PNS68: Valuating the CHILD Health Utility 9-Dimention in JAPAN: Results from a Nation-Wide School-Based Survey

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Objective

- The Child Health Utility 9D (CHU9D) is a child-friendly generic preference-based measure of health-related quality of life and has been widely applied in children and adolescents in several settings.
- In Japan, there was no such the instrument for cost-effectiveness analysis targeting young population.
- This study aims to develop a scoring algorithm based on adolescents' preference.

Methods (1)

- A profile case best-worst scaling (BWS) and a time trade-off (TTO) method were performed to derive a Japanese-specific tariff for the CHU9D-Japanese version.
- The study recruited junior-high and high school students aged 12 to 18 years using a multi-stage random sampling and administrated in the schools.
- By using Ngene, a software to design the choice metric, 50 health states for the BWS case were randomly selected and allocated into 5 blocks.

Methods (2)

- The questionnaire had 5 versions, each of which includes socio-demographic questions, the PedsQL questions and 10 BWS cases and randomly sent to the surveyed schools.
- The TTO survey was implemented online targeting young adults aged 18-29 years.
- The data were analyzed using latent class conditional logit models, to estimate utilities for each level of the nine attributes.

Results

The study participants included answers of 1279 junior-high and high school students for the BWS survey and 1727 young adults for the TTO survey. The BWS estimates were re-anchored onto the QALY scale using the TTO generated health state values via a mapping approach. The optimal results were based on the responses to the best attributes.

Analysis of best-worst scaling (BWS) and time trade-off (TTO) profiles

Conditional (fixed-effects) logistic regression

Number of obs	=	180,030	
LR chi2(36)	=	18868.02	
Prob > chi2	=	0.0000	
Log likelihood = -35855.885	Pseudo R2	=	0.2083

choice	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Eworry_2	-.0233419	.0521201	-0.45	0.654	-.1254955	.0788117
Eworry_3	.0805674	.0532973	1.51	0.131	-.0238934	.1850282
Eworry_4	-1.08011	.0467086	-23.12	0.000	-1.171657	-.988563
Eworry_5	-1.116325	.0472899	-23.61	0.000	-1.209011	-1.023638
Esad_2	.0416102	.0507922	0.82	0.413	-.0579407	.1411611
Esad_3	.4544348	.0531259	8.55	0.000	.35031	.5585596
Esad_4	-1.107625	.0474971	-23.32	0.000	-1.200718	-1.014533
Esad_5	-1.121314	.0469439	-23.89	0.000	-1.213323	-1.029306
Epain_2	.4357334	.0508359	8.57	0.000	.3360969	.53537
Epain_3	.1866924	.051281	3.64	0.000	.0861835	.2872013
Epain_4	-1.242745	.0461744	-26.91	0.000	-1.333245	-1.152245
Epain_5	-1.37116	.0516955	-26.52	0.000	-1.472481	-1.269839
Etired_2	.1700561	.0511098	3.33	0.001	.0698828	.2702294
Etired_3	.1777937	.0527828	3.37	0.001	.0743413	.2812462
Etired_4	-1.259746	.0454661	-27.71	0.000	-1.348858	-1.170634
Etired_5	-1.363814	.0453914	-30.05	0.000	-1.45278	-1.274849
Eannoyed_2	.3024943	.0505556	5.98	0.000	.2034073	.4015814
Eannoyed_3	-.0404973	.0511095	-0.79	0.428	-.14067	.0596755
Eannoyed_4	-1.343663	.0448103	-29.99	0.000	-1.43149	-1.255837
Eannoyed_5	-1.168186	.0464024	-25.18	0.000	-1.259133	-1.077239
Ework_2	-.0832461	.0540397	-1.54	0.123	-.1891619	.0226698
Ework_3	-.1131638	.0535312	-2.11	0.035	-.218083	-.0082446
Ework_4	-.568858	.0507798	-11.20	0.000	-.6683846	-.4693313
Ework_5	-.8618784	.0458118	-18.81	0.000	-.9516679	-.7720888
Esleep_2	.1822675	.0536125	3.40	0.001	.0771889	.287346
Esleep_3	-.3839443	.0519031	-7.40	0.000	-.4856726	-.2822161
Esleep_4	-1.159902	.0442258	-26.23	0.000	-1.246583	-1.073221
Esleep_5	-1.473542	.0440064	-33.48	0.000	-1.559793	-1.387291
Edaily_2	.334898	.0515777	6.49	0.000	.2338075	.4359885
Edaily_3	-.4033016	.0511576	-7.88	0.000	-.5035687	-.3030345
Edaily_4	-.8507238	.0493548	-17.24	0.000	-.9474574	-.7539903
Edaily_5	-1.273932	.0438501	-29.05	0.000	-1.359877	-1.187988
Eactiv_2	.7537242	.0529417	14.24	0.000	.6499604	.857488
Eactiv_3	.0084907	.0560807	0.15	0.880	-.1014256	.1184069
Eactiv_4	-.5964206	.0487325	-12.24	0.000	-.6919345	-.5009066
Eactiv_5	-1.721077	.0436314	-39.45	0.000	-1.806593	-1.635561

Source	SS	df	MS		
Model	11.5127405	36	.319798348	Number of obs	= 30,828
Residual	2242.93611	30,791	.072843887	F(36, 30791)	= 4.39
				Prob > F	= 0.0000
Total	2254.44885	30,827	.073132282	R-squared	= 0.0051
				Adj R-squared	= 0.0039
				Root MSE	= .2699

value	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
worried						
2	.0082918	.0060238	1.38	0.169	-.003515	.0200986
3	.0120966	.0067572	1.79	0.073	-.0011477	.025341
4	.0061105	.0062315	0.98	0.327	-.0061034	.0183244
5	.0012057	.0069027	0.17	0.861	-.0123238	.0147352
sad						
2	.0060453	.0063228	0.96	0.339	-.0063476	.0184383
3	.0046453	.006004	0.77	0.439	-.0071228	.0164133
4	-.0013645	.0070018	-0.19	0.845	-.0150883	.0123593
5	.0054117	.0052024	1.04	0.298	-.0047852	.0156086
annoyed						
2	.0010556	.0056615	0.19	0.852	-.0100412	.0121523
3	.0057841	.0056857	1.02	0.309	-.0053602	.0169283
4	-.0010301	.0061874	-0.17	0.868	-.0131576	.0110975
5	-.0071903	.0058423	-1.23	0.218	-.0186414	.0042607
tired						
2	.0076196	.005973	1.28	0.202	-.0040877	.0193269
3	.0033705	.0063461	0.53	0.595	-.0090682	.0158092
4	-.0029955	.005754	-0.52	0.603	-.0142737	.0082826
5	.007799	.0061473	1.27	0.205	-.0042499	.019848
pain						
2	.0042798	.0059959	0.71	0.475	-.0074723	.016032
3	.0056615	.0061919	0.91	0.361	-.0064749	.017798
4	.000738	.0057577	0.13	0.898	-.0105474	.0120234
5	.0192478	.0057795	3.33	0.001	.0079197	.0305758
sleep						
2	.0030016	.0062451	0.48	0.631	-.009239	.0152421
3	.0129492	.0069023	1.88	0.061	-.0005796	.0264781
4	.0109554	.0059527	1.84	0.066	-.0007122	.0226229
5	.0143121	.0065564	2.18	0.029	.0014613	.0271628
routine						
2	.0150577	.0067595	2.23	0.026	.0018088	.0283066
3	.0214783	.005985	3.59	0.000	.0097474	.0332092
4	.0112792	.0065516	1.72	0.085	-.0015621	.0241205
5	.0133326	.0061995	2.15	0.032	.0011813	.0254838
school						
2	.0066273	.0063507	1.04	0.297	-.0058203	.0190749
3	.0014193	.0069439	0.20	0.838	-.0121911	.0150296
4	-.0037744	.0065178	-0.58	0.563	-.0165496	.0090009
5	-.0017273	.0065334	-0.26	0.791	-.014533	.0110784
activities						
2	.0109685	.005525	1.99	0.047	.0001393	.0217976
3	.0040686	.0063895	0.64	0.524	-.0084551	.0165922
4	.0129461	.0058165	2.23	0.026	.0015455	.0243466
5	.0210664	.0063969	3.29	0.001	.0085282	.0336045
_cons	.637157	.0057995	109.86	0.000	.6257898	.6485243

Conclusions

- The study adds value to generate the value set in the adolescent population in Japan. Similar to the previous findings in Australia and China, the preferences among adolescents tended to be affected by different decision rules of best vs. worst choices. The adolescent-specific value set will facilitate economic evaluations of public health programs targeting children and adolescents.