Supplementary Table S1.   Number of participants with values below limit of detection (LOD) and corresponding percentage out of the total number of participants included in the analyses for each of the ratios.

Ratio	Sample N<LOD MEHP	Sample N<LOD MEHHP	Sample N<LOD MECPP	Sample N<LOD MEOHP
logpercentMEHP	1,612 (30.6%)	28 (0.5%)	3 (0.1%)	69 (1.3%)
MEHHP:MECPP		29 (0.6%)	4 (0.1%)	
MEHP:MEHHP	1,801 (28.2%)	46 (0.7%)		
MEHHP:MEOHP		56 (0.9%)		116 (1.8%)
MEOHP:MECPP			3 (0.1%)	69 (1.3%)

Note: The values <LOD are substituted with LOD divided by square root of 2 in the analysis.

Supplementary Table S2.   Associations of Individual Characteristics and Lifestyle Factors With MEHHP:MECPP (Regression Estimates and 95% Confidence Intervals) NHANES 2001-2012.

Characteristic	All participants				Participants with no prescription medication use in the past month			
	Model 1 [a]		Model 2 [b]		Model 1 [a]		Model 2 [b]	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Age (continuous)								
Estimates	**-0.001**	**-0.001, -0.001**	**-0.001**	**-0.002, -0.001**	**0.001**	**-0.001, 0.001**	**-0.001**	**-0.001, 0.001**
Race								
Caucasian	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Other Race	**-0.062**	**-0.099, -0.025**	**-0.048**	**-0.087, -0.009**	-0.024	-0.070, 0.021	-0.010	-0.056, 0.037
Mexican-American or other Hispanic	**-0.042**	**-0.061, -0.025**	**-0.027**	**-0.047, -0.007**	-0.023	-0.047, 0.001	-0.010	-0.035, 0.015
Non-Hispanic Black	**0.103**	**0.068, 0.139**	**0.121**	**0.087, 0.155**	0.115	**0.068, 0.163**	0.132	**0.086, 0.179**
Gender								
Male	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Female	**-0.033**	**-0.053, -0.013**	**-0.033**	**-0.053, -0.012**	**-0.057**	**-0.085, -0.029**	**-0.051**	**-0.079, -0.022**
Body Mass Index								
Normal	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Underweight	0.047	-0.025, 0.120	0.044	-0.028, 0.116	-0.011	-0.097, 0.076	-0.012	-0.101, 0.076
Overweight	0.002	-0.021, 0.026	0.003	-0.020, 0.026	0.003	-0.026, 0.032	0.005	-0.024, 0.034
Smoking								
Never smoker	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Past smoker	0.009	-0.019, 0.037	0.002	-0.026, 0.031	0.023	-0.013, 0.060	0.016	-0.020, 0.051
Current smoker	**0.040**	**0.012, 0.068**	**0.028**	**0.001, 0.055**	**0.031**	**0.005, 0.058**	0.021	-0.006, 0.049
Alcohol use								
None	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Below limit	0.017	-0.012, 0.046	0.016	-0.012, 0.044	0.012	-0.035, 0.059	0.010	-0.038, 0.058
Above limit	**0.073**	**0.030, 0.117**	**0.066**	**0.023, 0.110**	0.074	-0.001, 0.148	0.067	-0.007, 0.142
Cancer history								
No	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Yes	-0.022	-0.065, 0.021	-0.025	-0.068, 0.019	0.031	-0.047, 0.109	0.029	-0.048, 0.106

Characteristic	All participants				Participants with no prescription medication use in the past month			
	Model 1 [a]		Model 2 [b]		Model 1 [a]		Model 2 [b]	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Caffeine, mg [c]								
1st quartile	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
2nd quartile	**0.037**	**0.004, 0.071**	**0.036**	**0.004, 0.069**	0.027	-0.018, 0.071	0.027	-0.017, 0.072
3rd quartile	**0.042**	**0.014, 0.069**	**0.038**	**0.010, 0.065**	0.027	-0.010, 0.064	0.027	-0.011, 0.065
4th quartile	**0.050**	**0.019, 0.080**	**0.042**	**0.012, 0.072**	**0.049**	**0.013, 0.084**	**0.046**	**0.009, 0.083**
Prescription medication in the past month								
None	0.000	Reference	0.000	Reference	NA	NA	NA	NA
Any	**0.029**	**0.008, 0.050**	**0.031**	**0.009, 0.053**	NA	NA	NA	NA
Menopausal status/hormone use (women only)								
Premenopausal	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Postmenopausal/Never used	-0.068	-0.134, -0.002	-0.073	-0.140, -0.006	-0.057	-0.113, -0.002	-0.066	-0.124, -0.008
Postmenopausal/Past, not current	-0.023	-0.098, 0.053	-0.030	-0.106, 0.045	0.030	-0.098, 0.159	0.021	-0.111, 0.153
Postmenopausal/Past, unknown current	-0.055	-0.156, 0.045	-0.068	-0.168, 0.033	-0.221	-0.453, 0.011	-0.197	-0.419, 0.024
Postmenopausal/Current	0.078	-0.012, 0.167	0.059	-0.035, 0.153	NA	NA	NA	NA

Abbreviations: CI, Confidence Interval; NA, Not Applicable

[a] Adjusted for age, BMI, and race

[b] Adjusted for age, BMI, race, and all other factors in the analyses

[c] 1st quartile <10; 2nd quartile 10-<91 ; 3rd quartile 91-<208; and 4th quartile ≥208 mg

Supplementary Table S3.   Associations of Individual Characteristics and Lifestyle Factors With MEOHP:MECPP (Regression Estimates and 95% Confidence Intervals), NHANES 2001-2012.

Characteristic	All participants				Participants with no prescription medication use in the past month			
	Model 1 [a]		Model 2 [b]		Model 1 [a]		Model 2 [b]	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Age (continuous)								
Estimates	**-0.001**	**-0.001, -0.001**	**-0.001**	**-0.001, -0.001**	-0.001	-0.001, 0.001	-0.001	-0.001, 0.001
Race								
Caucasian	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Other Race	**-0.032**	**-0.055, -0.009**	**-0.025**	**-0.050, -0.001**	**-0.008**	-0.033, 0.018	-0.004	-0.030, 0.022
Mexican-American or other Hispanic	**-0.031**	**-0.042, -0.020**	**-0.024**	**-0.035, -0.012**	**-0.022**	**-0.035, -0.009**	**-0.019**	**-0.033, -0.004**
Non-Hispanic Black	**0.050**	**0.031, 0.069**	**0.058**	**0.039, 0.077**	**0.057**	**0.030, 0.083**	**0.062**	**0.035, 0.089**
Gender								
Male	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Female	0.009	-0.001, 0.020	0.010	-0.002, 0.021	-0.001	-0.015, 0.015	0.001	-0.015, 0.017
Body Mass Index								
Normal	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Underweight	0.033	-0.013, 0.080	0.031	-0.015, 0.077	-0.002	-0.060, 0.056	-0.005	-0.063, 0.053
Overweight	0.003	-0.011, 0.017	0.004	-0.010, 0.018	-0.001	-0.015, 0.015	0.001	-0.014, 0.016
Smoking								
Never smoker	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Past smoker	0.008	-0.009, 0.024	0.005	-0.012, 0.022	0.006	-0.013, 0.025	0.004	-0.015, 0.024
Current smoker	**0.019**	**0.007, 0.031**	**0.017**	**0.005, 0.029**	0.011	-0.004, 0.025	0.010	-0.006, 0.026
Alcohol use								
None	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Below limit	0.011	-0.006, 0.027	0.010	-0.006, 0.026	-0.016	-0.044, 0.012	-0.017	-0.045, 0.011
Above limit	0.011	-0.009, 0.032	0.008	-0.012, 0.028	-0.017	-0.054, 0.019	-0.021	-0.057, 0.016
Cancer history								
No	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Yes	-0.003	-0.027, 0.021	-0.004	-0.028, 0.020	0.015	-0.033, 0.064	0.017	-0.031, 0.066

Characteristic	All participants				Participants with no prescription medication use in the past month			
	Model 1 [a]		Model 2 [b]		Model 1 [a]		Model 2 [b]	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Caffeine, mg [c]								
1st quartile	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
2nd quartile	**0.019**	**0.005, 0.034**	**0.019**	**0.004, 0.033**	0.018	-0.005, 0.040	0.018	-0.005, 0.041
3rd quartile	**0.019**	**0.004, 0.034**	**0.017**	**0.003, 0.032**	0.007	-0.016, 0.030	0.007	-0.017, 0.031
4th quartile	**0.023**	**0.007, 0.039**	**0.019**	**0.003, 0.035**	**0.023**	**0.002, 0.044**	**0.023**	**0.001, 0.044**
Prescription medication in past month								
None	0.000	Reference	0.000	Reference	NA	NA	NA	NA
Any	**0.014**	**0.002, 0.027**	**0.014**	**0.002, 0.027**	NA	NA	NA	NA
Menopausal status/hormone use (women only)								
Premenopausal	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Postmenopausal/Never used	-0.039	-0.074, -0.003	-0.043	-0.080, -0.007	-0.020	-0.053, 0.014	-0.027	-0.062, 0.008
Postmenopausal/Past, not current	-0.030	-0.070, 0.010	-0.037	-0.077, 0.003	0.003	-0.075, 0.081	-0.003	-0.083, 0.076
Postmenopausal/Past, unknown current	-0.016	-0.071, 0.038	-0.024	-0.079, 0.031	-0.101	-0.246, 0.043	-0.105	-0.256, 0.045
Postmenopausal/Current	0.047	-0.004, 0.098	0.035	-0.018, 0.088	NA	NA	NA	NA

Abbreviations: CI, Confidence Interval; NA, Not Applicable

[a] Adjusted for age, BMI, and race

[b] Adjusted for age, BMI, race, and all other factors in the analyses

[c] 1st quartile <10; 2nd quartile 10-<91 ; 3rd quartile 91-<208; and 4th quartile ≥208 mg

Supplementary Table S4. Associations of Individual Characteristics and Lifestyle Factors With MEHHP:MEOHP (Regression Estimates and 95% Confidence Intervals) NHANES 2001-2012.

Characteristic	All participants				Participants with no prescription medication use in the past month			
	Model 1 [a]		Model 2 [b]		Model 1 [a]		Model 2 [b]	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Age (continuous)								
Estimates	0.001	-0.001, 0.001	-0.001	-0.001, 0.001	0.001	-0.001, 0.002	0.001	-0.001, 0.002
Race								
Caucasian	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Other Race	-0.003	-0.063, 0.058	0.012	-0.048, 0.072	-0.006	-0.071, 0.060	0.021	-0.044, 0.086
Mexican-American or other Hispanic	-0.003	-0.039, 0.032	0.010	-0.026, 0.046	0.013	-0.032, 0.058	0.030	-0.014, 0.075
Non-Hispanic Black	0.040	-0.007, 0.087	**0.052**	**0.003, 0.102**	0.046	-0.006, 0.098	**0.064**	**0.010, 0.117**
Gender								
Male	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Female	**-0.112**	**-0.142, -0.082**	**-0.108**	**-0.138, -0.077**	**-0.133**	**-0.173, -0.092**	**-0.119**	**-0.159, -0.079**
Body Mass Index								
Normal	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Underweight	-0.004	-0.083, 0.076	-0.005	-0.085, 0.075	-0.032	-0.134, 0.070	-0.031	-0.135, 0.074
Overweight	-0.013	-0.045, 0.019	-0.015	-0.046, 0.016	0.005	-0.043, 0.052	0.004	-0.042, 0.051
Smoking								
Never smoker	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Past smoker	0.009	-0.022, 0.039	-0.005	-0.037, 0.028	0.030	-0.021, 0.081	0.015	-0.032, 0.062
Current smoker	**0.059**	**0.018, 0.101**	**0.033**	-0.006, 0.073	**0.051**	**0.001, 0.101**	0.023	-0.020, 0.067
Alcohol use								
None	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Below limit	-0.044	-0.093, 0.005	-0.042	-0.089, 0.006	0.042	-0.018, 0.102	0.042	-0.018, 0.101
Above limit	**0.110**	**0.032, 0.188**	**0.102**	**0.026, 0.178**	**0.230**	**0.113, 0.347**	**0.222**	**0.109, 0.334**
Cancer history								
No	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Yes	-0.040	-0.095, 0.014	-0.042	-0.095, 0.011	-0.002	-0.121, 0.116	-0.009	-0.124, 0.105

Characteristic	All participants				Participants with no prescription medication use in the past month			
	Model 1 [a]		Model 2 [b]		Model 1 [a]		Model 2 [b]	
	β	95% CI	β	95% CI	β	95% CI	β	95% CI
Caffeine, mg [c]								
1st quartile	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
2nd quartile	-0.009	-0.057, 0.039	-0.009	-0.056, 0.039	-0.032	-0.086, 0.023	-0.029	-0.082, 0.023
3rd quartile	0.030	-0.021, 0.081	0.021	-0.031, 0.073	0.029	-0.030, 0.088	0.029	-0.029, 0.087
4th quartile	0.040	-0.006, 0.087	0.026	-0.022, 0.074	0.030	-0.041, 0.101	0.021	-0.049, 0.092
Prescription medication in past month								
None	0.000	Reference	0.000	Reference	NA	NA	NA	NA
Any	0.022	-0.011, 0.056	0.024	-0.009, 0.056	NA	NA	NA	NA
Menopausal status/hormone use (women only)								
Premenopausal	0.000	Reference	0.000	Reference	0.000	Reference	0.000	Reference
Postmenopausal/Never used	-0.033	-0.116, 0.050	-0.032	-0.115, 0.051	-0.090	-0.201, 0.022	-0.081	-0.190, 0.027
Postmenopausal/Past, not current	0.086	-0.014, 0.186	0.091	-0.010, 0.191	0.083	-0.095, 0.262	0.093	-0.082, 0.269
Postmenopausal/Past, unknown current	-0.099	-0.213, 0.015	-0.106	-0.221, 0.010	-0.003	-0.347, 0.341	0.084	-0.239, 0.406
Postmenopausal/Current	-0.052	-0.158, 0.055	-0.064	-0.174, 0.046	NA	NA	NA	NA

Abbreviations: CI, Confidence Interval; NA, Not Applicable

[a] Adjusted for age, BMI, and race

[b] Adjusted for age, BMI, race, and all other factors in the analyses

[c] 1st quartile <10; 2nd quartile 10-<91 ; 3rd quartile 91-<208; and 4th quartile ≥208 mg