Health State Utilities Associated With Hyperphagia

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Summary

- **Increased severity of hyperphagia is associated with lower health state utilities**

Background and Objectives

- Rare genetic diseases of obesity can present with a high comorbidity burden[1]
  - This includes hyperphagia, which is characterized by an extreme, persistent desire to consume food and lack of satiety following consumption[2]
- Hyperphagia-associated behaviors negatively impact the lives of patients with rare genetic diseases of obesity and their caregivers[2]
- While studies of health state utilities associated with obesity are published in the literature,[3-5] no previous studies have examined the independent impact of hyperphagia on health state utility
- The purpose of this study was to estimate health state utilities associated with various levels of hyperphagia severity

Methods

Study Design

- A vignette-based time trade-off (TTO) utility elicitation study

Health States

- Health state vignettes representing varying severity levels of hyperphagia were developed using published studies and iterative interviews with clinicians who treat patients with hyperphagia
  - Interviews with clinicians continued until all clinicians agreed on the clarity of descriptions of hyperphagia
- 4 health states were developed: A (no hyperphagia), B (mild hyperphagia), C (moderate hyperphagia), and D (severe hyperphagia)
- The health states and utility assessment procedures were pilot tested before the larger utility valuation study to ensure clarity

Participant Recruitment

- Participants from the United Kingdom general population in England and Scotland were recruited and screened for eligibility
- Inclusion criteria
  - ≥18 years of age
  - Able to understand assessments and provide consent to participate in virtual interviews and questionnaires
- Exclusion criteria
  - Cognitive or visual impairment, hearing difficulty, severe psychopathology, or insufficient knowledge of English that may interfere with the ability to provide consent or complete an interview

TTO Interviews

- Eligible respondents were mailed interview materials (health states and clinical questionnaires) prior to Zoom interviews conducted between April and May 2021
- The interviews consisted of 2 parts:
  - Health State Ranking Introductory Task: participants ranked the 4 health states in order of preference (most preferable to least preferable)
  - TTO: participants were offered a choice between spending a 10-year period in a health state versus varying amounts of time in full health
    - Choices were presented in 6-month increments (eg, 10 years, 0 months [dead]) for all health states perceived to be better than dead
    - Disutility for health states B through D was determined as the difference between the given health state and health state A
      - Health state rankings were assessed as a utility score on a scale ranging from 0 (dead) to 1 (full health)
    - Composite TTO was used with conventional trading for better-than-dead scores, and only lead time was used for worse than dead scores
- Descriptive statistics were used to summarize utility differences and general demographic and clinical characteristics, and *t*-tests (2-tailed *P*<0.05) were performed to determine comparisons between health states

Results

Sample Description

- A total of 215 participants completed interviews (39.5% male; age range, 18–76 years; body mass index, 25.3 kg/m^2)
- Anxiety (23.7%), asthma (17.7%), and depression (15.3%) were the most frequently reported health conditions in this population
- The participant population was 84.2% white, 2.8% black, 1.4% Hispanic/Latino, and 11.7% other
- None of the participants were diagnosed with hyperphagia

Health State Rankings

- Health state rankings are shown in Table 1

Table 1. Health State Rankings

Health state, n (%)	1 (most preferred)	2	3	4 (least preferred)
A (no hyperphagia)	214 (99.5)	1 (0.5)	0 (0.0)	0 (0.0)
B (mild hyperphagia)	1 (0.5)	214 (99.5)	0 (0.0)	0 (0.0)
C (moderate hyperphagia)	0 (0.0)	0 (0.0)	214 (99.5)	1 (0.5)
D (severe hyperphagia)	0 (0.0)	0 (0.0)	1 (0.5)	214 (99.5)

TTO Utilities

- No differences in utility were found by age or sex, with the exception of disutility of severe hyperphagia, ranked by women as significantly greater than that ranked by men (−0.830 vs −0.670; *P*=0.048)
- Mean utility scores were highest for health state A (0.98), followed by B (0.91), C (0.70), and D (0.22) (Table 2)
  - All but 2 participants ranked health states from most to least preferable as A, B, C, then D
  - All differences between health states were statistically significant (*P*<0.0001)

Table 2. Health State Utilities and Disutilities

	Utility score		Disutility score	
Health state	Mean	SD	Mean	SD
A (no hyperphagia)	0.98	0.02	–	–
B (mild hyperphagia)	0.91	0.10	−0.08	0.10
C (moderate hyperphagia)	0.70	0.30	−0.28	0.30
D (severe hyperphagia)	0.22	0.59	−0.77	0.58

TTO scores were reported using a scale ranging from 0 (dead) to 1 (full health).
SD, standard deviation; TTO, time trade-off.

Limitations

- Utility scores represent general population preferences for descriptions of various health states rather than the real-world experience
- Difficulties may arise if using the outlined health states for cost-utility analysis because there is currently no consensus on the differentiation between mild, moderate, and severe hyperphagia

Conclusions

- This research highlighted the independent impact of hyperphagia on health state utilities
- A higher degree of hyperphagia severity is associated with lower health state utilities
- Utilities for severe hyperphagia were similar to other severe health states, such as stroke,[6] progressive and metastatic cancers (eg, hepatocellular carcinoma[7] and breast cancer[8]), and severe chronic pain,[9] that have a broad impact on quality of life
- This study underscores the need for effective treatments that address the substantial impact of severe hyperphagia on quality of life

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