

Table S1. Distribution of urinary concentrations ($\mu\text{g/L}$) of phenol biomarkers among women in the Environment and Reproductive (EARTH) Study.

	Detection Frequency ^a %	Geomean (SE)	10th	25th	50th	75th	95th
Bisphenol A	85	0.86 (0.06)	0.28	0.30	0.80	1.80	5.80
Benzophenone-3	99	93.6 (10.6)	7.20	23.3	84.6	377	3090
Butylparaben ^b	57	0.53 (0.06)	0.07	0.14	0.20	2.60	24.9
Methylparaben	100	80.2 (7.10)	7.80	30.4	85.7	249	1080
Propylparaben ^b	98	16.5 (1.80)	0.80	4.30	23.1	66.8	293
Triclosan	79	11.7 (1.31)	1.63	1.70	7.10	47.2	488

^aLimits of detection (LOD) ranged from 0.1 to 1.0 $\mu\text{g/L}$. Note: Data are presented before imputation of concentrations <LOD.

^bNot considered in further analyses.

Table S2. Linear single-exposure model results in EARTH Study. Each column/row pair corresponds to a separate model fit.

	log-bisphenol A		log-benzophenone-3		log-methylparaben		log-triclosan	
	Est	95% CI	Est	95% CI	Est	95% CI	Est	95% CI
TSH	0.113	(0.051, 0.175)	-0.008	(-0.039, 0.023)	0.043	(0.001, 0.084)	-0.032	(-0.058, -0.005)
fT₄	-0.141	(-0.259, -0.023)	-0.047	(-0.104, 0.011)	0.143	(0.066, 0.220)	-0.013	(-0.063, 0.036)
TT₄	-2.201	(-3.330, -1.073)	-0.243	(-0.803, 0.318)	-0.218	(-0.97, 0.533)	0.095	(-0.381, 0.571)
fT₃	-0.081	(-0.113, -0.048)	-0.011	(-0.027, 0.005)	0.035	(0.013, 0.056)	-0.039	(-0.052, -0.025)
TT₃	-0.062	(-0.085, -0.039)	0.005	(-0.006, 0.017)	0.010	(-0.005, 0.026)	-0.011	(-0.021, -0.001)
TgAb	1.015	(0.845, 1.219)	0.950	(0.865, 1.044)	1.243	(1.090, 1.418)	0.893	(0.822, 0.970)
TPOAb	1.113	(0.932, 1.328)	0.924	(0.843, 1.013)	1.010	(0.893, 1.143)	0.943	(0.869, 1.022)

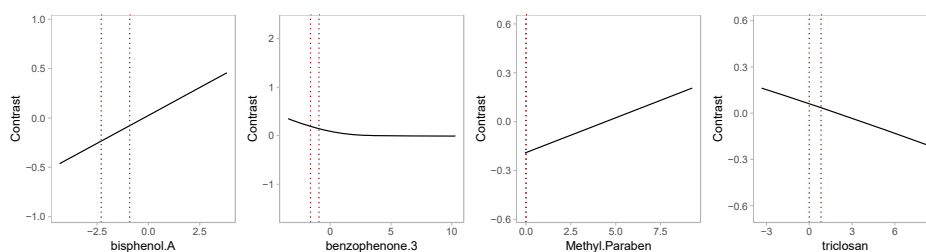
Note: Est is estimated association for each 1 unit increase in log concentrations; 95% CI is corresponding confidence interval. For binary outcomes TgAb and TPOAb, coefficients represent odds ratios; all others are mean differences. Models were adjusted for age (years), BMI (kg/m²), race (white vs. other), and specific gravity (SG)..

Table S3. Linear mixture model results in EARTH Study. Each row corresponds to a single model fit.

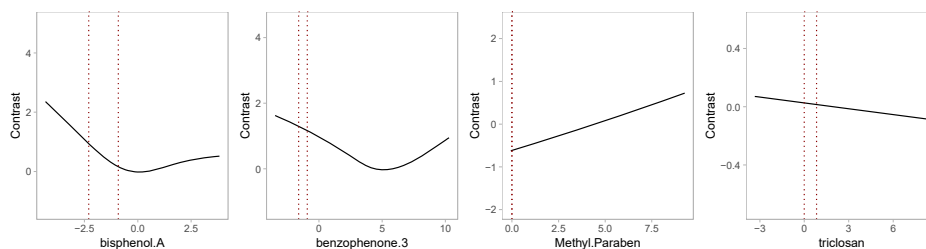
	log-bisphenol A		log-benzophenone-3		log-methylparaben		log-triclosan	
	Est	95% CI	Est	95% CI	Est	95% CI	Est	95% CI
TSH	0.109	(-0.013, 0.231)	-0.016	(-0.078, 0.046)	0.043	(-0.040, 0.125)	-0.030	(-0.082, 0.023)
fT₄	-0.150	(-0.382, 0.083)	-0.060	(-0.175, 0.055)	0.166	(0.012, 0.319)	-0.015	(-0.111, 0.081)
TT₄	-2.160	(-4.400, 0.079)	-0.134	(-1.258, 0.990)	-0.080	(-1.577, 1.417)	0.069	(-0.867, 1.005)
fT₃	-0.088	(-0.151, -0.025)	-0.008	(-0.040, 0.024)	0.043	(0.010, 0.086)	-0.041	(-0.067, -0.014)
TT₃	-0.066	(-0.112, -0.020)	0.008	(-0.015, 0.032)	0.012	(-0.019, 0.043)	-0.013	(-0.033, 0.006)
TgAb	1.004	(0.697, 1.447)	0.943	(0.781, 1.139)	1.265	(0.975, 1.641)	0.892	(0.757, 1.051)
TPOAb	1.123	(0.793, 1.590)	0.919	(0.764, 1.106)	1.027	(0.806, 1.310)	0.949	(0.808, 1.115)

Note: Est is estimated association for each 1 log unit increase in concentrations; 95% CI is corresponding confidence interval. For binary outcomes TgAb and TPOAb, coefficients represent odds ratios; all others are mean differences. Models were adjusted for age (years), BMI (kg/m²), race (white vs. other), and specific gravity (SG).

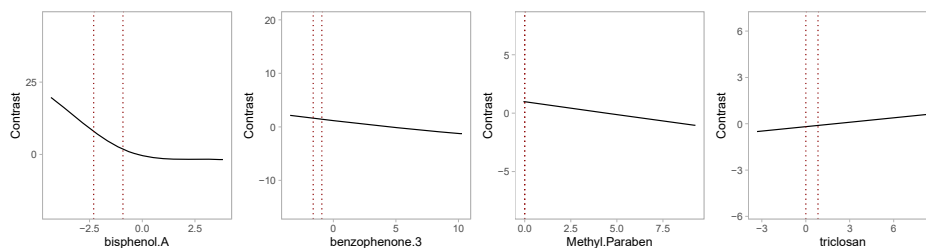
tsh



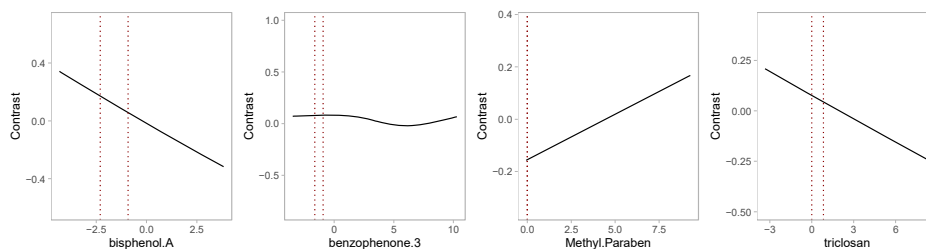
ft4



tt4



ft3



tt3

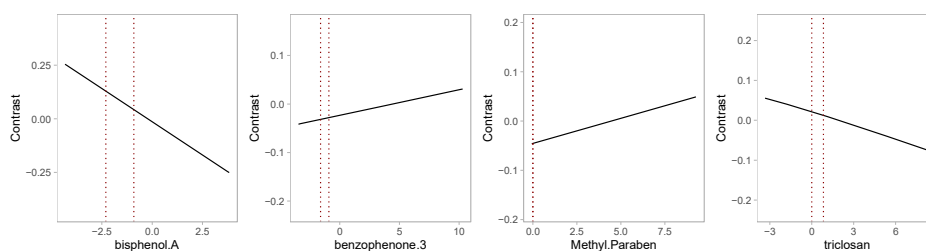
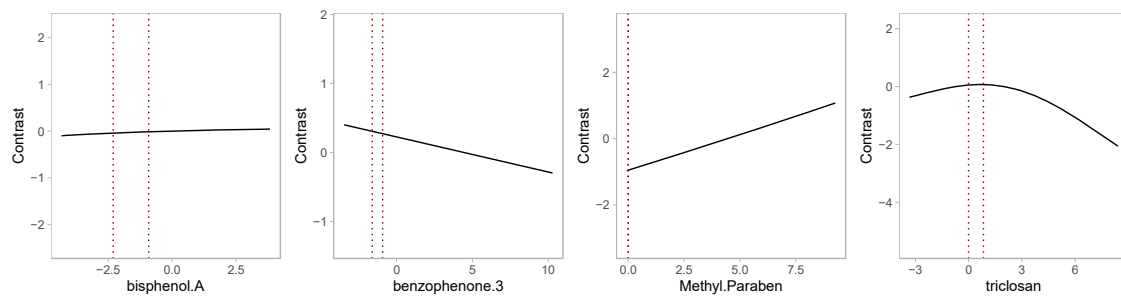


Figure S1. Single-component analysis: additive model results for continuous outcomes. Curves are estimated mean differences and corresponding 95% confidence intervals, compared to median log concentration. X-axis indicates log concentration. Each plot corresponds to an individual model. Models were adjusted for age (years), BMI (kg/m²), race (white vs. other), and specific gravity (SG).

tgab



tpo

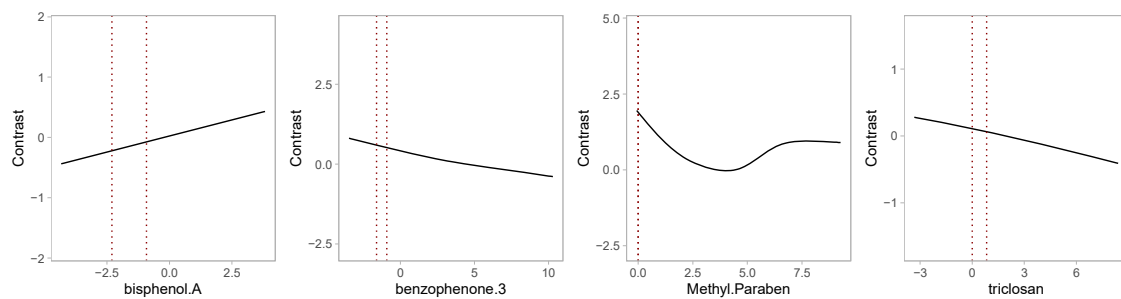


Figure S2. Single-component analysis: generalized additive model results for binary outcomes. Curves are estimated log odds ratios and corresponding 95% confidence intervals, compared to median log concentration. X-axis indicates log concentration. Each plot corresponds to an individual model. Models were adjusted for age (years), BMI (kg/m²), race (white vs. other), and specific gravity (SG).

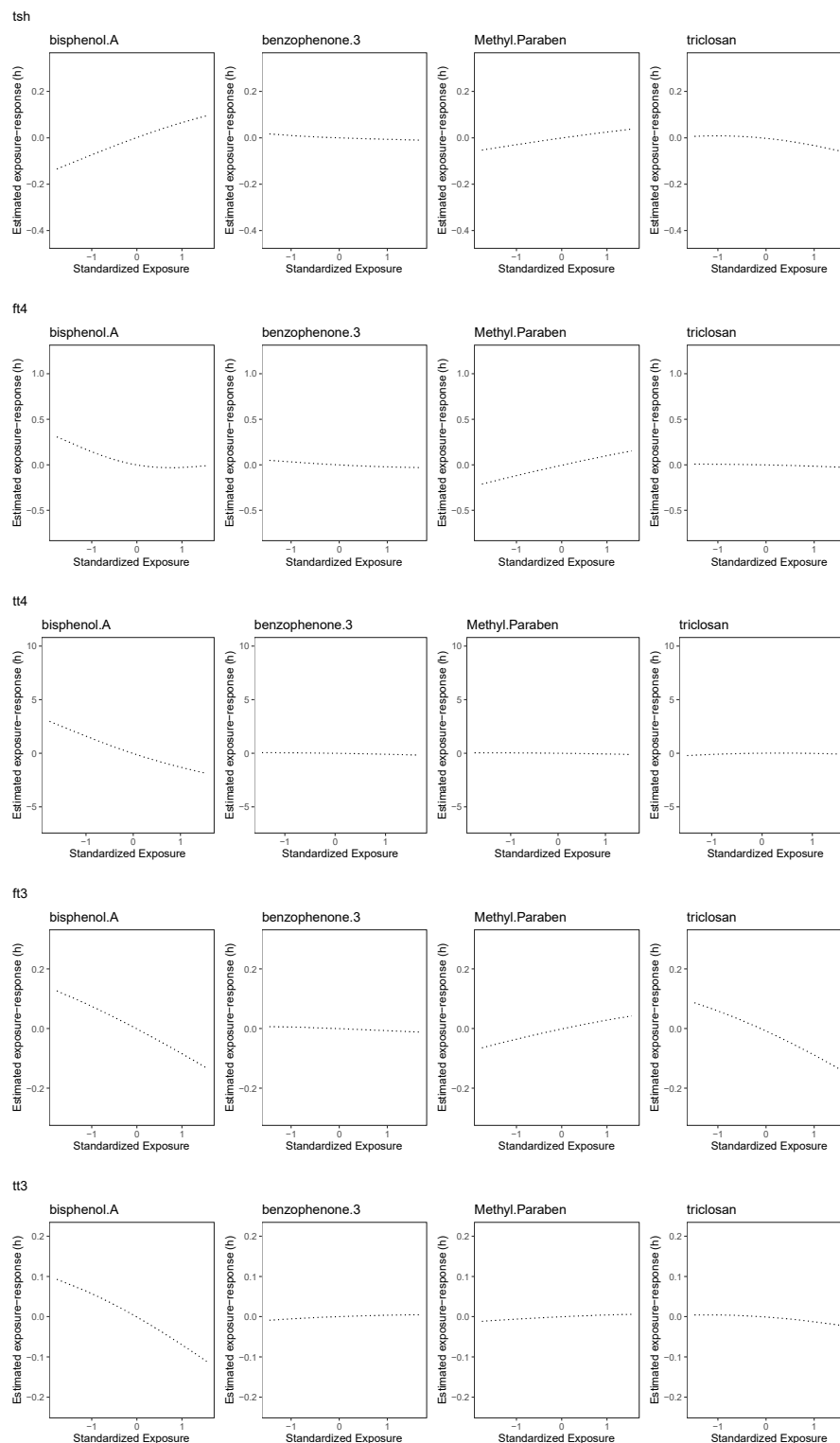
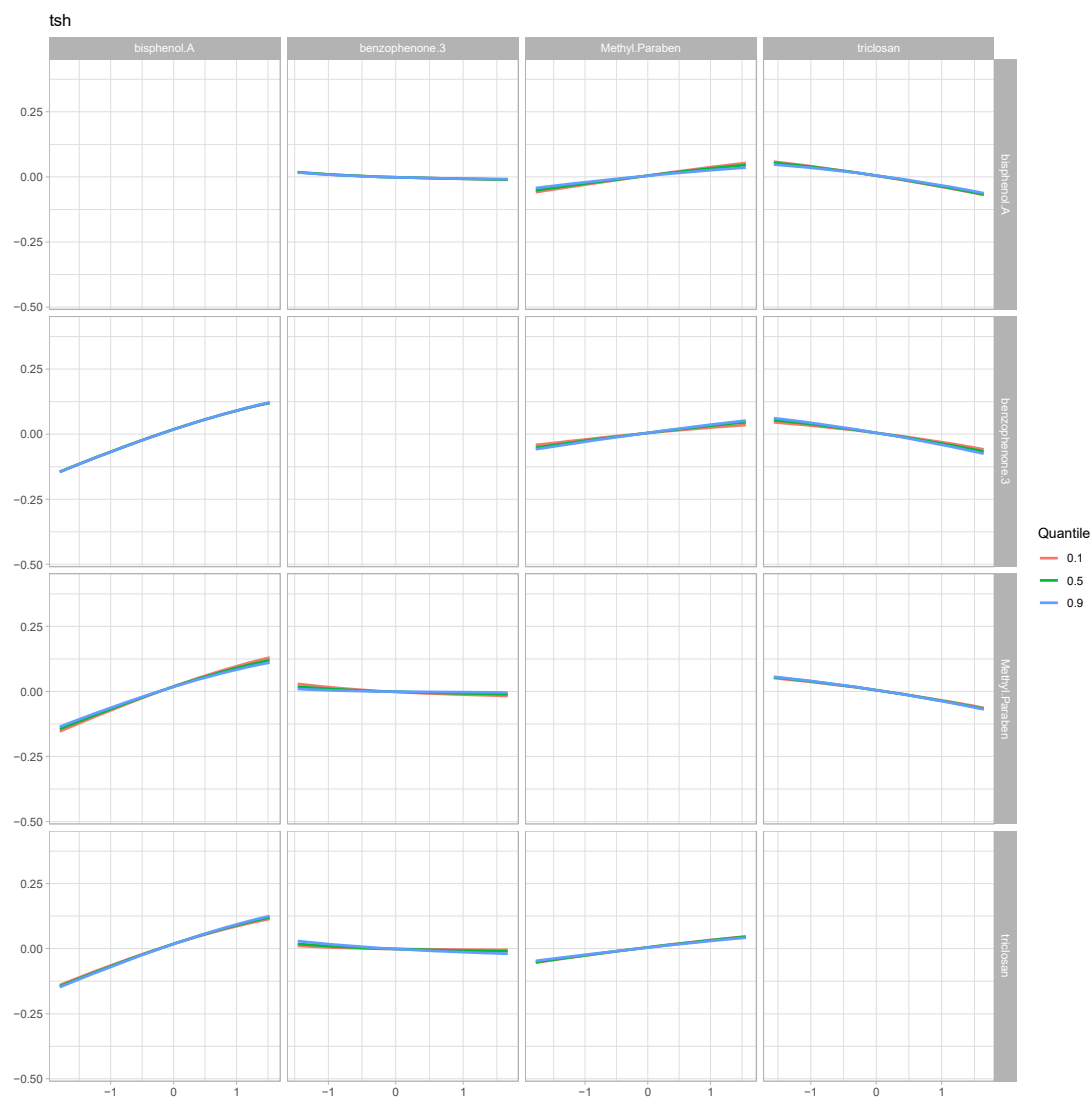
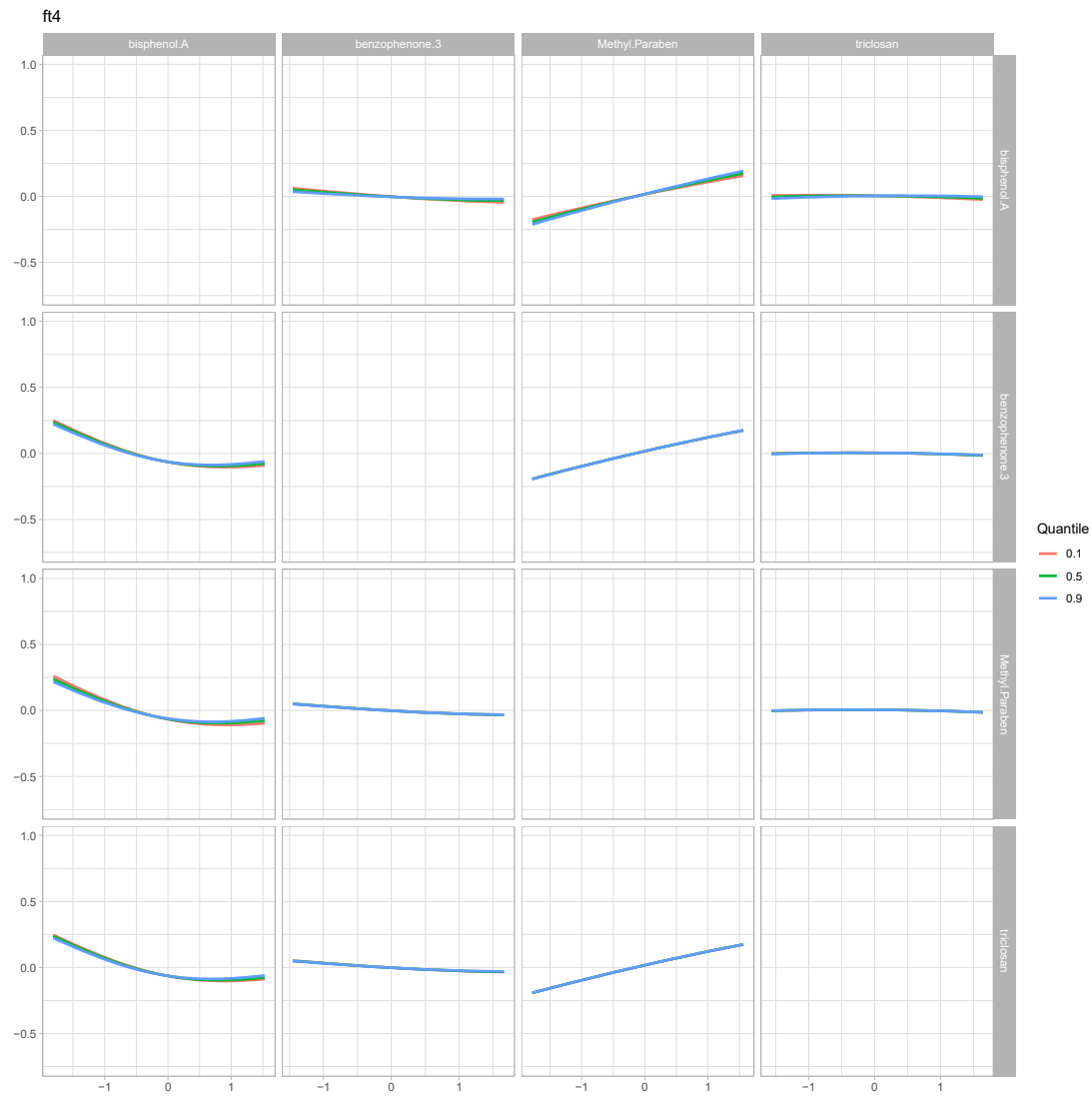


Figure S3. Mixture analysis: BKMR results for continuous outcomes. Curves are estimated mean differences and corresponding 95% credible intervals. Each row corresponds to a different model. Models were adjusted for age (years), BMI (kg/m²), race (white vs. other), and specific gravity (SG).

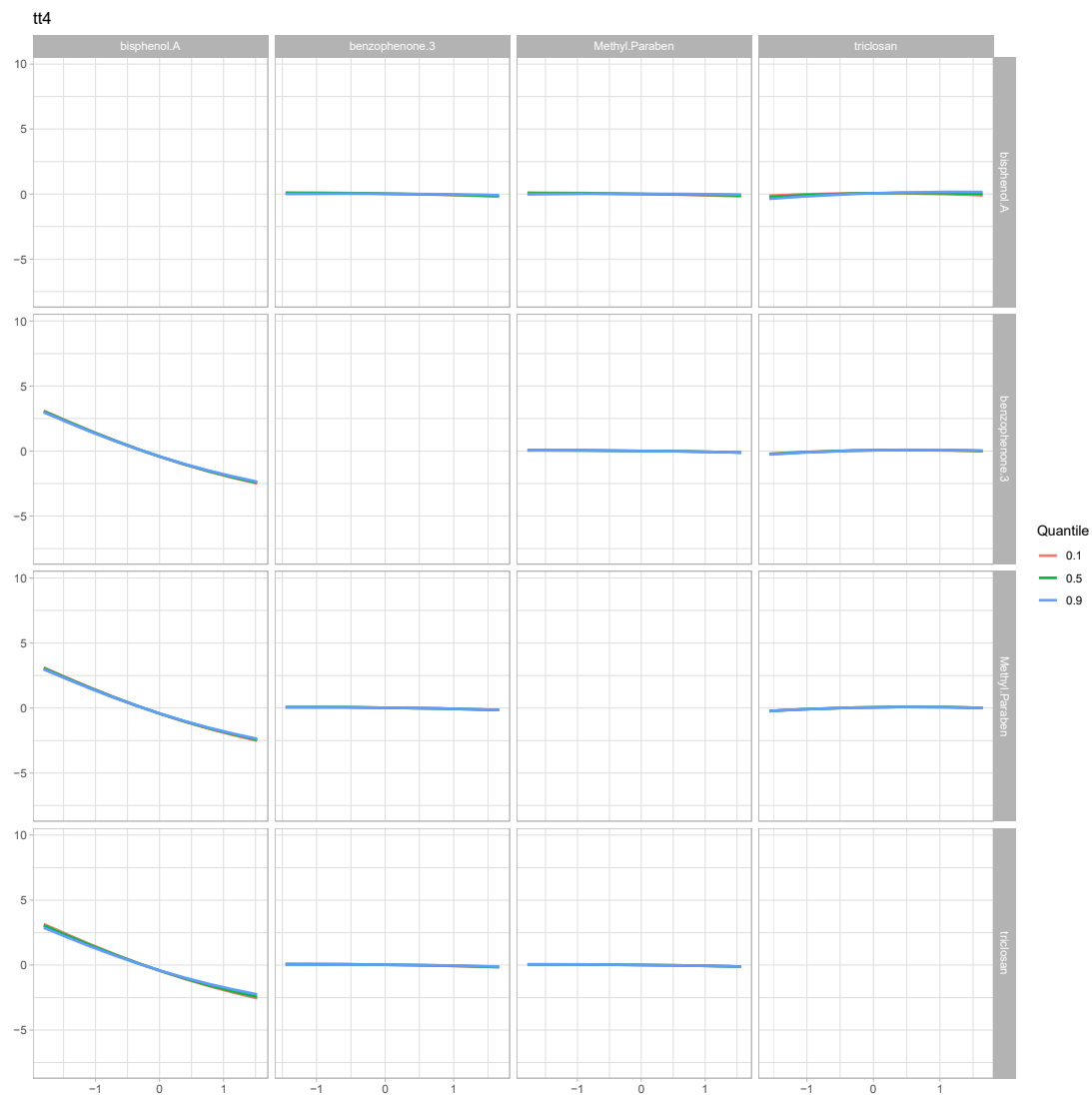
(a)



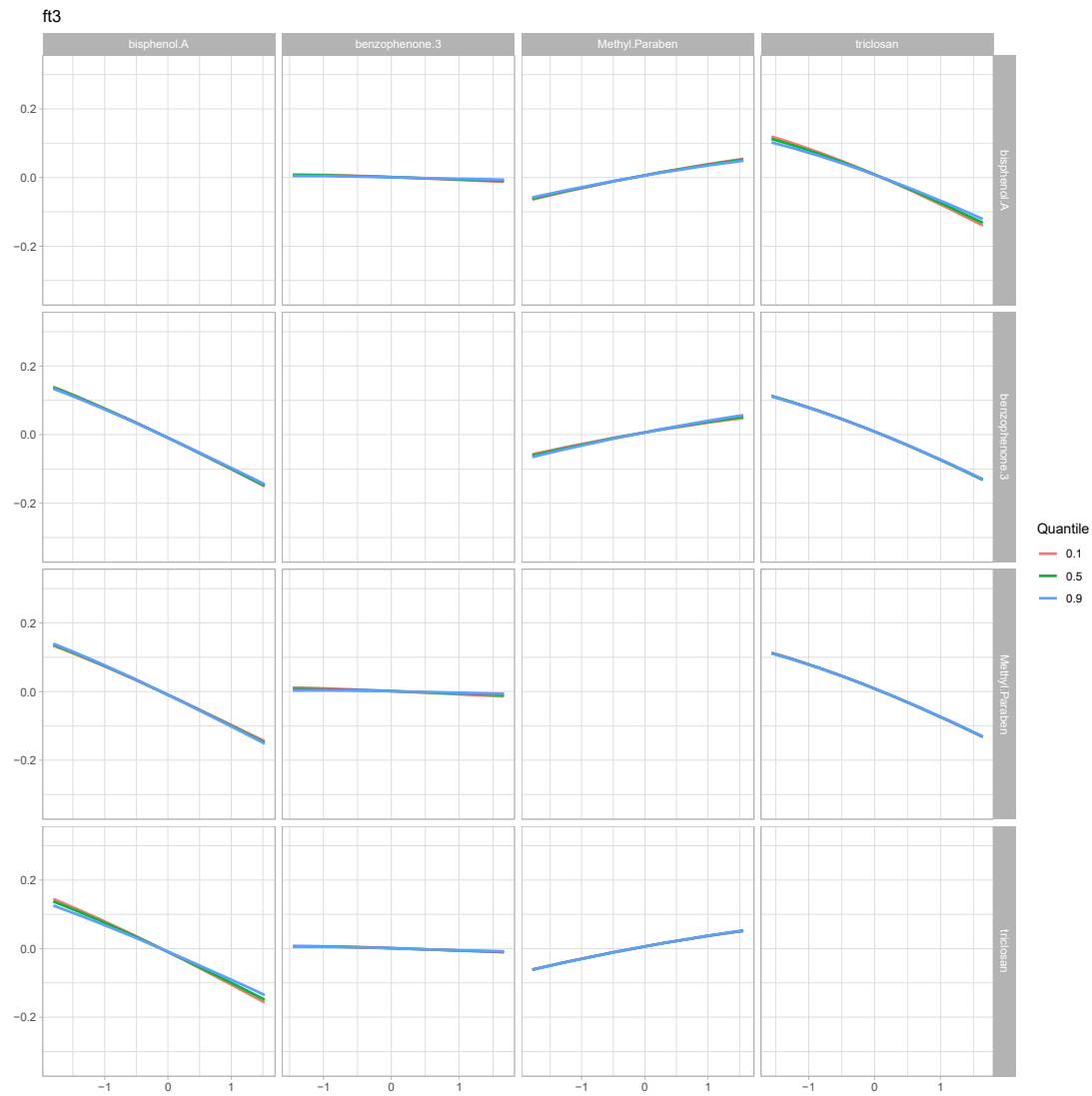
(b)



(c)



(d)



(e)

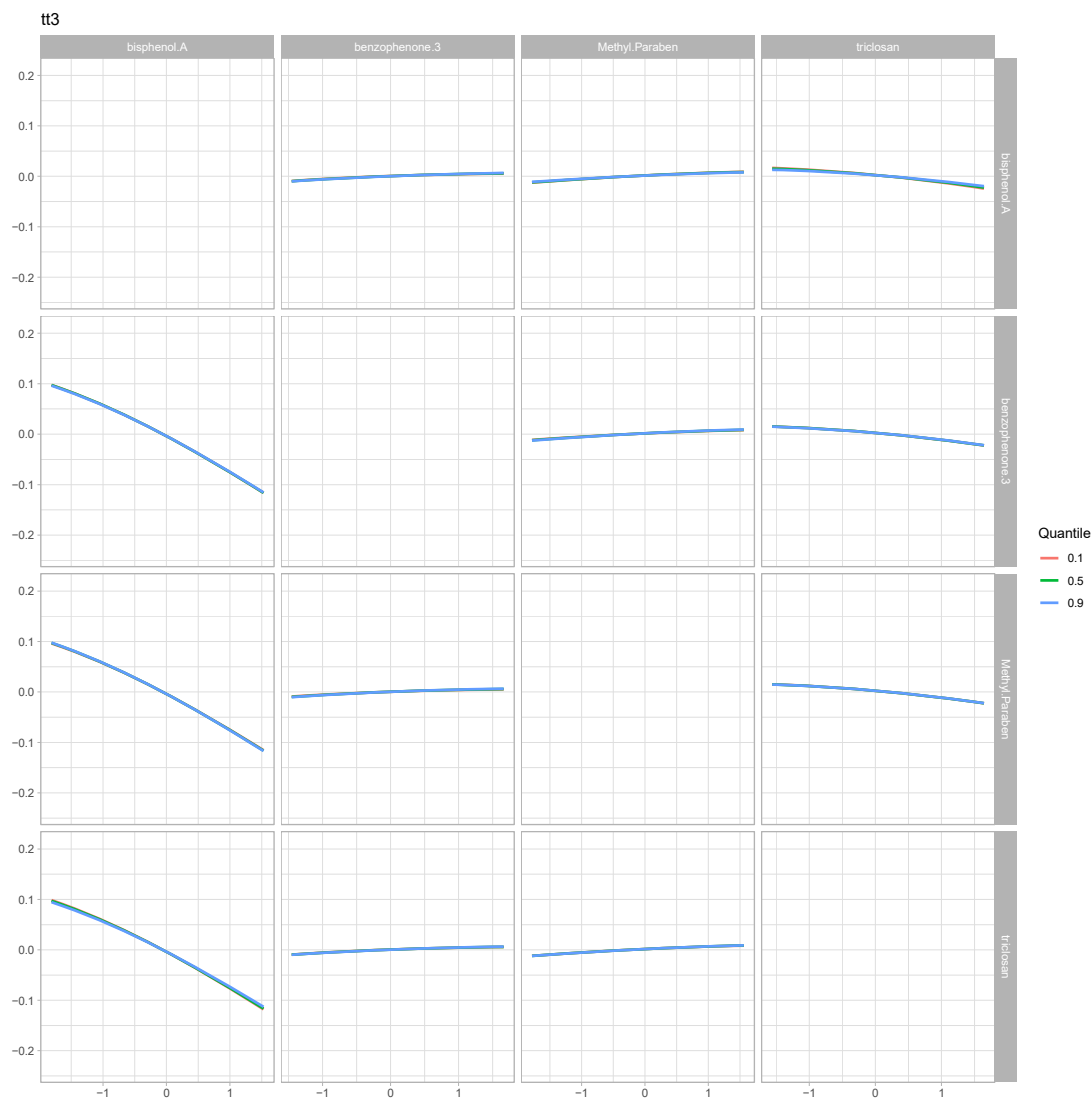


Figure S4. Mixture analysis: pairwise interaction plots for in the BKMR analyses for (a) TSH, (b) fT_4 , (c) fT_3 , (d) TT_4 and (e) TT_3 . Curves are estimated mean differences and corresponding 95% credible intervals, holding y-axis component at 10th, 50th or 90th percentile, and other components set to their median. Models were adjusted for age (years), BMI (kg/m²), race (white vs. other), and specific gravity (SG).