Data analysis supplement to the research article "Lahti, Lauri (2022), Detecting the patient's need for help with machine learning based on expressions" to appear in the journal "BMC Medical Research Methodology" (this is Additional file 1 of that research article)

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Additional file 1

Supplementary Table 1. Kendall rank-correlation and cosine similarity measures for each comparable pair of parameter values of the "need for help" ratings of expression statements ES1-ES20 and the answers of the background questions BQ1 and BQ5-BQ7 (n=673).
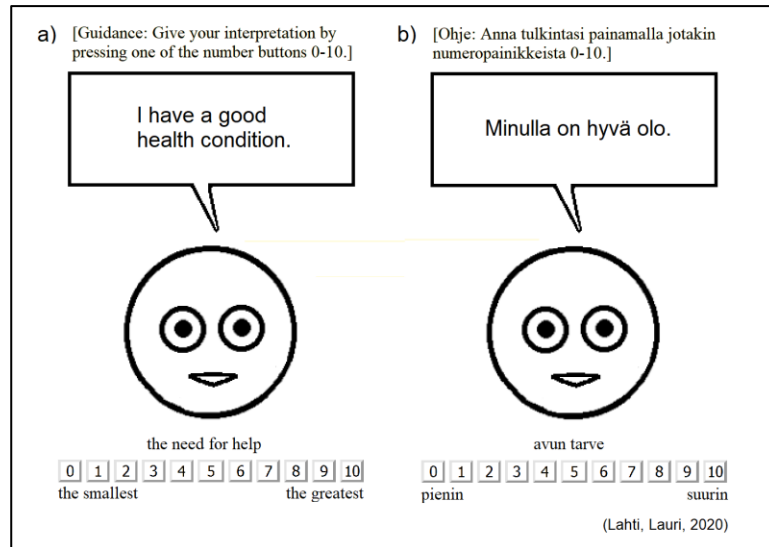Kendall rank-correlation measures are shown on the upper-right region of the table and cosine similarity measures are shown on the lower-left region of the table.
Before computing cosine similarity measures the answer values of each parameter were normalized by the formula $(x - min(x))/(max(x)-min(x))$ and then these new values were shifted so that the mean value was positioned to the zero by the formula $(x - mean(x))$. The statistical significance levels were defined as $p<0,05$, $p<0,01$ and $p<0,001$, denoted by symbols *, ** and ***, respectively.

	ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9	ES10	ES11	ES12	ES13	ES14	ES15	ES16	ES17	ES18	ES19	ES20	BQ1	BQ5	BQ6	BQ7
ES1		0.73 ***	0.40 ***	0.32 ***	0.55 ***	0.40 ***	0.40 ***	0.33 ***	0.26 ***	0.26 ***	0.16 ***	0.22 ***	0.24 ***	0.23 ***	0.22 ***	0.24 ***	0.23 ***	0.28 ***	0.36 ***	0.16 ***	-0.01	-0.01	-0.03	-0.03
ES2	0.80		0.56 ***	0.43 ***	0.64 ***	0.45 ***	0.51 ***	0.43 ***	0.38 ***	0.36 ***	0.19 ***	0.30 ***	0.30 ***	0.32 ***	0.31 ***	0.31 ***	0.30 ***	0.34 ***	0.40 ***	0.07 *	0.00	0.00	-0.01	-0.03
ES3	0.44	0.65		0.67 ***	0.52 ***	0.34 ***	0.56 ***	0.55 ***	0.51 ***	0.51 ***	0.20 ***	0.40 ***	0.34 ***	0.51 ***	0.52 ***	0.43 ***	0.43 ***	0.43 ***	0.41 ***	-0.13 ***	0.03	0.06 *	0.01	0.01
ES4	0.35	0.52	0.83		0.50 ***	0.38 ***	0.57 ***	0.59 ***	0.56 ***	0.55 ***	0.24 ***	0.43 ***	0.38 ***	0.52 ***	0.53 ***	0.45 ***	0.44 ***	0.44 ***	0.44 ***	-0.13 ***	0.01	0.04	-0.03	-0.04
ES5	0.60	0.73	0.62	0.62		0.57 ***	0.65 ***	0.57 ***	0.51 ***	0.49 ***	0.26 ***	0.38 ***	0.38 ***	0.38 ***	0.38 ***	0.45 ***	0.44 ***	0.47 ***	0.47 ***	0.05	0.02	0.02	0.01	-0.02
ES6	0.45	0.54	0.43	0.49	0.66		0.49 ***	0.40 ***	0.35 ***	0.31 ***	0.23 ***	0.26 ***	0.30 ***	0.25 ***	0.24 ***	0.28 ***	0.27 ***	0.30 ***	0.40 ***	0.12 ***	-0.11 ***	-0.10 ***	-0.11 ***	-0.11 ***
ES7	0.43	0.59	0.71	0.74	0.75	0.57		0.75 ***	0.62 ***	0.61 ***	0.27 ***	0.45 ***	0.41 ***	0.46 ***	0.47 ***	0.53 ***	0.53 ***	0.54 ***	0.49 ***	-0.06 *	0.05	0.05	0.03	-0.01
ES8	0.33	0.49	0.73	0.78	0.65	0.43	0.87		0.67 ***	0.64 ***	0.28 ***	0.47 ***	0.45 ***	0.49 ***	0.51 ***	0.55 ***	0.55 ***	0.54 ***	0.46 ***	-0.13 ***	0.08 **	0.07 *	0.04	0.01
ES9	0.27	0.44	0.70	0.76	0.60	0.40	0.78	0.87		0.79 ***	0.28 ***	0.47 ***	0.43 ***	0.49 ***	0.51 ***	0.61 ***	0.60 ***	0.63 ***	0.46 ***	-0.18 ***	0.07 *	0.10 ***	0.05	0.02
ES10	0.27	0.43	0.71	0.76	0.58	0.36	0.77	0.86	0.92		0.28 ***	0.47 ***	0.42 ***	0.48 ***	0.52 ***	0.64 ***	0.65 ***	0.60 ***	0.43 ***	-0.21 ***	0.07 *	0.10 ***	0.05	0.02
ES11	0.20	0.24	0.27	0.31	0.34	0.28	0.35	0.36	0.37	0.35		0.56 ***	0.49 ***	0.32 ***	0.31 ***	0.35 ***	0.33 ***	0.35 ***	0.33 ***	0.06 *	-0.08 **	-0.07 *	-0.10 ***	-0.10 **
ES12	0.25	0.37	0.55	0.58	0.48	0.33	0.59	0.64	0.64	0.63	0.66		0.65 ***	0.57 ***	0.54 ***	0.51 ***	0.50 ***	0.51 ***	0.43 ***	-0.09 **	0.01	0.01	-0.02	-0.05
ES13	0.27	0.36	0.46	0.51	0.46	0.37	0.52	0.58	0.57	0.55	0.60	0.77		0.51 ***	0.49 ***	0.49 ***	0.47 ***	0.50 ***	0.47 ***	-0.02	0.00	0.01	0.01	-0.04
ES14	0.27	0.41	0.69	0.70	0.49	0.34	0.62	0.69	0.69	0.68	0.38	0.69	0.62		0.86 ***	0.51 ***	0.49 ***	0.50 ***	0.42 ***	-0.16 ***	0.02	0.04	0.00	-0.04
ES15	0.26	0.38	0.70	0.69	0.48	0.30	0.63	0.71	0.71	0.71	0.36	0.67	0.60	0.95		0.54 ***	0.52 ***	0.52 ***	0.40 ***	-0.18 ***	0.04	0.05	0.01	-0.02
ES16	0.27	0.39	0.60	0.64	0.55	0.35	0.68	0.75	0.79	0.80	0.44	0.66	0.62	0.70	0.72		0.91 ***	0.78 ***	0.50 ***	-0.14 ***	0.04	0.07 *	0.02	-0.01
ES17	0.26	0.39	0.62	0.65	0.55	0.35	0.69	0.77	0.81	0.82	0.42	0.66	0.61	0.70	0.71	0.91		0.77 ***	0.49 ***	-0.15 ***	0.05	0.07 *	0.02	-0.01
ES18	0.31	0.41	0.58	0.61	0.57	0.37	0.67	0.72	0.78	0.75	0.44	0.65	0.63	0.67	0.68	0.90	0.89		0.58 ***	-0.07 *	0.04	0.06	0.02	-0.02
ES19	0.43	0.48	0.53	0.57	0.50	0.59	0.58	0.58	0.58	0.55	0.42	0.55	0.58	0.55	0.52	0.52	0.62	0.62		0.03	-0.06	-0.05	-0.07 *	-0.08 **
ES20	0.13	-0.01	-0.31	-0.35	-0.06	0.04	-0.23	-0.36	-0.40	-0.42	-0.02	-0.24	-0.17	-0.36	-0.37	-0.36	-0.36	-0.28	-0.15		-0.01	-0.05	0.00	-0.02
BQ1	0.00	0.01	0.03	-0.04	0.03	-0.15	0.08	0.11	0.10	0.09	-0.09	0.01	0.01	0.00	0.04	0.05	0.07	0.06	-0.08	0.03		0.63 ***	0.71 ***	0.57 ***
BQ5	-0.03	0.00	0.08	0.02	0.02	-0.11	0.08	0.11	0.13	0.12	-0.09	0.02	0.02	0.03	0.05	0.09	0.10	0.09	-0.05	-0.01	0.75		0.68 ***	0.58 ***
BQ6	-0.04	-0.02	0.00	-0.08	0.00	-0.15	0.04	0.07	0.06	0.05	-0.11	-0.02	-0.02	-0.02	0.01	0.03	0.03	0.03	-0.11	0.04	0.82	0.80		0.63 ***
BQ7	-0.03	-0.03	0.01	-0.09	-0.01	-0.15	0.00	0.03	0.03	0.03	-0.10	-0.05	-0.04	-0.07	-0.02	0.00	0.00	0.00	-0.11	0.02	0.70	0.71	0.77	

Supplementary Table 2. The mean values of the "need for help" ratings of each expression statement (ES1-ES20) in respect to groupings based on the answer values of the background question (BQ), for two groups or three groups.

M_1, M_2 and M_3 show the mean values for each group and the number of persons is denoted by n_1, n_2 and n_3 (n=673). We computed Wilcoxon rank-sum test (i.e., Mann–Whitney U test) between two groups and Kruskal-Wallis test between three groups to identify statistically significant rating differences at significance levels $p<0{,}05$, $p<0{,}01$ and $p<0{,}001$, denoted by symbols *, ** and ***, respectively.

Grouping based on the answer value of the background question	ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9	ES10	ES11	ES12	ES13	ES14	ES15	ES16	ES17	ES18	ES19	ES20
BQ1, two groups: x<7 (n_1=263), x>=7 (n_2=410)	M_1=0.247 M_2=0.243	M_1=0.282 M_2=0.286	M_1=0.523 M_2=0.553	M_1=0.612 M_2=0.604	M_1=0.267 M_2=0.292	M_1=0.421 M_2=0.353 ***	M_1=0.370 M_2=0.422 *	M_1=0.497 M_2=0.577 **	M_1=0.511 M_2=0.594 **	M_1=0.552 M_2=0.640 **	M_1=0.464 M_2=0.414	M_1=0.465 M_2=0.495	M_1=0.440 M_2=0.454	M_1=0.605 M_2=0.625	M_1=0.584 M_2=0.629	M_1=0.460 M_2=0.521 *	M_1=0.484 M_2=0.560 *	M_1=0.385 M_2=0.439 *	M_1=0.396 M_2=0.370	M_1=0.257 M_2=0.261
BQ1, three groups: x<6 (n_1=218), 6<=x<8 (n_2=207), x>=8 (n_3=248)	M_1=0.238 M_2=0.256 M_3=0.241	M_1=0.271 M_2=0.307 M_3=0.278	M_1=0.522 M_2=0.550 M_3=0.552	M_1=0.622 M_2=0.600 M_3=0.601	M_1=0.264 M_2=0.312 M_3=0.273 *	M_1=0.422 M_2=0.383 M_3=0.339 **	M_1=0.370 M_2=0.414 M_3=0.418	M_1=0.493 M_2=0.567 M_3=0.575 *	M_1=0.506 M_2=0.584 M_3=0.591 *	M_1=0.551 M_2=0.624 M_3=0.638	M_1=0.465 M_2=0.457 M_3=0.386 *	M_1=0.473 M_2=0.492 M_3=0.485	M_1=0.437 M_2=0.463 M_3=0.448	M_1=0.616 M_2=0.604 M_3=0.628	M_1=0.593 M_2=0.601 M_3=0.635	M_1=0.469 M_2=0.514 M_3=0.509	M_1=0.488 M_2=0.558 M_3=0.546	M_1=0.385 M_2=0.442 M_3=0.426	M_1=0.400 M_2=0.392 M_3=0.352	M_1=0.250 M_2=0.279 M_3=0.255
BQ2, two groups: x<2 (n_1=219), x>=2 (n_2=454)	M_1=0.253 M_2=0.241	M_1=0.300 M_2=0.277	M_1=0.583 M_2=0.521 *	M_1=0.622 M_2=0.600	M_1=0.288 M_2=0.279	M_1=0.337 M_2=0.400 **	M_1=0.421 M_2=0.392	M_1=0.580 M_2=0.529	M_1=0.615 M_2=0.536	M_1=0.660 M_2=0.579	M_1=0.378 M_2=0.461 ***	M_1=0.477 M_2=0.487	M_1=0.463 M_2=0.442	M_1=0.655 M_2=0.599 *	M_1=0.663 M_2=0.587 *	M_1=0.534 M_2=0.480	M_1=0.573 M_2=0.511	M_1=0.448 M_2=0.403	M_1=0.369 M_2=0.386	M_1=0.233 M_2=0.272
BQ4, two groups: x<2 (n_1=364), x>=2 (n_2=309)	M_1=0.249 M_2=0.239	M_1=0.290 M_2=0.278	M_1=0.549 M_2=0.533	M_1=0.615 M_2=0.599	M_1=0.285 M_2=0.279	M_1=0.354 M_2=0.409 **	M_1=0.413 M_2=0.388	M_1=0.570 M_2=0.517	M_1=0.580 M_2=0.540	M_1=0.633 M_2=0.574	M_1=0.408 M_2=0.464 *	M_1=0.481 M_2=0.486	M_1=0.464 M_2=0.431	M_1=0.630 M_2=0.601	M_1=0.635 M_2=0.583	M_1=0.512 M_2=0.480	M_1=0.551 M_2=0.507	M_1=0.373 M_2=0.405	M_1=0.428 M_2=0.389	M_1=0.252 M_2=0.268
BQ5, two groups: x<7 (n_1=274), x>=7 (n_2=399)	M_1=0.252 M_2=0.239	M_1=0.287 M_2=0.283	M_1=0.521 M_2=0.556	M_1=0.603 M_2=0.611	M_1=0.274 M_2=0.288	M_1=0.415 M_2=0.355 **	M_1=0.378 M_2=0.417	M_1=0.510 M_2=0.570	M_1=0.515 M_2=0.593 **	M_1=0.555 M_2=0.640 **	M_1=0.470 M_2=0.409 *	M_1=0.477 M_2=0.487	M_1=0.441 M_2=0.454	M_1=0.598 M_2=0.630	M_1=0.584 M_2=0.630	M_1=0.459 M_2=0.523 *	M_1=0.491 M_2=0.558 *	M_1=0.391 M_2=0.436	M_1=0.404 M_2=0.364	M_1=0.255 M_2=0.262
BQ5, three groups: x<6 (n_1=190), 6<=x<8 (n_2=271), x>=8 (n_3=212)	M_1=0.242 M_2=0.257 M_3=0.232	M_1=0.273 M_2=0.296 M_3=0.280	M_1=0.496 M_2=0.554 M_3=0.567	M_1=0.594 M_2=0.606 M_3=0.621	M_1=0.262 M_2=0.304 M_3=0.273	M_1=0.412 M_2=0.389 M_3=0.338 **	M_1=0.362 M_2=0.414 M_3=0.420	M_1=0.476 M_2=0.565 M_3=0.583 *	M_1=0.478 M_2=0.571 M_3=0.624 ***	M_1=0.520 M_2=0.614 M_3=0.671 ***	M_1=0.461 M_2=0.441 M_3=0.400	M_1=0.464 M_2=0.495 M_3=0.486	M_1=0.419 M_2=0.472 M_3=0.446	M_1=0.589 M_2=0.617 M_3=0.641	M_1=0.562 M_2=0.619 M_3=0.646	M_1=0.435 M_2=0.517 M_3=0.528 *	M_1=0.467 M_2=0.546 M_3=0.568 *	M_1=0.373 M_2=0.431 M_3=0.440	M_1=0.402 M_2=0.381 M_3=0.360	M_1=0.265 M_2=0.279 M_3=0.230 *
BQ6, two groups: x<7 (n_1=318), x>=7 (n_2=355)	M_1=0.247 M_2=0.243	M_1=0.280 M_2=0.289	M_1=0.536 M_2=0.546	M_1=0.621 M_2=0.595	M_1=0.280 M_2=0.284	M_1=0.409 M_2=0.353 **	M_1=0.387 M_2=0.414	M_1=0.522 M_2=0.567	M_1=0.541 M_2=0.580	M_1=0.592 M_2=0.618	M_1=0.478 M_2=0.394 ***	M_1=0.489 M_2=0.479	M_1=0.448 M_2=0.450	M_1=0.620 M_2=0.614	M_1=0.609 M_2=0.614	M_1=0.486 M_2=0.508	M_1=0.519 M_2=0.542	M_1=0.412 M_2=0.422	M_1=0.403 M_2=0.360	M_1=0.258 M_2=0.268
BQ6, three groups: x<6 (n_1=240), 6<=x<8 (n_2=229), x>=8 (n_3=204)	M_1=0.256 M_2=0.241 M_3=0.235	M_1=0.285 M_2=0.286 M_3=0.282	M_1=0.531 M_2=0.549 M_3=0.545	M_1=0.628 M_2=0.598 M_3=0.594	M_1=0.270 M_2=0.293 M_3=0.284	M_1=0.414 M_2=0.374 M_3=0.345 *	M_1=0.381 M_2=0.401 M_3=0.425	M_1=0.506 M_2=0.565 M_3=0.571	M_1=0.523 M_2=0.580 M_3=0.586	M_1=0.573 M_2=0.616 M_3=0.632	M_1=0.470 M_2=0.443 M_3=0.380 **	M_1=0.483 M_2=0.491 M_3=0.475	M_1=0.439 M_2=0.465 M_3=0.443	M_1=0.616 M_2=0.611 M_3=0.631	M_1=0.595 M_2=0.610 M_3=0.646	M_1=0.480 M_2=0.503 M_3=0.511	M_1=0.513 M_2=0.540 M_3=0.542	M_1=0.403 M_2=0.420 M_3=0.432	M_1=0.405 M_2=0.373 M_3=0.360	M_1=0.258 M_2=0.251 M_3=0.270
BQ7, two groups: x<7 (n_1=201), x>=7 (n_2=472)	M_1=0.262 M_2=0.237	M_1=0.300 M_2=0.278	M_1=0.550 M_2=0.538	M_1=0.657 M_2=0.586	M_1=0.287 M_2=0.280	M_1=0.434 M_2=0.356 ***	M_1=0.405 M_2=0.400	M_1=0.536 M_2=0.550	M_1=0.541 M_2=0.570	M_1=0.590 M_2=0.613	M_1=0.484 M_2=0.412 **	M_1=0.513 M_2=0.471	M_1=0.466 M_2=0.442	M_1=0.655 M_2=0.601	M_1=0.622 M_2=0.607	M_1=0.492 M_2=0.500	M_1=0.533 M_2=0.530	M_1=0.419 M_2=0.417	M_1=0.427 M_2=0.360 **	M_1=0.259 M_2=0.259
BQ7, three groups: x<6 (n_1=143), 6<=x<8 (n_2=214), x>=8 (n_3=316)	M_1=0.243 M_2=0.250 M_3=0.241	M_1=0.281 M_2=0.291 M_3=0.282	M_1=0.520 M_2=0.549 M_3=0.547	M_1=0.659 M_2=0.597 M_3=0.591	M_1=0.278 M_2=0.292 M_3=0.278	M_1=0.432 M_2=0.393 M_3=0.347 **	M_1=0.400 M_2=0.400 M_3=0.403	M_1=0.520 M_2=0.550 M_3=0.554	M_1=0.528 M_2=0.567 M_3=0.573	M_1=0.589 M_2=0.599 M_3=0.618	M_1=0.505 M_2=0.460 M_3=0.392 **	M_1=0.457 M_2=0.498 M_3=0.464	M_1=0.459 M_2=0.459 M_3=0.438	M_1=0.648 M_2=0.621 M_3=0.600	M_1=0.609 M_2=0.627 M_3=0.602	M_1=0.494 M_2=0.503 M_3=0.495	M_1=0.536 M_2=0.529 M_3=0.530	M_1=0.410 M_2=0.431 M_3=0.411	M_1=0.420 M_2=0.382 M_3=0.361	M_1=0.248 M_2=0.269 M_3=0.258
BQ8, two groups: x<2 (n_1=123), x>=2 (n_2=550)	M_1=0.241 M_2=0.245	M_1=0.269 M_2=0.288	M_1=0.460 M_2=0.560 **	M_1=0.516 M_2=0.628 ***	M_1=0.284 M_2=0.282	M_1=0.390 M_2=0.377	M_1=0.359 M_2=0.411	M_1=0.474 M_2=0.562 *	M_1=0.477 M_2=0.580 *	M_1=0.509 M_2=0.627 **	M_1=0.367 M_2=0.449 **	M_1=0.376 M_2=0.507 ***	M_1=0.389 M_2=0.462 *	M_1=0.454 M_2=0.653 ***	M_1=0.447 M_2=0.648 ***	M_1=0.420 M_2=0.515 *	M_1=0.454 M_2=0.548 *	M_1=0.355 M_2=0.431 *	M_1=0.354 M_2=0.386	M_1=0.257 M_2=0.260
BQ9, two groups: x<51 (n_1=333), x>=51 (n_2=340)	M_1=0.288 M_2=0.202 ***	M_1=0.333 M_2=0.237 ***	M_1=0.606 M_2=0.479 ***	M_1=0.659 M_2=0.557 ***	M_1=0.320 M_2=0.245 ***	M_1=0.394 M_2=0.365	M_1=0.430 M_2=0.373 *	M_1=0.592 M_2=0.501 *	M_1=0.598 M_2=0.526	M_1=0.655 M_2=0.557	M_1=0.410 M_2=0.457 *	M_1=0.491 M_2=0.476	M_1=0.477 M_2=0.422 *	M_1=0.686 M_2=0.549 ***	M_1=0.684 M_2=0.540 ***	M_1=0.508 M_2=0.487	M_1=0.547 M_2=0.515	M_1=0.422 M_2=0.414	M_1=0.402 M_2=0.359 *	M_1=0.241 M_2=0.277
BQ9, three groups: x<40 (n_1=225), 40<=x<60 (n_2=231), x>=60 (n_3=217)	M_1=0.301 M_2=0.229 M_3=0.203 ***	M_1=0.347 M_2=0.276 M_3=0.229 ***	M_1=0.618 M_2=0.553 M_3=0.450 ***	M_1=0.655 M_2=0.639 M_3=0.525 ***	M_1=0.321 M_2=0.287 M_3=0.236 ***	M_1=0.391 M_2=0.388 M_3=0.359	M_1=0.434 M_2=0.423 M_3=0.344 **	M_1=0.597 M_2=0.571 M_3=0.465 *	M_1=0.606 M_2=0.568 M_3=0.507	M_1=0.659 M_2=0.639 M_3=0.515 *	M_1=0.374 M_2=0.471 M_3=0.456 **	M_1=0.467 M_2=0.511 M_3=0.471	M_1=0.480 M_2=0.437 M_3=0.429	M_1=0.691 M_2=0.639 M_3=0.517 ***	M_1=0.692 M_2=0.628 M_3=0.510 ***	M_1=0.502 M_2=0.506 M_3=0.484	M_1=0.545 M_2=0.540 M_3=0.506	M_1=0.419 M_2=0.409 M_3=0.425	M_1=0.411 M_2=0.378 M_3=0.351 *	M_1=0.240 M_2=0.231 M_3=0.309 *

Supplementary Table 3. The median values of the "need for help" ratings of each expression statement (ES1-ES20) in respect to groupings based on the answer values of the background question (BQ), for two groups or three groups.

Mdn_1, Mdn_2 and Mdn_3 show the median values for each group and the number of persons is denoted by n_1, n_2 and n_3 (n=673).

Grouping based on the answer value of the background question	ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9	ES10	ES11	ES12	ES13	ES14	ES15	ES16	ES17	ES18	ES19	ES20
BQ1, two groups: x<7 (n_1=263), x>=7 (n_2=410)	Mdn_1=0.2 Mdn_2=0.2	Mdn_1=0.2 Mdn_2=0.3	Mdn_1=0.6 Mdn_2=0.7	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.2 Mdn_2=0.3	Mdn_1=0.4 Mdn_2=0.3	Mdn_1=0.3 Mdn_2=0.5	Mdn_1=0.6 Mdn_2=0.7	Mdn_1=0.6 Mdn_2=0.8	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.5 Mdn_2=0.4	Mdn_1=0.5 Mdn_2=0.6	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.5 Mdn_2=0.6	Mdn_1=0.5 Mdn_2=0.7	Mdn_1=0.3 Mdn_2=0.5	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.2 Mdn_2=0.1
BQ1, three groups: x<6 (n_1=218), 6<=x<8 (n_2=207), x>=8 (n_3=248)	Mdn_1=0.2 Mdn_2=0.2 Mdn_3=0.2	Mdn_1=0.2 Mdn_2=0.3 Mdn_3=0.25	Mdn_1=0.6 Mdn_2=0.7 Mdn_3=0.65	Mdn_1=0.7 Mdn_2=0.7 Mdn_3=0.7	Mdn_1=0.2 Mdn_2=0.3 Mdn_3=0.2	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.4	Mdn_1=0.3 Mdn_2=0.5 Mdn_3=0.45	Mdn_1=0.6 Mdn_2=0.7 Mdn_3=0.7	Mdn_1=0.6 Mdn_2=0.8 Mdn_3=0.75	Mdn_1=0.7 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.5 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.5 Mdn_2=0.6 Mdn_3=0.5	Mdn_1=0.4 Mdn_2=0.5 Mdn_3=0.5	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.5 Mdn_2=0.6 Mdn_3=0.55	Mdn_1=0.3 Mdn_2=0.7 Mdn_3=0.5	Mdn_1=0.3 Mdn_2=0.5 Mdn_3=0.3	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.4	Mdn_1=0.1 Mdn_2=0.2 Mdn_3=0.1
BQ2, two groups: x<2 (n_1=219), x>=2 (n_2=454)	Mdn_1=0.3 Mdn_2=0.2	Mdn_1=0.3 Mdn_2=0.2	Mdn_1=0.7 Mdn_2=0.6	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.3 Mdn_2=0.2	Mdn_1=0.3 Mdn_2=0.4	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.3 Mdn_2=0.5	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.7 Mdn_2=0.6	Mdn_1=0.5 Mdn_2=0.4	Mdn_1=0.5 Mdn_2=0.4	Mdn_1=0.1 Mdn_2=0.2
BQ4, two groups: x<2 (n_1=364), x>=2 (n_2=309)	Mdn_1=0.2 Mdn_2=0.2	Mdn_1=0.3 Mdn_2=0.2	Mdn_1=0.65 Mdn_2=0.6	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.3 Mdn_2=0.2	Mdn_1=0.3 Mdn_2=0.4	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.35 Mdn_2=0.5	Mdn_1=0.5 Mdn_2=0.6	Mdn_1=0.5 Mdn_2=0.4	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.6 Mdn_2=0.5	Mdn_1=0.6 Mdn_2=0.6	Mdn_1=0.45 Mdn_2=0.4	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.1 Mdn_2=0.2
BQ5, two groups: x<7 (n_1=274), x>=7 (n_2=399)	Mdn_1=0.2 Mdn_2=0.2	Mdn_1=0.2 Mdn_2=0.3	Mdn_1=0.6 Mdn_2=0.7	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.2 Mdn_2=0.3	Mdn_1=0.4 Mdn_2=0.3	Mdn_1=0.3 Mdn_2=0.4	Mdn_1=0.6 Mdn_2=0.7	Mdn_1=0.7 Mdn_2=0.8	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.5 Mdn_2=0.4	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.45 Mdn_2=0.5	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.75 Mdn_2=0.8	Mdn_1=0.6 Mdn_2=0.6	Mdn_1=0.5 Mdn_2=0.7	Mdn_1=0.4 Mdn_2=0.5	Mdn_1=0.4 Mdn_2=0.3	Mdn_1=0.2 Mdn_2=0.1
BQ5, three groups: x<6 (n_1=190), 6<=x<8 (n_2=271), x>=8 (n_3=212)	Mdn_1=0.2 Mdn_2=0.2 Mdn_3=0.2	Mdn_1=0.2 Mdn_2=0.3 Mdn_3=0.2	Mdn_1=0.55 Mdn_2=0.7 Mdn_3=0.7	Mdn_1=0.7 Mdn_2=0.7 Mdn_3=0.7	Mdn_1=0.2 Mdn_2=0.3 Mdn_3=0.2	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.3 Mdn_2=0.5 Mdn_3=0.4	Mdn_1=0.6 Mdn_2=0.8 Mdn_3=0.7	Mdn_1=0.55 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.7 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.5 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.5 Mdn_2=0.5 Mdn_3=0.5	Mdn_1=0.4 Mdn_2=0.5 Mdn_3=0.45	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.7 Mdn_2=0.8 Mdn_3=0.9	Mdn_1=0.6 Mdn_2=0.6 Mdn_3=0.6	Mdn_1=0.5 Mdn_2=0.6 Mdn_3=0.7	Mdn_1=0.3 Mdn_2=0.5 Mdn_3=0.5	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.2 Mdn_2=0.2 Mdn_3=0.2
BQ6, two groups: x<7 (n_1=318), x>=7 (n_2=355)	Mdn_1=0.2 Mdn_2=0.2	Mdn_1=0.2 Mdn_2=0.3	Mdn_1=0.6 Mdn_2=0.7	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.2 Mdn_2=0.3	Mdn_1=0.4 Mdn_2=0.3	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.55 Mdn_2=0.5	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.5 Mdn_2=0.6	Mdn_1=0.6 Mdn_2=0.6	Mdn_1=0.4 Mdn_2=0.5	Mdn_1=0.4 Mdn_2=0.3	Mdn_1=0.2 Mdn_2=0.2
BQ6, three groups: x<6 (n_1=240), 6<=x<8 (n_2=229), x>=8 (n_3=204)	Mdn_1=0.2 Mdn_2=0.2 Mdn_3=0.2	Mdn_1=0.2 Mdn_2=0.3 Mdn_3=0.2	Mdn_1=0.6 Mdn_2=0.6 Mdn_3=0.65	Mdn_1=0.7 Mdn_2=0.7 Mdn_3=0.7	Mdn_1=0.2 Mdn_2=0.3 Mdn_3=0.3	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.5	Mdn_1=0.6 Mdn_2=0.7 Mdn_3=0.7	Mdn_1=0.6 Mdn_2=0.8 Mdn_3=0.7	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.5 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.5 Mdn_2=0.5 Mdn_3=0.5	Mdn_1=0.4 Mdn_2=0.5 Mdn_3=0.5	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.5 Mdn_2=0.5 Mdn_3=0.6	Mdn_1=0.5 Mdn_2=0.7 Mdn_3=0.6	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.5	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.2 Mdn_2=0.1 Mdn_3=0.2
BQ7, two groups: x<7 (n_1=201), x>=7 (n_2=472)	Mdn_1=0.2 Mdn_2=0.2	Mdn_1=0.3 Mdn_2=0.2	Mdn_1=0.6 Mdn_2=0.6	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.3 Mdn_2=0.3	Mdn_1=0.4 Mdn_2=0.3	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.6 Mdn_2=0.4	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.6 Mdn_2=0.5	Mdn_1=0.6 Mdn_2=0.6	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.4 Mdn_2=0.35	Mdn_1=0.2 Mdn_2=0.1
BQ7, three groups: x<6 (n_1=143), 6<=x<8 (n_2=214), x>=8 (n_3=316)	Mdn_1=0.2 Mdn_2=0.2 Mdn_3=0.2	Mdn_1=0.2 Mdn_2=0.3 Mdn_3=0.2	Mdn_1=0.6 Mdn_2=0.65 Mdn_3=0.65	Mdn_1=0.7 Mdn_2=0.7 Mdn_3=0.7	Mdn_1=0.2 Mdn_2=0.3 Mdn_3=0.25	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.4 Mdn_2=0.5 Mdn_3=0.4	Mdn_1=0.6 Mdn_2=0.6 Mdn_3=0.7	Mdn_1=0.6 Mdn_2=0.8 Mdn_3=0.7	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.5 Mdn_2=0.5 Mdn_3=0.3	Mdn_1=0.6 Mdn_2=0.6 Mdn_3=0.5	Mdn_1=0.5 Mdn_2=0.5 Mdn_3=0.45	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.8	Mdn_1=0.6 Mdn_2=0.6 Mdn_3=0.5	Mdn_1=0.6 Mdn_2=0.6 Mdn_3=0.5	Mdn_1=0.5 Mdn_2=0.5 Mdn_3=0.5	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.4	Mdn_1=0.2 Mdn_2=0.2 Mdn_3=0.3
BQ8, two groups: x<2 (n_1=123), x>=2 (n_2=550)	Mdn_1=0.2 Mdn_2=0.2	Mdn_1=0.2 Mdn_2=0.25	Mdn_1=0.5 Mdn_2=0.7	Mdn_1=0.6 Mdn_2=0.7	Mdn_1=0.2 Mdn_2=0.3	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.3 Mdn_2=0.4	Mdn_1=0.6 Mdn_2=0.7	Mdn_1=0.5 Mdn_2=0.7	Mdn_1=0.6 Mdn_2=0.8	Mdn_1=0.3 Mdn_2=0.4	Mdn_1=0.3 Mdn_2=0.6	Mdn_1=0.4 Mdn_2=0.5	Mdn_1=0.5 Mdn_2=0.8	Mdn_1=0.5 Mdn_2=0.8	Mdn_1=0.5 Mdn_2=0.6	Mdn_1=0.5 Mdn_2=0.65	Mdn_1=0.3 Mdn_2=0.4	Mdn_1=0.3 Mdn_2=0.4	Mdn_1=0.1 Mdn_2=0.2
BQ9, two groups: x<51 (n_1=333), x>=51 (n_2=340)	Mdn_1=0.2 Mdn_2=0.2	Mdn_1=0.3 Mdn_2=0.2	Mdn_1=0.7 Mdn_2=0.5	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.3 Mdn_2=0.2	Mdn_1=0.4 Mdn_2=0.3	Mdn_1=0.5 Mdn_2=0.4	Mdn_1=0.7 Mdn_2=0.6	Mdn_1=0.7 Mdn_2=0.7	Mdn_1=0.8 Mdn_2=0.8	Mdn_1=0.4 Mdn_2=0.5	Mdn_1=0.5 Mdn_2=0.5	Mdn_1=0.5 Mdn_2=0.4	Mdn_1=0.8 Mdn_2=0.7	Mdn_1=0.8 Mdn_2=0.7	Mdn_1=0.6 Mdn_2=0.5	Mdn_1=0.6 Mdn_2=0.6	Mdn_1=0.4 Mdn_2=0.4	Mdn_1=0.4 Mdn_2=0.3	Mdn_1=0.2 Mdn_2=0.15
BQ9, three groups: x<40 (n_1=225), 40<=x<60 (n_2=231), x>=60 (n_3=217)	Mdn_1=0.3 Mdn_2=0.2 Mdn_3=0.1	Mdn_1=0.3 Mdn_2=0.2 Mdn_3=0.2	Mdn_1=0.7 Mdn_2=0.7 Mdn_3=0.5	Mdn_1=0.7 Mdn_2=0.8 Mdn_3=0.6	Mdn_1=0.3 Mdn_2=0.2 Mdn_3=0.2	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.5 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.7 Mdn_2=0.7 Mdn_3=0.6	Mdn_1=0.7 Mdn_2=0.7 Mdn_3=0.7	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.7	Mdn_1=0.3 Mdn_2=0.5 Mdn_3=0.5	Mdn_1=0.5 Mdn_2=0.6 Mdn_3=0.5	Mdn_1=0.5 Mdn_2=0.4 Mdn_3=0.4	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.5	Mdn_1=0.8 Mdn_2=0.8 Mdn_3=0.5	Mdn_1=0.5 Mdn_2=0.6 Mdn_3=0.6	Mdn_1=0.6 Mdn_2=0.6 Mdn_3=0.6	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.5	Mdn_1=0.4 Mdn_2=0.4 Mdn_3=0.3	Mdn_1=0.2 Mdn_2=0.1 Mdn_3=0.2

Supplementary Table 4. The standard deviation values of the "need for help" ratings of each expression statement (ES1-ES20) in respect to groupings based on the answer values of the background question (BQ), for two groups or three groups.

SD_1, SD_2 and SD_3 show the standard deviation values for each group and the number of persons is denoted by n_1, n_2 and n_3 (n=673).

Grouping based on the answer value of the background question	ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9	ES10	ES11	ES12	ES13	ES14	ES15	ES16	ES17	ES18	ES19	ES20
BQ1, two groups: x<7 (n_1=263), x>=7 (n_2=410)	SD_1=0.22 SD_2=0.21	SD_1=0.23 SD_2=0.22	SD_1=0.32 SD_2=0.34	SD_1=0.29 SD_2=0.34	SD_1=0.24 SD_2=0.24	SD_1=0.26 SD_2=0.24	SD_1=0.31 SD_2=0.30	SD_1=0.37 SD_2=0.36	SD_1=0.39 SD_2=0.38	SD_1=0.42 SD_2=0.41	SD_1=0.32 SD_2=0.30	SD_1=0.35 SD_2=0.34	SD_1=0.32 SD_2=0.32	SD_1=0.37 SD_2=0.38	SD_1=0.39 SD_2=0.40	SD_1=0.37 SD_2=0.36	SD_1=0.38 SD_2=0.37	SD_1=0.32 SD_2=0.31	SD_1=0.27 SD_2=0.27	SD_1=0.27 SD_2=0.30
BQ1, three groups: x<6 (n_1=218), 6<=x<8 (n_2=207), x>=8 (n_3=248)	SD_1=0.22 SD_2=0.21 SD_3=0.21	SD_1=0.23 SD_2=0.23 SD_3=0.22	SD_1=0.32 SD_2=0.33 SD_3=0.34	SD_1=0.29 SD_2=0.32 SD_3=0.36	SD_1=0.25 SD_2=0.24 SD_3=0.23	SD_1=0.26 SD_2=0.24 SD_3=0.23	SD_1=0.31 SD_2=0.30 SD_3=0.30	SD_1=0.37 SD_2=0.36 SD_3=0.36	SD_1=0.39 SD_2=0.39 SD_3=0.38	SD_1=0.42 SD_2=0.42 SD_3=0.40	SD_1=0.32 SD_2=0.30 SD_3=0.30	SD_1=0.35 SD_2=0.33 SD_3=0.34	SD_1=0.32 SD_2=0.31 SD_3=0.32	SD_1=0.37 SD_2=0.37 SD_3=0.39	SD_1=0.39 SD_2=0.39 SD_3=0.40	SD_1=0.38 SD_2=0.36 SD_3=0.36	SD_1=0.39 SD_2=0.38 SD_3=0.37	SD_1=0.32 SD_2=0.38 SD_3=0.31	SD_1=0.26 SD_2=0.26 SD_3=0.27	SD_1=0.27 SD_2=0.29 SD_3=0.30
BQ2, two groups: x<2 (n_1=219), x>=2 (n_2=454)	SD_1=0.21 SD_2=0.22	SD_1=0.22 SD_2=0.23	SD_1=0.31 SD_2=0.34	SD_1=0.32 SD_2=0.32	SD_1=0.21 SD_2=0.25	SD_1=0.22 SD_2=0.26	SD_1=0.28 SD_2=0.32	SD_1=0.34 SD_2=0.38	SD_1=0.36 SD_2=0.40	SD_1=0.38 SD_2=0.43	SD_1=0.29 SD_2=0.31	SD_1=0.33 SD_2=0.35	SD_1=0.31 SD_2=0.33	SD_1=0.38 SD_2=0.38	SD_1=0.38 SD_2=0.40	SD_1=0.34 SD_2=0.38	SD_1=0.35 SD_2=0.39	SD_1=0.30 SD_2=0.33	SD_1=0.26 SD_2=0.28	SD_1=0.27 SD_2=0.29
BQ4, two groups: x<2 (n_1=364), x>=2 (n_2=309)	SD_1=0.21 SD_2=0.22	SD_1=0.22 SD_2=0.23	SD_1=0.33 SD_2=0.33	SD_1=0.32 SD_2=0.33	SD_1=0.23 SD_2=0.25	SD_1=0.23 SD_2=0.26	SD_1=0.30 SD_2=0.32	SD_1=0.35 SD_2=0.38	SD_1=0.38 SD_2=0.40	SD_1=0.40 SD_2=0.43	SD_1=0.31 SD_2=0.31	SD_1=0.34 SD_2=0.35	SD_1=0.32 SD_2=0.32	SD_1=0.38 SD_2=0.38	SD_1=0.39 SD_2=0.40	SD_1=0.36 SD_2=0.38	SD_1=0.37 SD_2=0.39	SD_1=0.31 SD_2=0.33	SD_1=0.26 SD_2=0.28	SD_1=0.26 SD_2=0.29
BQ5, two groups: x<7 (n_1=274), x>=7 (n_2=399)	SD_1=0.23 SD_2=0.21	SD_1=0.23 SD_2=0.22	SD_1=0.32 SD_2=0.34	SD_1=0.30 SD_2=0.34	SD_1=0.24 SD_2=0.24	SD_1=0.26 SD_2=0.24	SD_1=0.31 SD_2=0.30	SD_1=0.37 SD_2=0.36	SD_1=0.39 SD_2=0.38	SD_1=0.42 SD_2=0.41	SD_1=0.32 SD_2=0.30	SD_1=0.35 SD_2=0.34	SD_1=0.33 SD_2=0.32	SD_1=0.37 SD_2=0.38	SD_1=0.39 SD_2=0.40	SD_1=0.37 SD_2=0.36	SD_1=0.38 SD_2=0.37	SD_1=0.32 SD_2=0.31	SD_1=0.27 SD_2=0.27	SD_1=0.26 SD_2=0.30
BQ5, three groups: x<6 (n_1=190), 6<=x<8 (n_2=271), x>=8 (n_3=212)	SD_1=0.24 SD_2=0.21 SD_3=0.21	SD_1=0.24 SD_2=0.22 SD_3=0.22	SD_1=0.33 SD_2=0.32 SD_3=0.34	SD_1=0.30 SD_2=0.32 SD_3=0.34	SD_1=0.25 SD_2=0.24 SD_3=0.23	SD_1=0.26 SD_2=0.24 SD_3=0.23	SD_1=0.32 SD_2=0.30 SD_3=0.30	SD_1=0.38 SD_2=0.37 SD_3=0.35	SD_1=0.40 SD_2=0.39 SD_3=0.37	SD_1=0.42 SD_2=0.42 SD_3=0.39	SD_1=0.32 SD_2=0.31 SD_3=0.30	SD_1=0.35 SD_2=0.33 SD_3=0.34	SD_1=0.36 SD_2=0.32 SD_3=0.31	SD_1=0.33 SD_2=0.37 SD_3=0.39	SD_1=0.38 SD_2=0.39 SD_3=0.40	SD_1=0.38 SD_2=0.36 SD_3=0.36	SD_1=0.39 SD_2=0.37 SD_3=0.37	SD_1=0.33 SD_2=0.31 SD_3=0.31	SD_1=0.28 SD_2=0.27 SD_3=0.26	SD_1=0.27 SD_2=0.27 SD_3=0.30
BQ6, two groups: x<7 (n_1=318), x>=7 (n_2=355)	SD_1=0.22 SD_2=0.21	SD_1=0.23 SD_2=0.22	SD_1=0.32 SD_2=0.34	SD_1=0.30 SD_2=0.34	SD_1=0.25 SD_2=0.23	SD_1=0.26 SD_2=0.24	SD_1=0.31 SD_2=0.30	SD_1=0.37 SD_2=0.36	SD_1=0.39 SD_2=0.39	SD_1=0.42 SD_2=0.41	SD_1=0.32 SD_2=0.30	SD_1=0.35 SD_2=0.33	SD_1=0.33 SD_2=0.32	SD_1=0.37 SD_2=0.39	SD_1=0.39 SD_2=0.40	SD_1=0.37 SD_2=0.37	SD_1=0.38 SD_2=0.38	SD_1=0.32 SD_2=0.32	SD_1=0.27 SD_2=0.27	SD_1=0.27 SD_2=0.30
BQ6, three groups: x<6 (n_1=240), 6<=x<8 (n_2=229), x>=8 (n_3=204)	SD_1=0.23 SD_2=0.21 SD_3=0.22	SD_1=0.23 SD_2=0.23 SD_3=0.24	SD_1=0.32 SD_2=0.33 SD_3=0.34	SD_1=0.29 SD_2=0.32 SD_3=0.36	SD_1=0.24 SD_2=0.24 SD_3=0.23	SD_1=0.26 SD_2=0.23 SD_3=0.24	SD_1=0.31 SD_2=0.30 SD_3=0.31	SD_1=0.37 SD_2=0.36 SD_3=0.36	SD_1=0.39 SD_2=0.38 SD_3=0.39	SD_1=0.42 SD_2=0.41 SD_3=0.42	SD_1=0.31 SD_2=0.31 SD_3=0.30	SD_1=0.36 SD_2=0.33 SD_3=0.34	SD_1=0.33 SD_2=0.32 SD_3=0.32	SD_1=0.37 SD_2=0.38 SD_3=0.40	SD_1=0.39 SD_2=0.39 SD_3=0.40	SD_1=0.38 SD_2=0.36 SD_3=0.37	SD_1=0.39 SD_2=0.36 SD_3=0.38	SD_1=0.33 SD_2=0.31 SD_3=0.32	SD_1=0.27 SD_2=0.26 SD_3=0.28	SD_1=0.27 SD_2=0.29 SD_3=0.31
BQ7, two groups: x<7 (n_1=201), x>=7 (n_2=472)	SD_1=0.22 SD_2=0.21	SD_1=0.23 SD_2=0.23	SD_1=0.31 SD_2=0.34	SD_1=0.28 SD_2=0.34	SD_1=0.24 SD_2=0.24	SD_1=0.26 SD_2=0.24	SD_1=0.31 SD_2=0.31	SD_1=0.36 SD_2=0.37	SD_1=0.38 SD_2=0.39	SD_1=0.41 SD_2=0.42	SD_1=0.31 SD_2=0.31	SD_1=0.35 SD_2=0.34	SD_1=0.32 SD_2=0.32	SD_1=0.35 SD_2=0.39	SD_1=0.38 SD_2=0.40	SD_1=0.37 SD_2=0.37	SD_1=0.38 SD_2=0.38	SD_1=0.32 SD_2=0.32	SD_1=0.27 SD_2=0.27	SD_1=0.27 SD_2=0.30
BQ7, three groups: x<6 (n_1=143), 6<=x<8 (n_2=214), x>=8 (n_3=316)	SD_1=0.22 SD_2=0.22 SD_3=0.21	SD_1=0.23 SD_2=0.22 SD_3=0.23	SD_1=0.32 SD_2=0.31 SD_3=0.35	SD_1=0.27 SD_2=0.32 SD_3=0.35	SD_1=0.24 SD_2=0.25 SD_3=0.23	SD_1=0.26 SD_2=0.25 SD_3=0.23	SD_1=0.31 SD_2=0.31 SD_3=0.31	SD_1=0.36 SD_2=0.37 SD_3=0.36	SD_1=0.38 SD_2=0.39 SD_3=0.39	SD_1=0.42 SD_2=0.41 SD_3=0.42	SD_1=0.32 SD_2=0.31 SD_3=0.30	SD_1=0.35 SD_2=0.33 SD_3=0.34	SD_1=0.32 SD_2=0.32 SD_3=0.32	SD_1=0.35 SD_2=0.37 SD_3=0.40	SD_1=0.38 SD_2=0.38 SD_3=0.41	SD_1=0.37 SD_2=0.38 SD_3=0.36	SD_1=0.38 SD_2=0.38 SD_3=0.37	SD_1=0.31 SD_2=0.33 SD_3=0.32	SD_1=0.26 SD_2=0.27 SD_3=0.27	SD_1=0.26 SD_2=0.29 SD_3=0.31
BQ8, two groups: x<2 (n_1=123), x>=2 (n_2=550)	SD_1=0.23 SD_2=0.22	SD_1=0.25 SD_2=0.22	SD_1=0.33 SD_2=0.33	SD_1=0.32 SD_2=0.32	SD_1=0.26 SD_2=0.23	SD_1=0.26 SD_2=0.24	SD_1=0.31 SD_2=0.30	SD_1=0.38 SD_2=0.36	SD_1=0.40 SD_2=0.38	SD_1=0.42 SD_2=0.41	SD_1=0.32 SD_2=0.30	SD_1=0.34 SD_2=0.34	SD_1=0.32 SD_2=0.32	SD_1=0.38 SD_2=0.38	SD_1=0.39 SD_2=0.39	SD_1=0.38 SD_2=0.36	SD_1=0.40 SD_2=0.37	SD_1=0.33 SD_2=0.31	SD_1=0.28 SD_2=0.27	SD_1=0.29 SD_2=0.29
BQ9, two groups: x<51 (n_1=333), x>=51 (n_2=340)	SD_1=0.22 SD_2=0.20	SD_1=0.22 SD_2=0.22	SD_1=0.31 SD_2=0.35	SD_1=0.29 SD_2=0.34	SD_1=0.23 SD_2=0.24	SD_1=0.24 SD_2=0.26	SD_1=0.28 SD_2=0.33	SD_1=0.33 SD_2=0.39	SD_1=0.36 SD_2=0.41	SD_1=0.38 SD_2=0.44	SD_1=0.30 SD_2=0.31	SD_1=0.32 SD_2=0.36	SD_1=0.31 SD_2=0.33	SD_1=0.35 SD_2=0.40	SD_1=0.36 SD_2=0.41	SD_1=0.33 SD_2=0.40	SD_1=0.34 SD_2=0.41	SD_1=0.29 SD_2=0.35	SD_1=0.25 SD_2=0.29	SD_1=0.27 SD_2=0.30
BQ9, three groups: x<40 (n_1=225), 40<=x<60 (n_2=231), x>=60 (n_3=217)	SD_1=0.22 SD_2=0.21 SD_3=0.21	SD_1=0.22 SD_2=0.22 SD_3=0.22	SD_1=0.29 SD_2=0.34 SD_3=0.34	SD_1=0.28 SD_2=0.33 SD_3=0.35	SD_1=0.22 SD_2=0.24 SD_3=0.25	SD_1=0.24 SD_2=0.25 SD_3=0.25	SD_1=0.28 SD_2=0.31 SD_3=0.33	SD_1=0.33 SD_2=0.36 SD_3=0.39	SD_1=0.35 SD_2=0.38 SD_3=0.43	SD_1=0.37 SD_2=0.40 SD_3=0.45	SD_1=0.29 SD_2=0.32 SD_3=0.31	SD_1=0.31 SD_2=0.35 SD_3=0.37	SD_1=0.30 SD_2=0.32 SD_3=0.34	SD_1=0.33 SD_2=0.38 SD_3=0.40	SD_1=0.35 SD_2=0.40 SD_3=0.42	SD_1=0.32 SD_2=0.36 SD_3=0.42	SD_1=0.33 SD_2=0.37 SD_3=0.43	SD_1=0.28 SD_2=0.31 SD_3=0.37	SD_1=0.24 SD_2=0.26 SD_3=0.30	SD_1=0.26 SD_2=0.28 SD_3=0.32

Supplementary Table 5. Results of Wilcoxon rank-sum test (i.e., Mann–Whitney U test) between two groups and Kruskal-Wallis test between three groups to identify statistically significant rating differences for expression statements ES1-ES20 in respect to groupings based on the answer values of each background question (BQ).

This table shows the p-values concerning the rating differences between groups when the statistical significance levels were defined as $p<0.05$, $p<0.01$ and $p<0.001$, denoted by symbols *, ** and ***, respectively (n=673).

Grouping based on the answer value of the background question	ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9	ES10	ES11	ES12	ES13	ES14	ES15	ES16	ES17	ES18	ES19	ES20
BQ1, two groups: x<7 (n_1=263), x>=7 (n_2=410)	0.9197	0.6643	0.1491	0.4769	0.1094	0.001105 **	0.03835 *	0.007304 **	0.006771 **	0.004866 **	0.05642	0.3291	0.6438	0.3987	0.1316	0.04026 *	0.01429 *	0.0358 *	0.3167	0.5732
BQ1, three groups: x<6 (n_1= 218), 6<=x<8 (n_2=207), x>=8 (n_3=248)	0.331	0.1774	0.4204	0.815	0.04487 *	0.002876 **	0.2161	0.04889 *	0.03546 *	0.05269	0.01077 *	0.9052	0.7382	0.4413	0.398	0.4829	0.2057	0.168	0.1383	0.3959
BQ2, two groups: x<2 (n_1=219), x>=2 (n_2=454)	0.2048	0.1175	0.04755 *	0.4151	0.2517	0.003857 **	0.269	0.2825	0.05099	0.0657	0.001373 **	0.6126	0.4365	0.04 *	0.01885 *	0.122	0.1097	0.09556	0.5401	0.1131
BQ4, two groups: x<2 (n_1=364), x>=2 (n_2=309)	0.3973	0.3349	0.5797	0.5483	0.3886	0.006364 **	0.2846	0.1325	0.2279	0.09887	0.01654 *	0.8479	0.1744	0.361	0.1451	0.2824	0.1716	0.3776	0.5248	0.3334
BQ5, two groups: x<7 (n_1=274), x>=7 (n_2=399)	0.7408	0.9772	0.1047	0.292	0.4035	0.002381 **	0.1343	0.05747	0.00434 **	0.003607 **	0.01683 *	0.8051	0.6267	0.1929	0.1205	0.0271 *	0.03034 *	0.08549	0.06951	0.5023
BQ5, three groups: x<6 (n_1=190), 6<=x<8 (n_2=271), x>=8 (n_3=212)	0.1532	0.2886	0.07562	0.3356	0.06069	0.00926 **	0.1414	0.01166 *	0.0006896 ***	0.0005286 ***	0.168	0.6902	0.2367	0.2365	0.09009	0.03014 *	0.03286 *	0.09426	0.3523	0.01388 *
BQ6, two groups: x<7 (n_1=318), x>=7 (n_2=355)	0.9496	0.4908	0.5658	0.7009	0.5836	0.005581 **	0.3036	0.1441	0.1953	0.289	0.0005744 ***	0.5883	0.9916	0.9809	0.9041	0.4146	0.4478	0.6883	0.05302	0.9842
BQ6, three groups: x<6 (n_1=240), 6<=x<8 (n_2=229), x>=8 (n_3=204)	0.6204	0.9745	0.7312	0.8557	0.44	0.01988 *	0.3726	0.1359	0.1467	0.1851	0.009845 **	0.9204	0.6588	0.6927	0.602	0.6682	0.7609	0.625	0.262	0.6617
BQ7, two groups: x<7 (n_1=201), x>=7 (n_2=472)	0.1691	0.2554	0.8877	0.07533	0.6983	0.000459 ***	0.7582	0.6412	0.3424	0.00778 **		0.1283	0.3437	0.1559	0.5785	0.7799	0.9402	0.8928	0.004751 **	0.5095
BQ7, three groups: x<6 (n_1=143), 6<=x<8 (n_2=214), x>=8 (n_3=316)	0.8834	0.7608	0.5168	0.3388	0.8597	0.004156 **	1	0.6272	0.4356	0.6223	0.003545 **	0.349	0.6863	0.687	0.948	0.9213	0.9675	0.7298	0.1105	0.684
BQ8, two groups: x<2 (n_1=123), x>=2 (n_2=550)	0.5048	0.2059	0.003137 **	0.0001024 ***	0.8198	0.5797	0.09938	0.02251 *	0.01417 *	0.00504 **	0.005765 **	0.0001656 ***	0.02226 *	1.453e-08 ***	1.59e-08 ***	0.01594 *	0.03187 *	0.02422 *	0.2095	0.7081
BQ9, two groups: x<51 (n_1=333), x>=51 (n_2=340)	6.116e-09 ***	3.613e-09 ***	4.392e-06 ***	0.000614 ***	1.18e-06 ***	0.07347	0.01332 *	0.04664 *	0.1505	0.0585	0.04851 *	0.742	0.02965 *	9.661e-05 ***	9.863e-05 ***	0.9912	0.978	0.8095	0.01925 *	0.3238
BQ9, three groups: x<40 (n_1=225), 40<=x<60 (n_2=231), x>=60 (n_3=217)	1.808e-07 ***	2.82e-08 ***	6.349e-06 ***	0.0004377 ***	3.191e-05 ***	0.2526	0.004295 **	0.01155 *	0.2856	0.0245 *	0.001738 **	0.2289	0.222	0.0002202 ***	0.000565 ***	0.8223	0.8839	0.8217	0.03513 *	0.02525 *

Supplementary Table 6. Results of one-way analysis of variance (ANOVA) between two groups and between three groups to identify statistically significant rating differences for expression statements ES1-ES20 in respect to groupings based on the answer values of each background question (BQ).

This table shows the p-values concerning the rating differences between groups when the statistical significance levels were defined as $p<0.05$, $p<0.01$ and $p<0.001$, denoted by symbols *, ** and ***, respectively (n=673).

Grouping based on the answer value of the background question	ES1	ES2	ES3	ES4	ES5	ES6	ES7	ES8	ES9	ES10	ES11	ES12	ES13	ES14	ES15	ES16	ES17	ES18	ES19	ES20
BQ1, two groups: x<7 (n_1=263), x>=7 (n_2=410)	0.833	0.814	0.253	0.761	0.184	0.000523 ***	0.031 *	0.00591 **	0.00703 **	0.00759 **	0.0427 *	0.257	0.579	0.512	0.158	0.0348 *	0.0101 *	0.0322 *	0.231	0.87
BQ1, three groups: x<6 (n_1= 218), 6<=x<8 (n_2=207), x>=8 (n_3=248)	0.646	0.23	0.561	0.705	0.0945	0.00115 **	0.186	0.0325 *	0.0368 *	0.0561	0.00935 **	0.845	0.711	0.8	0.469	0.375	0.115	0.16	0.118	0.474
BQ2, two groups: x<2 (n_1=219), x>=2 (n_2=454)	0.483	0.211	0.0237 *	0.405	0.653	0.00207 **	0.247	0.0905	0.0135 *	0.0174 *	0.00104 **	0.727	0.414	0.0724	0.0194 *	0.0733	0.0461 *	0.0801	0.452	0.0966
BQ4, two groups: x<2 (n_1=364), x>=2 (n_2=309)	0.548	0.502	0.543	0.535	0.748	0.0037 **	0.299	0.0653	0.185	0.0661	0.0176 *	0.849	0.177	0.315	0.093	0.249	0.135	0.341	0.456	0.453
BQ5, two groups: x<7 (n_1=274), x>=7 (n_2=399)	0.448	0.811	0.181	0.765	0.467	0.00174 **	0.108	0.037 *	0.0108 *	0.0916 **	0.0123 *	0.707	0.592	0.279	0.137	0.0265 *	0.0232 *	0.0675	0.0545	0.775
BQ5, three groups: x<6 (n_1=190), 6<=x<8 (n_2=271), x>=8 (n_3=212)	0.432	0.526	0.0788	0.702	0.133	0.00783 **	0.105	0.00669 **	0.00069 ***	0.00109 **	0.125	0.624	0.217	0.397	0.0944	0.0211 *	0.0183 *	0.0726	0.303	0.169
BQ6, two groups: x<7 (n_1=318), x>=7 (n_2=355)	0.823	0.626	0.713	0.301	0.814	0.00346 **	0.254	0.112	0.189	0.424	0.000383 ***	0.703	0.953	0.821	0.877	0.443	0.428	0.684	0.0371 *	0.426
BQ6, three groups: x<6 (n_1=240), 6<=x<8 (n_2=229), x>=8 (n_3=204)	0.572	0.976	0.819	0.455	0.588	0.0119 *	0.316	0.108	0.159	0.288	0.00789 **	0.891	0.653	0.936	0.642	0.658	0.647	0.627	0.193	0.786
BQ7, two groups: x<7 (n_1=201), x>=7 (n_2=472)	0.179	0.239	0.654	0.00977 **	0.729	0.000157 ***	0.841	0.667	0.382	0.511	0.00576 **	0.137	0.363	0.092	0.65	0.79	0.908	0.921	0.00306 **	0.996
BQ7, three groups: x<6 (n_1=143), 6<=x<8 (n_2=214), x>=8 (n_3=316)	0.902	0.896	0.673	0.0935	0.783	0.00171 **	0.993	0.641	0.505	0.757	0.00286 **	0.377	0.709	0.444	0.777	0.959	0.984	0.745	0.0905	0.788
BQ8, two groups: x<2 (n_1=123), x>=2 (n_2=550)	0.86	0.4	0.0026 **	0.000519 ***	0.936	0.593	0.0924	0.0159 *	0.00782 **	0.00413 **	0.00849 **	0.00012 ***	0.0213 *	1e-07 ***	2.82e-07 ***	0.00918 **	0.0123 *	0.0162 *	0.242	0.919
BQ9, two groups: x<51 (n_1=333), x>=51 (n_2=340)	1.49e-07 ***	2.65e-08 ***	5.44e-07 ***	4.5e-05 ***	3.52e-05 ***	0.124	0.0149 *	0.00118 **	0.0157 *	0.00207 **	0.0479 *	0.568	0.0268 *	2.66e-06 ***	2.14e-06 ***	0.451	0.275	0.741	0.0375 *	0.11
BQ9, three groups: x<40 (n_1=225), 40<=x<60 (n_2=231), x>=60 (n_3=217)	3.51e-06 ***	2.3e-07 ***	4.82e-07 ***	2.2e-05 ***	0.000736 ***	0.313	0.00341 **	0.000308 ***	0.0263 *	0.000401 ***	0.00145 **	0.309	0.19	4.26e-06 ***	5.23e-06 ***	0.802	0.511	0.868	0.0672	0.00704 **

Supplementary Table 7. Guidance texts of the online questionnaire.

Gathering the "need for help" ratings for expression statements with an online questionnaire is illustrated in the following Supplementary Figure 1.

Supplementary Figure 1. Gathering the "need for help" rating for an expression statement on an 11-point Likert scale with an online questionnaire, shown here translated from Finnish to English (a) and in original formulation in Finnish (b).

Before the online questionnaire started to collect actual answers, the person was provided with the following guidance texts about how he/she should perform the interpretation tasks: "We ask you to evaluate different expressions, for example the expression 'I am happy'. Interpret how much each expression tells about the need for help. Give your interpretation about the expression on a numeric scale 0-10. 0 indicates the smallest possible need for help and 10 indicates the greatest possible need for help."

In Finnish: "Pyydämme sinua arvioimaan erilaisia ilmaisuja, esimerkiksi ilmaisua 'olen iloinen'. Tulkitse, kuinka paljon kukin ilmaisu kertoo avun tarpeesta. Anna tulkintasi ilmaisusta numeroasteikolla 0-10. 0 tarkoittaa mahdollisimman pientä avun tarvetta ja 10 tarkoittaa mahdollisimman suurta avun tarvetta."

Then a small training phase allowed the person to get accustomed to give the "need for help" ratings by rating three expression statements: "I have a good health condition.", "I have a bad health condition." and "I have an ordinary health condition."

In Finnish: "Minulla on hyvä olo.", "Minulla on huono olo." and "Minulla on tavallinen olo."

The answers that the person gave during the training phase were excluded from the data set that we use in the analysis reported in this our current research article.
After the training phase, the person was provided with the following guidance texts to still further clarify how he/she should perform the interpretation tasks: "Do not interpret how much the expression tells about just your own situation. Instead, interpret what kind of impression this expression induces in you. Thus give your interpretation about the expression's meaning in respect to the mentioned property."

In Finnish: "Älä tulkitse, kuinka paljon ilmaisu kertoo juuri sinun omasta tilanteestasi. Sen sijaan tulkitse, minkälaisen vaikutelman tämä ilmaisu herättää sinussa. Siis anna tulkintasi ilmaisun merkityksestä suhteessa mainittuun ominaisuuteen."

After showing those guidance texts, the person was allowed to start giving actual questionnaire answers, i.e. to perform the actual interpretation tasks.

Supplementary Table 8. Expression statements (ES) concerning the coronavirus COVID-19 epidemic that were rated by the person in respect to the impression about the "need for help".

Compact notation	Expression statement	Expression statement in Finnish	Range of values for the person's answer (indicating the "need for help" rating)
ES1	"I have a flu."	"Minulla on nuhaa."	0-10
ES2	"I have a cough."	"Minulla on yskää."	0-10
ES3	"I have a shortness of breath."	"Minulla on hengenahdistusta."	0-10
ES4	"My health condition is weakening."	"Yleistilani heikkenee."	0-10
ES5	"I have a sore throat."	"Minulla on kurkkukipua. "	0-10
ES6	"I have muscular ache."	"Minulla on lihassärkyä."	0-10
ES7	"I have a fever."	"Minulla on kuumetta."	0-10
ES8	"A sudden fever rises for me with 38 degrees of Celsius or more."	"Minulle nousee äkillinen kuume, joka on 38 astetta Celsiusta tai enemmän."	0-10
ES9	"I suspect that I have now become infected by the coronavirus."	"Epäilen, että olen nyt sairastunut koronavirukseen."	0-10
ES10	"I have now become infected by the coronavirus."	"Olen nyt sairastunut koronavirukseen."	0-10
ES11	"I am quarantined from meeting other people ordinarily so that the spreading of an infectious disease could be prevented."	"Olen eristettynä ihmisten tavanomaiselta tapaamiselta, jotta tartuntataudin leviäminen estyisi."	0-10
ES12	"I must be inside a house without getting out."	"Joudun olemaan talon sisällä ilman ulospääsyä."	0-10
ES13	"I must be without a human companion."	"Joudun olemaan ilman ihmisseuraa."	0-10
ES14	"I do not cope in everyday life independently without getting help from other persons."	"En pärjää arkielämässä itsenäisesti ilman avun saamista muilta henkilöiltä."	0-10
ES15	"I do not cope at home independently without getting help from persons who originate outside of my home."	"En pärjää kotona itsenäisesti ilman avun saamista kotini ulkopuolisilta henkilöiltä."	0-10
ES16	"I have an infectious disease."	"Minulla on tartuntatauti."	0-10
ES17	"I have an infectious disease that has been verified by a doctor."	"Minulla on tartuntatauti, jonka lääkäri on varmistanut."	0-10
ES18	"I suspect that I have an infectious disease."	"Epäilen, että minulla on tartuntatauti."	0-10
ES19	"I have a bad health condition."	"Minulla on huono olo."	0-10
ES20	"I have an ordinary health condition."	"Minulla on tavallinen olo."	0-10

Supplementary Table 9. Background questions (BQ) presented to the person.

Compact notation	Question about the person's background information	Question about the person's background information in Finnish	Range of values for the person's answer	Range of values for the person's answer in Finnish
BQ1: an estimated health condition	"What kind of health condition you have currently according to your opinion?" (de Bruin et al., 1996; Koskinen et al., 2012)	"Minkälainen terveydentilasi on mielestäsi nykyisin?" (de Bruin et al., 1996; Koskinen et al., 2012)	A 9-point Likert scale supplied with the following partial labeling: "9 Good", "8 –", "7 Rather good", "6 –", "5 Medium", "4 –", "3 Rather bad", "2 –", "1 Bad".	A 9-point Likert scale supplied with the following partial labeling: "9 Hyvä", "8 –", "7 Melko hyvä", "6 –", "5 Keskitasoinen", "4 –", "3 Melko huono", "2 –", "1 Huono".
BQ2: a health problem reduces ability	"Do you have a permanent or long-lasting disease or such deficit, ailment or disability that reduces your ability to work or to perform your daily living activities? Here the question refers to all long-lasting diseases identified by a doctor, and also to such ailments not identified by a doctor which have lasted at least three months but which affect your ability to perform your daily living activities." (Koskinen et al., 2012)	"Onko sinulla jokin pysyvä tai pitkäaikainen sairaus tai jokin sellainen vika, vaiva tai vamma, joka vähentää työ- tai toimintakykyäsi? Tässä tarkoitetaan kaikkia lääkärin toteamia pitkäaikaisia sairauksia sekä myös vähintään kolme kuukautta kestäneitä vaivoja, joita lääkäri ei ole todennut, mutta jotka vaikuttavat toimintakykyysi." (Koskinen et al., 2012)	No or yes	Ei tai kyllä.
BQ3: one or more diseases identified by a doctor	"Has there been a situation that a doctor has identified in you one or several of the following diseases?" (Koskinen et al., 2012)	"Onko lääkäri joskus todennut sinulla jonkin/joitakin seuraavista sairauksista?" (Koskinen et al., 2012)	The person answers by selecting one or more options from a list of diseases (Koskinen et al., 2012), see Data analysis supplement (Additional file 1). For some options there is a question "other, what?" and an adjacent text input box so that the person can write some additional information concerning that option.	Henkilö vastaa valitsemalla yhden tai useampia vaihtoehtoja sairauksia sisältävästä luettelosta (Koskinen et al., 2012), katso Data analysis supplement (Additional file 1). Joidenkin vaihtoehtojen kohdalla on kysymys "muu, mikä?" ja sen vieressä tekstin syöttämislaatikko, johon henkilö voi kirjoittaa täydentävää tietoa koskien kyseistä vaihtoehtoa.
BQ4: a continuous or repeated need for a doctor's care	"Do you need continuously or repeatedly care given by a doctor for a long-lasting disease, deficit or disability that you have just mentioned?" (Koskinen et al., 2012)	"Tarvitsetko jatkuvasti tai toistuvasti lääkärinhoitoa jonkin äsken mainitsemasi pitkäaikaisen sairauden, vian tai vamman takia?" (Koskinen et al., 2012)	No or yes	En tai kyllä.
BQ5: the quality of life	"How would you rate your quality of life? Give your estimate based on the latest two weeks." (Nosikov & Gudex 2003; Aalto et al., 2013)	"Minkälaiseksi arvioit elämänlaatusi? Anna arviosi viimeisimpien kahden viikon ajalta." (Nosikov & Gudex 2003; Aalto et al., 2013)	A 9-point Likert scale supplied with the following partial labeling: "9 Very good", "8 –", "7 Good", "6 –", "5 Neither good nor bad", "4 –", "3 Bad", "2 –", "1 Very bad".	A 9-point Likert scale supplied with the following partial labeling: "9 Erittäin hyväksi", "8 –", "7 Hyväksi", "6 –", "5 Ei hyväksi eikä huonoksi", "4 –", "3 Huonoksi", "2 –", "1 Erittäin huonoksi".
BQ6: the satisfaction about health	"How satisfied are you with your health? Give your estimate based on the latest two weeks." (Nosikov & Gudex 2003; Aalto et al., 2013)	"Kuinka tyytyväinen olet terveyteesi? Anna arviosi viimeisimpien kahden viikon ajalta." (Nosikov & Gudex 2003; Aalto et al., 2013)	A 9-point Likert scale supplied with the following partial labeling: "9 Very satisfied", "8 –", "7 Satisfied", "6 –", "5 Neither satisfied nor dissatisfied", "4 –", "3 Dissatisfied", "2 –", "1 Very dissatisfied".	A 9-point Likert scale supplied with the following partial labeling: "9 Erittäin tyytyväinen", "8 –", "7 Tyytyväinen", "6 –", "5 Ei tyytyväinen eikä tyytymätön", "4 –", "3 Tyytymätön", "2 –", "1 Erittäin tyytymätön".
BQ7: the satisfaction about ability	"How satisfied are you with your ability to perform your daily living activities? Give your estimate based on the latest two weeks." (Nosikov & Gudex 2003; Aalto et al., 2013)	"Kuinka tyytyväinen olet kykyysi selviytyä päivittäisistä toiminnoistasi? Anna arviosi viimeisimpien kahden viikon ajalta." (Nosikov & Gudex 2003; Aalto et al., 2013)	A 9-point Likert scale supplied with the following partial labeling: "9 Very satisfied", "8 –", "7 Satisfied", "6 –", "5 Neither satisfied nor dissatisfied", "4 –", "3 Dissatisfied", "2 –", "1 Very dissatisfied".	A 9-point Likert scale supplied with the following partial labeling: "9 Erittäin tyytyväinen", "8 –", "7 Tyytyväinen", "6 –", "5 Ei tyytyväinen eikä tyytymätön", "4 –", "3 Tyytymätön", "2 –", "1 Erittäin tyytymätön".
BQ8: the sex	"Tell what is your sex. The answer alternatives are similar as in the earlier health surveys of Finnish Institute for Health and Welfare (THL) to maintain comparability with the earlier results." (Koskinen et al., 2012)	"Kerro sukupuolesi. Vastausvaihtoehdot ovat samankaltaiset kuin aiemmissa THL:n terveystutkimuksissa, jotta säilyisi vertailtavuus aiempiin tuloksiin." (Koskinen et al., 2012)	Man or woman	Mies tai nainen.
BQ9: the age	"Tell what is your age." (Koskinen et al., 2012)	"Kerro ikäsi." (Koskinen et al., 2012)	Age in years selected from the following range: 16 years, 17 years, ..., 99 years, 100 years or more	Age in years selected from the following range: 16 vuotta, 17 vuotta, ..., 99 vuotta, 100 vuotta tai enemmän.

Supplementary Table 10. Background question BQ3.

Compact notation	Question about the person's background information	Question about the person's background information in Finnish	Range of values for the person's answer	Range of values for the person's answer in Finnish
BQ3: one or more diseases identified by a doctor	"Has there been a situation that a doctor has identified in you one or several of the following diseases?" (Koskinen et al. 2012)	"Onko lääkäri joskus todennut sinulla jonkin/joitakin seuraavista sairauksista?" (Koskinen et al. 2012)	The person answers by selecting one or more options from a list of diseases (Koskinen et al., 2012), see Data analysis supplement (Additional file 1). For some options there is a question "other, what?" and an adjacent text input box so that the person can write some additional information concerning that option.	Henkilö vastaa valitsemalla yhden tai useampia vaihtoehtoja sairauksia sisältävästä luettelosta (Koskinen et al., 2012), katso Data analysis supplement (Additional file 1). Joidenkin vaihtoehtojen kohdalla on kysymys "muu, mikä?" ja sen vieressä tekstin syöttämislaatikko, johon henkilö voi kirjoittaa täydentävää tietoa koskien kyseistä vaihtoehtoa.

The person was asked to indicate if a doctor had identified one or more diseases in him/her and to describe them (BQ3) (in a form adapted from Koskinen et al., 2012).

Questions about one or more diseases identified by a doctor (in a form adapted from Koskinen et al., 2012)	Questions about one or more diseases identified by a doctor in Finnish (in a form adapted from Koskinen et al., 2012)
Has there been a situation that a doctor has identified in you one or several of the following diseases?	Onko lääkäri joskus todennut sinulla jonkin/joitakin seuraavista sairauksista?

Select all diseases that belong to your response in the following way:
Click the square that is on the left side of the name of the disease and then a check mark emerges in it. You can remove the selection with a new click.
If needed, answer to the questions "other, what?" in the following way: Click the box that is besides the question and write your answer into it.

Finally, press the button "I save my response and continue forward".

Valitse kaikki vastaukseesi kuuluvat sairaudet seuraavasti:
Napauta sairauden nimen vasemmalla puolella olevaa ruutua, jolloin siihen ilmestyy valintamerkki. Voit poistaa valinnan uudella napautuksella.
Tarvittaessa vastaa kysymyksiin "muu, mikä?" seuraavasti: Napauta kysymyksen vieressä näkyvää laatikkoa ja kirjoita siihen vastauksesi.

Lopuksi paina painiketta "Tallennan vastaukseni ja jatkan eteenpäin".

LUNG DISEASES
[_] 1. asthma
[_] 2. chronic obstructive pulmonary disease (COPD)
[_] 3. inflammation of the bronchi (chronic bronchitis, lung catarrh)

HEART AND CIRCULATORY DISEASES
[_] 4. heart attack, i.e., myocardial infarction
[_] 5. coronary artery disease (atherosclerosis, angina pectoris)
[_] 6. congestive heart failure
[_] 7. high blood pressure, hypertension
[_] 8. stroke (intracranial hemorrhage, cerebral infarction)

JOINT AND BACK DISEASES
[_] 9. rheumatoid arthritis
[_] 10. arthrosis (osteoarthritis)
10.a. If you answered to the question 10 yes, in which joints it has been identified?
You can select several answer alternatives.
[_] 10.1. knee
[_] 10.2. pelvis
[_] 10.3. hand
[_] 10.4. spine
[_] 10.5. other, what? [_____]
[_] 11. back disease or other back deficit
[_] 12. neck disease or other neck deficit

INJURIES
[_] 13. permanent disability caused by an injury
13a. If you answered to the question 13 yes, a what kind of permanent disability is it?
You can select several answer alternatives.
[_] 13.1. face or jaw injury
[_] 13.2. some other head or brain injury
[_] 13.3. visual impairment
[_] 13.4. hearing impairment
[_] 13.5. trauma in an upper limb or limbs
[_] 13.6. pelvis fracture or its consequence
[_] 13.7. some other trauma in a lower limb or limbs
[_] 13.8. trauma in the body or back
[_] 13.9. lung injury
[_] 13.10. some other injury, what? [_____]

MENTAL HEALTH PROBLEMS
[_] 14. psychic or mental health-related disease
14a. If you answered to the question 14 yes, a what kind of disease is it?
You can select several answer alternatives.
[_] 14.1. psychosis
[_] 14.2. depression
[_] 14.3. anxiety
[_] 14.4. substance abuse problem
[_] 14.5. other, what? [_____]

VISION AND HEARING DEFICITS
[_] 15. cataract

KEUHKOSAIRAUDET
[_] 1. astma
[_] 2. keuhkoputkien ahtauma (COPD)
[_] 3. krooninen keuhkoputkentulehdus (krooninen bronkiitti, keuhkokatarri)

SYDÄN- JA VERISUONISAIRAUDET
[_] 4. sydänveritulppa eli sydäninfarkti
[_] 5. sepelvaltimotauti (sepelvaltimoiden ahtauma, angina pectoris)
[_] 6. sydämen vajaatoiminta
[_] 7. kohonnut verenpaine, verenpainetauti
[_] 8. aivohalvaus (aivoverenvuoto, aivoveritulppa)

NIVEL- JA SELKÄSAIRAUDET
[_] 9. nivelreuma
[_] 10. nivelkuluma (nivelrikko)
10a. Jos vastasit kysymykseen 10 kyllä, missä nivelissä se on todettu?
Voit valita useamman vastausvaihtoehdon.
[_] polvi
[_] lonkka
[_] käsi
[_] ranka
[_] muu, mikä? [_____]
[_] 11. selkäsairaus tai muu selkävika
[_] 12. niskasairaus tai muu niskavika

TAPATURMAT
[_] 13. tapaturman aiheuttama pysyvä vamma
13a. Jos vastasit kysymykseen 13 kyllä, minkälainen pysyvä vamma on kyseessä?
Voit valita useamman vastausvaihtoehdon.
[_] kasvo- tai leukavamma
[_] jokin muu pää- tai aivovamma
[_] näkövamma
[_] kuulovamma
[_] vamma yläraajassa/-raajoissa
[_] lonkkamurtuma tai sen jälkitila
[_] jokin muu vamma alaraajassa/-raajoissa
[_] vamma vartalossa tai selässä
[_] keuhkovamma
[_] jokin muu vamma, mikä? [_____]

MIELENTERVEYDEN ONGELMAT
[_] 14. psyykkinen tai mielenterveyteen liittyvä sairaus
14a. Jos vastasit kysymykseen 14 kyllä, minkälainen sairaus on kyseessä?
Voit valita useamman vastausvaihtoehdon.
[_] psykoosi
[_] masennus
[_] ahdistus
[_] päihdeongelma
[_] muu, mikä? [_____]

NÄKÖ- JA KUULOVIAT
[_] 15. silmien harmaakaihi

15a. If you answered to the question 15 yes, have you been in an eye surgery due to it? [_] Yes I have. [_] 16. glaucoma (ocular hypertension, glaucoma disease) [_] 17. macular degeneration [_] 18. hearing deficit, hearing disability or disease that weakens hearing OTHER DISEASES [_] 19. diabetes (diabetes mellitus) [_] 20. cancer disease (malignant tumor) [_] 21. Parkinson's disease [_] 22. involuntary urination, leakage of urine or urinary incontinence 23. Do you have still some other long-lasting disease, deficit, ailment or disability that a doctor has identified in you? [_] Yes I have. [_] 23a. If you answered to the question 23 yes, this other thing is what? [_____] Button "I save my response and continue forward"	15a. Jos vastasit kysymykseen 15 kyllä, oletko ollut sen takia silmäleikkauksessa? [_] Kyllä olen. [_] 16. silmien glaukooma (silmänpainetauti, viherkaihi) [_] 17. silmänpohjan rappeuma [_] 18. kuulovika, kuulovamma tai kuuloa heikentävä sairaus MUUT SAIRAUDET [_] 19. diabetes (sokeritauti) [_] 20. syöpätauti (pahanlaatuinen kasvain) [_] 21. Parkinsonintauti [_] 22. virtsan pidättämisen vaikeuksia, virtsan karkailua tai inkontinenssi 23. Onko sinulla vielä jokin muu lääkärin toteama pitkäaikainen sairaus, vika, vaiva tai vamma? [_] Kyllä on. [_] 23a. Jos vastasit kysymykseen 23 kyllä, mikä muu? [_____] Painike "Tallennan vastaukseni ja jatkan eteenpäin"

Supplementary Table 11. Animation of the face figure that is shown together with the expression statements in the online questionnaire.

The online questionnaire shows each expression statement as a speech bubble and below that an animation of a face figure is shown. The animation is based on 18 image frames that are illustrated in this table. The animation is defined to present the frames 1-18 with the speed of 10 frames per second. In the end, the last frame 18 remains permanently displayed, thus there is no looping of the animation.