

Valuing health States: an EQ-5D-5L value set for Uzbekistan

Nilufar Abduvalieva¹, Bakhrom Mirkasimov¹, Nilufar Rashitova¹, Bram Roudijk², Fanni Rencz^{2,3}, Dilfuza Djalalova¹

¹ Westminster International University in Tashkent, Tashkent, Uzbekistan

² EuroQol Research Foundation, Rotterdam, The Netherlands

³ Department of Health Policy, Corvinus University of Budapest, Budapest, Hungary

INTRODUCTION

Healthcare Reforms. Over the past decade, Uzbekistan has initiated substantial reforms to enhance its medical infrastructure and guarantee access to high-quality healthcare, guided by the "Health System Development Concept 2019–2025".

The Research Gap: Despite these improvements, population-level health-related quality of life (HRQoL) valuations remain scarce. No EQ-5D-5L valuation studies have previously been conducted in any Central Asian country.

Methodological Necessity. In the absence of local valuation data, researchers and policymakers have had to rely on international value sets. This carries a severe risk of misrepresenting the health preferences of the Uzbek population and introducing bias into local economic evaluations.

Study Objective. This study aims to establish the first national EQ-5D-5L value set representing the societal preferences of the adult general population in Uzbekistan. This will provide key support for local cost-utility assessments and Health Technology Assessments.



DISCUSSION AND CONCLUSION

The Dominance of Physical Mobility. Extreme problems with mobility produced the largest overall disutility (0.530).

Infrastructural Barriers. This is strongly explained by the lack of a barrier-free environment, wheelchair ramps, and accessible public transport in Uzbekistan, which has been shown to heavily restrict the social participation of individuals with physical disabilities.

Cultural and Religious Coping.

Patience (Sabr): A strong reluctance to declare health states Worse Than Dead (WTD) and the lower disutility assigned to mental distress (Anxiety/Depression) match findings in other Muslim-majority nations. These patterns align with Islamic values of patience (sabr) in the face of hardship and a deep focus on the sanctity of life.

Family Caregiving Culture: Self-care dependence is highly tolerated (yielding a lower relative disutility weight of 0.353) due to traditional, multi-generational household structures, where family-provided physical assistance is readily available and culturally normative.

International Comparisons. The order of dimension importance in Uzbekistan matches that of China, Iran, and Egypt.

The worst health state index value of -0.740 is highly comparable to valuations in Ethiopia (-0.718) and Saudi Arabia (-0.683).

Conclusion & Impact:

This is the first EQ-5D-5L value set for any Central Asian nation.

It will facilitate accurate, local preference-weighted calculations of Quality-Adjusted Life Years (QALYs), helping to align health economics and public health policy with the societal values of Uzbekistan

METHODS

Sampling Strategy. Respondents were recruited across five geographically diverse regions of Uzbekistan: Tashkent (national capital), Samarkand (central), Bukhara (west/central), Fergana (east), and Khorezm (west). Two-stage quota sampling was implemented based on general population data from the National Statistics Committee of Uzbekistan to satisfy representative quotas for age and gender.

Elicitation Procedures (EQ-PVT Version 2). Face-to-face computer-assisted interviews were conducted using laptops equipped with the official EuroQol Portable Valuation Technology (EQ-PVT) software.

Statistical Modeling: We compared three specifications: (i) Heteroscedastic Tobit for cTTO data, (ii) Conditional Logit for DCE data, (iii) Hybrid Heteroscedastic Tobit model combining cTTO and DCE.

RESULTS

Final Sample Size. A total of 1,007 respondents were analyzed (10 excluded due to technical errors or missing data).

Demographics. The sample is balanced by gender (50.5% female, 49.5% male). Age categories are well-aligned with national adult proportions (e.g., 25.6% aged 18–29 and 26.7% aged 30–39)¹⁸. Higher education was attained by 56.3% of the sample.

Observed Preference Data. In the raw cTTO exercises, 23.7% of respondents indicated a preference for "Worse Than Dead" (WTD) for at least one health state. 11.2% of responses were valued at exactly 1.0 (full health). Clear face validity was established: health states with lower severity sum scores yielded significantly higher mean values than severe health states.

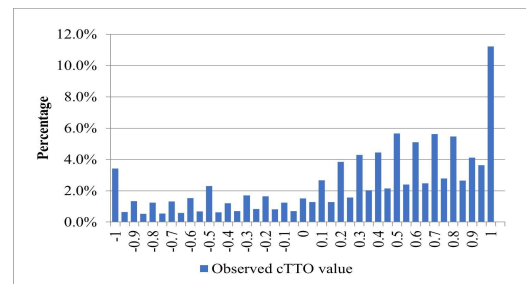


Figure 2. The overall observed cTTO value distribution for all health states.

The Final Uzbek EQ-5D-5L Value Set Formula (Model 3)

$$U = 1 - (0.029 MO2 + 0.089 MO3 + 0.191 MO4 + 0.530 MO5 + 0.037 SC2 + 0.104 SC3 + 0.153 SC4 + 0.353 SC5 + 0.029 UA2 + 0.064 UA3 + 0.132 UA4 + 0.222 UA5 + 0.055 PD2 + 0.097 PD3 + 0.247 PD4 + 0.377 PD5 + 0.039 AD2 + 0.081 AD3 + 0.147 AD4 + 0.258 AD5)$$

Key Boundary Values.

Worst Health State (55555). Estimated value of **-0.740** in the final Hybrid model.

Highest Impaired Health State (21111): Estimated value of **0.955**.

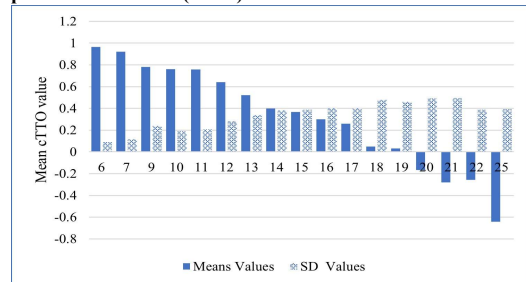


Figure 3. The mean (and standard deviation) TTO value observed by level total score.

Dimension Hierarchy. Based on Level 5 disutilities, the dimensions are ordered by societal importance as: **Mobility (0.530) > Pain/Discomfort (0.377) > Self-Care (0.353) > Anxiety/Depression (0.258) > Usual Activities (0.222)**

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Nilufar Rashitova
nrashitova@wiut.uz