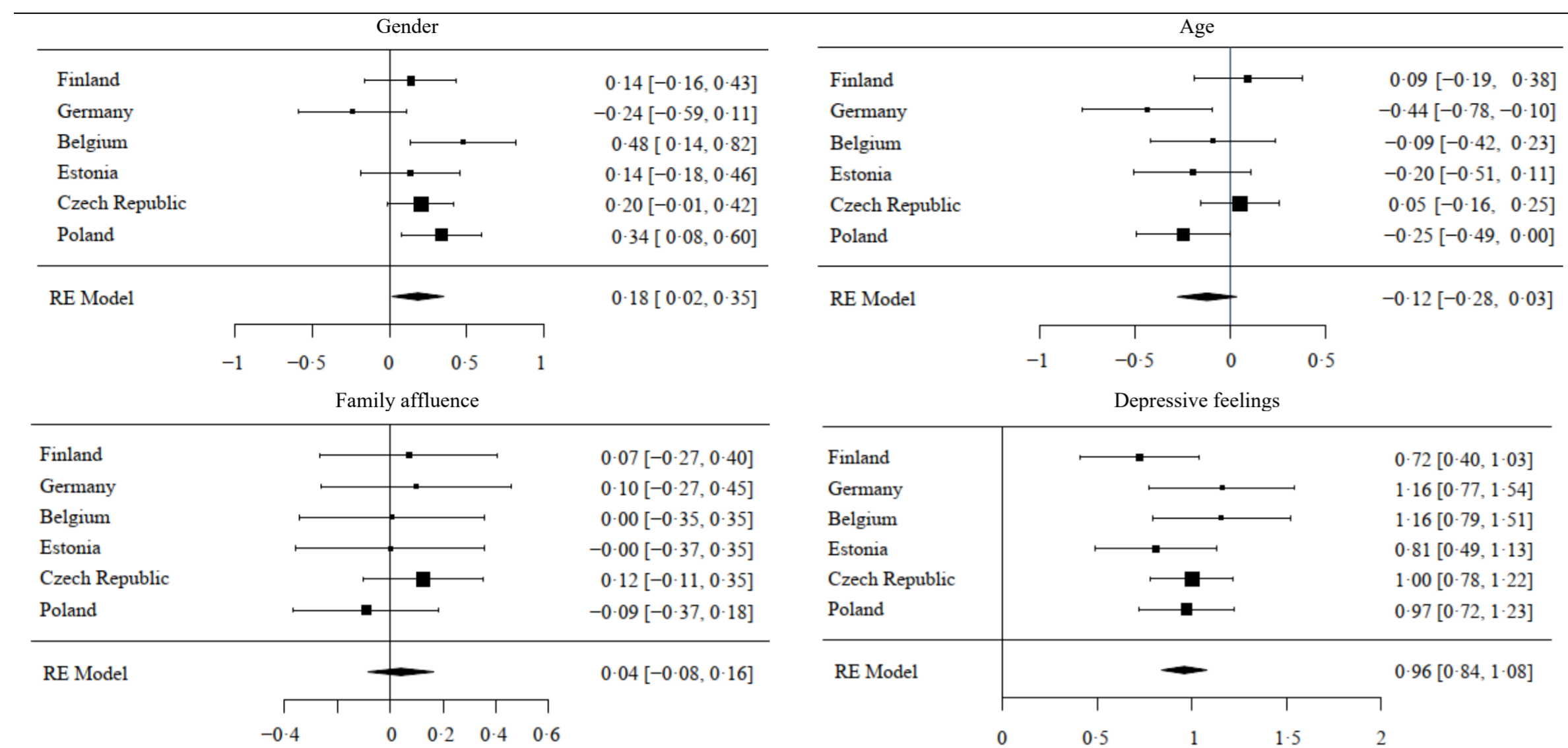**Supplementary material**

Supplementary Table 1. Sample distributions of the individual characteristics

	Cross-nationally		Finland		Germany		Belgium		Estonia		Czech Republic		Poland	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Gender														
Boy	10980	49.40	1091	49.73	1351	46.24	1345	50.04	1576	50.08	3924	50.51	1693	48.27
Girl	11246	50.60	1103	50.27	1571	53.76	1343	49.96	1571	49.92	3844	49.49	1814	51.73
Age														
13	11036	49.65	1118	50.96	1405	48.08	1228	45.68	1605	51.00	3954	50.90	1726	49.22
15	11190	50.35	1076	49.04	1517	51.92	1460	54.32	1542	49.00	3814	49.10	1781	50.78
Family affluence														
High	15926	73.33	1630	78.03	2004	69.61	1821	69.08	2364	76.48	5685	74.87	2422	70.59
Low	5793	26.67	459	21.97	875	30.39	815	30.92	727	23.52	1908	25.13	1009	29.41
Depressive feelings														
No frequent	17513	79.87	1716	78.79	2508	86.07	2301	86.41	2278	72.62	6133	81.16	2577	74.07
Frequent	4415	20.13	462	21.21	406	13.93	362	13.59	859	27.38	1424	18.84	902	25.93

Supplementary Table 2. The associations between individual characteristics and PSMU
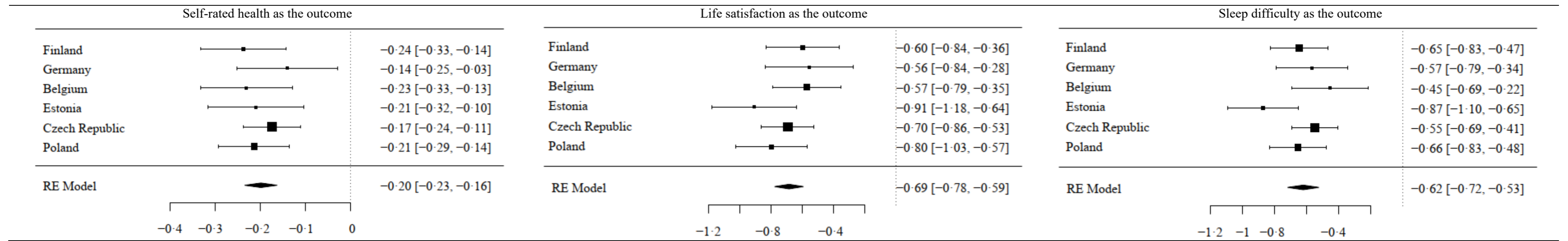
Cross-nationally:

Gender

Finland	0·14 [−0·16, 0·43]
Germany	−0·24 [−0·59, 0·11]
Belgium	0·48 [0·14, 0·82]
Estonia	0·14 [−0·18, 0·46]
Czech Republic	0·20 [−0·01, 0·42]
Poland	0·34 [0·08, 0·60]
RE Model	0·18 [0·02, 0·35]

(x-axis: −1, −0·5, 0, 0·5, 1)

Age

Finland	0·09 [−0·19, 0·38]
Germany	−0·44 [−0·78, −0·10]
Belgium	−0·09 [−0·42, 0·23]
Estonia	−0·20 [−0·51, 0·11]
Czech Republic	0·05 [−0·16, 0·25]
Poland	−0·25 [−0·49, 0·00]
RE Model	−0·12 [−0·28, 0·03]

(x-axis: −1, −0·5, 0, 0·5)

Family affluence

Finland	0·07 [−0·27, 0·40]
Germany	0·10 [−0·27, 0·45]
Belgium	0·00 [−0·35, 0·35]
Estonia	−0·00 [−0·37, 0·35]
Czech Republic	0·12 [−0·11, 0·35]
Poland	−0·09 [−0·37, 0·18]
RE Model	0·04 [−0·08, 0·16]

(x-axis: −0·4, 0, 0·2, 0·4, 0·6)

Depressive feelings

Finland	0·72 [0·40, 1·03]
Germany	1·16 [0·77, 1·54]
Belgium	1·16 [0·79, 1·51]
Estonia	0·81 [0·49, 1·13]
Czech Republic	1·00 [0·78, 1·22]
Poland	0·97 [0·72, 1·23]
RE Model	0·96 [0·84, 1·08]

(x-axis: 0, 0·5, 1, 1·5, 2)

Nationally:

	Finland			Germany			Belgium			Estonia			Czech Republic			Poland		
	Coeff	SE	*p*	Coeff	SE	*p*	Coeff	SE	*p*	Coeff	SE	*p*	Coeff	SE	*p*	Coeff	SE	*p*
Gender	0.136	0.151	.37	-0.241	0.178	.18	0.476	0.174	.006**	0.136	0.164	.41	0.204	0.109	.061	0.336	0.131	.012*
Age	0.093	0.144	.52	-0.439	0.173	.011*	-0.095	0.167	.57	-0.200	0.157	.20	0.047	0.105	.66	-0.247	0.126	.051
FAS	0.070	0.171	.68	0.100	0.184	.59	0.005	0.179	.98	-0.001	0.183	.99	0.125	0.117	.29	-0.091	0.140	.52
Depressive	0.722	0.160	< .0001***	1.159	0.196	< .0001***	1.155	0.185	< .0001***	0.807	0.163	< .0001***	1.000	0.112	< .0001***	0.973	0.129	< .0001***

- Cross-nationally gender (B = 0.18, *p* = .034) and depressive feelings (B = 0.96, *p* < .001), were significantly associated with PSMU.

- Nationally gender was significantly associated with PSMU in Belgium and Poland, Age in Germany, and depressive feelings in all of the six countries. Family affluence was not significantly associated with PSMU in the analyses.

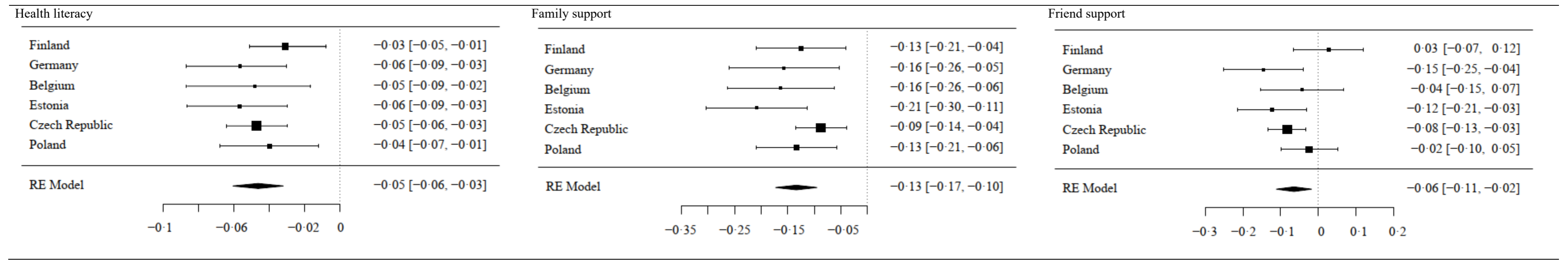**Supplementary Table 3. The associations between PSMU and health outcomes**

Cross-nationally:

	Self-rated health as the outcome		Life satisfaction as the outcome		Sleep difficulty as the outcome
Finland	−0·24 [−0·33, −0·14]	Finland	−0·60 [−0·84, −0·36]	Finland	−0·65 [−0·83, −0·47]
Germany	−0·14 [−0·25, −0·03]	Germany	−0·56 [−0·84, −0·28]	Germany	−0·57 [−0·79, −0·34]
Belgium	−0·23 [−0·33, −0·13]	Belgium	−0·57 [−0·79, −0·35]	Belgium	−0·45 [−0·69, −0·22]
Estonia	−0·21 [−0·32, −0·10]	Estonia	−0·91 [−1·18, −0·64]	Estonia	−0·87 [−1·10, −0·65]
Czech Republic	−0·17 [−0·24, −0·11]	Czech Republic	−0·70 [−0·86, −0·53]	Czech Republic	−0·55 [−0·69, −0·41]
Poland	−0·21 [−0·29, −0·14]	Poland	−0·80 [−1·03, −0·57]	Poland	−0·66 [−0·83, −0·48]
RE Model	−0·20 [−0·23, −0·16]	RE Model	−0·69 [−0·78, −0·59]	RE Model	−0·62 [−0·72, −0·53]

Nationally:

	Finland			Germany			Belgium			Estonia			Czech Republic			Poland		
	Coeff	SE	p	Coeff	SE	p	Coeff	SE	p	Coeff	SE	p	Coeff	SE	p	Coeff	SE	p
Self-rated health as the outcome																		
PSMU	-0.238	0.048	< .0001***	-0.141	0.057	.014*	-0.231	0.052	< .0001***	-0.211	0.054	< .001***	-0.175	0.032	< .0001***	-0.214	0.040	< .0001***
Life satisfaction as the outcome																		
PSMU	-0.598	0.121	< .0001***	-0.558	0.144	< .001***	-0.572	0.111	< .0001***	-0.910	0.138	< .0001***	-0.695	0.085	< .0001***	-0.801	0.117	< .0001***
Sleep difficulty as the outcome																		
PSMU	-0.647	0.091	< .0001***	-0.568	0.115	< .0001***	-0.455	0.122	< .001***	-0.873	0.114	< .0001***	-0.550	0.073	< .0001***	-0.656	0.091	< .0001***

- Cross-nationally PSMU was significantly associated with self-rated health (B = -0.20, $p < .001$), life satisfaction (B = -0.69, $p < .001$), and sleep difficulty (B = -0.62, $p < .001$).

- Nationally PSMU was significantly associated with self-rated health, life satisfaction and sleep difficulty in all of the six countries.

Supplementary Table 4. The associations between the resources (i.e., health literacy, family support, and friend support) and PSMU

Cross-nationally:

Health literacy		Family support		Friend support	
Finland	−0·03 [−0·05, −0·01]	Finland	−0·13 [−0·21, −0·04]	Finland	0·03 [−0·07, 0·12]
Germany	−0·06 [−0·09, −0·03]	Germany	−0·16 [−0·26, −0·05]	Germany	−0·15 [−0·25, −0·04]
Belgium	−0·05 [−0·09, −0·02]	Belgium	−0·16 [−0·26, −0·06]	Belgium	−0·04 [−0·15, 0·07]
Estonia	−0·06 [−0·09, −0·03]	Estonia	−0·21 [−0·30, −0·11]	Estonia	−0·12 [−0·21, −0·03]
Czech Republic	−0·05 [−0·06, −0·03]	Czech Republic	−0·09 [−0·14, −0·04]	Czech Republic	−0·08 [−0·13, −0·03]
Poland	−0·04 [−0·07, −0·01]	Poland	−0·13 [−0·21, −0·06]	Poland	−0·02 [−0·10, 0·05]
RE Model	−0·05 [−0·06, −0·03]	RE Model	−0·13 [−0·17, −0·10]	RE Model	−0·06 [−0·11, −0·02]

Nationally:

	Finland			Germany			Belgium			Estonia			Czech Republic			Poland		
	Coeff	SE	p	Coeff	SE	p	Coeff	SE	p	Coeff	SE	p	Coeff	SE	p	Coeff	SE	p
Health literacy	-0.031	0.012	.009**	-0.057	0.016	< .001***	-0.051	0.017	.004**	-0.058	0.015	< .0001***	-0.046	0.009	< .0001***	-0.040	0.014	.005**
Family support	-0.125	0.043	.004**	-0.157	0.053	.003**	-0.163	0.051	.0014**	-0.209	0.048	< .0001***	-0.088	0.024	< .001***	-0.133	0.039	< .001***
Friend support	0.027	0.047	.57	-0.147	0.054	.007**	-0.043	0.056	.44	-0.123	0.047	.009**	-0.083	0.026	.0013**	-0.024	0.039	.53

- Cross-nationally health literacy (B = -0.05, p < .001), family support (B = -0.13, p < .001) and friend support (B = -0.06, p = .007) were significantly associated with PSMU.

- Nationally health literacy and family support were significantly associated with PSMU in all of the six countries. In relation to friend support, national variation existed in the significant associations.

Supplementary Table 5. The associations between the resources (i.e., health literacy, family support, and friend support) and health outcomes
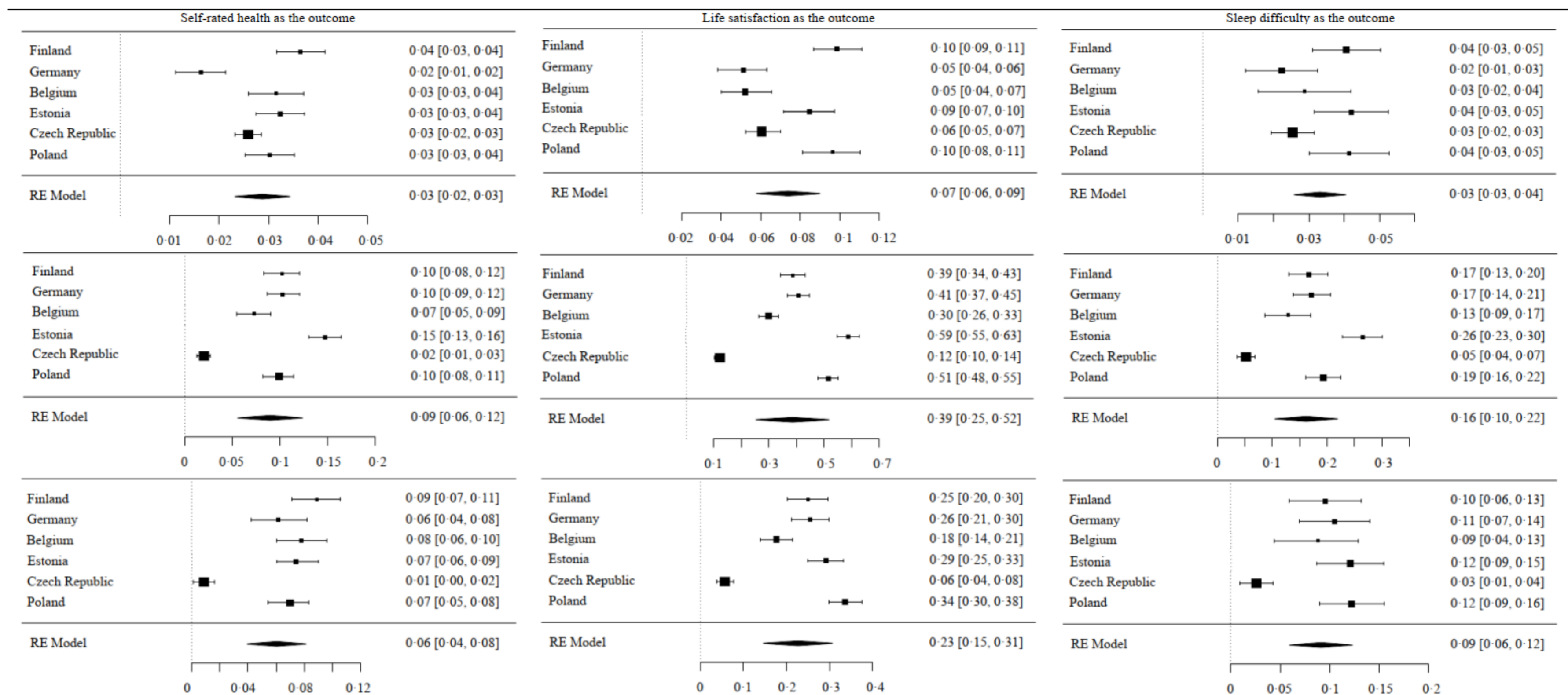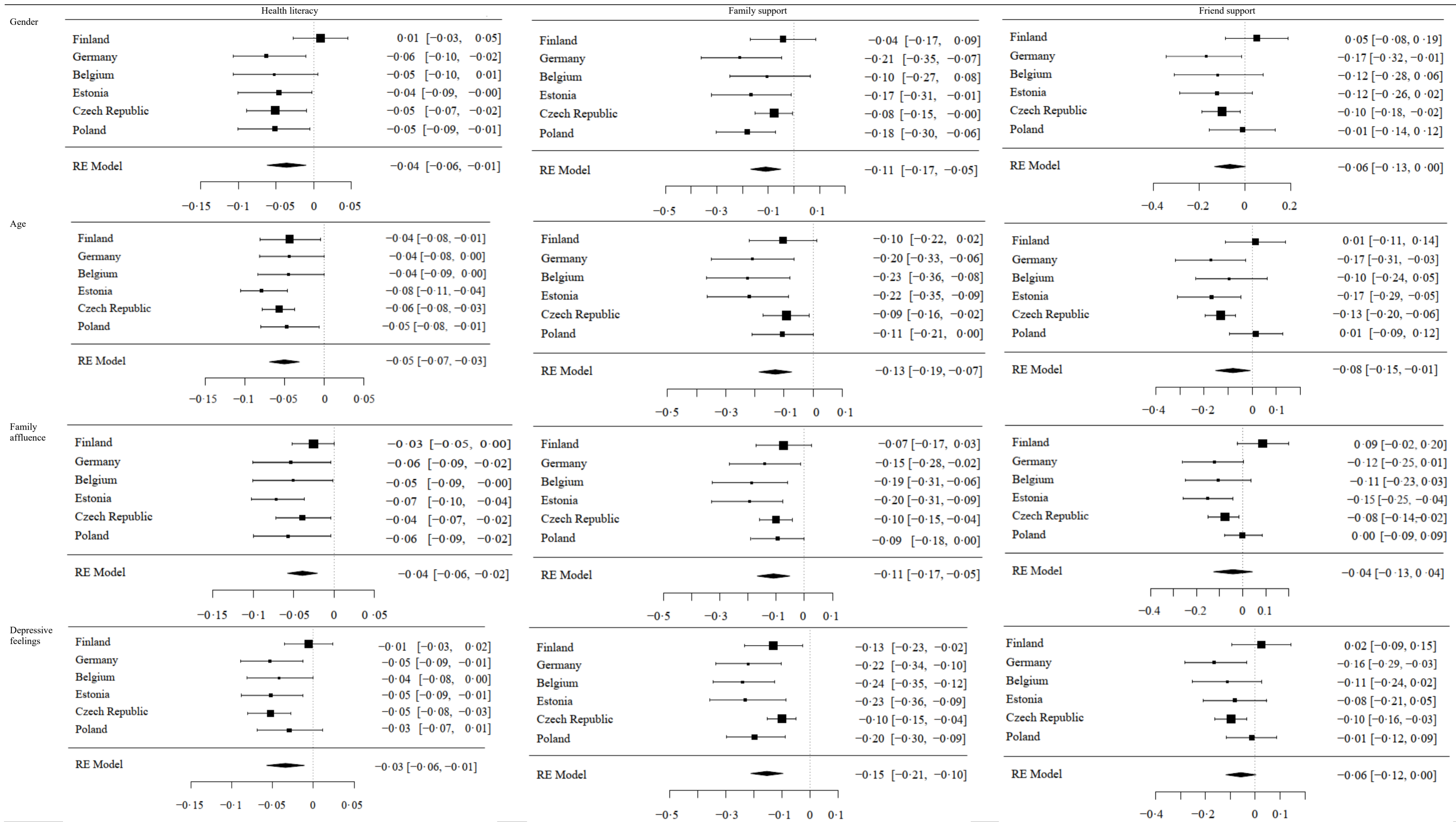
Cross-nationally:

	Self-rated health as the outcome	Life satisfaction as the outcome	Sleep difficulty as the outcome
Health literacy			
Finland	0·04 [0·03, 0·04]	0·10 [0·09, 0·11]	0·04 [0·03, 0·05]
Germany	0·02 [0·01, 0·02]	0·05 [0·04, 0·06]	0·02 [0·01, 0·03]
Belgium	0·03 [0·03, 0·04]	0·05 [0·04, 0·07]	0·03 [0·02, 0·04]
Estonia	0·03 [0·03, 0·04]	0·09 [0·07, 0·10]	0·04 [0·03, 0·05]
Czech Republic	0·03 [0·02, 0·03]	0·06 [0·05, 0·07]	0·03 [0·02, 0·03]
Poland	0·03 [0·03, 0·04]	0·10 [0·08, 0·11]	0·04 [0·03, 0·05]
RE Model	0·03 [0·02, 0·03]	0·07 [0·06, 0·09]	0·03 [0·03, 0·04]
Family support			
Finland	0·10 [0·08, 0·12]	0·39 [0·34, 0·43]	0·17 [0·13, 0·20]
Germany	0·10 [0·09, 0·12]	0·41 [0·37, 0·45]	0·17 [0·14, 0·21]
Belgium	0·07 [0·05, 0·09]	0·30 [0·26, 0·33]	0·13 [0·09, 0·17]
Estonia	0·15 [0·13, 0·16]	0·59 [0·55, 0·63]	0·26 [0·23, 0·30]
Czech Republic	0·02 [0·01, 0·03]	0·12 [0·10, 0·14]	0·05 [0·04, 0·07]
Poland	0·10 [0·08, 0·11]	0·51 [0·48, 0·55]	0·19 [0·16, 0·22]
RE Model	0·09 [0·06, 0·12]	0·39 [0·25, 0·52]	0·16 [0·10, 0·22]
Friend support			
Finland	0·09 [0·07, 0·11]	0·25 [0·20, 0·30]	0·10 [0·06, 0·13]
Germany	0·06 [0·04, 0·08]	0·26 [0·21, 0·30]	0·11 [0·07, 0·14]
Belgium	0·08 [0·06, 0·10]	0·18 [0·14, 0·21]	0·09 [0·04, 0·13]
Estonia	0·07 [0·06, 0·09]	0·29 [0·25, 0·33]	0·12 [0·09, 0·15]
Czech Republic	0·01 [0·00, 0·02]	0·06 [0·04, 0·08]	0·03 [0·01, 0·04]
Poland	0·07 [0·05, 0·08]	0·34 [0·30, 0·38]	0·12 [0·09, 0·16]
RE Model	0·06 [0·04, 0·08]	0·23 [0·15, 0·31]	0·09 [0·06, 0·12]

Nationally:

	Finland Coeff	SE	p	Germany Coeff	SE	p	Belgium Coeff	SE	p	Estonia Coeff	SE	p	Czech Republic Coeff	SE	p	Poland Coeff	SE	p
Self-rated health as the outcome																		
Health literacy	0.037	0.003	< .0001***	0.016	0.003	< .0001***	0.032	0.003	< .0001***	0.032	0.003	< .0001***	0.026	0.001	< .0001***	0.030	0.003	< .0001***
Family support	0.102	0.010	< .0001***	0.103	0.009	< .0001***	0.073	0.009	< .0001***	0.148	0.009	< .0001***	0.020	0.004	< .0001***	0.096	0.007	< .0001***
Friend support	0.086	0.010	<. 0001***	0.060	0.009	< .0001***	0.078	0.009	< .0001***	0.074	0.008	< .0001***	0.009	0.004	.021*	0.068	0.007	< .0001***
Life satisfaction as the outcome																		
Health literacy	0.099	0.006	< .0001***	0.051	0.006	< .0001***	0.054	0.006	< .0001***	0.085	0.006	< .0001***	0.059	0.004	< .0001***	0.096	0.007	< .0001***
Family support	0.386	0.023	< .0001***	0.407	0.021	< .0001***	0.297	0.018	< .0001***	0.588	0.021	< .0001***	0.121	0.009	< .0001***	0.515	0.019	< .0001***
Friend support	0.250	0.024	< .0001***	0.256	0.023	< .0001***	0.177	0.019	< .0001***	0.291	0.021	< .0001***	0.057	0.010	< .0001***	0.337	0.020	< .0001***
Sleep difficulty as the outcome																		
Health literacy	0.041	0.005	< .0001***	0.022	0.005	< .0001***	0.029	0.007	< .0001***	0.042	0.005	< .0001***	0.025	0.003	< .0001***	0.041	0.006	< .0001***
Family support	0.166	0.018	< .0001***	0.172	0.017	< .0001***	0.129	0.021	< .0001***	0.265	0.019	< .0001***	0.053	0.008	< .0001***	0.193	0.016	< .0001***
Friend support	0.095	0.019	< .0001***	0.105	0.018	< .0001***	0.086	0.022	< .0001***	0.120	0.018	< .0001***	0.026	0.009	.003**	0.125	0.016	< .0001***

- Cross-nationally, and nationally health literacy, family support, and friend support were associated with self-rated health, life-satisfaction, and sleep difficulty.

Supplementary Table 6. The associations between the resources (i.e., health literacy, family support, and friend support) and PSMU in the moderator analyses; cross-nationally

Gender

	Health literacy	Family support	Friend support
Finland	0.01 [−0.03, 0.05]	−0.04 [−0.17, 0.09]	0.05 [−0.08, 0.19]
Germany	−0.06 [−0.10, −0.02]	−0.21 [−0.35, −0.07]	−0.17 [−0.32, −0.01]
Belgium	−0.05 [−0.10, 0.01]	−0.10 [−0.27, 0.08]	−0.12 [−0.28, 0.06]
Estonia	−0.04 [−0.09, −0.00]	−0.17 [−0.31, −0.01]	−0.12 [−0.26, 0.02]
Czech Republic	−0.05 [−0.07, −0.02]	−0.08 [−0.15, −0.00]	−0.10 [−0.18, −0.02]
Poland	−0.05 [−0.09, −0.01]	−0.18 [−0.30, −0.06]	−0.01 [−0.14, 0.12]
RE Model	−0.04 [−0.06, −0.01]	−0.11 [−0.17, −0.05]	−0.06 [−0.13, 0.00]

Age

	Health literacy	Family support	Friend support
Finland	−0.04 [−0.08, −0.01]	−0.10 [−0.22, 0.02]	0.01 [−0.11, 0.14]
Germany	−0.04 [−0.08, 0.00]	−0.20 [−0.33, −0.06]	−0.17 [−0.31, −0.03]
Belgium	−0.04 [−0.09, 0.00]	−0.23 [−0.36, −0.08]	−0.10 [−0.24, 0.05]
Estonia	−0.08 [−0.11, −0.04]	−0.22 [−0.35, −0.09]	−0.17 [−0.29, −0.05]
Czech Republic	−0.06 [−0.08, −0.03]	−0.09 [−0.16, −0.02]	−0.13 [−0.20, −0.06]
Poland	−0.05 [−0.08, −0.01]	−0.11 [−0.21, 0.00]	0.01 [−0.09, 0.12]
RE Model	−0.05 [−0.07, −0.03]	−0.13 [−0.19, −0.07]	−0.08 [−0.15, −0.01]

Family affluence

	Health literacy	Family support	Friend support
Finland	−0.03 [−0.05, 0.00]	−0.07 [−0.17, 0.03]	0.09 [−0.02, 0.20]
Germany	−0.06 [−0.09, −0.02]	−0.15 [−0.28, −0.02]	−0.12 [−0.25, 0.01]
Belgium	−0.05 [−0.09, 0.00]	−0.19 [−0.31, −0.06]	−0.11 [−0.23, 0.03]
Estonia	−0.07 [−0.10, −0.04]	−0.20 [−0.31, −0.09]	−0.15 [−0.25, −0.04]
Czech Republic	−0.04 [−0.07, −0.02]	−0.10 [−0.15, −0.04]	−0.08 [−0.14, −0.02]
Poland	−0.06 [−0.09, −0.02]	−0.09 [−0.18, 0.00]	0.00 [−0.09, 0.09]
RE Model	−0.04 [−0.06, −0.02]	−0.11 [−0.17, −0.05]	−0.04 [−0.13, 0.04]

Depressive feelings

	Health literacy	Family support	Friend support
Finland	−0.01 [−0.03, 0.02]	−0.13 [−0.23, −0.02]	0.02 [−0.09, 0.15]
Germany	−0.05 [−0.09, −0.01]	−0.22 [−0.34, −0.10]	−0.16 [−0.29, −0.03]
Belgium	−0.04 [−0.08, 0.00]	−0.24 [−0.35, −0.12]	−0.11 [−0.24, 0.02]
Estonia	−0.05 [−0.09, −0.01]	−0.23 [−0.36, −0.09]	−0.08 [−0.21, 0.05]
Czech Republic	−0.05 [−0.08, −0.03]	−0.10 [−0.15, −0.04]	−0.10 [−0.16, −0.03]
Poland	−0.03 [−0.07, 0.01]	−0.20 [−0.30, −0.09]	−0.01 [−0.12, 0.09]
RE Model	−0.03 [−0.06, −0.01]	−0.15 [−0.21, −0.10]	−0.06 [−0.12, 0.00]

Supplementary Table 7. The associations between the resources (i.e., health literacy, family support, and friend support) and the health outcomes in the moderator analyses; cross-nationally

	Health literacy	Family support	Friend support

Self-rated health

	Health literacy	Family support	Friend support
Finland	0·03 [0·03, 0·04]	0·10 [0·08, 0·12]	0·09 [0·07, 0·11]
Germany	0·02 [0·01, 0·02]	0·10 [0·08, 0·12]	0·06 [0·04, 0·07]
Belgium	0·03 [0·02, 0·04]	0·07 [0·05, 0·09]	0·08 [0·06, 0·10]
Estonia	0·03 [0·03, 0·04]	0·14 [0·12, 0·16]	0·07 [0·06, 0·09]
Czech Republic	0·03 [0·02, 0·03]	0·02 [0·01, 0·03]	0·01 [0·00, 0·02]
Poland	0·03 [0·02, 0·03]	0·09 [0·08, 0·11]	0·07 [0·05, 0·08]
RE Model	0·03 [0·02, 0·03]	0·09 [0·05, 0·12]	0·06 [0·04, 0·08]

Life satisfaction

	Health literacy	Family support	Friend support
Finland	0·09 [0·08, 0·11]	0·39 [0·35, 0·44]	0·26 [0·21, 0·31]
Germany	0·05 [0·04, 0·06]	0·39 [0·35, 0·44]	0·25 [0·20, 0·29]
Belgium	0·05 [0·04, 0·06]	0·30 [0·26, 0·34]	0·17 [0·13, 0·21]
Estonia	0·08 [0·07, 0·10]	0·57 [0·53, 0·61]	0·27 [0·23, 0·32]
Czech Republic	0·06 [0·05, 0·07]	0·12 [0·10, 0·14]	0·06 [0·04, 0·08]
Poland	0·09 [0·08, 0·11]	0·51 [0·47, 0·55]	0·34 [0·30, 0·38]
RE Model	0·07 [0·06, 0·09]	0·38 [0·25, 0·51]	0·23 [0·15, 0·31]

Sleep difficulties

	Health literacy	Family support	Friend support
Finland	0·04 [0·03, 0·05]	0·16 [0·12, 0·20]	0·08 [0·05, 0·12]
Germany	0·02 [0·01, 0·03]	0·17 [0·13, 0·21]	0·10 [0·06, 0·14]
Belgium	0·03 [0·01, 0·04]	0·14 [0·10, 0·18]	0·09 [0·05, 0·14]
Estonia	0·04 [0·03, 0·05]	0·28 [0·24, 0·31]	0·11 [0·08, 0·15]
Czech Republic	0·03 [0·02, 0·03]	0·05 [0·04, 0·07]	0·03 [0·01, 0·04]
Poland	0·04 [0·03, 0·05]	0·19 [0·16, 0·22]	0·12 [0·09, 0·15]
RE Model	0·03 [0·02, 0·04]	0·16 [0·11, 0·22]	0·09 [0·06, 0·12]