

Table S1. Demographic characteristics of the study participants by health conditions.

	Without any health condition	Fatigue	Neck and/or shoulder pain	Sleep deprivation	Back pain	Headache	Common cold and flu	Eye disorders	Dianhea or constipation	Insomnia
Total	968 (100)	1507 (38.8)	1208 (31.1)	1077 (27.7)	938 (24.2)	838 (21.6)	757 (19.5)	516 (13.3)	442 (11.4)	378 (9.7)
Mean HRPL (%) (SD)	16.7 (23.9)	30.5 (26)	32.8 (26.5)	34 (26.3)	33.9 (26.3)	35.3 (27.3)	33.6 (27.9)	32.4 (26.1)	36.2 (27)	40.5 (27.2)
Gender										
Male	606 (62.6)	633 (42)	447 (37)	477 (44.3)	382 (40.7)	283 (33.8)	311 (41.1)	155 (30)	167 (37.8)	170 (45)
Female	362 (37.4)	874 (58)	761 (63)	600 (55.7)	556 (59.3)	555 (66.2)	446 (58.9)	361 (70)	275 (62.2)	208 (55)
Age										
20~29	238 (24.6)	383 (25.4)	335 (27.7)	313 (29.1)	252 (26.9)	247 (29.5)	193 (25.5)	153 (29.7)	140 (31.7)	101 (26.7)
30~39	244 (25.2)	457 (30.3)	390 (32.3)	365 (33.9)	305 (32.5)	285 (34)	243 (32.1)	151 (29.3)	144 (32.6)	137 (36.2)
40~49	260 (26.9)	442 (29.3)	330 (27.3)	281 (26.1)	255 (27.2)	224 (26.7)	211 (27.9)	123 (23.8)	110 (24.9)	88 (23.3)
50~59	160 (16.5)	168 (11.1)	118 (9.8)	91 (8.4)	88 (9.4)	62 (7.4)	82 (10.8)	71 (13.8)	39 (8.8)	35 (9.3)
60~	66 (6.8)	57 (3.8)	35 (2.9)	27 (2.5)	38 (4.1)	20 (2.4)	28 (3.7)	18 (3.5)	9 (2)	17 (4.5)
Education										
≤ High school	196 (20.2)	279 (18.5)	254 (21)	196 (18.2)	206 (22)	155 (18.5)	137 (18.1)	97 (18.8)	78 (17.6)	81 (21.4)
College or University	681 (70.4)	1075 (71.3)	843 (69.8)	774 (71.9)	647 (69)	590 (70.4)	541 (71.5)	365 (70.7)	325 (73.5)	265 (70.1)
Graduate school	91 (9.4)	153 (10.2)	111 (9.2)	107 (9.9)	85 (9.1)	93 (11.1)	79 (10.4)	54 (10.5)	39 (8.8)	32 (8.5)
Annual Household income (KRW, million)										
1st Tercile (−30)	311 (32.1)	493 (32.7)	376 (31.1)	372 (34.5)	315 (33.6)	272 (32.5)	261 (34.5)	164 (31.8)	150 (33.9)	143 (37.8)
2nd Tercile (30–50)	328 (33.9)	516 (34.2)	409 (33.9)	345 (32)	314 (33.5)	282 (33.7)	244 (32.2)	180 (34.9)	132 (29.9)	117 (31)
3rd Tercile (51–75)	329 (34)	498 (33)	423 (35)	360 (33.4)	309 (32.9)	284 (33.9)	252 (33.3)	172 (33.3)	160 (36.2)	118 (31.2)
Marital status										
Single	447 (46.2)	738 (49)	644 (53.3)	616 (57.2)	487 (51.9)	452 (53.9)	384 (50.7)	297 (57.6)	246 (55.7)	222 (58.7)
Married	485 (50.1)	690 (45.8)	514 (42.6)	415 (38.5)	411 (43.8)	350 (41.8)	343 (45.3)	195 (37.8)	177 (40)	137 (36.2)
Separated	13 (1.3)	23 (1.5)	10 (0.8)	12 (1.1)	7 (0.7)	8 (1)	10 (1.3)	8 (1.6)	5 (1.1)	3 (0.8)
Widowed	2 (0.2)	13 (0.9)	10 (0.8)	9 (0.8)	8 (0.9)	6 (0.7)	5 (0.7)	5 (1)	2 (0.5)	4 (1.1)
Divorced	21 (2.2)	43 (2.9)	30 (2.5)	25 (2.3)	25 (2.7)	22 (2.6)	15 (2)	11 (2.1)	12 (2.7)	12 (3.2)
Employment status										
Regular	869 (89.8)	1369 (90.8)	1094 (90.6)	978 (90.8)	839 (89.4)	768 (91.6)	671 (88.6)	476 (92.2)	395 (89.4)	338 (89.4)
Temporary	71 (7.3)	103 (6.8)	91 (7.5)	79 (7.3)	77 (8.2)	58 (6.9)	67 (8.9)	32 (6.2)	36 (8.1)	32 (8.5)
Day labourer	28 (2.9)	35 (2.3)	23 (1.9)	20 (1.9)	22 (2.3)	12 (1.4)	19 (2.5)	8 (1.6)	11 (2.5)	8 (2.1)
Occupation										
White collar	611 (63.1)	1017 (67.5)	799 (66.1)	737 (68.4)	572 (61)	585 (69.8)	525 (69.4)	362 (70.2)	288 (65.2)	256 (67.7)
Blue collar	357 (36.9)	490 (32.5)	409 (33.9)	340 (31.6)	366 (39)	253 (30.2)	232 (30.6)	154 (29.8)	154 (34.8)	122 (32.3)
Weekly working hours										
< 40 hours / week	137 (14.2)	205 (13.6)	168 (13.9)	131 (12.2)	126 (13.4)	116 (13.8)	120 (15.9)	71 (13.8)	70 (15.8)	51 (13.5)
= 40 hours / week	402 (41.5)	570 (37.8)	460 (38.1)	376 (34.9)	342 (36.5)	323 (38.5)	314 (41.5)	209 (40.5)	163 (36.9)	135 (35.7)
41–52 hours / week	281 (29)	500 (33.2)	383 (31.7)	369 (34.3)	297 (31.7)	268 (32)	215 (28.4)	167 (32.4)	136 (30.8)	130 (34.4)
> 52 hours / week	148 (15.3)	232 (15.4)	197 (16.3)	201 (18.7)	173 (18.4)	131 (15.6)	108 (14.3)	69 (13.4)	73 (16.5)	62 (16.4)

Smoking										
No	706 (72.9)	1126 (74.7)	932 (77.2)	784 (72.8)	692 (73.8)	663 (79.1)	562 (74.2)	413 (80)	340 (76.9)	260 (68.8)
Yes	262 (27.1)	381 (25.3)	276 (22.8)	293 (27.2)	246 (26.2)	175 (20.9)	195 (25.8)	103 (20)	102 (23.1)	118 (31.2)
Binge drinking										
No	568 (58.7)	834 (55.3)	690 (57.1)	563 (52.3)	531 (56.6)	486 (58)	415 (54.8)	293 (56.8)	230 (52)	190 (50.3)
Yes	400 (41.3)	673 (44.7)	518 (42.9)	514 (47.7)	407 (43.4)	352 (42)	342 (45.2)	223 (43.2)	212 (48)	188 (49.7)
Exercise										
No	719 (74.3)	1185 (78.6)	953 (78.9)	824 (76.5)	737 (78.6)	645 (77)	575 (76)	398 (77.1)	333 (75.3)	282 (74.6)
Yes	249 (25.7)	322 (21.4)	255 (21.1)	253 (23.5)	201 (21.4)	193 (23)	182 (24)	118 (22.9)	109 (24.7)	96 (25.4)
	Anxiety	Having a hango- ver	Depression	Enterocolitis	Skin disease or itching	Dental problems	Allergic disease	Respiratory symptoms	Urinary symp- toms	Anemia
Total	358 (9.2)	303 (7.8)	296 (7.6)	325 (8.4)	279 (7.2)	213 (5.5)	203 (5.2)	175 (4.5)	175 (4.5)	147 (3.8)
Mean HRPL (%) (SD)	41.2 (26.7)	32 (27.2)	41.3 (25.8)	40.5 (28.2)	33.3 (27.7)	33.2 (25.6)	34.1 (27.5)	39.2 (30.1)	35.2 (27.2)	40.7 (27.4)
Gender										
Male	161 (45)	211 (64.9)	110 (36.3)	131 (44.3)	114 (40.9)	99 (46.5)	58 (28.6)	85 (48.6)	72 (41.1)	33 (22.4)
Female	197 (55)	114 (35.1)	193 (63.7)	165 (55.7)	165 (59.1)	114 (53.5)	145 (71.4)	90 (51.4)	103 (58.9)	114 (77.6)
Age										
20~29	104 (29.1)	86 (26.5)	105 (34.7)	90 (30.4)	81 (29)	41 (19.2)	47 (23.2)	49 (28)	40 (22.9)	50 (34)
30~39	126 (35.2)	106 (32.6)	103 (34)	109 (36.8)	95 (34.1)	67 (31.5)	61 (30)	68 (38.9)	49 (28)	39 (26.5)
40~49	94 (26.3)	96 (29.5)	72 (23.8)	75 (25.3)	71 (25.4)	62 (29.1)	64 (31.5)	39 (22.3)	54 (30.9)	38 (25.9)
50~59	25 (7)	27 (8.3)	17 (5.6)	18 (6.1)	22 (7.9)	27 (12.7)	25 (12.3)	12 (6.9)	13 (7.4)	17 (11.6)
60~	9 (2.5)	10 (3.1)	6 (2)	4 (1.4)	10 (3.6)	16 (7.5)	6 (3)	7 (4)	19 (10.9)	3 (2)
Education										
≤ High school	70 (19.6)	47 (14.5)	65 (21.5)	44 (14.9)	49 (17.6)	39 (18.3)	36 (17.7)	34 (19.4)	28 (16)	35 (23.8)
College or University	253 (70.7)	253 (77.8)	212 (70)	222 (75)	191 (68.5)	148 (69.5)	145 (71.4)	126 (72)	128 (73.1)	103 (70.1)
Graduate school	35 (9.8)	25 (7.7)	26 (8.6)	30 (10.1)	39 (14)	26 (12.2)	22 (10.8)	15 (8.6)	19 (10.9)	9 (6.1)
Annual Household income (KRW, million)										
1st Tercile (−30)	144 (40.2)	102 (31.4)	121 (39.9)	104 (35.1)	97 (34.8)	73 (34.3)	71 (35)	60 (34.3)	72 (41.1)	56 (38.1)
2nd Tercile (30−50)	114 (31.8)	112 (34.5)	98 (32.3)	101 (34.1)	92 (33)	69 (32.4)	59 (29.1)	57 (32.6)	52 (29.7)	44 (29.9)
3rd Tercile (51−75)	100 (27.9)	111 (34.2)	84 (27.7)	91 (30.7)	90 (32.3)	71 (33.3)	73 (36)	58 (33.1)	51 (29.1)	47 (32)
Marital status										
Single	222 (62)	164 (50.5)	194 (64)	170 (57.4)	155 (55.6)	99 (46.5)	105 (51.7)	97 (55.4)	79 (45.1)	83 (56.5)
Married	121 (33.8)	152 (46.8)	96 (31.7)	114 (38.5)	113 (40.5)	105 (49.3)	88 (43.4)	67 (38.3)	88 (50.3)	55 (37.4)
Separated	2 (0.6)	1 (0.3)	1 (0.3)	1 (0.3)	4 (1.4)	2 (0.9)	1 (0.5)	2 (1.1)	3 (1.7)	3 (2)
Widowed	5 (1.4)	1 (0.3)	2 (0.7)	1 (0.3)	2 (0.7)	2 (0.9)	0 (0)	3 (1.7)	0 (0)	1 (0.7)
Divorced	8 (2.2)	7 (2.2)	10 (3.3)	10 (3.4)	5 (1.8)	5 (2.3)	9 (4.4)	6 (3.4)	5 (2.9)	5 (3.4)
Employment status										
Regular	321 (89.7)	303 (93.2)	266 (87.8)	267 (90.2)	254 (91)	195 (91.5)	182 (89.7)	148 (84.6)	155 (88.6)	132 (89.8)
Temporary	23 (6.4)	19 (5.8)	27 (8.9)	22 (7.4)	23 (8.2)	17 (8)	19 (9.4)	23 (13.1)	15 (8.6)	12 (8.2)
Day labourer	14 (3.9)	3 (0.9)	10 (3.3)	7 (2.4)	2 (0.7)	1 (0.5)	2 (1)	4 (2.3)	5 (2.9)	3 (2)
Occupation										
White collar	236 (65.9)	229 (70.5)	206 (68)	212 (71.6)	172 (61.6)	149 (70)	140 (69)	94 (53.7)	108 (61.7)	93 (63.3)

Blue collar	122 (34.1)	96 (29.5)	97 (32)	84 (28.4)	107 (38.4)	64 (30)	63 (31)	81 (46.3)	67 (38.3)	54 (36.7)
Weekly working hours										
< 40 hours / week	43 (12)	27 (8.3)	48 (15.8)	37 (12.5)	37 (13.3)	28 (13.1)	31 (15.3)	26 (14.9)	29 (16.6)	23 (15.6)
= 40 hours / week	125 (34.9)	114 (35.1)	105 (34.7)	116 (39.2)	106 (38)	77 (36.2)	72 (35.5)	55 (31.4)	66 (37.7)	53 (36.1)
41–52 hours / week	118 (33)	113 (34.8)	101 (33.3)	87 (29.4)	84 (30.1)	70 (32.9)	67 (33)	55 (31.4)	58 (33.1)	50 (34)
> 52 hours / week	72 (20.1)	71 (21.8)	49 (16.2)	56 (18.9)	52 (18.6)	38 (17.8)	33 (16.3)	39 (22.3)	22 (12.6)	21 (14.3)
Smoking										
No	270 (75.4)	177 (54.5)	232 (76.6)	216 (73)	203 (72.8)	152 (71.4)	163 (80.3)	122 (69.7)	148 (84.6)	112 (76.2)
Yes	88 (24.6)	148 (45.5)	71 (23.4)	80 (27)	76 (27.2)	61 (28.6)	40 (19.7)	53 (30.3)	27 (15.4)	35 (23.8)
Binge drinking										
No	190 (53.1)	52 (16)	162 (53.5)	146 (49.3)	148 (53)	113 (53.1)	108 (53.2)	93 (53.1)	107 (61.1)	90 (61.2)
Yes	168 (46.9)	273 (84)	141 (46.5)	150 (50.7)	131 (47)	100 (46.9)	95 (46.8)	82 (46.9)	68 (38.9)	57 (38.8)
Exercise										
No	263 (73.5)	238 (73.2)	240 (79.2)	231 (78)	224 (80.3)	161 (75.6)	159 (78.3)	141 (80.6)	141 (80.6)	117 (79.6)
Yes	95 (26.5)	87 (26.8)	63 (20.8)	65 (22)	55 (19.7)	52 (24.4)	44 (21.7)	34 (19.4)	34 (19.4)	30 (20.4)
	Esophagitis	Hypertension	Gastric ulcer or duodenal ulcer	Upper limb or lower limb pain	Dyslipidemia	Post-menopausal or post-andropausal symptoms	Hearing impairment	Asthma	Diabetes melli- tus	Etc.
Total	144 (3.7)	117 (3)	119 (3.1)	106 (2.7)	91 (2.3)	83 (2.1)	80 (2.1)	47 (1.2)	51 (1.3)	47 (1.2)
Mean HRPL (%) (SD)	38.5 (26.7)	33.5 (26)	41.7 (31)	36.9 (27.4)	37.2 (26.3)	32 (28.6)	40 (26.6)	32.2 (25.7)	34.9 (28.6)	28.8 (25)
Gender										
Male	62 (43.1)	96 (80.7)	50 (42.7)	35 (33)	65 (71.4)	16 (20)	53 (63.9)	32 (62.7)	35 (74.5)	15 (31.9)
Female	82 (56.9)	23 (19.3)	67 (57.3)	71 (67)	26 (28.6)	64 (80)	30 (36.1)	19 (37.3)	12 (25.5)	32 (68.1)
Age										
20~29	35 (24.3)	10 (8.4)	12 (10.3)	23 (21.7)	1 (1.1)	0 (0)	29 (34.9)	9 (17.6)	6 (12.8)	11 (23.4)
30~39	43 (29.9)	19 (16)	42 (35.9)	25 (23.6)	11 (12.1)	2 (2.5)	23 (27.7)	15 (29.4)	4 (8.5)	21 (44.7)
40~49	48 (33.3)	37 (31.1)	46 (39.3)	35 (33)	34 (37.4)	25 (31.3)	16 (19.3)	17 (33.3)	12 (25.5)	7 (14.9)
50~59	16 (11.1)	30 (25.2)	12 (10.3)	19 (17.9)	29 (31.9)	43 (53.8)	11 (13.3)	5 (9.8)	15 (31.9)	7 (14.9)
60~	2 (1.4)	23 (19.3)	5 (4.3)	4 (3.8)	16 (17.6)	10 (12.5)	4 (4.8)	5 (9.8)	10 (21.3)	1 (2.1)
Education										
≤ High school	27 (18.8)	27 (22.7)	15 (12.8)	25 (23.6)	11 (12.1)	22 (27.5)	22 (26.5)	11 (21.6)	6 (12.8)	11 (23.4)
College or University	96 (66.7)	82 (68.9)	83 (70.9)	69 (65.1)	63 (69.2)	45 (56.3)	55 (66.3)	36 (70.6)	32 (68.1)	36 (76.6)
Graduate school	21 (14.6)	10 (8.4)	19 (16.2)	12 (11.3)	17 (18.7)	13 (16.3)	6 (7.2)	4 (7.8)	9 (19.1)	0 (0)
Annual Household income (KRW, million)										
1st Tercile (–30)	36 (25)	35 (29.4)	35 (29.9)	34 (32.1)	18 (19.8)	28 (35)	29 (34.9)	21 (41.2)	12 (25.5)	12 (25.5)
2nd Tercile (30–50)	54 (37.5)	53 (44.5)	37 (31.6)	43 (40.6)	33 (36.3)	28 (35)	33 (39.8)	13 (25.5)	19 (40.4)	18 (38.3)
3rd Tercile (51–75)	54 (37.5)	31 (26.1)	45 (38.5)	29 (27.4)	40 (44)	24 (30)	21 (25.3)	17 (33.3)	16 (34)	17 (36.2)
Marital status										
Single	65 (45.1)	29 (24.4)	48 (41)	45 (42.5)	16 (17.6)	11 (13.8)	51 (61.4)	20 (39.2)	14 (29.8)	28 (59.6)
Married	75 (52.1)	80 (67.2)	66 (56.4)	58 (54.7)	72 (79.1)	57 (71.3)	30 (36.1)	28 (54.9)	31 (66)	18 (38.3)
Separated	1 (0.7)	0 (0)	1 (0.9)	0 (0)	1 (1.1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (2.1)
Widowed	0 (0)	2 (1.7)	0 (0)	2 (1.9)	0 (0)	5 (6.3)	0 (0)	1 (2)	0 (0)	0 (0)

Divorced	3 (2.1)	8 (6.7)	2 (1.7)	1 (0.9)	2 (2.2)	7 (8.8)	2 (2.4)	2 (3.9)	2 (4.3)	0 (0)
Employment status										
Regular	129 (89.6)	109 (91.6)	104 (88.9)	92 (86.8)	81 (89)	69 (86.3)	68 (81.9)	45 (88.2)	44 (93.6)	43 (91.5)
Temporary	13 (9)	7 (5.9)	10 (8.5)	12 (11.3)	9 (9.9)	11 (13.8)	13 (15.7)	6 (11.8)	3 (6.4)	2 (4.3)
Day labourer	2 (1.4)	3 (2.5)	3 (2.6)	2 (1.9)	1 (1.1)	0 (0)	2 (2.4)	0 (0)	0 (0)	2 (4.3)
Occupation										
White collar	89 (61.8)	73 (61.3)	76 (65)	44 (41.5)	59 (64.8)	46 (57.5)	39 (47)	36 (70.6)	32 (68.1)	34 (72.3)
Blue collar	55 (38.2)	46 (38.7)	41 (35)	62 (58.5)	32 (35.2)	34 (42.5)	44 (53)	15 (29.4)	15 (31.9)	13 (27.7)
Weekly working hours										
< 40 hours / week	16 (11.1)	16 (13.4)	14 (12)	15 (14.2)	11 (12.1)	15 (18.8)	14 (16.9)	6 (11.8)	9 (19.1)	9 (19.1)
= 40 hours / week	54 (37.5)	35 (29.4)	35 (29.9)	42 (39.6)	26 (28.6)	37 (46.3)	33 (39.8)	19 (37.3)	22 (46.8)	18 (38.3)
41–52 hours / week	49 (34)	44 (37)	48 (41)	32 (30.2)	31 (34.1)	14 (17.5)	18 (21.7)	14 (27.5)	9 (19.1)	14 (29.8)
> 52 hours / week	25 (17.4)	24 (20.2)	20 (17.1)	17 (16)	23 (25.3)	14 (17.5)	18 (21.7)	12 (23.5)	7 (14.9)	6 (12.8)
Smoking										
No	101 (70.1)	72 (60.5)	95 (81.2)	82 (77.4)	54 (59.3)	70 (87.5)	59 (71.1)	34 (66.7)	18 (38.3)	40 (85.1)
Yes	43 (29.9)	47 (39.5)	22 (18.8)	24 (22.6)	37 (40.7)	10 (12.5)	24 (28.9)	17 (33.3)	29 (61.7)	7 (14.9)
Binge drinking										
No	79 (54.9)	55 (46.2)	63 (53.8)	66 (62.3)	48 (52.7)	53 (66.3)	48 (57.8)	24 (47.1)	21 (44.7)	30 (63.8)
Yes	65 (45.1)	64 (53.8)	54 (46.2)	40 (37.7)	43 (47.3)	27 (33.8)	35 (42.2)	27 (52.9)	26 (55.3)	17 (36.2)
Exercise										
No	105 (72.9)	93 (78.2)	85 (72.7)	87 (82.1)	71 (78)	67 (83.8)	64 (77.1)	35 (68.6)	36 (76.6)	32 (68.1)
Yes	39 (27.1)	26 (21.8)	32 (27.4)	19 (17.9)	20 (22)	13 (16.3)	19 (22.9)	16 (31.4)	11 (23.4)	15 (31.9)
	Liver disease	Cardiac disease	Osteoporosis	Cancer	Infertility treatment					
Total	29 (0.7)	27 (0.7)	32 (0.8)	21 (0.5)	11 (0.3)					
Mean HRPL (%) (SD)	30.6 (28.4)	38.2 (23.2)	41 (30.5)	40.9 (31.4)	49.2 (23.2)					
Gender										
Male	26 (81.3)	23 (79.3)	3 (11.1)	14 (66.7)	3 (27.3)					
Female	6 (18.8)	6 (20.7)	24 (88.9)	7 (33.3)	8 (72.7)					
Age										
20~29	7 (21.9)	6 (20.7)	6 (22.2)	3 (14.3)	2 (18.2)					
30~39	7 (21.9)	2 (6.9)	4 (14.8)	3 (14.3)	5 (45.5)					
40~49	11 (34.4)	9 (31)	4 (14.8)	7 (33.3)	3 (27.3)					
50~59	5 (15.6)	9 (31)	8 (29.6)	8 (38.1)	1 (9.1)					
60~	2 (6.3)	3 (10.3)	5 (18.5)	0 (0)	0 (0)					
Education										
≤ High school	5 (15.6)	8 (27.6)	9 (33.3)	2 (9.5)	0 (0)					
College or University	25 (78.1)	18 (62.1)	14 (51.9)	17 (81)	7 (63.6)					
Graduate school	2 (6.3)	3 (10.3)	4 (14.8)	2 (9.5)	4 (36.4)					
Annual Household income (KRW, million)										
1st Tercile (–30)	10 (31.3)	6 (20.7)	10 (37)	6 (28.6)	4 (36.4)					
2nd Tercile (30–50)	7 (21.9)	8 (27.6)	9 (33.3)	4 (19)	3 (27.3)					

3rd Tercile (51–75)	15 (46.9)	15 (51.7)	8 (29.6)	11 (52.4)	4 (36.4)
Marital status					
Single	12 (37.5)	8 (27.6)	9 (33.3)	4 (19)	2 (18.2)
Married	19 (59.4)	19 (65.5)	14 (51.9)	16 (76.2)	8 (72.7)
Separated	0 (0)	0 (0)	0 (0)	1 (4.8)	1 (9.1)
Widowed	0 (0)	0 (0)	2 (7.4)	0 (0)	0 (0)
Divorced	1 (3.1)	2 (6.9)	2 (7.4)	0 (0)	0 (0)
Employment status					
Regular	28 (87.5)	27 (93.1)	24 (88.9)	21 (100)	8 (72.7)
Temporary	4 (12.5)	1 (3.4)	2 (7.4)	0 (0)	3 (27.3)
Day labourer	0 (0)	1 (3.4)	1 (3.7)	0 (0)	0 (0)
Occupation					
White collar	24 (75)	16 (55.2)	13 (48.1)	15 (71.4)	9 (81.8)
Blue collar	8 (25)	13 (44.8)	14 (51.9)	6 (28.6)	2 (18.2)
Weekly working hours					
< 40 hours / week	3 (9.4)	2 (6.9)	8 (29.6)	4 (19)	2 (18.2)
= 40 hours / week	10 (31.3)	11 (37.9)	8 (29.6)	9 (42.9)	4 (36.4)
41–52 hours / week	12 (37.5)	8 (27.6)	6 (22.2)	5 (23.8)	3 (27.3)
> 52 hours / week	7 (21.9)	8 (27.6)	5 (18.5)	3 (14.3)	2 (18.2)
Smoking					
No	14 (43.8)	21 (72.4)	22 (81.5)	18 (85.7)	9 (81.8)
Yes	18 (56.3)	8 (27.6)	5 (18.5)	3 (14.3)	2 (18.2)
Binge drinking					
No	14 (43.8)	19 (65.5)	17 (63)	15 (71.4)	9 (81.8)
Yes	18 (56.3)	10 (34.5)	10 (37)	6 (28.6)	2 (18.2)
Exercise					
No	25 (78.1)	19 (65.5)	24 (88.9)	14 (66.7)	10 (90.9)
Yes	7 (21.9)	10 (34.5)	3 (11.1)	7 (33.3)	1 (9.1)

Table S2. HRPL by the health conditions, comparing to the participants without any health conditions.

Health Condition	Total				Male				Female			
	n (%)	Rank	The ratio of HRPL		n (%)	Rank (vs. without any health conditions) *	p-value	n (%)	Rank (vs. without any health conditions) *	p-value		
			(vs. without any health conditions) *									
Fatigue	1507 (38.8)	1	1.79	<.0001	633 (32.6)	1	1.72	<.0001	874 (45.1)	1	1.96	<.0001
Neck and/or shoulder pain	1208 (31.1)	2	1.92	<.0001	447 (23)	3	1.86	<.0001	761 (39.3)	2	2.03	<.0001
Sleep deprivation	1077 (27.7)	3	1.96	<.0001	477 (24.5)	2	1.83	<.0001	600 (31)	3	2.18	<.0001
Back pain	938 (24.2)	4	2.00	<.0001	382 (19.7)	4	1.87	<.0001	556 (28.7)	4	2.20	<.0001
Headache	838 (21.6)	5	2.06	<.0001	283 (14.6)	6	1.98	<.0001	555 (28.6)	5	2.18	<.0001
Common cold and flu	757 (19.5)	6	1.98	<.0001	311 (16)	5	1.95	<.0001	446 (23)	6	2.08	<.0001
Eye disorders	516 (13.3)	7	1.95	<.0001	155 (8)	11	2.00	0.0002	361 (18.6)	7	1.94	<.0001
Diarrhea or constipation	442 (11.4)	8	2.14	<.0001	167 (8.6)	9	2.01	0.0001	275 (14.2)	8	2.24	<.0001
Insomnia	378 (9.7)	9	2.39	<.0001	170 (8.7)	8	2.33	<.0001	208 (10.7)	9	2.53	<.0001
Anxiety	358 (9.2)	10	2.46	<.0001	161 (8.3)	10	2.40	<.0001	197 (10.2)	10	2.62	<.0001
Having a hangover	303 (7.8)	12	2.42	<.0001	211 (10.9)	7	2.02	<.0001	114 (5.9)	15	1.88	0.0075
Depression	296 (7.6)	13	2.38	<.0001	110 (5.7)	14	2.40	<.0001	193 (10)	11	2.48	<.0001
Enterocolitis	325 (8.4)	11	1.93	<.0001	131 (6.7)	12	2.43	<.0001	165 (8.5)	12	2.44	<.0001
Skin disease or itching	279 (7.2)	14	1.94	<.0001	114 (5.9)	13	1.78	0.0093	165 (8.5)	12	2.13	<.0001
Dental problems	213 (5.5)	15	2.01	<.0001	99 (5.1)	15	1.91	0.0063	114 (5.9)	15	2.24	0.0004
Allergic disease	203 (5.2)	16	2.04	<.0001	58 (3)	21	1.99	0.0296	145 (7.5)	14	2.13	0.0002
Respiratory symptoms	175 (4.5)	17	2.25	<.0001	85 (4.4)	17	2.13	0.0036	90 (4.6)	19	2.52	0.0003
Urinary symptoms	175 (4.5)	17	2.14	<.0001	72 (3.7)	18	2.20	0.0046	103 (5.3)	18	1.93	0.0073
Anemia	147 (3.8)	19	2.47	<.0001	33 (1.7)	26	2.50	0.0260	114 (5.9)	15	2.46	<.0001
Esophagitis	144 (3.7)	20	2.36	<.0001	62 (3.2)	20	2.19	0.0102	82 (4.2)	20	2.65	0.0002
Hypertension	117 (3)	22	2.56	0.0002	96 (4.9)	16	2.24	0.0011	23 (1.2)	28	2.72	0.0617
Gastric ulcer or duodenal ulcer	119 (3.1)	21	2.28	<.0001	50 (2.6)	23	2.66	0.0039	67 (3.5)	22	2.54	0.0017
Upper limb or lower limb pain	106 (2.7)	23	2.34	0.0003	35 (1.8)	24	2.57	0.0192	71 (3.7)	21	2.31	0.0039
Dyslipidemia	91 (2.3)	24	2.58	0.0002	65 (3.3)	19	2.72	0.0007	26 (1.3)	26	2.58	0.0578
Post-menopausal or post-andropausal symptoms	83 (2.1)	25	2.47	0.0020	16 (0.8)	30	2.74	0.0906	64 (3.3)	23	2.58	0.0076
Hearing impairment	80 (2.1)	26	2.41	0.0007	53 (2.7)	22	2.10	0.0216	30 (1.6)	25	2.74	0.0217
Asthma	47 (1.2)	28	2.32	0.0378	32 (1.7)	27	1.76	0.1833	19 (1)	29	2.47	0.1038

Health Condition	Total				Male				Female			
	n (%)	Rank	The ratio of HRPL		n (%)	Rank	The ratio of HRPL		n (%)	Rank	The ratio of HRPL	
			(vs. without any health conditions)	* <i>p</i> -value			(vs. without any health condi- tions) *	<i>p</i> - value			(vs. without any health condi- tions) *	<i>p</i> - value
Diabetes mellitus	51 (1.3)	27	2.00	0.0166	35 (1.8)	24	2.15	0.0607	12 (0.6)	30	2.90	0.1313
Etc.	47 (1.2)	28	1.60	0.1901	15 (0.8)	31	1.25	0.7218	32 (1.7)	24	1.87	0.1557
Liver disease	29 (0.7)	31	2.55	0.1050	26 (1.3)	28	2.02	0.1313	6 (0.3)	33	2.07	0.4786
Cardiac disease	27 (0.7)	32	2.67	0.0336	23 (1.2)	29	2.72	0.0410	6 (0.3)	33	2.75	0.3069
Osteoporosis	32 (0.8)	30	1.99	0.0435	3 (0.2)	33	2.05	0.6057	24 (1.2)	27	2.74	0.0516
Cancer	21 (0.5)	33	2.71	0.0562	14 (0.7)	32	2.28	0.1924	7 (0.4)	32	4.40	0.1122
Infertility treatment	11 (0.3)	34	2.86	0.1471	3 (0.2)	33	2.32	0.5407	8 (0.4)	31	2.82	0.2292

* The ratio of HRPL of participants with a specific health condition to HRPL of participants without any health conditions, calculated by negative binomial regression models, adjusted for age, gender, education level, household income, marital status, employment status, and weekly working hours. HRPL: health-related productivity loss, $p < 0.0014$ was in bold.

Table S3. Absenteeism and presenteeism according to symptom, comparing to the participants without any health conditions.

Health Conditions	n (%)	Rank	Absenteeism			Presenteeism		
			The ratio of absenteeism (vs. without any health conditions)	*p-value	Rank	The ratio of presenteeism (vs. without any health conditions)	*p-value	Rank
Fatigue	1507 (38.8)	1	2.19	0.0018	33	1.80	<.0001	33
Neck and/or shoulder pain	1208 (31.1)	2	2.26	0.0022	31	1.93	<.0001	31
Sleep deprivation	1077 (27.7)	3	2.28	0.0030	30	1.97	<.0001	30
Back pain	938 (24.2)	4	2.49	0.0018	28	2.01	<.0001	28
Headache	838 (21.6)	5	2.77	0.0002	21	2.06	<.0001	21
Common cold and flu	757 (19.5)	6	3.16	< 0.0001	18	1.98	<.0001	18
Eye disorders	516 (13.3)	7	2.64	0.0045	25	1.95	<.0001	25
Diarrhea or constipation	442 (11.4)	8	2.24	0.0232	32	2.13	<.0001	32
Insomnia	378 (9.7)	9	3.69	0.0005	14	2.39	<.0001	14
Anxiety	358 (9.2)	10	4.03	0.0004	13	2.47	<.0001	13
Having a hangover	303 (7.8)	12	2.66	0.0353	24	1.90	<.0001	24
Depression	296 (7.6)	13	2.85	0.0184	20	2.43	<.0001	20
Enterocolitis	325 (8.4)	11	3.10	0.0063	19	2.41	<.0001	19
Skin disease or itching	279 (7.2)	14	2.52	0.0506	26	1.96	<.0001	26
Dental problems	213 (5.5)	15	2.72	0.0611	22	2.01	<.0001	22
Allergic disease	203 (5.2)	16	2.71	0.0773	23	2.05	<.0001	23
Respiratory symptoms	175 (4.5)	17	5.09	0.0040	7	2.22	<.0001	7
Urinary symptoms	175 (4.5)	17	2.52	0.1537	27	2.16	<.0001	27
Anemia	147 (3.8)	19	4.69	0.0202	8	2.44	<.0001	8
Esophagitis	144 (3.7)	20	3.18	0.0952	17	2.39	<.0001	17
Hypertension	117 (3)	22	5.13	0.0136	6	2.24	0.0004	6
Gastric ulcer or duodenal ulcer	119 (3.1)	21	4.51	0.0310	10	2.58	<.0001	10
Upper limb or lower limb pain	106 (2.7)	23	3.35	0.1157	16	2.36	0.0003	16
Dyslipidemia	91 (2.3)	24	5.79	0.0144	5	2.53	0.0004	5
Post-menopausal or post-andropausal symptoms	83 (2.1)	25	3.62	0.1590	15	2.45	0.0026	15
Hearing impairment	80 (2.1)	26	4.24	0.0966	12	2.40	0.0009	12
Asthma	47 (1.2)	28	4.30	0.1999	11	1.96	0.0486	11
Diabetes mellitus	51 (1.3)	27	6.56	0.0965	4	2.08	0.0419	4
Etc.	47 (1.2)	28	0.04	0.0457	34	1.65	0.1696	34
Liver disease	29 (0.7)	31	13.46	0.0645	3	1.72	0.2120	3
Cardiac disease	27 (0.7)	32	2.37	0.5511	29	2.57	0.0359	29
Osteoporosis	32 (0.8)	30	4.55	0.3567	9	2.64	0.0505	9
Cancer	21 (0.5)	33	28.84	0.0903	1	2.70	0.0625	1
Infertility treatment	11 (0.3)	34	14.97	0.4629	2	2.93	0.1456	2

* The ratio of absenteeism and presenteeism of participants with a specific health condition to HRPL of participants without any health conditions, calculated by negative binomial regression models, adjusted for age, gender, education level, household income, marital status, employment status, and weekly working hours. HRPL: health-related productivity loss, $p < 0.0014$ was in bold.

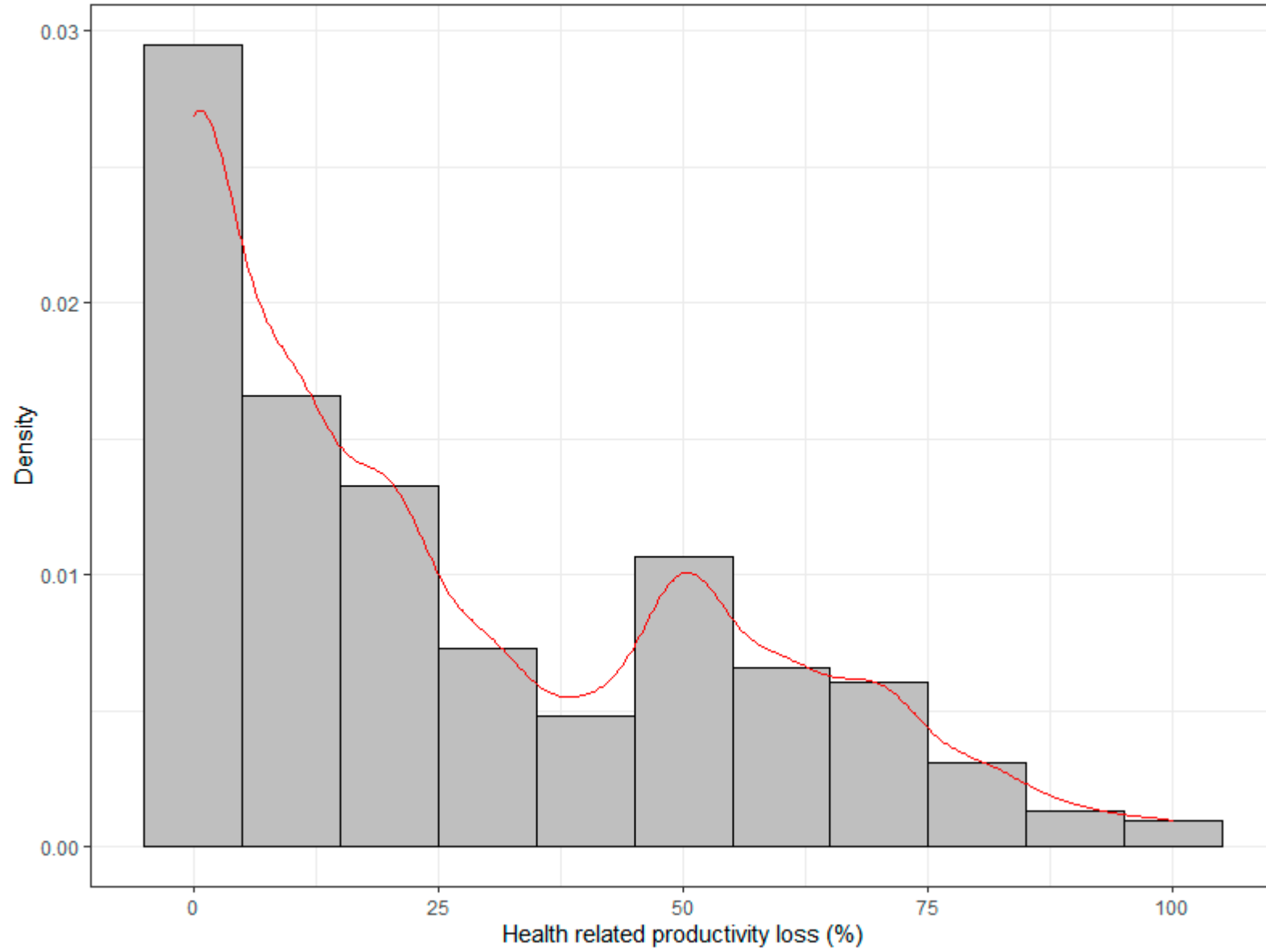


Figure S1. Histogram of health-related productivity loss among the participants.

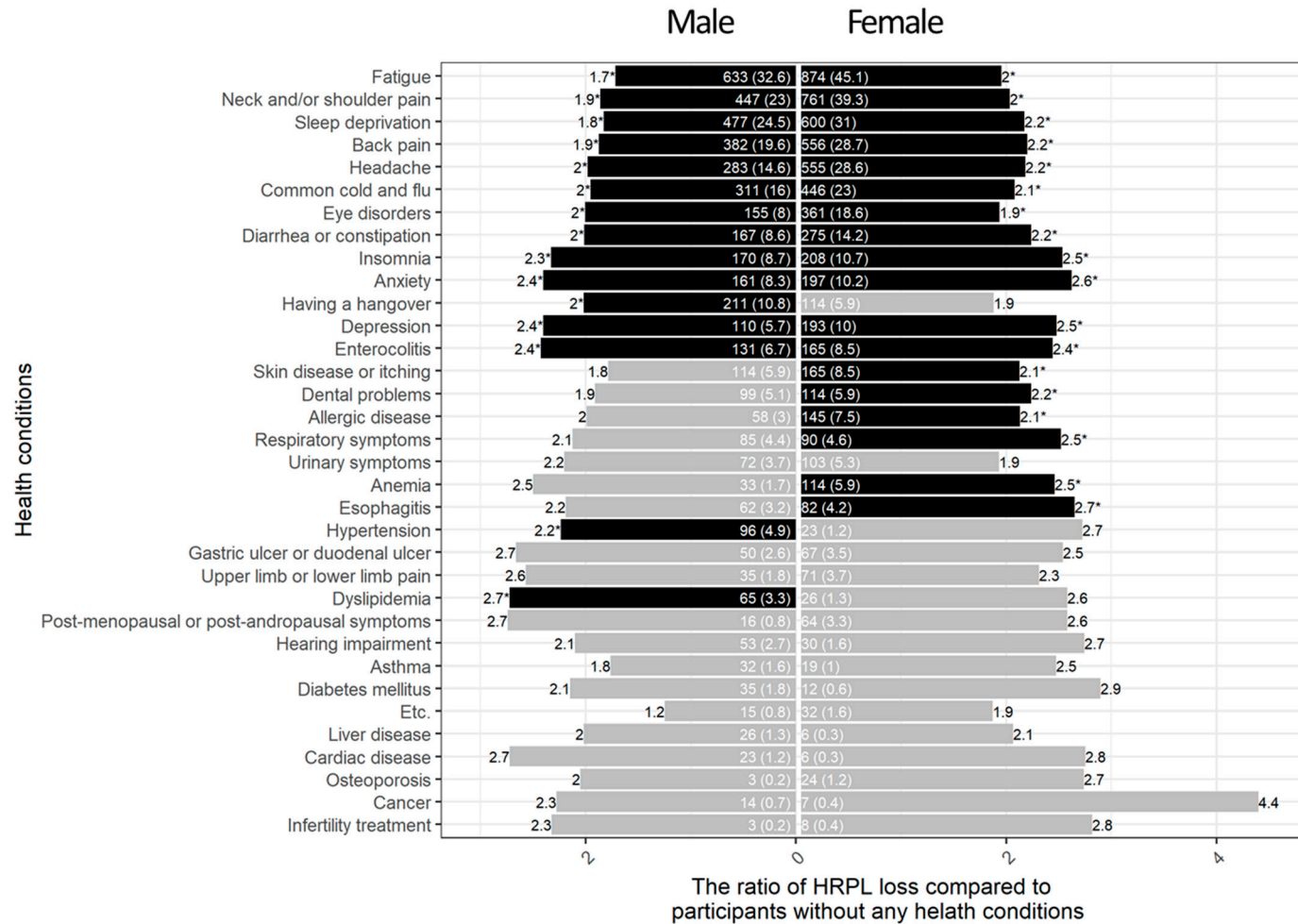


Figure S2. Percent HRPL according to health conditions, comparing to the participants without any health conditions by gender.

Percent health-related productivity loss among workers with specific health conditions, comparing to the participants without any health conditions. The number of workers and percent who complaint specific health conditions were presented in the bottom of the bar plot. The ratio of HRPL loss of participants with specific health conditions to participants without any health conditions was calculated with the adjustment for age, gender, education level, household income, marital status, employment status, and weekly working hours. * $p < 0.0014$ was in black.

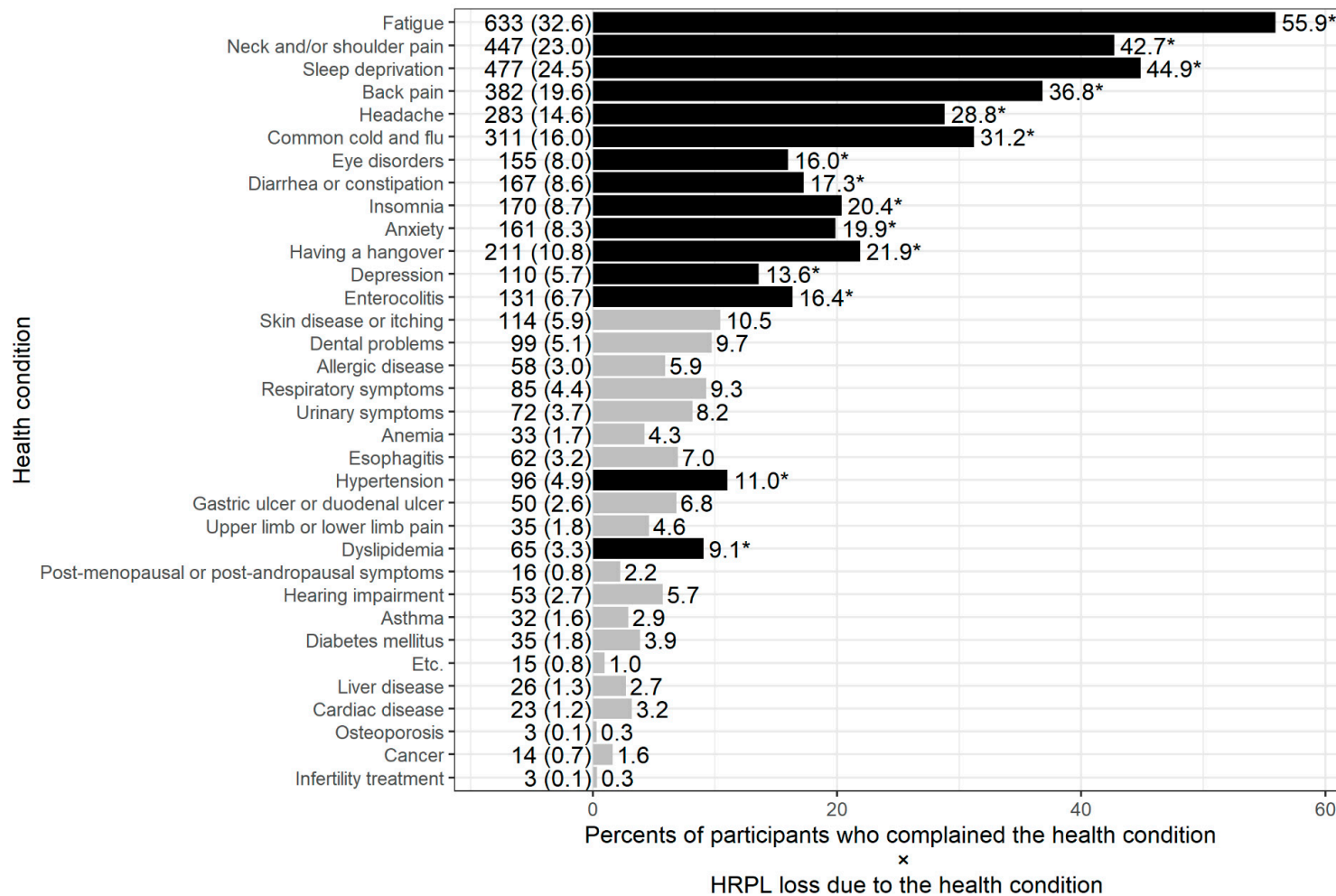


Figure S3. Work impairment burden of health conditions comparing to the participants without any health conditions (male).

Percent health-related productivity loss among workers with specific health conditions, comparing to the participants without any health conditions. The number of workers and percent who complaint specific health conditions were presented in the bottom of the bar plot The ratio of HRPL loss of participants with specific health conditions to participants without any health conditions was calculated with the adjustment for age, gender, education level, household income, marital status, employment status, and weekly working hours. * $p < 0.0014$ was in black.

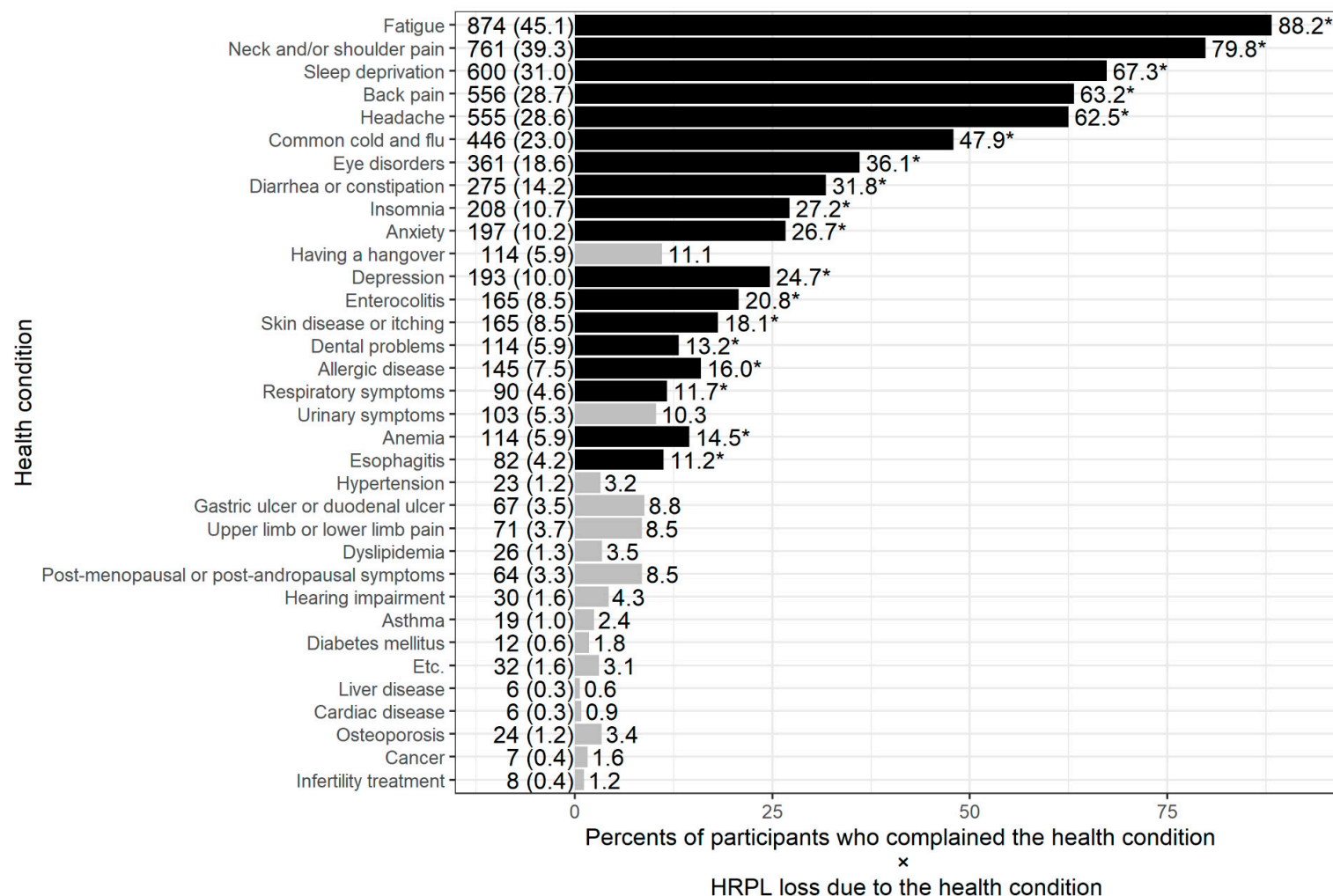


Figure S4. Work impairment burden of health conditions comparing to the participants without any health conditions (female).

Percent health-related productivity loss among workers with specific health conditions, comparing to the participants without any health conditions. The number of workers and percent who complaint specific health conditions were presented in the bottom of the bar plot. The ratio of HRPL loss of participants with specific health conditions to participants without any health conditions was calculated with the adjustment for age, gender, education level, household income, marital status, employment status, and weekly working hours. * $p < 0.0014$ was in black.