%	61.2%	68.0%	56.8%	65.7%	72.4%	80.6%	54.8%	55.1%	89.2%	93.1%
Republic of Ireland	76.0%	84.9%	67.6%	73.7%	80.0%	86.6%	74.4%	83.7%	78.4%	82.7%	60.4%	65.0%	93.6%	96.2%
Russian Federation	71.2%	82.4%	48.0%	58.7%	68.0%	81.1%	74.8%	82.8%	65.6%	76.3%	51.2%	59.7%	91.2%	94.7%
Scotland	77.2%	85.6%	63.2%	71.0%	86.4%	88.3%	76.8%	84.6%	80.0%	88.4%	59.2%	67.3%	92.8%	95.7%
Slovakia	64.8%	75.6%	59.6%	68.8%	66.0%	76.2%	62.0%	64.0%	76.8%	83.0%	40.8%	55.6%	94.8%	95.8%
Spain	79.2%	86.9%	73.2%	80.1%	76.4%	84.1%	76.8%	83.7%	78.0%	85.3%	65.2%	71.7%	92.8%	96.3%
Sweden	78.8%	86.0%	68.4%	76.1%	74.8%	84.0%	81.2%	86.9%	79.2%	87.0%	59.2%	70.8%	94.8%	97.1%
Switzerland	74.0%	84.8%	61.2%	69.3%	76.0%	79.8%	70.4%	79.8%	80.4%	85.9%	58.0%	63.1%	84.8%	92.1%
United States	82.0%	89.8%	66.8%	78.2%	83.6%	87.8%	80.0%	87.3%	80.4%	87.6%	59.6%	68.2%	93.6%	94.4%

[1] predicted probability estimates are aggregates across equally weighted age, sex and AUDIT score categories, whereas observed data may be skewed to particular demographic groups

Table A2: Observed data and model predicted probabilities by country for the 'believe' outcome measure

Observed data and predicted probability by country for 'relevant' measure[†]														
	calories		cancer		freedays		heart		liver		myth		violence	
	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability
Australia	42.8%	41.5%	36.8%	36.6%	28.0%	21.4%	28.0%	22.7%	31.6%	31.0%	14.4%	11.7%	25.2%	25.6%
Austria	19.6%	27.2%	36.4%	52.4%	27.2%	35.4%	22.4%	32.8%	27.6%	38.4%	16.8%	15.2%	48.8%	59.0%
Balkans	28.8%	33.7%	28.0%	32.2%	26.8%	30.0%	27.2%	26.0%	26.0%	30.4%	17.2%	16.7%	37.2%	40.8%
Belgium	29.6%	39.6%	42.8%	53.1%	33.6%	41.6%	34.0%	41.6%	35.2%	44.0%	13.6%	16.6%	36.0%	39.3%
Brazil	39.6%	57.8%	56.8%	74.1%	38.8%	52.8%	48.8%	63.6%	49.2%	66.7%	25.6%	29.8%	66.8%	82.8%
Canada	33.6%	49.7%	35.6%	52.7%	24.0%	31.5%	28.0%	38.5%	29.6%	36.9%	15.6%	18.1%	19.6%	33.7%
Colombia	45.2%	66.8%	62.4%	77.9%	40.4%	55.3%	49.6%	68.6%	52.8%	69.8%	30.4%	37.4%	71.2%	89.3%
Czech Republic	34.4%	35.0%	34.4%	38.7%	22.4%	25.8%	20.8%	29.8%	28.4%	35.8%	14.4%	15.6%	40.0%	40.9%
Denmark	33.2%	36.4%	25.6%	26.0%	9.6%	16.7%	17.6%	17.5%	16.8%	20.8%	9.6%	10.5%	28.8%	28.5%
England	36.0%	49.1%	34.0%	46.8%	23.2%	29.6%	24.8%	32.5%	28.0%	33.3%	9.2%	12.0%	25.6%	27.9%
Finland	40.0%	48.9%	40.0%	46.9%	28.8%	35.8%	41.6%	54.4%	37.6%	50.8%	17.2%	16.5%	32.0%	38.7%
France	41.2%	50.6%	49.6%	66.7%	47.6%	60.8%	48.4%	61.3%	47.2%	57.3%	20.0%	23.9%	49.2%	61.9%
Germany	25.2%	26.0%	35.6%	49.8%	26.8%	34.1%	23.2%	30.5%	28.8%	38.1%	14.0%	17.3%	46.8%	60.7%
Hungary	34.8%	37.2%	43.2%	40.9%	34.4%	27.9%	38.4%	38.8%	36.8%	37.5%	20.4%	8.1%	44.8%	49.8%
Israel	19.2%	28.0%	12.0%	20.3%	9.6%	12.1%	12.0%	16.9%	9.6%	21.6%	8.4%	8.9%	17.2%	21.4%
Italy	30.4%	46.6%	52.0%	69.3%	28.0%	33.1%	43.6%	55.8%	41.6%	51.4%	18.0%	17.7%	50.8%	63.8%
Mexico	47.6%	61.7%	54.0%	69.5%	46.8%	59.4%	50.0%	63.6%	51.6%	65.9%	30.0%	34.7%	65.2%	80.4%
Netherlands	34.8%	35.8%	34.8%	40.4%	26.4%	27.5%	30.4%	26.6%	26.4%	24.6%	15.2%	11.9%	32.4%	31.2%
New Zealand	44.4%	52.9%	32.8%	39.4%	32.8%	40.3%	26.4%	32.2%	30.4%	37.1%	16.0%	14.7%	13.2%	20.5%
Norway	28.0%	32.7%	25.2%	29.7%	14.8%	16.1%	21.2%	23.3%	17.2%	19.0%	14.0%	11.5%	25.2%	30.8%
Poland	21.6%	27.4%	27.6%	43.5%	30.4%	37.9%	24.0%	26.0%	31.2%	36.2%	14.0%	16.5%	51.6%	74.8%
Republic of Ireland	38.0%	46.5%	29.2%	34.0%	21.2%	21.1%	22.4%	25.8%	21.2%	23.7%	12.0%	9.5%	32.0%	34.1%
Russian Federation	37.6%	46.5%	26.4%	32.6%	26.4%	29.2%	28.4%	31.7%	24.4%	29.1%	14.8%	15.0%	33.2%	40.3%
Scotland	31.2%	40.1%	23.6%	28.8%	18.4%	20.5%	17.2%	17.0%	18.8%	23.4%	9.2%	8.0%	26.0%	25.1%
Slovakia	33.6%	38.9%	37.6%	33.2%	29.6%	34.1%	35.6%	26.4%	41.2%	37.7%	14.4%	12.9%	40.4%	53.5%
Spain	32.0%	39.4%	48.0%	61.5%	34.4%	42.9%	40.0%	48.4%	36.4%	45.8%	19.2%	20.3%	41.6%	55.0%
Sweden	27.6%	35.0%	24.4%	30.2%	11.2%	15.1%	19.2%	22.6%	18.8%	23.7%	11.6%	9.2%	30.0%	33.6%
Switzerland	14.4%	21.0%	25.6%	35.0%	24.8%	22.0%	15.6%	21.0%	18.4%	23.3%	9.2%	10.6%	35.6%	42.8%
United States	37.2%	39.9%	33.2%	38.3%	24.4%	25.0%	30.8%	31.5%	30.0%	29.9%	15.2%	12.4%	26.0%	28.2%

[†] predicted probability estimates are aggregates across equally weighted age, sex and AUDIT score categories, whereas observed data may be skewed to particular demographic groups

Table A3: Observed data and model predicted probabilities by country for the ‘relevant’ outcome measure

Observed data and predicted probability by country for 'drinkless' measure†

	calories		cancer		freedays		heart		liver		myth		violence	
	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability	observed data	predicted probability
Australia	41.6%	31.4%	49.2%	48.9%	32.0%	20.5%	22.0%	13.0%	42.8%	41.1%	17.6%	8.0%	26.0%	24.4%
Austria	25.6%	25.3%	36.4%	47.8%	24.0%	22.0%	6.8%	7.3%	29.2%	30.6%	11.2%	9.3%	21.2%	18.2%
Balkans	27.2%	33.6%	40.0%	54.3%	26.8%	31.1%	16.4%	12.4%	33.6%	46.4%	17.2%	15.9%	31.6%	38.9%
Belgium	27.2%	29.3%	43.6%	49.0%	28.8%	30.3%	11.2%	9.1%	38.8%	42.4%	10.0%	8.6%	30.8%	27.0%
Brazil	35.6%	45.5%	54.8%	68.0%	33.2%	42.4%	26.0%	24.1%	52.0%	65.6%	22.0%	23.4%	42.0%	53.1%
Canada	25.6%	32.6%	41.6%	60.2%	25.6%	31.0%	20.8%	18.7%	38.8%	45.9%	13.2%	11.6%	25.2%	28.8%
Colombia	38.4%	44.7%	58.8%	70.8%	37.6%	43.6%	25.2%	28.6%	49.6%	60.3%	29.6%	29.1%	58.8%	70.9%
Czech Republic	33.2%	24.3%	48.0%	44.9%	27.6%	28.2%	16.4%	13.0%	40.4%	42.7%	13.2%	13.4%	39.6%	32.1%
Denmark	27.6%	17.2%	28.8%	24.2%	10.8%	14.4%	7.6%	4.6%	20.0%	22.0%	8.0%	6.7%	20.8%	13.2%
England	33.6%	38.2%	44.8%	66.4%	27.6%	33.1%	17.6%	17.4%	36.4%	46.8%	9.2%	13.9%	26.4%	28.0%
Finland	30.4%	29.3%	40.8%	42.4%	25.6%	23.1%	18.4%	10.5%	38.4%	38.2%	15.6%	10.6%	31.2%	26.9%
France	29.6%	30.6%	42.4%	54.3%	30.4%	35.7%	12.4%	13.5%	34.4%	41.6%	14.4%	12.3%	27.2%	29.1%
Germany	28.8%	22.6%	34.4%	48.3%	22.4%	22.0%	10.8%	6.4%	23.6%	25.2%	12.0%	8.9%	27.6%	18.3%
Hungary	31.2%	28.3%	46.4%	48.4%	34.0%	25.1%	21.2%	12.4%	40.4%	37.7%	20.4%	9.7%	40.4%	30.8%
Israel	24.0%	24.4%	35.6%	41.7%	16.0%	14.9%	17.2%	13.2%	26.4%	34.6%	17.2%	12.0%	29.6%	37.4%
Italy	28.4%	33.5%	52.8%	58.7%	32.4%	30.3%	21.6%	14.5%	46.0%	42.3%	19.6%	14.0%	37.6%	38.1%
Mexico	41.2%	46.6%	50.0%	61.2%	41.6%	46.3%	22.4%	20.2%	48.0%	56.8%	28.0%	25.3%	55.6%	63.0%
Netherlands	31.6%	26.1%	39.2%	47.4%	28.8%	23.5%	14.4%	8.5%	32.8%	30.5%	12.8%	9.3%	30.0%	21.2%
New Zealand	39.6%	49.2%	45.2%	54.9%	37.2%	39.6%	21.2%	18.8%	44.8%	48.1%	12.8%	11.6%	18.0%	19.2%
Norway	22.8%	21.0%	32.0%	34.9%	19.2%	17.5%	12.8%	9.2%	24.4%	25.1%	13.2%	9.0%	22.8%	21.2%
Poland	32.8%	37.0%	48.4%	60.9%	39.2%	57.3%	19.6%	20.6%	55.2%	65.9%	23.6%	24.8%	48.0%	65.5%
Republic of Ireland	34.0%	33.9%	41.6%	47.5%	24.0%	19.9%	19.2%	12.5%	39.2%	40.6%	11.2%	7.6%	30.0%	27.5%
Russian Federation	32.0%	34.5%	47.2%	55.0%	32.0%	35.5%	17.6%	16.6%	46.8%	54.7%	23.6%	19.7%	46.4%	49.3%
Scotland	28.0%	25.9%	32.4%	34.8%	26.0%	23.6%	10.8%	9.1%	34.4%	38.5%	11.2%	7.6%	29.2%	22.1%
Slovakia	29.2%	24.9%	39.2%	34.7%	25.6%	19.6%	16.8%	6.4%	35.6%	29.8%	14.4%	7.8%	31.6%	28.5%
Spain	33.2%	35.2%	48.4%	60.2%	30.4%	31.9%	21.2%	16.9%	38.4%	45.0%	17.2%	14.7%	27.6%	29.8%
Sweden	21.2%	22.8%	34.4%	42.2%	16.0%	17.8%	11.6%	11.1%	26.8%	32.5%	8.4%	6.9%	24.0%	25.0%
Switzerland	18.8%	19.1%	26.4%	35.5%	22.4%	19.6%	5.2%	5.7%	18.8%	17.8%	8.0%	6.0%	18.8%	15.6%
United States	31.2%	28.3%	43.6%	48.7%	26.4%	30.7%	22.8%	15.3%	40.8%	40.9%	14.8%	10.2%	27.2%	32.5%

† predicted probability estimates are aggregates across equally weighted age, sex and AUDIT score categories, whereas observed data may be skewed to particular demographic groups

Table A4: Observed data and model predicted probabilities by country for the ‘drinkless’ outcome measure

Appendix: Model diagnostics

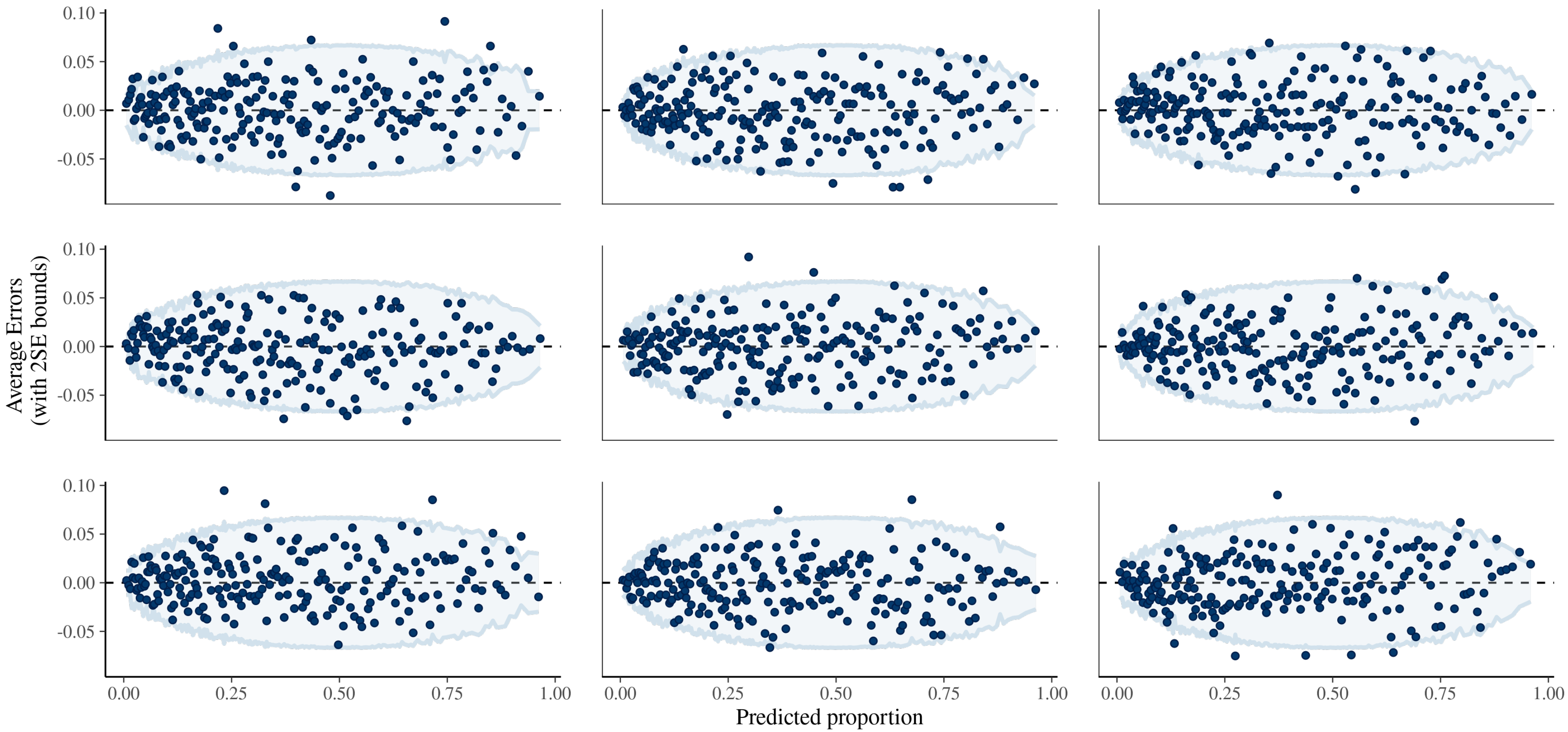

Figure A1: Binned error plot for the 'new' outcome measure

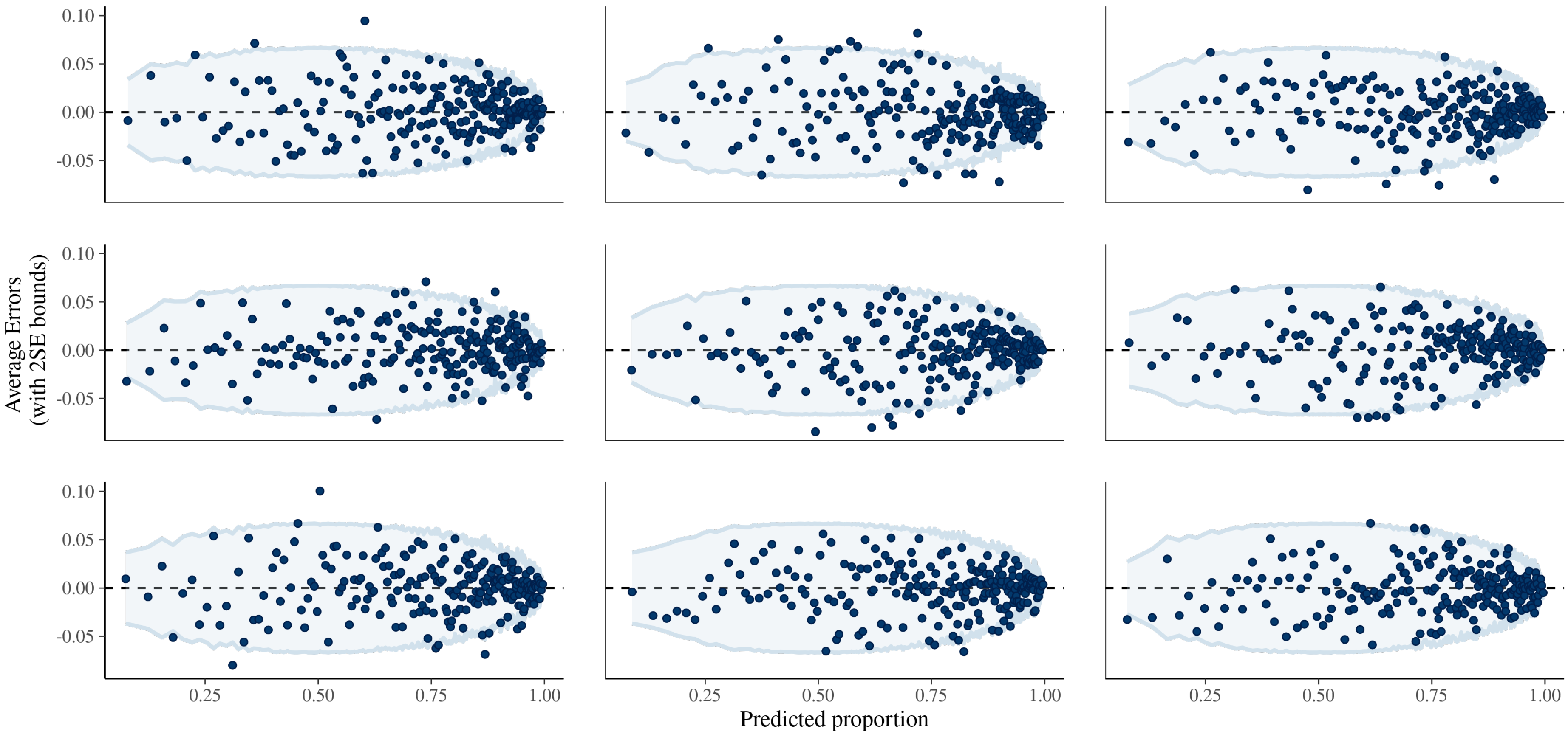

Figure A2: Binned error plot for the 'believe' outcome measure

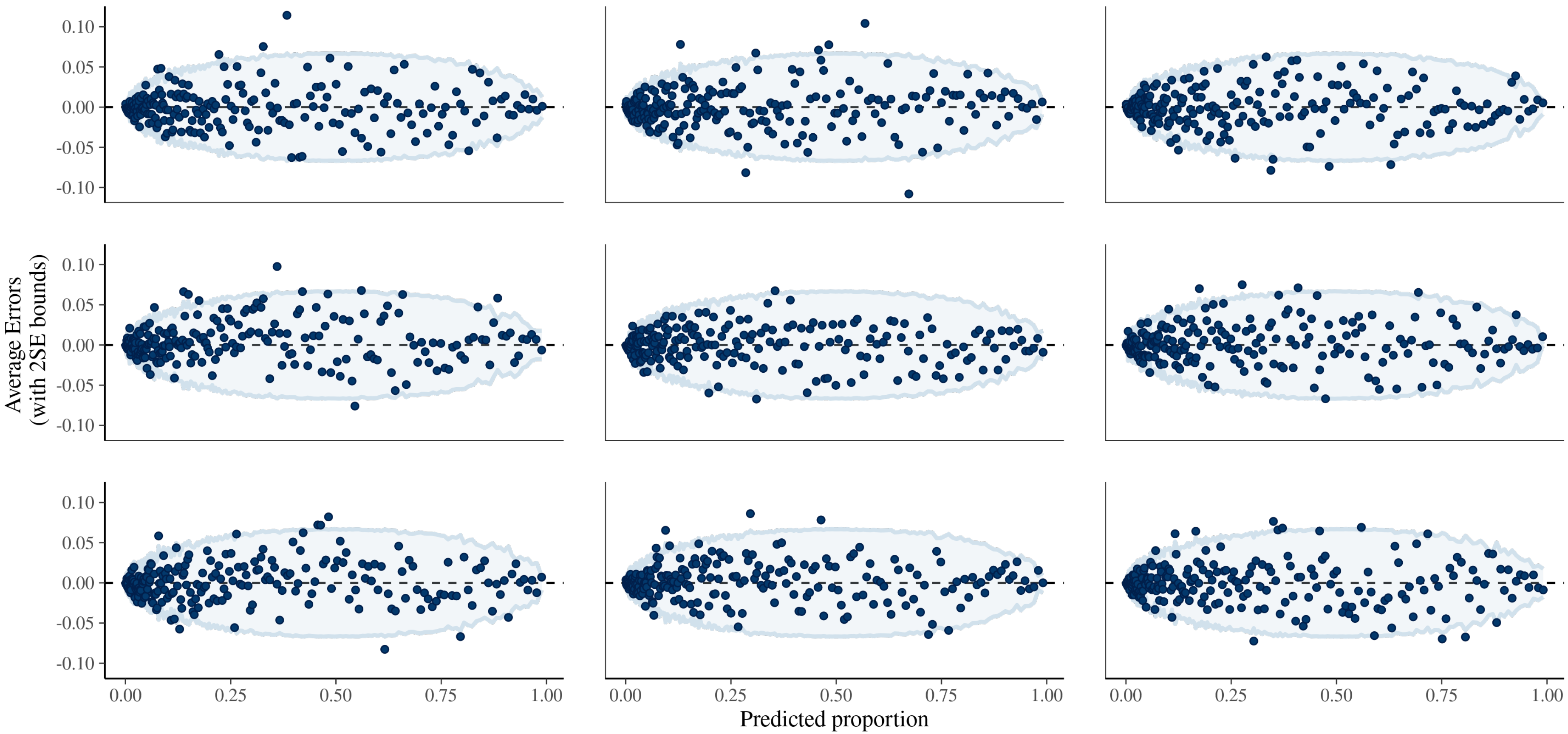

Figure A3: Binned error plot for the 'relevant' outcome measure

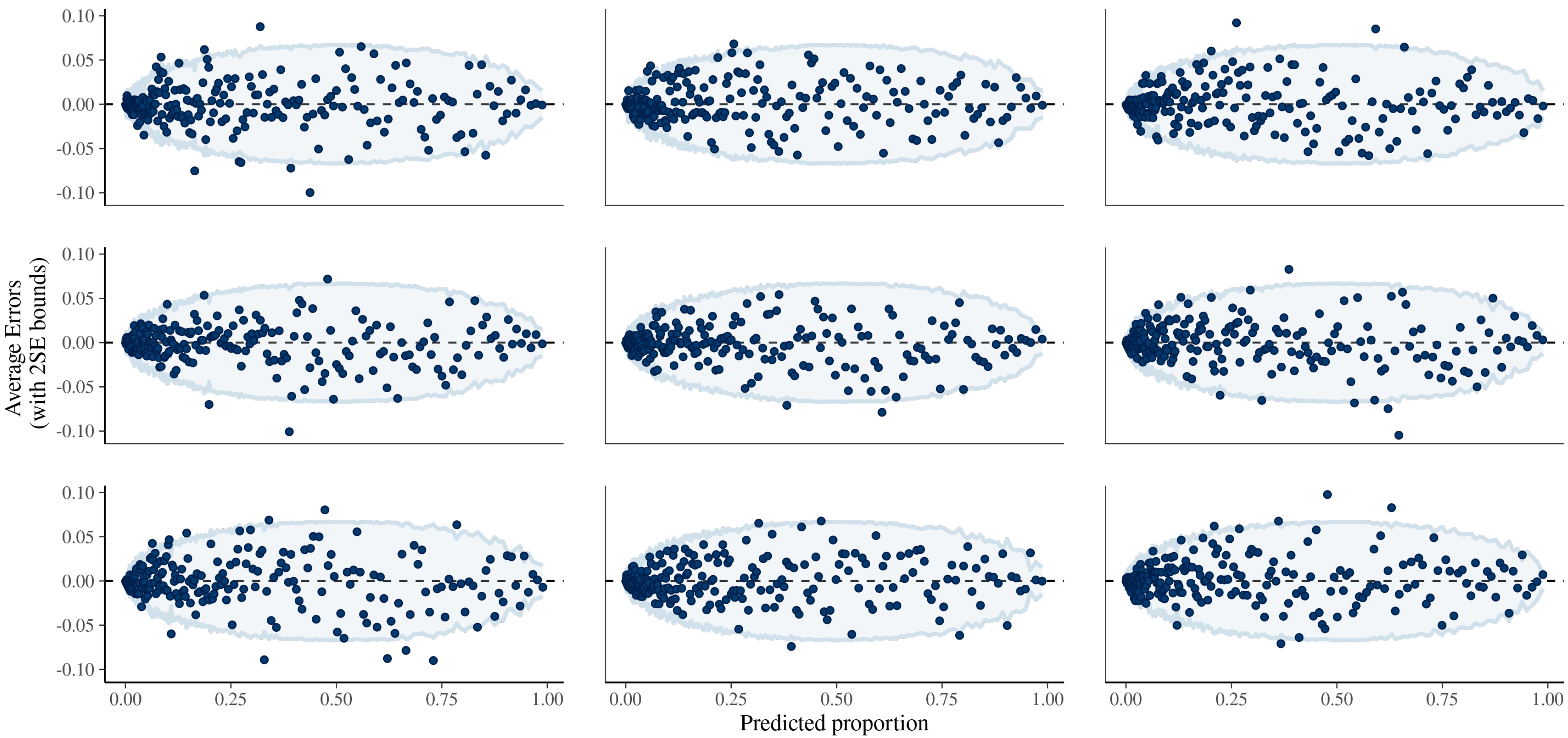

Figure A4: Binned error plot for the 'drinkless' outcome measure

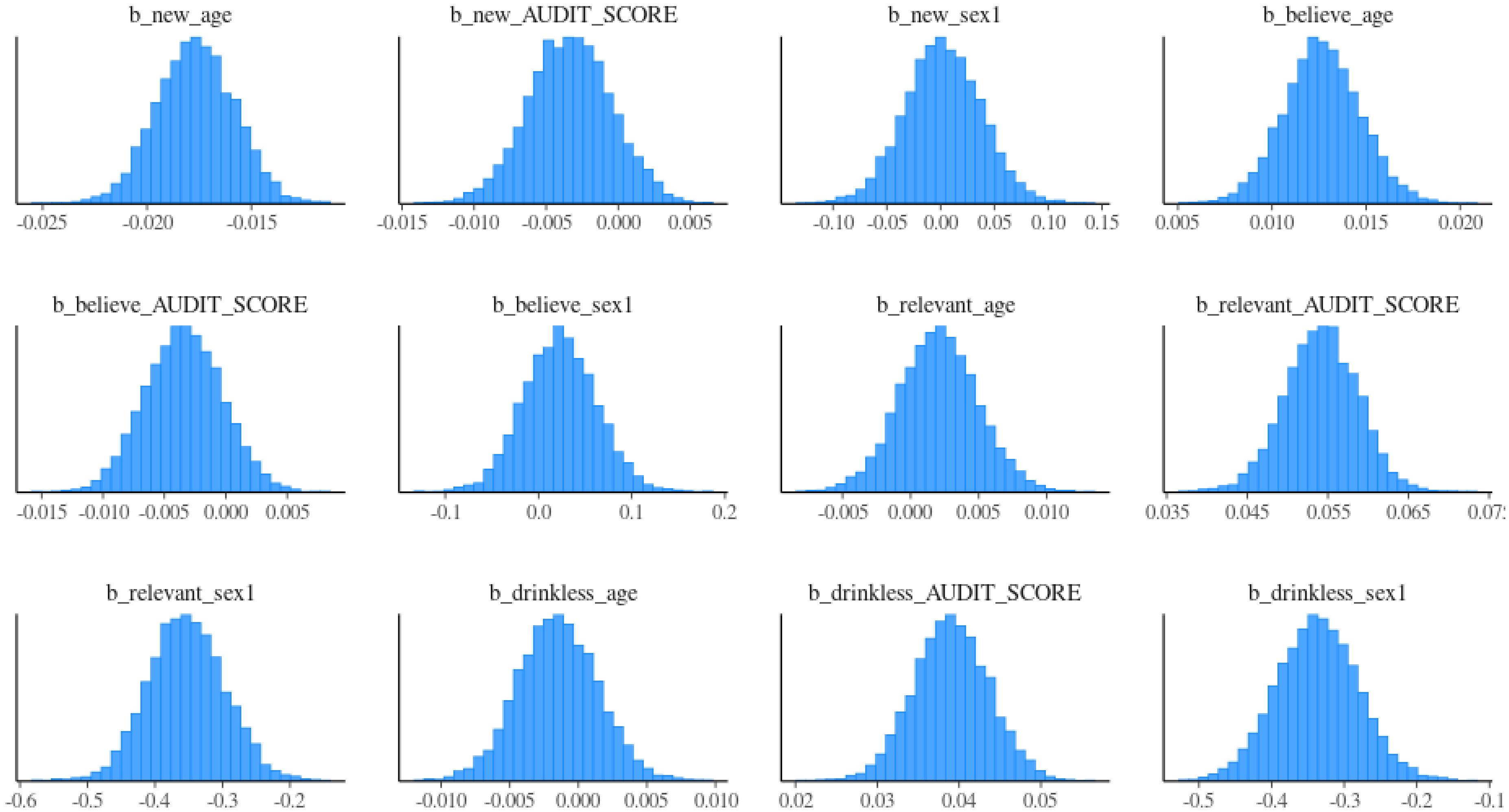

Figure A5: Posterior Distributions

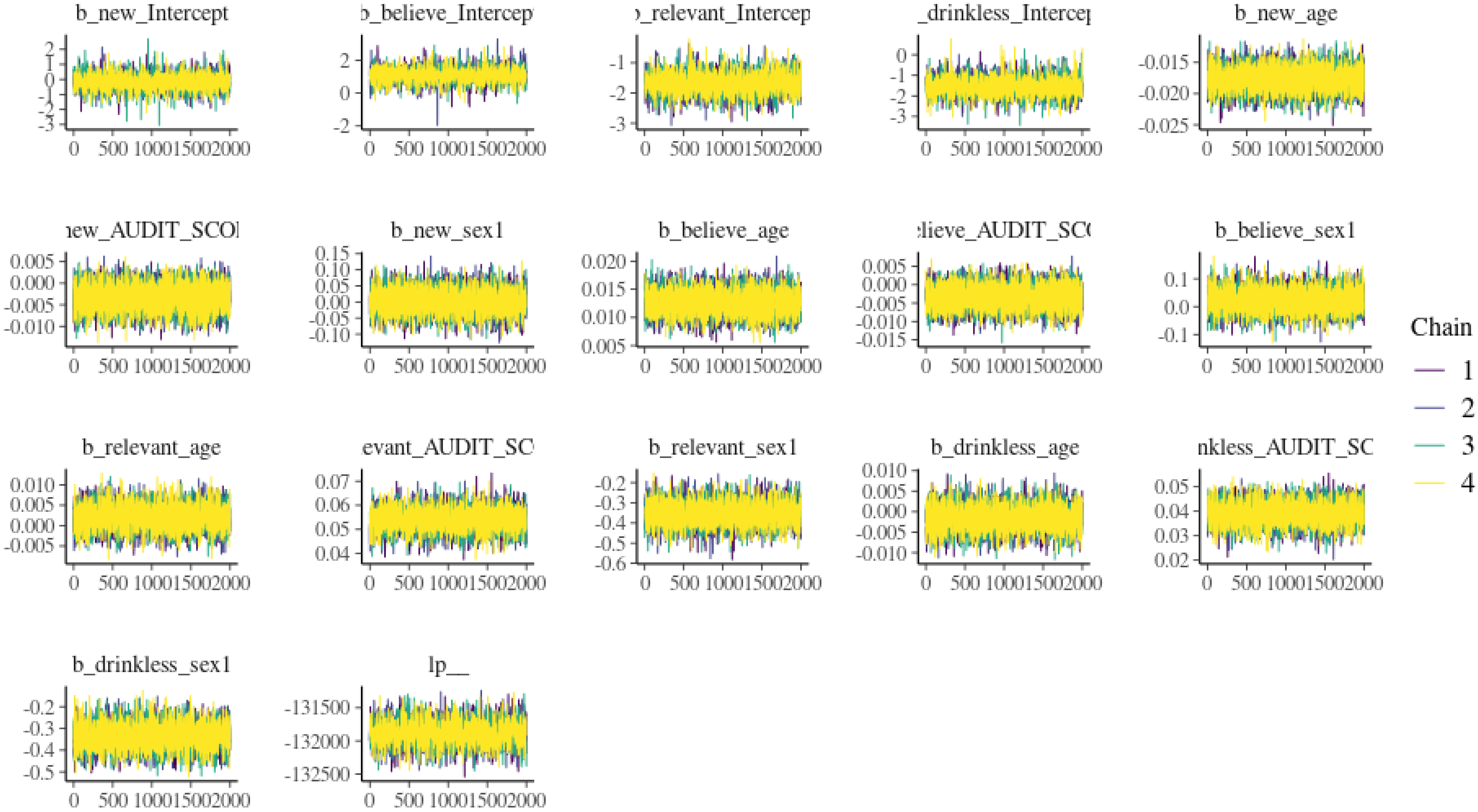

Figure A6: Traceplots

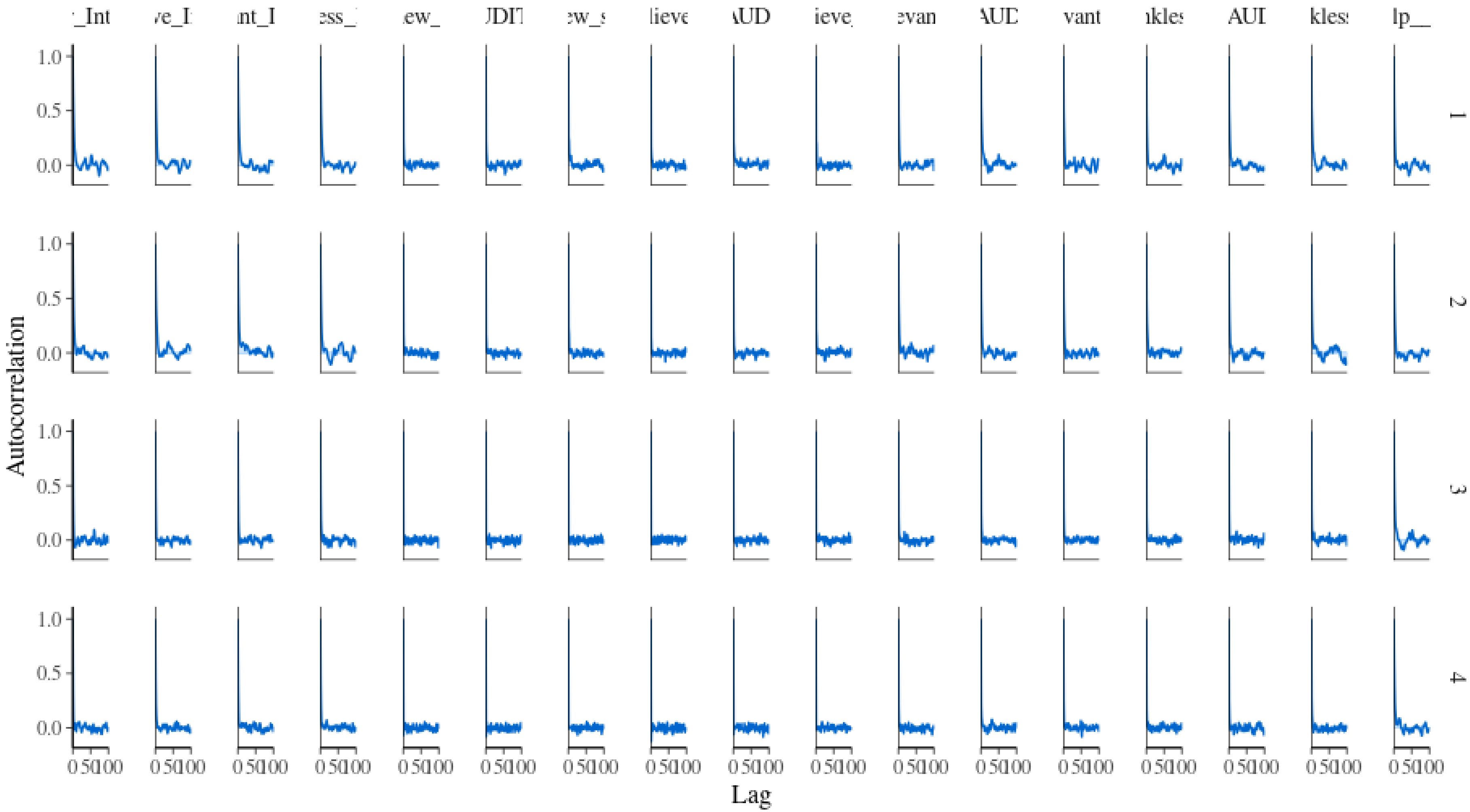

Figure A7: Autocorrelation plots

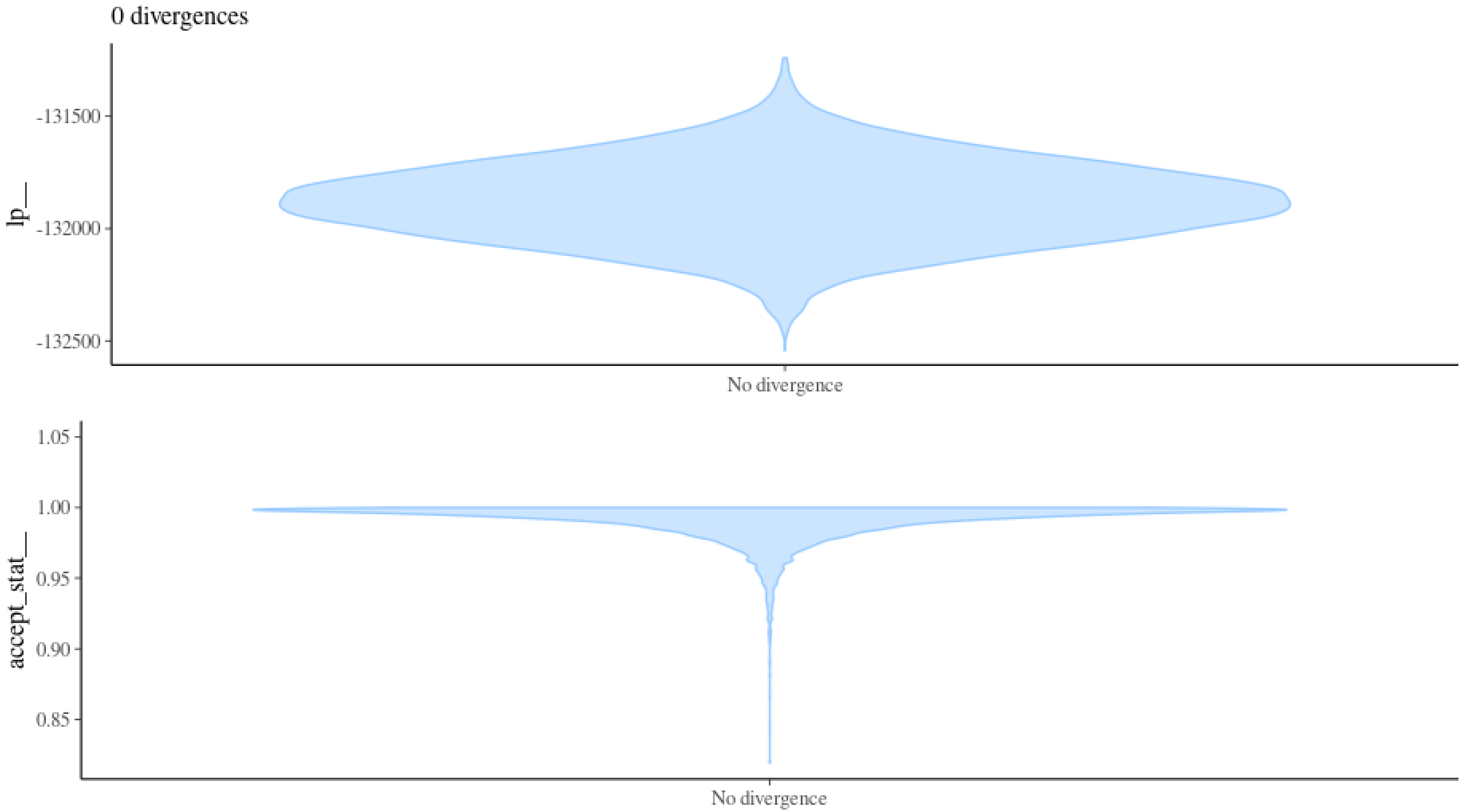

Figure A8: Divergence plots

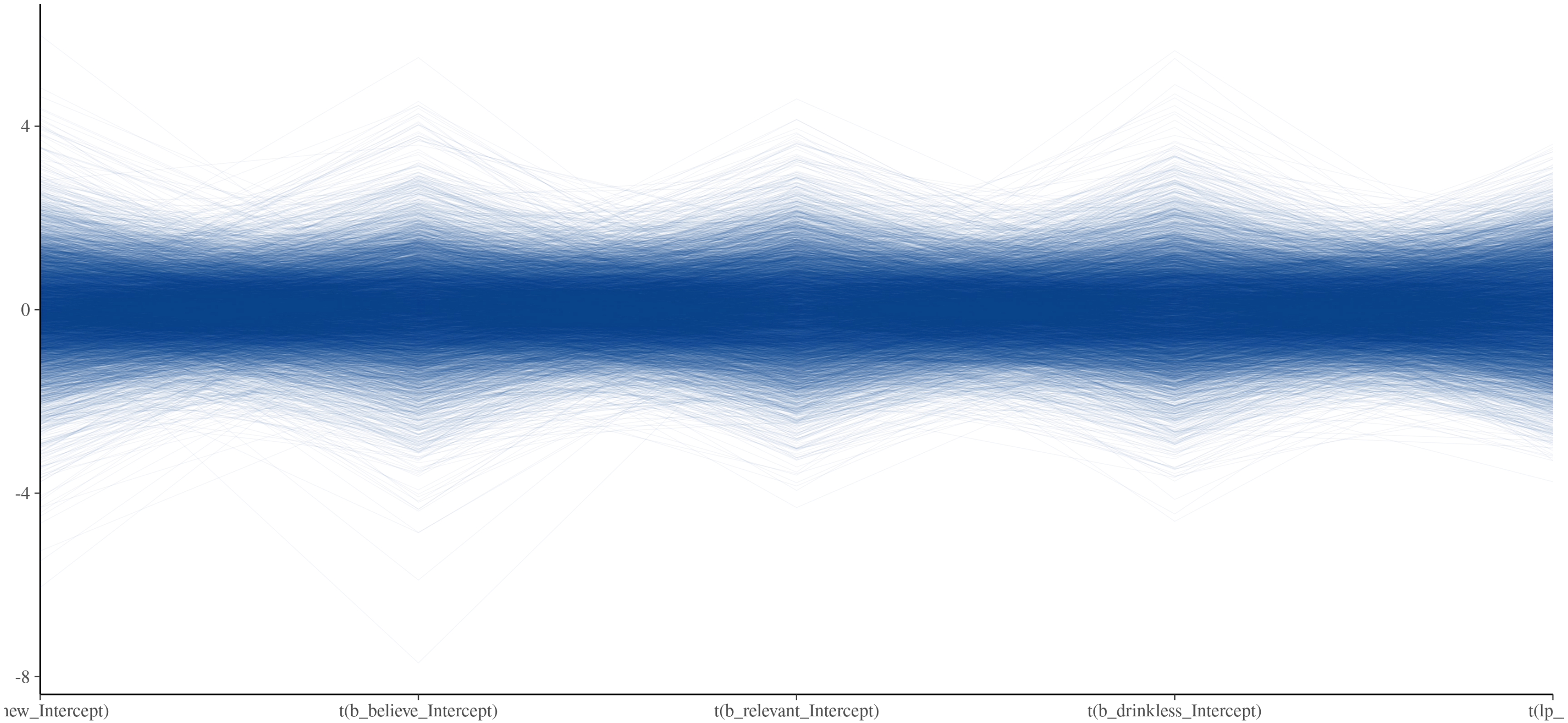

Figure A10: Parallel co-ordinates plot – model intercepts

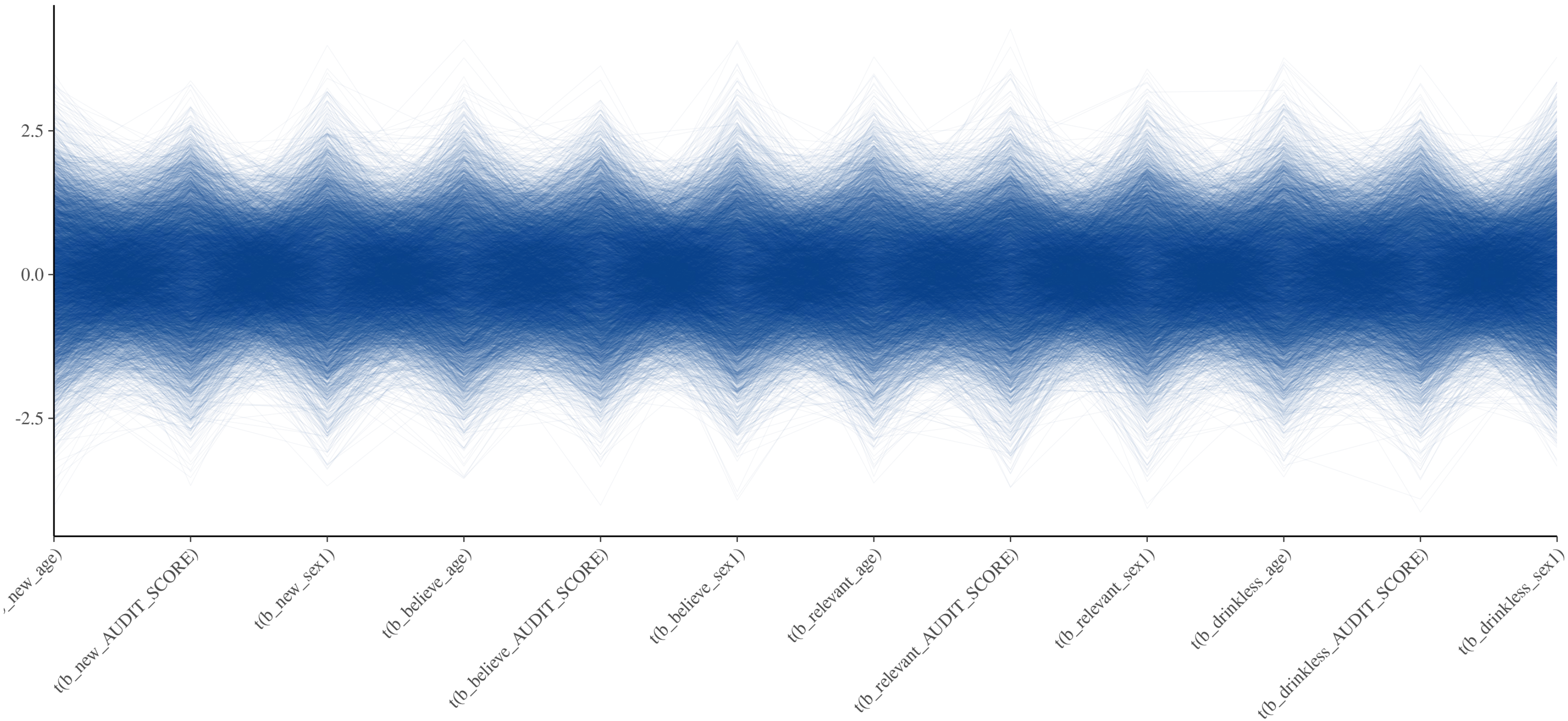

Figure A10: Parallel co-ordinates plot – model *b* coefficients

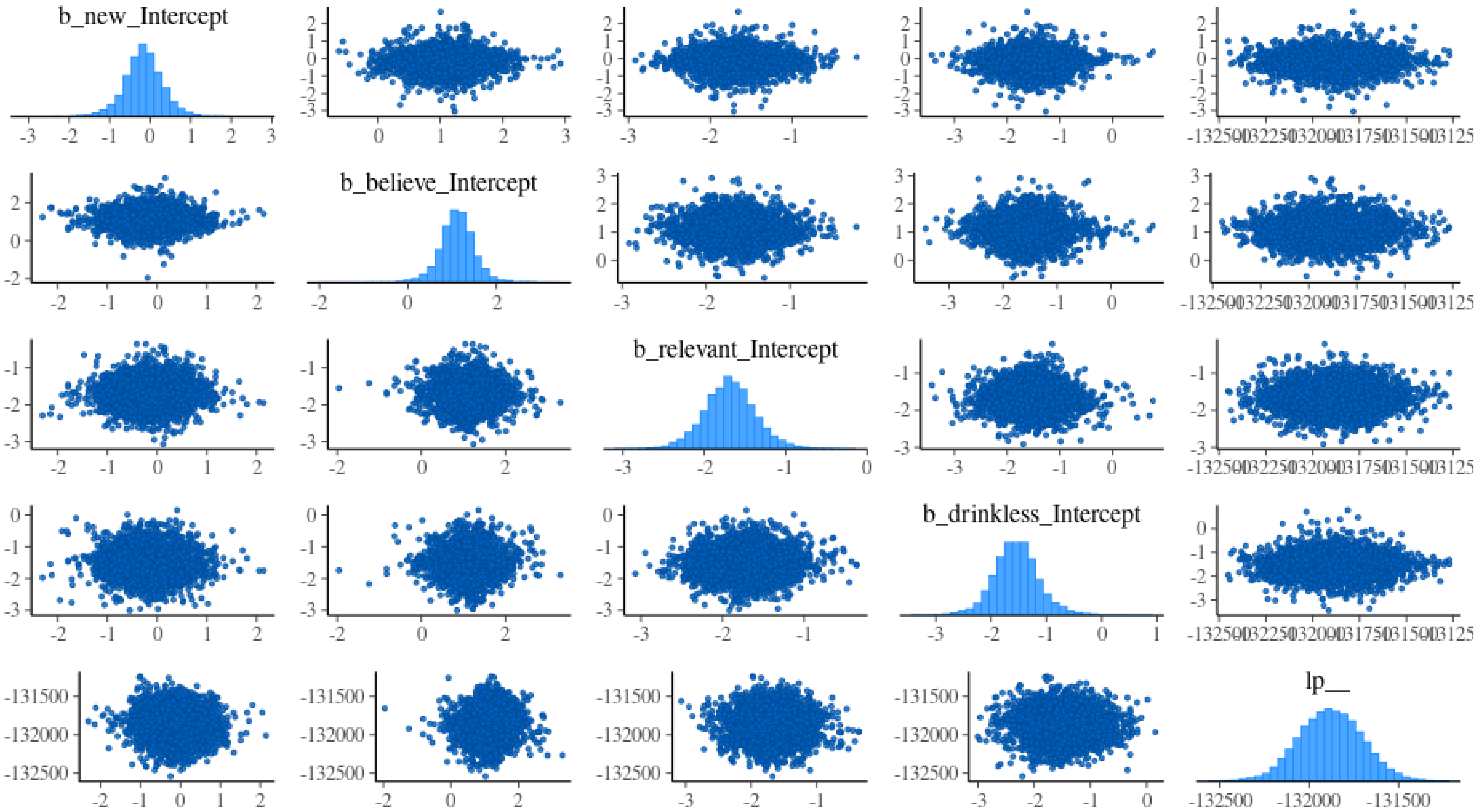

Figure A11: Pair plots (model intercepts)

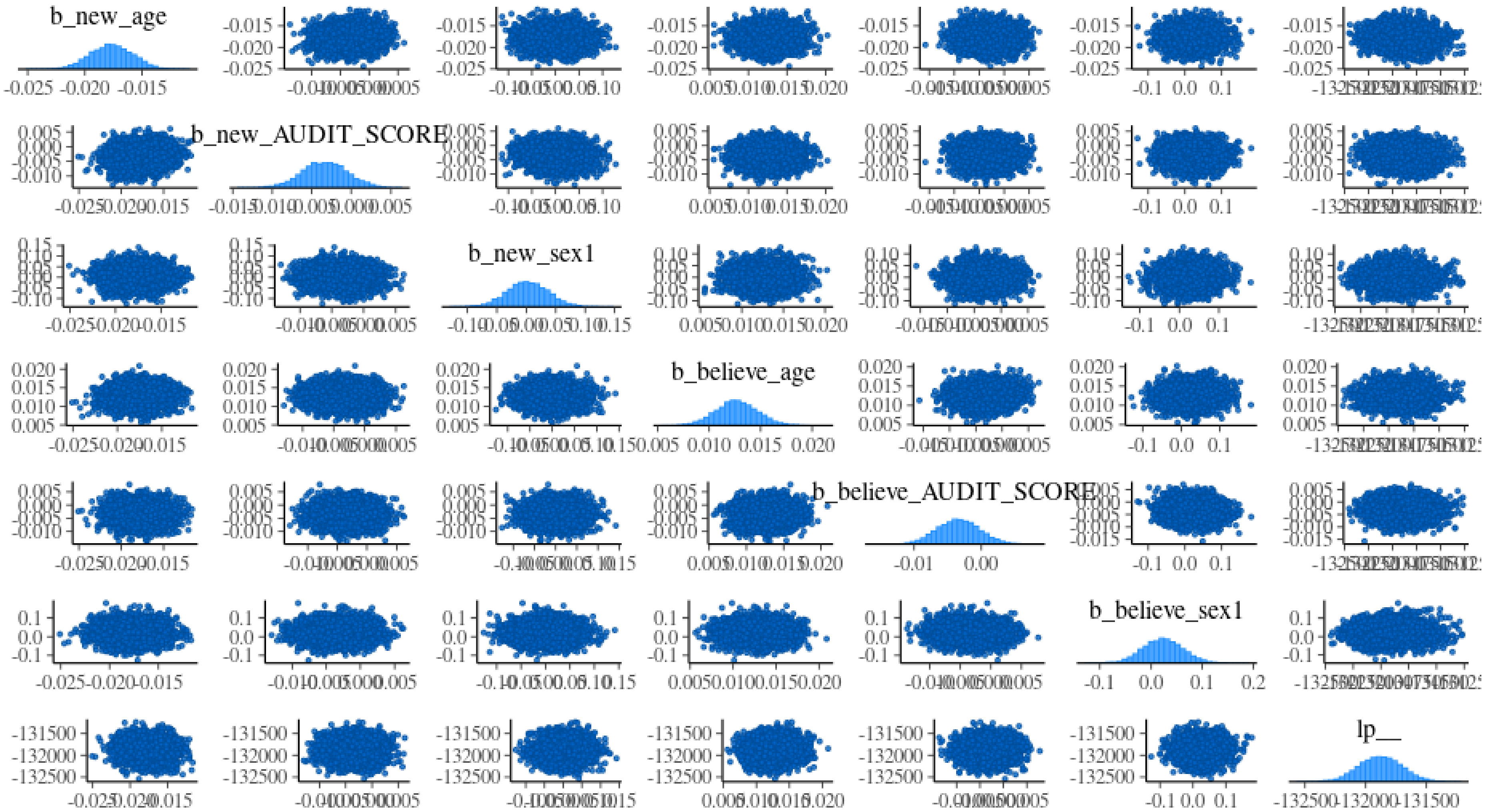

Figure A12: Pair plots (*b* coefficients; "new" and "believe" outcomes)

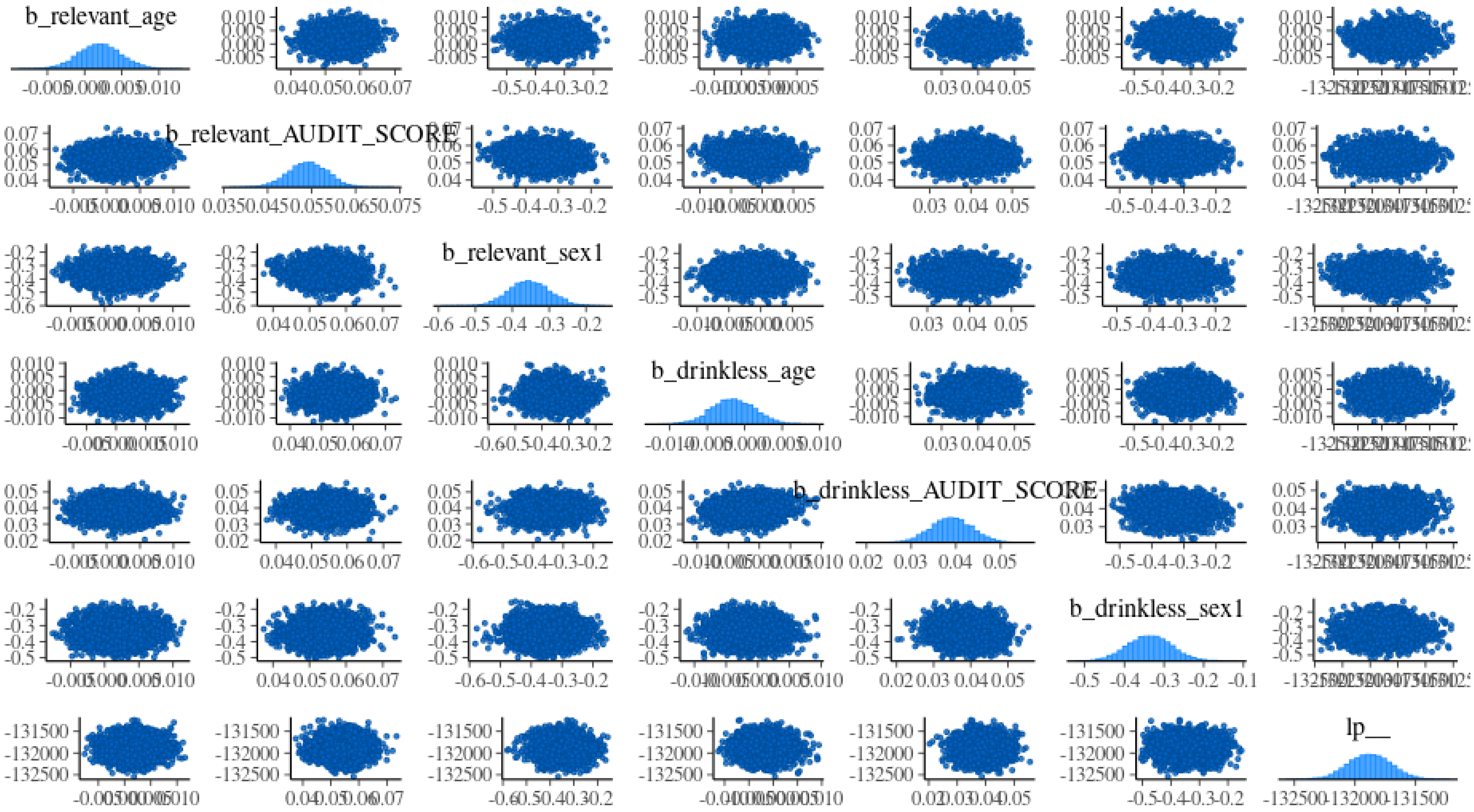

Figure A13: Pair plots (*b* coefficients; “relevant” and “drinkless” outcomes)