

INTRODUCTION

- Approximately 90% of US adults have inadequate health literacy.¹
- Health state valuation tasks are typically conducted using Time-Tradeoff (TTO) and/or Discrete Choice Experiment (DCE) tasks, which can be challenging to understand.
- DCE tasks may be administered to the public as opposed to TTO because there is a preconceived notion that TTO tasks are more difficult.²

OBJECTIVE

- The objective of this study was to examine whether health literacy has a role in the perceived task difficulty of TTO and DCE tasks.

METHODS

- Data from the 2017 EQ-5D-5L valuation study of the general US population were analyzed (n=1133).
- Data were collected in-person with interviewer assistance, beginning with health and sociodemographic questions, followed by 15 TTO and 7 DCE tasks.
- Health literacy was categorized as inadequate/marginal or adequate based on the 3-item Brief Health Literacy Screener.³
- TTO and DCE difficulty were characterized by three, 5-level ordinal items related to: (1) understanding the task; (2) differentiating between presented health states, (3) deciding on the preferred health state (DCE)/ indifference point (TTO).⁴
- Six ordinal logistic regression models were specified, with task difficulty items as the dependent variable and health literacy as the independent variable, controlling for comorbidities, age, race, and education level.

RESULTS

- Mean (SD) age was 48 (14) years, 52% female, with 32% inadequate/ marginal health literacy (Table 1).
- The mean score for deciding the indifference point for the TTO was 4.3 (SD=0.83) representing the highest mean value (i.e. most difficult task) among the assessed items (Table 2).
- The lowest mean score amongst the assessed items (easiest task to perform) was understanding the DCE task which was 1.6 (SD=0.77).
- Deciding on an indifference point was overall the most difficult test for both individuals with adequate and marginal/ inadequate health literacy (Figure 1).

RESULTS

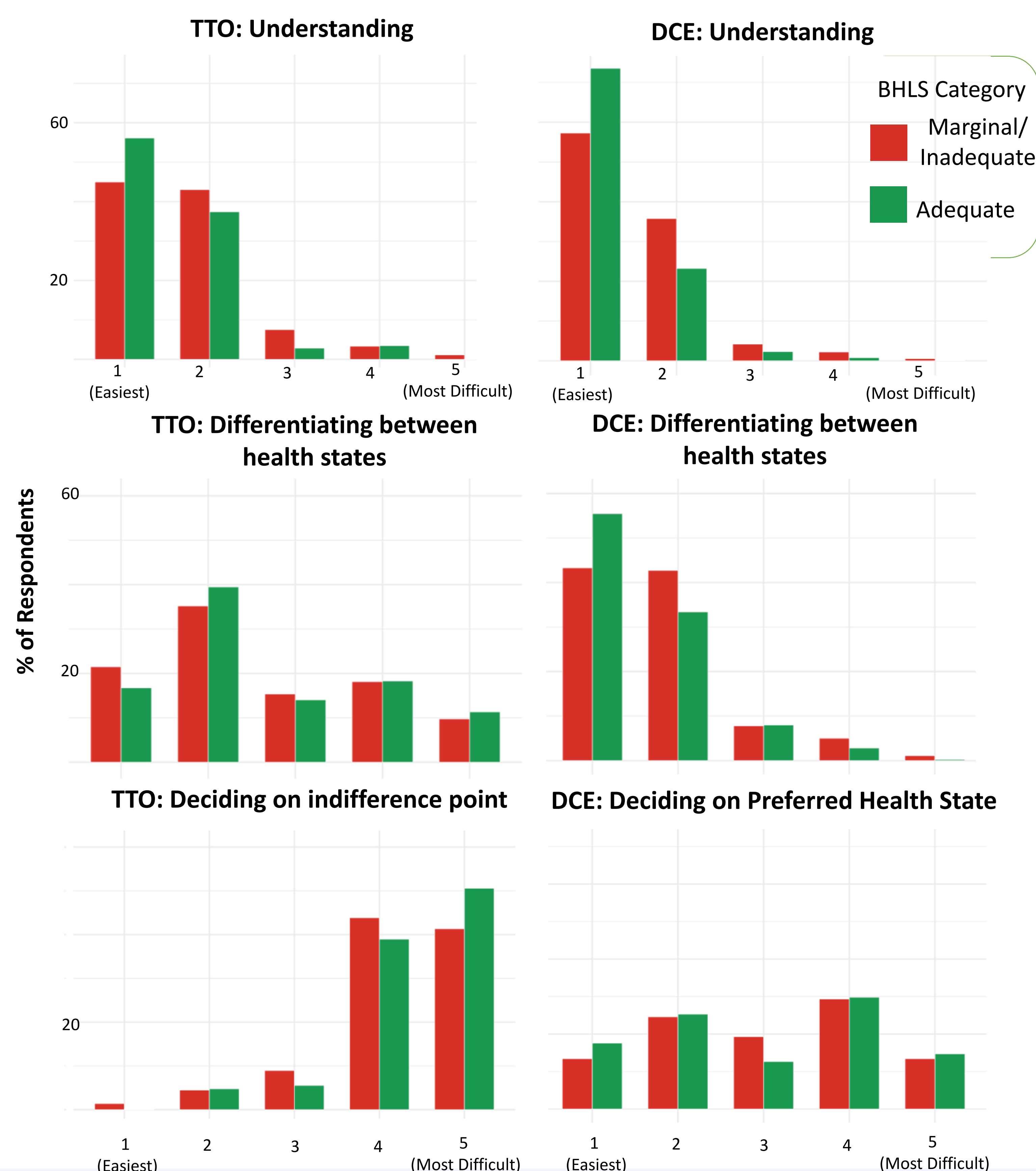
TABLE I: Respondent Characteristics

Characteristic	N=1,133
Age Group	
18-34	358 (32%)
35-54	394 (35%)
55+	381 (34%)
Gender	
Male	564 (50%)
Female	564 (50%)
Other (non-binary)	5 (0.4%)
Race/ ethnicity	
White	685 (60%)
Black/ African American	151 (13%)
Asian	79 (7%)
Other	218 (19%)
Health Literacy- BHLS (3 level)	
Inadequate	121 (11%)
Marginal	237 (21%)
Adequate	775 (68%)

TABLE II: Mean response to Difficulty Items for TTO and DCE

Task	Item	Mean (SD)	95% CI
TTO	Comprehend (Understanding)	1.60 (0.77)	1.56-1.64
	Difference (Differentiating between health states)	2.65 (1.27)	2.57-2.73
	Decide (Deciding on indifference point)	4.30 (0.83)	4.26-4.34
DCE	Comprehend (Understanding)	1.38 (0.63)	1.34-1.42
	Difference (Differentiating between health states)	1.65 (0.81)	1.61-1.69
	Decide (Deciding on preferred health state)	3.01 (1.33)	2.93-3.09

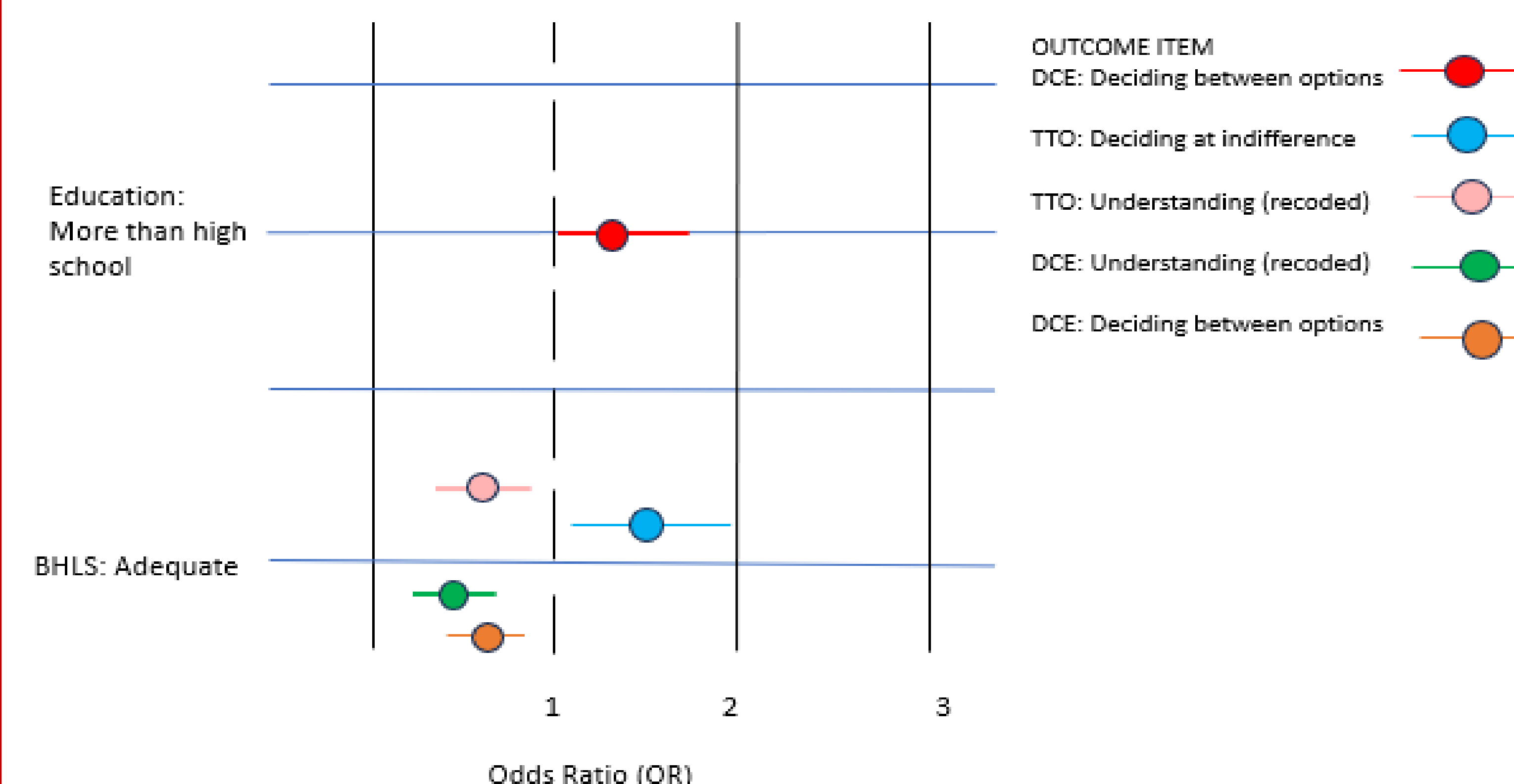
FIGURE I: Response Distribution of Difficulty Items by Level of Health Literacy



RESULTS

- Adequate health literacy was associated with less difficulty understanding TTO (OR= 0.62, [95% CI: 0.48-0.81]) and DCE (OR=0.56, [0.42-0.74]) tasks
- Individuals with adequate health literacy found DCE easier to distinguish between health states (OR=0.63, [0.49-0.81]) but greater difficulty deciding on the indifference point using TTO (OR=1.53, [1.19-1.98])
- Other factors were not significantly associated with ability to distinguish health states for TTO (OR=1.21, [0.95-1.54]) or decide on DCE choices (OR=0.81, [0.64-1.03]).

FIGURE II: Significant Predictors of Task Difficulty



DISCUSSION

- Overall, DCE was easier to understand than TTO across all items
- DCE is more appropriate for individuals with marginal or inadequate health literacy.
- Respondents with adequate health literacy had more difficulty deciding the exact indifference point for the TTO, but less difficulty with DCE.
- This finding about individuals with adequate health literacy could be further explored with qualitative research in the future could include possibly due to more critical engagement with the task and thinking more deeply about their responses.

REFERENCES

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4. Pickard AS, Law EH, Jiang R, Pullenayegum E, Shaw JW, Xie F, Oppe M, et al. United States valuation of EQ-5D-5L health states using an international protocol. *Value Health*. 2019;22(8):931-941

Disclosures: ALP is supported by an AbbVie/UIC 2-year HEOR fellowship. Original data collection was supported by a grant from the EuroQol group.