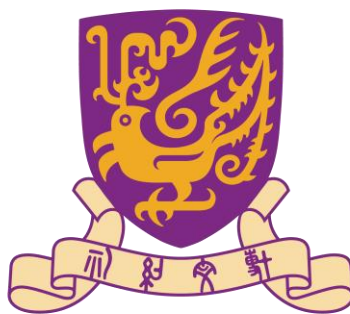# Detecting Changes in Relative Weighting of EQ-5D Dimensions and Levels with Sequential Analytical Hierarchy Process in Hong Kong SAR, China

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Limited discussion was raised on the possible change in Health-related Quality of Life (HRQoL) perception across time, while such changes may impact the accuracy and timeliness of economic evaluations, such as health utility values previously assigned in the EQ-5D-5L value sets.

While recruiting a new round of EQ-VT protocol would require plentiful research resources such as time and study subjects, this study attempted to tackle the research gap with an innovative Analytical Hierarchy Process (AHP) approach.

Method

Design	Online/ Face-to-face Cross-sectional Survey
Time	First Round: Apr 2022 – Jun 2022 Second Round: Nov 2022 - Mar 2023 Interval: ≥ 6 Months
Sample Size	First Round: n=165 Second Round: n=124 (Follow-up Rate: 75.2%)
Sampling	Quota Sampling based on Sex and Age Group Mix of Hong Kong Community Aged 18 or Above With Chinese or Cantonese Literacy

Objective

This study aimed to examine the possible changes in the HRQoL perception and preferences in EQ-5D-5L across a certain time interval in the Hong Kong SAR community.

Results & Findings

➤ Among those who could recall the first round (n=107),
53.3% of participants self-reported change in HRQoL perception,
or had experienced adverse health events by significant others or themselves within the time interval.

AHP Pairwise Comparison	First Round (n=165)		Second Round (n=124)		Changes
	Relative Weighting	Rank	Relative Weighting	Rank	
Mobility	0.184	4	0.237	2	+22.2%
Self- care	0.239	1	0.294	1	+18.9%
Usual Activities	0.200	3	0.191	3	-4.89%
Pain/ Discomfort	0.213	2	0.172	4	-23.1%
Anxiety/ Depression	0.164	5	0.106	5	-55.6%

Table 1. Summary of Changes in Relative Weighting of EQ-5D-5L Dimensions across Six Months

AHP-derived Global Weight	Range of the Change in the 5 levels
Mobility	+22.2% - +26.6%
Self- care	+17.2% - +26.5%
Usual Activities	-4.50% - -7.53%
Pain/ Discomfort	-17.9% - -29.2%
Anxiety/ Depression	-42.3% - -62.6%

Table 2. Summary of Changes in Global Weights EQ-5D-5L Utility Levels derived by AHP

➤ Changes in the EQ-5D-5L Dimensions Ranking could be observed across the study period.

➤ A Transitional Emphasis on Mobility and Self-care from Pain/ Discomfort and Anxiety/ Depression.

➤ A Sequential Changes in HRQoL Perception was hypothetically demonstrated with the AHP.

Conclusions

➤ This study quantified the sequential changes in HRQoL perception with the EQ-5D-5L instrument.

➤ The factors influencing the change in HRQoL perception should be further explored on both individual and population levels.

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