Relationship between Health-State Utility Values, Self-Efficacy, and Health Locus of Control in the General Population

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BACKGROUND

There has been little research on the basis of patients' preferences, i.e., why they have such preferences; a review by Russo et al. (2019) points to psychological constructs that influence patients' preferences, such as self-efficacy and health locus of control.

OBJECTIVES

The purpose of this study was to determine the relationship between health-state utility values and self-efficacy and health locus of control in the general population as a preliminary study to investigate patient preferences.

METHODS

We conducted a web-based survey of 2,000 people living in Japan. The **EQ-5D-5L**, **HUI3**, **General Self-Efficacy Scale (GSES)**, and **Health Locus of Control Scale (HLCS)** were used, and exercise habits, sleep status, and medication use were also inquired. A Japanese scoring algorithm was used to convert the EQ-5D-5L and HUI3 scores. The GSES is a measure of the degree of confidence, or self-efficacy, that an individual is able to successfully perform the behaviors necessary to produce a certain behavior. The GSES is scored from 0 to 16, and the higher the score, the higher the self-efficacy. The HLCS is a scale that questions the cognitive style of whether individuals seek to locate the subject's control over their health-related behavior internally or externally. The HLCS is scored from 14 to 56, with higher scores indicating a tendency toward internal control.

RESULTS

The mean age of the participants was 54.2 years, the mean EQ-5D-5L score was 0.89, and the mean HUI3 score was 0.77. The mean GSES score was 8.7, and the mean HLCS score was 37.1. The correlations between the EQ-5D-5L score and the GSES and HLCS were 0.253 and 0.223, respectively, and those with the HUI3 score were 0.42 and 0.30, respectively. Moderate exercise habits and good sleep were strongly associated with self-efficacy and health locus of control. Multiple regression analysis showed that Health-State Utility Values as measured by the EQ-5D-5L and HUI3 were positively influenced by Self-Efficacy and Internal Control, as well as moderate activity and good sleep.

Table1. Participants characteristics

Characteristic		n (%) or Mean ± SD	%
Age (y)		54.2±19.2	
Sex (m/f)		1000/1000	
Education	Junior high school	58	2.9
	high school	608	30.4
	College etc.	461	23.1
	University	773	38.7
	Graduate school	100	5.0
Marital status	Married	1229	61.5
	Unmarried	282	14.1
	Divorced or bereaved	489	24.5
Family	Single	584	29.2
	Couple	730	36.5
	Two families	582	29.1
	3 or more families	104	5.2
Household income	< JPY 2mil	306	15.4
	JPY 2 mil <= <4 mil	626	31.3
	JPY 4 mil <= <6 mil	495	24.8
	JPY 6 mil <= <10 mil	384	19.2
	JPY 10 mil <= <15 mil	142	7.1
	JPY 15 mil <=	47	2.4
Physical activity	Very often	346	17.3
	Usually	1010	50.5
	Not so active	447	22.4
	Too little	197	9.9
Exercise habit	Almost daily	266	13.3
	3–5/week	377	18.9
	1–2/week	511	25.6
	Too little	846	42.3
Sleeping	Well	1109	55.5
	Lack of sleep	891	44.6
Medication	Yes	899	45.0
	No	1101	55.1
Hospitalization experience	Yes	1079	54.0
	No	921	46.1

Table2. Health-state utility values, GSES and HLCS

	Mean	Median	SD	95% CI
EQ-5D-5L	0.885	0.895	0.136	0.640-1.000
HUI3	0.771	0.846	0.217	0.321-1.000
GSES	8.7	9.0	4.5	1.0-16.0
HLCS	37.1	37.0	4.1	31.0-44.0

Table3. Correlation between outcome scales

	EQ-5D-5L	HUI3	GSES	HLCS
EQ-5D-5L	1.000			
HUI3	0.624	1.000		
GSES	0.253	0.421	1.000	
HLCS	0.223	0.304	0.375	1.000

Table4. Relationship between Health-state utility value and GSES, HLCS and health customs

EQ score		Coefficient	P	95% CI
AGE		-.000481	0.005	-.000814 -.000148
Female		-.007745	0.154	-.018405 .002914
GSES		.004961	0.000	.003565 .006357
HLCS		.003646	0.000	.002239 .005053
Physical activity	Very often	.091338	0.000	.069139 .113538
	Usually	.092712	0.000	.073745 .111679
	Not so active	.056423	0.000	.036144 .076702
	Too little	Ref.		
Sleeping	Well	.044301	0.000	.033192 .055409
	Lack of sleep	Ref.		
Medication	Yes	-.045633	0.000	-.057554 -.033713
	No	Ref.		
Hospitalization	Yes	-.031205	0.000	-.042670 -.019741
	No	Ref.		
_cons		.681950	0.000	.628776 .735125

HUI score		Coefficient	P	95% CI
AGE		-.000870	0.001	-.001387 -.000352
Female		.007567	0.370	-.008997 .024133
GSES		.016419	0.000	.014249 .018588
HLCS		.007691	0.000	.005505 .009878
Physical activity	Very often	.101811	0.000	.067314 .136308
	Usually	.111399	0.000	.081924 .140873
	Not so active	.077526	0.000	.046012 .109040
	Too little	Ref.		
Sleeping	Well	.054362	0.000	.037099 .071624
	Lack of sleep	Ref.		
Medication	Yes	-.030808	0.001	-.049333 -.012283
	No	Ref.		
Hospitalization	Yes	-.028956	0.001	-.046772 -.011140
	No	Ref.		
_cons		.286234	0.000	.203601 .368867

DISCUSSION

Health-state utility values were demonstrated to be associated with self-efficacy as measured by the GSES and cognitive style of health-related subject's control as measured by the HLCS. In particular, as shown by multiple regression analysis, the higher the self-efficacy and the stronger the internal control of the subject's control, the higher the health-state utility values. It is clear from these results that health-related quality of life can also be improved to a certain degree by self-efficacy and internal control, and a virtuous circle can be inferred in which this style also influences activity and good sleep.

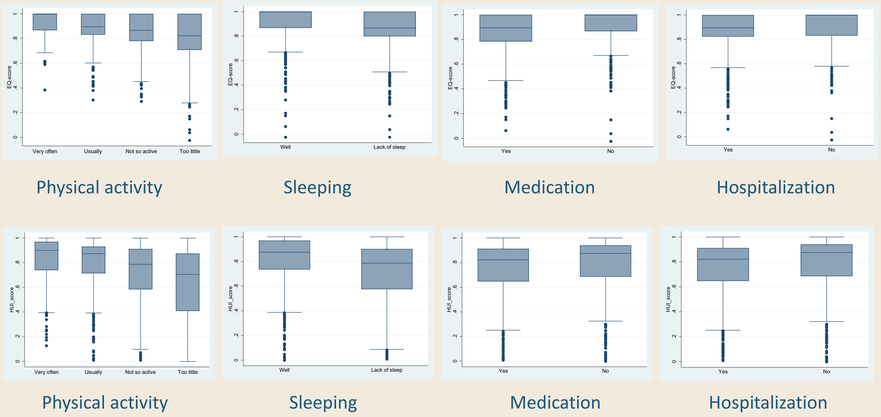

Fig1. Health-state utility values by health experiences

Fig2. Scatter plots of Health-state utility value and GSES, HLCS

CONCLUSIONS

We confirmed a certain relationship between health-state utility values and the levels of self-efficacy and health locus of control in the general population. We would like to conduct a similar study for known people in the future to investigate the relationship.

Funding: This study was partly funded by Grant-in-Aid for Scientific Research (KAKENHI) from the Japan Society for the Promotion of Science (21H03172).

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Conflicts of Interest: The authors declare no conflicts of interest.

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- Russo S, et al. Understanding Patients' Preferences: A Systematic Review of Psychological Instruments Used in Patients' Preference and Decision Studies. Value Health. 2019 Apr;22(4):491-501.