Valuation of SF-6Dv2 Health States in China Using Time Trade-off and Discrete Choice Experiment with Duration

Electronic Supplementary Material

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Appendix Table 1 The Characteristics of respondents among eight cities

Characteristics	Cities (N [%])								P-value [a]
	Harbin (N$_1$ = 398)	Tianjin (N$_2$ = 416)	Lanzhou (N$_3$ = 427)	Chengdu (N$_4$ = 405)	Wuhan (N$_5$ = 432)	Nanjing (N$_6$ = 434)	Guiyang (N$_7$ = 402)	Guangzhou (N$_8$ = 406)	
Gender [b]									0.962
Male	203 (51.0%)	198 (47.6%)	219 (51.3%)	208 (51.4%)	213 (49.3%)	219 (50.5%)	206 (51.2%)	204 (50.2%)	
Female	195 (49.0%)	218 (52.4%)	208 (48.7%)	197 (48.6%)	219 (50.7%)	215 (49.5%)	196 (48.8%)	202 (49.8%)	
Age (mean [SD])	44.3 (16.2)	45.6 (16.8)	44.3 (16.6)	44.4 (16.1)	44.2 (15.8)	45.2 (15.3)	44.0 (16.5)	44.5 (15.9)	0.676
Age group (y) [b]									0.993
18-29	86 (21.6%)	89 (21.4%)	95 (22.2%)	85 (21.0%)	95 (22.0%)	86 (19.8%)	87 (21.6%)	85 (20.9%)	
30-39	75 (18.8%)	73 (17.5%)	83 (19.4%)	77 (19.0%)	76 (17.6%)	78 (18.0%)	76 (18.9%)	75 (18.5%)	
40-49	84 (21.1%)	77 (18.5%)	85 (19.9%)	85 (21.0%)	83 (19.2%)	84 (19.4%)	84 (20.9%)	88 (21.7%)	
50-59	67 (16.8%)	78 (18.8%)	72 (16.9%)	69 (17.0%)	94 (21.8%)	95 (21.9%)	68 (16.9%)	71 (17.5%)	
≥ 60	86 (21.6%)	99 (23.8%)	92 (21.5%)	89 (22.0%)	84 (19.4%)	91 (21.0%)	87 (21.6%)	87 (21.4%)	
Education [b]									0.860
Primary or lower	104 (26.1%)	87 (20.9%)	102 (23.9%)	105 (25.9%)	106 (24.5%)	106 (24.4%)	105 (26.1%)	105 (25.9%)	
Junior high school	159 (39.9%)	161 (38.7%)	166 (38.9%)	162 (40.0%)	160 (37.0%)	160 (36.9%)	160 (39.8%)	160 (39.4%)	
Senior high school	69 (17.3%)	75 (18.0%)	86 (20.1%)	70 (17.3%)	82 (19.0%)	78 (18.0%)	69 (17.2%)	72 (17.7%)	
College or higher	66 (16.6%)	93 (22.4%)	73 (17.1%)	68 (16.8%)	84 (19.4%)	90 (20.7%)	68 (16.9%)	69 (17.0%)	
Region [b]									0.700
Urban	239 (60.1%)	258 (62.0%)	252 (59.0%)	244 (60.2%)	264 (61.1%)	241 (55.5%)	242 (60.2%)	240 (59.1%)	
Rural	159 (39.9%)	158 (38.0%)	175 (41.0%)	161 (39.8%)	168 (38.9%)	193 (44.5%)	160 (39.8%)	166 (40.9%)	
Marital status									**0.001**
Unmarried	88 (22.1%)	90 (21.6%)	79 (18.5%)	84 (20.7%)	109 (25.2%)	75 (17.3%)	94 (23.4%)	90 (22.2%)	
Married	285 (71.6%)	304 (73.1%)	333 (78.0%)	297 (73.3%)	289 (66.9%)	345 (79.5%)	279 (69.4%)	302 (74.4%)	
Divorced	8 (2.0%)	8 (1.9%)	3 (0.7%)	16 (4.0%)	15 (3.5%)	5 (1.2%)	14 (3.5%)	4 (1.0%)	
Widowed	17 (4.3%)	14 (3.4%)	12 (2.8%)	8 (2.0%)	19 (4.4%)	9 (2.1%)	15 (3.7%)	10 (2.5%)	
Health insurance									
Urban employee	200 (50.3%)	246 (59.1%)	157 (36.8%)	224 (55.3%)	203 (47.0%)	212 (48.8%)	141 (35.1%)	193 (47.5%)	**<0.001**
Urban and rural resident	139 (34.9%)	131 (31.5%)	264 (61.8%)	170 (42.0%)	194 (44.9%)	183 (42.2%)	227 (56.5%)	168 (41.4%)	**<0.001**

									p-value[a]
Commercial	88 (22.1%)	69 (16.6%)	57 (13.3%)	64 (15.8%)	50 (11.6%)	63 (14.5%)	21 (5.2%)	37 (9.1%)	**<0.001**
Other	15 (3.8%)	10 (2.4%)	3 (0.7%)	10 (2.5%)	10 (2.3%)	7 (1.6%)	10 (2.5%)	9 (2.2%)	0.191
No	28 (7.0%)	26 (6.3%)	5 (1.2%)	11 (2.7%)	30 (6.9%)	22 (5.1%)	21 (5.2%)	45 (11.1%)	**<0.001**
Employment status									**<0.001**
Employed	180 (45.2%)	236 (56.7%)	246 (57.6%)	268 (66.2%)	316 (73.1%)	296 (68.2%)	220 (54.7%)	281 (69.2%)	
Retired	78 (19.6%)	121 (29.1%)	77 (18.0%)	65 (16.0%)	62 (14.4%)	72 (16.6%)	63 (15.7%)	66 (16.3%)	
Student	38 (9.5%)	30 (7.2%)	18 (4.2%)	21 (5.2%)	34 (7.9%)	27 (6.2%)	32 (8.0%)	29 (7.1%)	
Unemployed	102 (25.6%)	29 (7.0%)	86 (20.1%)	51 (12.6%)	20 (4.6%)	39 (9.0%)	87 (21.6%)	30 (7.4%)	
Monthly income (RMB)									**<0.001**
< 2000	145 (36.4%)	73 (17.5%)	166 (38.9%)	103 (25.4%)	82 (19.0%)	89 (20.5%)	127 (31.6%)	73 (18.0%)	
2000-5000	178 (44.7%)	278 (66.8%)	210 (49.2%)	206 (50.9%)	275 (63.7%)	224 (51.6%)	217 (54.0%)	243 (59.9%)	
5000-10000	56 (14.1%)	52 (12.5%)	40 (9.4%)	65 (16.0%)	59 (13.7%)	91 (21.0%)	45 (11.2%)	73 (18.0%)	
>10000	19 (4.8%)	13 (3.1%)	11 (2.6%)	31 (7.7%)	16 (3.7%)	30 (6.9%)	13 (3.2%)	17 (4.2%)	
Number of chronic conditions [c]									**<0.001**
0	213 (53.5%)	258 (62.0%)	273 (63.9%)	224 (55.3%)	287 (66.4%)	280 (64.5%)	243 (60.4%)	285 (70.2%)	
1	100 (25.1%)	94 (22.6%)	107 (25.1%)	120 (29.6%)	112 (25.9%)	112 (25.8%)	107 (26.6%)	79 (19.5%)	
2	40 (10.1%)	35 (8.4%)	26 (6.1%)	36 (8.9%)	27 (6.3%)	28 (6.5%)	39 (9.7%)	34 (8.4%)	
3	21 (5.3%)	22 (5.3%)	8 (1.9%)	12 (3.0%)	5 (1.2%)	11 (2.5%)	8 (2.0%)	6 (1.5%)	
≥4	24 (6.0%)	7 (1.7%)	13 (3.0%)	13 (3.2%)	1 (0.2%)	3 (0.7%)	5 (1.2%)	2 (0.5%)	

[a] The comparison of characteristics distributions among respondents in eight cities were conducted by using t-test or chi-square test, as appropriate.

[b] The quota sampling was used in this study, which four quotas, i.e., gender, age, education status, and the region were pre-defined on the basis of their distribution in the Chinese general population.

[c] The chronic conditions include hypertension, dyslipidemia, diabetes or high blood sugar, cancer or malignant tumor, chronic lung disease, liver disease, heart disease, stroke, kiney disease, stomach or other digestive disease, emotional or psychatric problems, memory-related disease, arthritis or rheumatism, asthma, or other respondent-reoported chronic conditions.

Appendix Table 2　Estimated interaction terms coefficients of the preferred model on TTO data

| | M2: RE model | | | | | | | | | | | | | | | | | |
| | Main effect only | | | + LEAST term | | | + MOST term | | | + LEAST and MOST term | | | + MOSTn term | | | + D1 term | | |
	Coef.	SE	p-value	Coef.	SE	p-value	Coef.	SE	p-value	Coef.	SE	p-value	Coef.	SE	p-value	Coef.	SE	p-value
Intercept	0.130	0.005	<0.001	0.058	0.009	<0.001	0.128	0.005	<0.001	0.063	0.010	<0.001	0.128	0.005	<0.001			
Physical functioning																		
PF2	0.033	0.007	<0.001	0.045	0.007	<0.001	0.032	0.007	<0.001	0.044	0.007	<0.001	0.032	0.007	<0.001			
PF3	0.069	0.008	<0.001	0.073	0.008	<0.001	0.067	0.008	<0.001	0.072	0.008	<0.001	0.067	0.008	<0.001			
PF4	0.122	0.008	<0.001	0.130	0.008	<0.001	0.120	0.008	<0.001	0.128	0.008	<0.001	0.120	0.008	<0.001			
PF5	0.344	0.010	<0.001	0.353	0.010	<0.001	0.339	0.010	<0.001	0.350	0.010	<0.001	0.365	0.012	<0.001			
Role limitation																		
RL2	0.044	0.007	<0.001	0.053	0.007	<0.001	0.040	0.007	<0.001	0.050	0.008	<0.001	0.040	0.007	<0.001			
RL3	0.052	0.009	<0.001	0.056	0.009	<0.001	0.046	0.009	<0.001	0.053	0.009	<0.001	0.046	0.009	<0.001			
RL4	0.083	0.008	<0.001	0.093	0.008	<0.001	**0.079**	**0.008**	**<0.001**	0.091	0.008	<0.001	0.079	0.008	<0.001			
RL5	0.084	0.008	<0.001	0.096	0.008	<0.001	**0.077**	**0.008**	**<0.001**	0.092	0.008	<0.001	0.104	0.009	<0.001			
Social functioning																		
SF2	0.041	0.008	<0.001	0.048	0.008	<0.001	0.038	0.008	<0.001	0.046	0.008	<0.001	0.038	0.008	<0.001		*Omitted*	
SF3	0.052	0.008	<0.001	0.062	0.008	<0.001	0.050	0.008	<0.001	0.060	0.008	<0.001	0.050	0.008	<0.001			
SF4	0.081	0.008	<0.001	0.085	0.008	<0.001	0.081	0.008	<0.001	0.085	0.008	<0.001	0.081	0.008	<0.001			
SF5	0.094	0.008	<0.001	0.106	0.008	<0.001	0.089	0.008	<0.001	0.103	0.009	<0.001	0.115	0.009	<0.001			
Pain																		
PN2	0.041	0.008	<0.001	0.047	0.008	<0.001	0.039	0.008	<0.001	0.046	0.008	<0.001	0.039	0.008	<0.001			
PN3	0.072	0.009	<0.001	0.081	0.009	<0.001	0.067	0.009	<0.001	0.079	0.009	<0.001	0.067	0.009	<0.001			
PN4	0.134	0.009	<0.001	0.135	0.009	<0.001	0.131	0.009	<0.001	0.134	0.009	<0.001	0.131	0.009	<0.001			
PN5	0.338	0.010	<0.001	0.341	0.010	<0.001	0.335	0.010	<0.001	0.339	0.010	<0.001	0.335	0.010	<0.001			
PN6	0.372	0.010	<0.001	0.382	0.010	<0.001	0.367	0.010	<0.001	0.379	0.010	<0.001	0.393	0.012	<0.001			
Mental health																		
MH2	0.028	0.008	<0.001	0.037	0.008	<0.001	0.027	0.008	<0.001	0.035	0.008	<0.001	0.027	0.008	<0.001			
MH3	0.043	0.009	<0.001	0.050	0.009	<0.001	0.041	0.009	<0.001	0.049	0.009	<0.001	0.041	0.009	<0.001			
MH4	0.115	0.008	<0.001	0.121	0.009	<0.001	**0.115**	**0.008**	**<0.001**	0.120	0.008	<0.001	0.115	0.008	<0.001			

	Coef	SE	p	Coef	SE	p	Coef	SE	p	Coef	SE	p	Coef	SE	p	
MH5	0.116	0.009	<0.001	0.129	0.008	<0.001	**0.111**	**0.008**	**<0.001**	0.126	0.008	<0.001	0.137	0.010	<0.001	
Vitality																
VT2	0.025	0.007	<0.001	0.033	0.007	<0.001	0.025	0.007	<0.001	0.032	0.007	<0.001	0.025	0.007	<0.001	
VT3	0.053	0.008	<0.001	0.061	0.008	<0.001	0.050	0.008	<0.001	0.059	0.008	<0.001	0.050	0.008	<0.001	
VT4	0.094	0.008	<0.001	0.099	0.008	<0.001	0.092	0.008	<0.001	0.098	0.008	<0.001	0.092	0.008	<0.001	
VT5	0.101	0.008	<0.001	0.111	0.008	<0.001	0.096	0.008	<0.001	0.108	0.008	<0.001	0.122	0.010	<0.001	
LEAST	--	--	--	**0.051**	**0.007**	**<0.001**	--	--	--	**0.047**	**0.007**	**<0.001**	--	--	--	
MOST	--	--	--	--	--	--	0.026	0.007	<0.001	**0.011**	**0.007**	**0.157**	--	--		
MOSTn	--	--	--	--	--	--	--	--	--	--	--	--	-0.026	0.007	<0.001	
D1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
AIC	29479.69			29433.79			29487.51			29433.76			29467.51			--
BIC	29708.93			29671.21			29714.94			29679.37			29704.94			--
MAD	0.0616			0.0598			0.0618			0.0593			0.0604			--
MSD	0.0063			0.0061			0.0064			0.0060			0.0062			--
ICC	0.9307			0.9332			0.9308			0.9339			0.9328			--

Abbr: RE, random-effects; LEAST term, represents the dummy variable which take a value of 1 if any dimension in the health state is at the least severe level, and 0 otherwise; MOST term, represents the dummy variable which take a value of 1 if any dimension in the health state is at the most severe level, and 0 otherwise; MOSTn term, represents the count variable represent the number of dimensions at the most severe level beyond the first, value ranges from 0 to 5; D1 term, represents the number of domains isn't at the least severe level beyond the first, value ranges from 0 to 5; AIC, akaike information criterion; BIC, bayesian information criterion; MAD, mean absolute difference; MSE, mean squared difference; ICC, intraclass correlation coefficient.

D1 term was omitted due to the multicollinearity. The coefficients marked with red color represented the non-monotonicity.

Appendix Table 3　Estimated interaction terms coefficients of the preferred model on DCE_{TTO} data

| | Conditional logit model | | | | | | | | | | | | | | | | | |
| | Main effects only | | | + LEAST term | | | + MOST term | | | + LEAST and MOST term | | | + MOSTn term | | | + D1 term | | |
	Coef.	SE	p-value	Coef.	SE	p-value	Coef.	SE	p-value	Coef.	SE	p-value	Coef.	SE	p-value	Coef.	SE	p-value
Year	0.365	0.009	<0.001	0.332	0.011	<0.001	0.398	0.010	<0.001	0.352	0.016	<0.001	0.370	0.009	<0.001			
Physical functioning*Year																		
PF2	-0.009	0.005	0.052	**0.002**	**0.005**	**0.649**	-0.012	0.005	0.019	-0.004	0.005	0.420	-0.010	0.005	0.051			
PF3	-0.018	0.005	<0.001	-0.012	0.005	0.007	-0.017	0.005	<0.001	-0.011	0.005	0.021	-0.019	0.005	<0.001			
PF4	-0.054	0.005	<0.001	-0.047	0.005	<0.001	-0.054	0.005	<0.001	-0.047	0.005	<0.001	-0.054	0.005	<0.001			
PF5	-0.150	0.005	<0.001	-0.143	0.005	<0.001	-0.128	0.005	<0.001	-0.122	0.006	<0.001	-0.157	0.006	<0.001			
Role functioning*Year																		
RL2	-0.011	0.004	0.010	-0.005	0.004	0.262	-0.014	0.004	0.001	-0.008	0.004	0.076	-0.012	0.004	0.007			
RL3	-0.011	0.005	0.017	-0.005	0.005	0.266	**0.004**	**0.005**	**0.381**	**0.010**	**0.005**	**0.038**	-0.013	0.005	0.008			
RL4	-0.030	0.004	<0.001	-0.024	0.004	<0.001	-0.034	0.004	<0.001	-0.028	0.005	<0.001	-0.031	0.004	<0.001			
RL5	-0.041	0.005	<0.001	-0.033	0.005	<0.001	-0.044	0.005	<0.001	-0.037	0.005	<0.001	-0.050	0.006	<0.001			
Social functioning*Year																	Omitted	
SF2	-0.013	0.005	0.004	-0.007	0.005	0.158	-0.017	0.005	<0.001	-0.010	0.005	0.041	-0.014	0.005	0.003			
SF3	-0.014	0.004	0.001	-0.008	0.005	0.086	-0.022	0.005	<0.001	-0.016	0.005	0.001	-0.014	0.004	0.001			
SF4	-0.039	0.004	<0.001	-0.033	0.005	<0.001	-0.046	0.004	<0.001	-0.040	0.005	<0.001	-0.039	0.004	<0.001			
SF5	-0.042	0.004	<0.001	-0.036	0.004	<0.001	**-0.027**	**0.004**	**<0.001**	-0.020	0.005	<0.001	-0.050	0.005	<0.001			
Pain*Year																		
PN2	-0.027	0.005	<0.001	-0.019	0.006	0.001	-0.024	0.005	<0.001	-0.017	0.006	0.003	-0.026	0.005	<0.001			
PN3	-0.029	0.005	<0.001	-0.022	0.005	<0.001	-0.029	0.005	<0.001	-0.021	0.006	<0.001	-0.029	0.005	<0.001			
PN4	-0.057	0.005	<0.001	-0.050	0.005	<0.001	-0.057	0.005	<0.001	-0.049	0.005	<0.001	-0.058	0.005	<0.001			
PN5	-0.173	0.006	<0.001	-0.166	0.006	<0.001	-0.169	0.006	<0.001	-0.162	0.006	<0.001	-0.173	0.006	<0.001			
PN6	-0.200	0.005	<0.001	-0.194	0.006	<0.001	-0.179	0.006	<0.001	-0.173	0.006	<0.001	-0.208	0.006	<0.001			
Mental health*Year																		
MH2	**0.002**	**0.004**	**0.686**	**0.010**	**0.005**	**0.028**	-0.001	0.004	0.910	**0.009**	**0.005**	**0.091**	**0.002**	**0.004**	**0.696**			
MH3	-0.003	0.004	0.568	**0.005**	**0.005**	**0.313**	-0.005	0.005	0.240	**0.003**	**0.005**	**0.530**	-0.003	0.004	0.498			
MH4	-0.053	0.005	<0.001	-0.046	0.005	<0.001	-0.058	0.005	<0.001	-0.050	0.005	<0.001	-0.053	0.005	<0.001			

MH5	-0.072	0.005	<0.001	-0.064	0.005	<0.001	-0.058	0.005	<0.001	-0.051	0.005	<0.001	-0.080	0.006	<0.001		
Vitality*Year																	
VT2	**0.007**	**0.005**	**0.145**	**0.013**	**0.005**	**0.010**	**0.008**	**0.005**	**0.098**	**0.014**	**0.005**	**0.007**	**0.007**	**0.005**	**0.125**		
VT3	-0.027	0.005	<0.001	-0.021	0.005	<0.001	**-0.025**	**0.005**	**<0.001**	-0.019	0.005	<0.001	-0.027	0.005	<0.001		
VT4	-0.029	0.005	<0.001	-0.023	0.005	<0.001	**-0.024**	**0.005**	**<0.001**	**-0.019**	**0.005**	**<0.001**	-0.029	0.005	<0.001		
VT5	-0.058	0.005	<0.001	-0.051	0.005	<0.001	-0.037	0.005	<0.001	-0.030	0.006	<0.001	-0.066	0.006	<0.001		
LEAST*Year	--	--	--	0.122	0.023	<0.001	--	--	--	0.017	0.005	<0.001	--	--	--		
MOST*Year	--	--	--	--	--	--	-0.062	0.005	<0.001	-0.062	0.005	<0.001	--	--	--		
MOSTn*Year	--	--	--	--	--	--	--	--	--	--	--	--	0.012	0.005	0.012		
D1*Year	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		
Log likelihood		-35563.72			-35551.69			-35479.79			-35473.41			-35560.76			--
AIC		71179.45			71157.38			71013.57			71002.83			71175.52			--
BIC		71416.13			71403.17			71259.36			71257.72			71421.32			--

Abbr: LEAST term, represents the dummy variable which take a value of 1 if any dimension in the health state is at the least severe level, and 0 otherwise; MOST term, represents the dummy variable which take a value of 1 if any dimension in the health state is at the most severe level, and 0 otherwise; MOSTn term, represents the count variable represent the number of dimensions at the most severe level beyond the first, value ranges from 0 to 5; D1 term, represents the number of domains isn't at the least severe level beyond the first, value ranges from 0 to 5; AIC, akaike information criterion; BIC, bayesian information criterion.

D1 term was omitted due to the multicollinearity. The coefficients marked with red color represented the non-monotonicity.

Appendix Table 4   The TTO cross-validation results of excluding the data of each one of the eight cities

	dropped data from city 1 (Harbin)		dropped data from city 2 (Tianjin)		dropped data from city 3 (Lanzhou)		dropped data from city 4 (Chengdu)		dropped data from city 5 (Wuhan)		dropped data from city 6 (Nanjing)		dropped data from city 7 (Guiyang)		dropped data from city 8 (Guangzhou)	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Intercept	-0.134	<0.001	-0.131	<0.001	-0.123	<0.001	-0.131	<0.001	-0.131	<0.001	-0.132	<0.001	-0.132	<0.001	-0.124	<0.001
Physical functioning																
PF2	-0.031	<0.001	-0.035	<0.001	-0.031	<0.001	-0.036	<0.001	-0.034	<0.001	-0.032	<0.001	-0.033	<0.001	-0.035	<0.001
PF3	-0.063	<0.001	-0.068	<0.001	-0.065	<0.001	-0.073	<0.001	-0.071	<0.001	-0.066	<0.001	-0.073	<0.001	-0.074	<0.001
PF4	-0.116	<0.001	-0.124	<0.001	-0.120	<0.001	-0.132	<0.001	-0.121	<0.001	-0.119	<0.001	-0.127	<0.001	-0.119	<0.001
PF5	-0.333	<0.001	-0.338	<0.001	-0.347	<0.001	-0.353	<0.001	-0.345	<0.001	-0.335	<0.001	-0.355	<0.001	-0.344	<0.001
Role limitation																
RL2	-0.041	<0.001	-0.045	<0.001	-0.044	<0.001	-0.038	<0.001	-0.041	<0.001	-0.044	<0.001	-0.048	<0.001	-0.048	<0.001
RL3	-0.053	<0.001	-0.058	<0.001	-0.052	<0.001	-0.051	<0.001	-0.054	<0.001	-0.046	<0.001	-0.051	<0.001	-0.048	<0.001
RL4	-0.082	<0.001	-0.087	<0.001	-0.081	<0.001	-0.080	<0.001	-0.086	<0.001	-0.081	<0.001	-0.086	<0.001	-0.085	<0.001
RL5	-0.085	<0.001	-0.081	<0.001	-0.092	<0.001	-0.081	<0.001	-0.087	<0.001	-0.087	<0.001	-0.077	<0.001	-0.085	<0.001
Social functioning																
SF2	-0.041	<0.001	-0.045	<0.001	-0.034	<0.001	-0.043	<0.001	-0.043	<0.001	-0.041	<0.001	-0.040	<0.001	-0.041	<0.001
SF3	-0.054	<0.001	-0.052	<0.001	-0.051	<0.001	-0.053	<0.001	-0.055	<0.001	-0.052	<0.001	-0.051	<0.001	-0.051	<0.001
SF4	-0.079	<0.001	-0.084	<0.001	-0.077	<0.001	-0.081	<0.001	-0.087	<0.001	-0.077	<0.001	-0.083	<0.001	-0.082	<0.001
SF5	-0.093	<0.001	-0.096	<0.001	-0.088	<0.001	-0.096	<0.001	-0.099	<0.001	-0.092	<0.001	-0.092	<0.001	-0.096	<0.001
Pain																
PN2	-0.035	<0.001	-0.039	<0.001	-0.041	<0.001	-0.041	<0.001	-0.042	<0.001	-0.044	<0.001	-0.044	<0.001	-0.043	<0.001
PN3	-0.069	<0.001	-0.066	<0.001	-0.071	<0.001	-0.071	<0.001	-0.068	<0.001	-0.083	<0.001	-0.078	<0.001	-0.071	<0.001
PN4	-0.133	<0.001	-0.131	<0.001	-0.136	<0.001	-0.136	<0.001	-0.131	<0.001	-0.130	<0.001	-0.144	<0.001	-0.133	<0.001
PN5	-0.337	<0.001	-0.335	<0.001	-0.339	<0.001	-0.327	<0.001	-0.343	<0.001	-0.338	<0.001	-0.353	<0.001	-0.330	<0.001

	Coef.	p	Coef.	p	Coef.	p	Coef.	p	Coef.	p	Coef.	p	Coef.	p	Coef.	p
PN6	-0.374	<0.001	-0.381	<0.001	-0.366	<0.001	-0.361	<0.001	-0.379	<0.001	-0.376	<0.001	-0.375	<0.001	-0.363	<0.001
Mental health																
MH2	-0.026	0.001	-0.026	0.001	-0.030	<0.001	-0.026	0.001	-0.032	<0.001	-0.027	0.001	-0.026	0.002	-0.033	<0.001
MH3	-0.038	<0.001	-0.038	<0.001	-0.051	<0.001	-0.042	<0.001	-0.043	<0.001	-0.043	<0.001	-0.045	<0.001	-0.048	<0.001
MH4	-0.117	<0.001	-0.118	<0.001	-0.120	<0.001	-0.113	<0.001	-0.112	<0.001	-0.112	<0.001	-0.115	<0.001	-0.120	<0.001
MH5	-0.115	<0.001	-0.113	<0.001	-0.121	<0.001	-0.107	<0.001	-0.114	<0.001	-0.116	<0.001	-0.116	<0.001	-0.120	<0.001
Vitality																
VT2	-0.027	<0.001	-0.025	0.001	-0.023	0.002	-0.025	0.001	-0.028	<0.001	-0.027	<0.001	-0.025	0.001	-0.024	0.001
VT3	-0.054	<0.001	-0.052	<0.001	-0.047	<0.001	-0.055	<0.001	-0.055	<0.001	-0.053	<0.001	-0.056	<0.001	-0.048	<0.001
VT4	-0.090	<0.001	-0.089	<0.001	-0.093	<0.001	-0.094	<0.001	-0.096	<0.001	-0.100	<0.001	-0.095	<0.001	-0.094	<0.001
VT5	-0.098	<0.001	-0.104	<0.001	-0.098	<0.001	-0.099	<0.001	-0.106	<0.001	-0.104	<0.001	-0.101	<0.001	-0.099	<0.001
Mean absolute difference of coefficients between the cross-validation model and the whole sample model	0.0024		0.0025		0.0028		0.0029		0.0023		0.0023		0.0027		0.0024	

Appendix Table 5 The DCE$_{TTO}$ cross-validation results of excluding the data of each one of the eight cities

	dropped data from city 1 (Harbin)		dropped data from city 2 (Tianjin)		dropped data from city 3 (Lanzhou)		dropped data from city 4 (Chengdu)		dropped data from city 5 (Wuhan)		dropped data from city 6 (Nanjing)		dropped data from city 7 (Guiyang)		dropped data from city 8 (Guangzhou)	
	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value	Coef.	p-value
Year	0.358	0.000	0.370	0.000	0.374	0.000	0.358	0.000	0.373	0.000	0.368	0.000	0.357	0.000	0.365	0.000
Physical functioning*Year																
PF2	-0.008	0.119	-0.011	0.034	-0.007	0.168	-0.010	0.060	-0.012	0.018	-0.010	0.053	-0.008	0.108	-0.009	0.087
PF3	-0.017	<0.001	-0.018	0.000	-0.015	0.002	-0.018	0.000	-0.020	0.000	-0.019	0.000	-0.019	0.000	-0.019	0.000
PF4	-0.049	<0.001	-0.053	0.000	-0.054	0.000	-0.053	0.000	-0.058	0.000	-0.054	0.000	-0.055	0.000	-0.053	0.000
PF5	-0.144	<0.001	-0.147	0.000	-0.150	0.000	-0.149	0.000	-0.153	0.000	-0.152	0.000	-0.152	0.000	-0.152	0.000
Role limitation*Year																
RL2	-0.012	0.008	-0.009	0.061	-0.013	0.004	-0.012	0.007	-0.012	0.012	-0.010	0.028	-0.009	0.050	-0.011	0.017
RL3	-0.011	0.026	-0.010	0.049	-0.013	0.015	-0.014	0.006	-0.011	0.031	-0.014	0.007	-0.009	0.068	-0.009	0.081
RL4	-0.031	<0.001	-0.030	<0.001	-0.031	<0.001	-0.033	<0.001	-0.029	<0.001	-0.030	<0.001	-0.028	<0.001	-0.028	<0.001
RL5	-0.042	<0.001	-0.043	<0.001	-0.041	<0.001	-0.040	<0.001	-0.041	<0.001	-0.042	<0.001	-0.039	<0.001	-0.039	<0.001
Social functioning*Year																
SF2	-0.012	0.015	-0.015	0.002	-0.012	0.016	-0.013	0.007	-0.013	0.009	-0.014	0.005	-0.013	0.007	-0.015	0.002
SF3	-0.013	0.006	-0.016	0.001	-0.015	0.002	-0.012	0.011	-0.013	0.009	-0.013	0.006	-0.016	0.001	-0.016	0.001
SF4	-0.040	<0.001	-0.038	<0.001	-0.035	<0.001	-0.039	<0.001	-0.040	<0.001	-0.040	<0.001	-0.040	<0.001	-0.040	<0.001
SF5	-0.041	<0.001	-0.042	<0.001	-0.040	<0.001	-0.041	<0.001	-0.044	<0.001	-0.042	<0.001	-0.043	<0.001	-0.044	<0.001
Pain*Year																
PN2	-0.026	<0.001	-0.026	<0.001	-0.031	<0.001	-0.027	<0.001	-0.026	<0.001	-0.026	<0.001	-0.026	<0.001	-0.024	<0.001
PN3	-0.027	<0.001	-0.030	<0.001	-0.031	<0.001	-0.030	<0.001	-0.030	<0.001	-0.030	<0.001	-0.027	<0.001	-0.030	<0.001
PN4	-0.060	<0.001	-0.055	<0.001	-0.059	<0.001	-0.057	<0.001	-0.061	<0.001	-0.057	<0.001	-0.056	<0.001	-0.054	<0.001
PN5	-0.176	<0.001	-0.175	<0.001	-0.174	<0.001	-0.170	<0.001	-0.174	<0.001	-0.173	<0.001	-0.175	<0.001	-0.168	<0.001

PN6	-0.200	<0.001	-0.203	<0.001	-0.201	<0.001	-0.195	<0.001	-0.203	<0.001	-0.202	<0.001	-0.198	<0.001	-0.199	<0.001
Mental health*Year																
MH2	0.004	0.391	0.002	0.609	0.002	0.669	-0.002	0.693	0.003	0.534	0.002	0.673	0.003	0.505	0.000	0.926
MH3	0.000	0.980	-0.005	0.341	-0.005	0.263	0.000	0.927	-0.001	0.833	-0.003	0.590	-0.001	0.758	-0.005	0.268
MH4	-0.049	<0.001	-0.053	<0.001	-0.054	<0.001	-0.050	<0.001	-0.054	<0.001	-0.055	<0.001	-0.054	<0.001	-0.056	<0.001
MH5	-0.072	<0.001	-0.070	<0.001	-0.072	<0.001	-0.068	<0.001	-0.072	<0.001	-0.075	<0.001	-0.073	<0.001	-0.073	<0.001
Vitality*Year																
VT2	0.009	0.096	0.007	0.195	0.006	0.257	0.008	0.111	0.006	0.266	0.005	0.351	0.011	0.035	0.006	0.273
VT3	-0.023	<0.001	-0.025	<0.001	-0.032	<0.001	-0.027	<0.001	-0.027	<0.001	-0.030	<0.001	-0.022	<0.001	-0.027	<0.001
VT4	-0.028	<0.001	-0.030	<0.001	-0.031	<0.001	-0.027	<0.001	-0.031	<0.001	-0.032	<0.001	-0.025	<0.001	-0.027	<0.001
VT5	-0.059	<0.001	-0.056	<0.001	-0.060	<0.001	-0.057	<0.001	-0.058	<0.001	-0.059	<0.001	-0.054	<0.001	-0.062	<0.001
Mean absolute difference of coefficients between the cross-validation model and the whole sample model		0.0016		0.0012		0.0016		0.0015		0.0013		0.0010		0.0017		0.0014

Which health state is better, state A or state B?

State A: Full health

1y 2y 2y 3y 4y 5y 6y 7y 8y 9y 10y

State B:
- Limited in vigorous activities a little;
- Accomplish less than you would like (at work or during other regular daily activities as a result of your physical health or emotional problems) some of the time;
- Social activities are limited some of the time;
- Very mild pain;
- Depressed or nervous none of the time;
- Tired a little of the time.

Appendix Fig 1a   Example of time trade-off (TTO) task

Which health state is better, state A or state B?

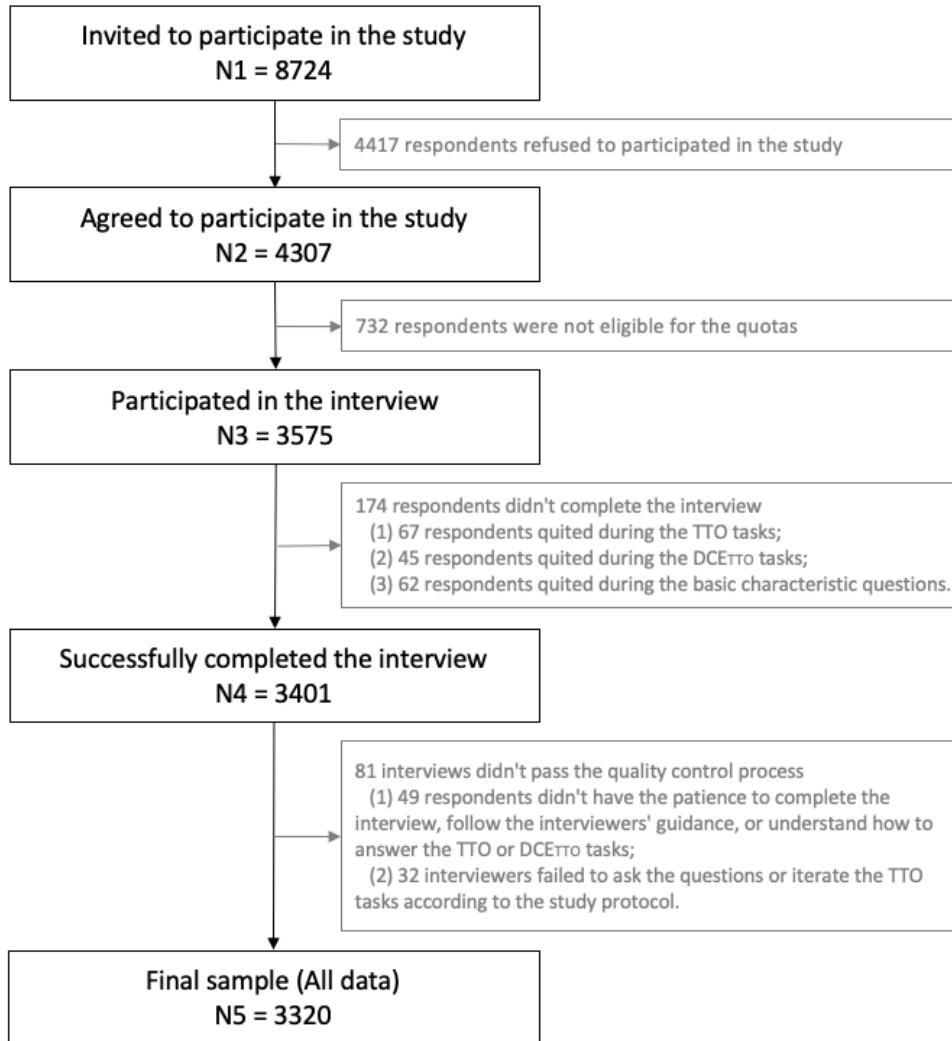|		
Physical functioning	• Limited a little in moderate activities;	• Limited a lot in bathing and dressing;
Role limitation	• Accomplish less than you would like (at work or during other regular daily activities as a result of your physical health or emotional problems) most of the time;	• Accomplish less than you would like (at work or during other regular daily activities as a result of your physical health or emotional problems) none of the time;
Social functioning	• Social activities are limited most of the time;	• Social activities are limited some of the time;
Pain	• Very mild pain;	• No pain;
Mental health	• Depressed or nervous none of the time;	• Depressed or nervous most of the time;
Vitality	• Tired a little of the time;	• Tired all of the time;
Life duration	• Live for 4 years, then die.	• Live for 10 years, then die.
	Choose	**Choose**

Appendix Fig 1b   Example of discrete choice experiment with life duration (DCE$_{TTO}$) task

Appendix Fig 2a   The distribution of the cities for recruiting respondents in China
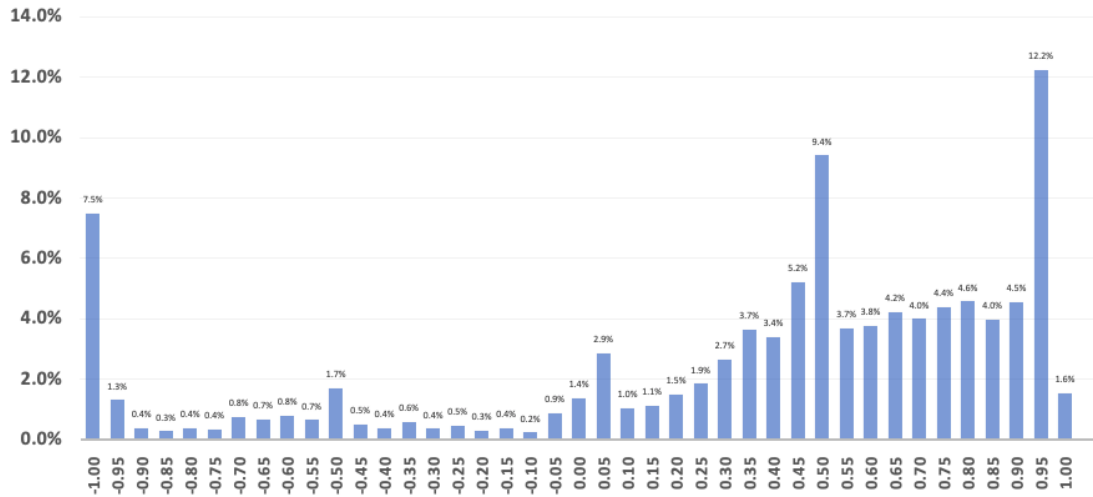

Appendix Fig 2b   The distribution of respondents recruited in eight cities of China
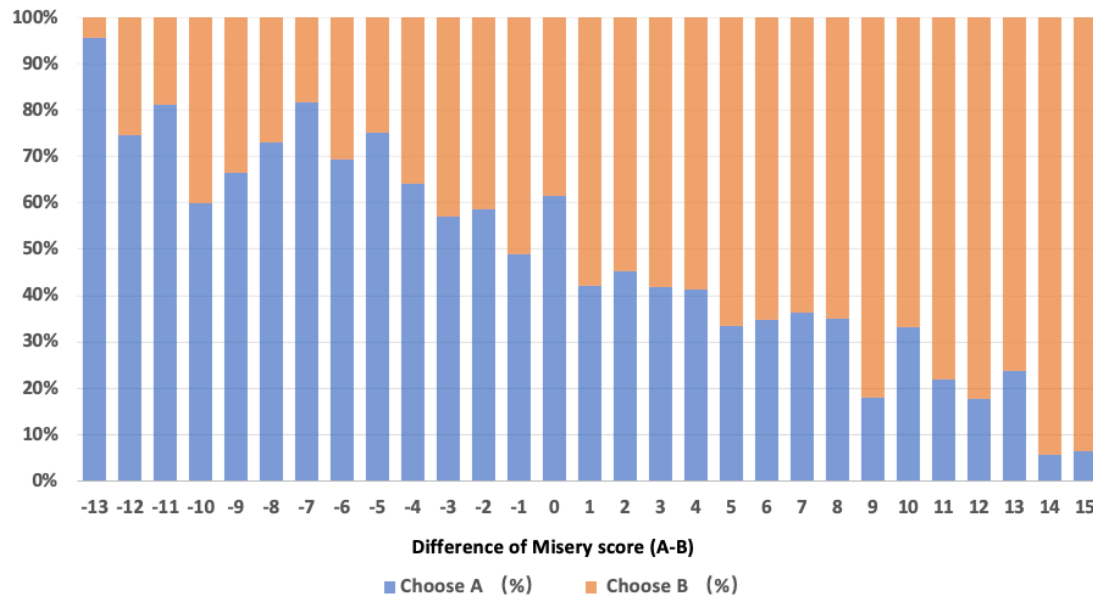
Appendix Fig 3 The flow chart of the sample inclusion

Abbr: TTO, time trade-off; DCE$_{TTO}$, discrete choice experiment with life duration.
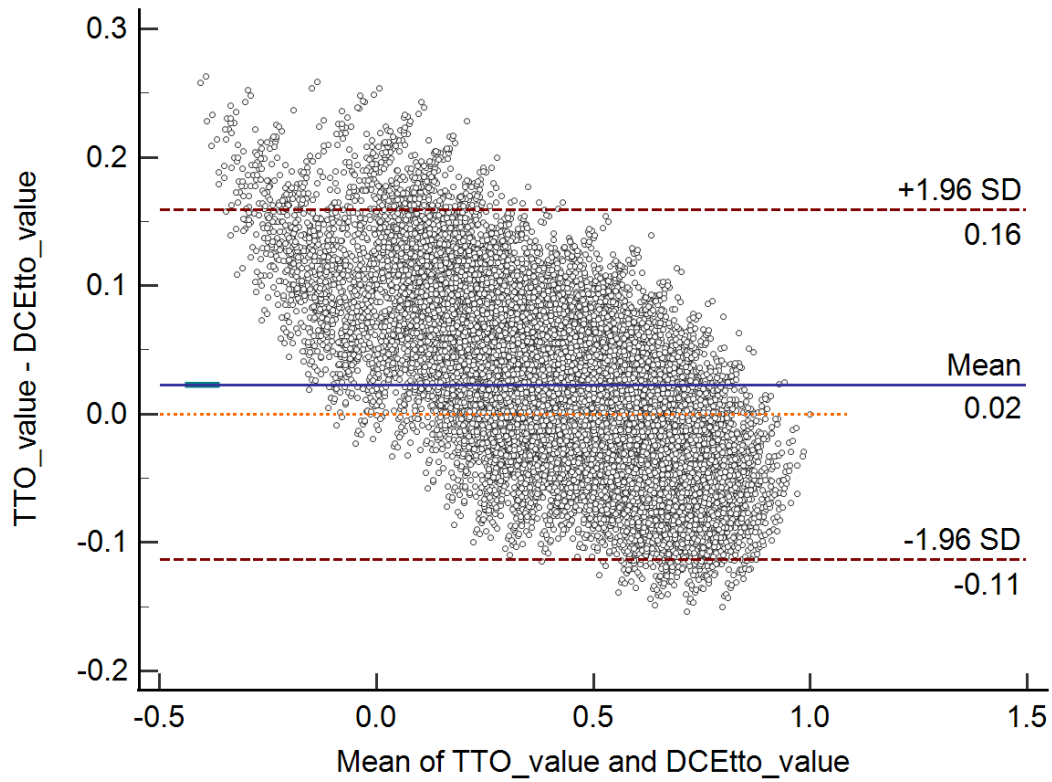
Appendix Fig 4   The distribution of the observed TTO values for 295 states

Appendix Fig 5   Relative preference for health state A versus B by difference in misery score for discrete choice experiment tasks

Misery score was calculated by summing the severity-levels across all six dimensions. For example, the misery score for health state 121122 would be 9 (1+2+1+1+2+2=9).

Appendix Fig 6   Bland-Altman plot of difference in predicted utility values between TTO and DCE_{TTO}

X-axis represents the means of TTO values and DCE$_{TTO}$ values of all 18,750 health states in SF-6Dv2. Y-axis represents the difference between TTO values and DCE$_{TTO}$ values of all 18,750 health states.