Defining Utility Values for Patients With Tardive Dyskinesia

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Conclusions

- Tardive dyskinesia (TD) utility decrements found in this study were slightly larger than previously reported values, potentially due to the incorporation of quality of life (QOL) and social consequences in TD health state descriptions
  - In the literature, many of the existing TD utility studies do not include QOL and social consequences in the utility assessments
- These findings can be leveraged to improve cost-effectiveness analyses used by decision makers to assess the value of treatments for TD

Background

- TD is characterized by involuntary movements that are typically stereotypic, choreiform, or dystonic, and can significantly impair patients' QOL[1-3]
- Utility values represent individual preferences for avoiding specific disease states or conditions and are used by decision makers to assess the cost-effectiveness of treatments
- Although a few existing studies have estimated utility values associated with TD, many have not considered QOL factors and social consequences, leading to a potential underestimation of the disutility associated with TD as well as the value of TD treatment
- Additionally, all current utility studies on TD used the standard gamble (SG) method. Despite the theoretical foundations, SG imposes a high cognitive burden on respondents and has been shown to overestimate utilities.[4,5] An alternative method, time tradeoff (TTO), has been widely used to measure utilities for health states and has been shown to have less total bias than SG[4-7]

Objective

- To measure health state preferences and estimate utility values for TD from the perspective of the United States general population, accounting for factors that affect QOL

Methods

Study Design

- TD utility values were elicited from the United States general population using computer-assisted telephone interviews that included videos and written vignettes depicting 9 health states related to moderate-to-severe TD
  - Screening criteria included the following: adults aged ≥18 years without a diagnosis of TD, schizophrenia, bipolar disorder, or major depressive disorder (MDD)
  - A survey was developed to collect data on participants' basic demographics and preferences for certain health states to ensure responses were generalizable
    - Health states included mild-to-moderate schizophrenia with predominantly negative symptoms, schizophrenia with predominantly positive symptoms, bipolar disorder, and MDD with and without moderate-to-severe TD as well as TD without underlying disease
    - Health states were simulated in vignettes by professional actors in scripted video recordings, who were recorded with and without simulating TD to control the effects of underlying health states

- Videos simulated dialogue between a patient and his/her psychiatrist to illustrate the most important symptoms and impairments of the health state, while vignettes summarized the symptoms captured in the video and described additional symptoms as well as the QOL associated with the health state to complement the videos
  - Each was validated by 8 external psychiatrists who were familiar with TD and the underlying disorders and 8 patients with TD and any of the underlying disorders
- After watching each video and reading each vignette, participants rated each health state using TTO questions and a visual analog scale (VAS)

Outcomes and Analyses

- The utilities estimated using TTO were the primary outcomes and were validated using utilities obtained from the VAS
- TD utility values represent individual preferences for avoiding the specific health states associated with TD and reflect the number of years of life an individual is willing to give up in order to live in full health
  - Utility values for TTO ranged from −1 (worse than death) to +1 (perfect health), with the smallest difference being 0.05
- Participant characteristics were summarized descriptively
- Continuous variables were summarized using mean, median, standard deviation (SD), and range; categorical variables were summarized using frequency and percentage
- All ratings by any participants with logical errors were censored from analyses due to potential response bias
  - Logical errors were defined as rating a more severe health state (e.g., bipolar disorder with TD) as better than a less severe health state (e.g., bipolar disorder alone)

Results

Participants

- A total of 157 participants who responded to all TTO questions without logical errors were included in the main sample
  - The distribution of age and sex in the main sample was representative of the United States general population
  - Overall, 44.6% of respondents did not report any chronic conditions; hypertension (24.8%), asthma (14.6%), diabetes (12.7%), and depression (10.2%) were the most commonly reported chronic conditions (Table 1)
  - On a scale from 0 (worst imaginable health) to 100 (best imaginable health), mean ± SD overall health status was 80 ± 16 (range, 10-100)

Table 1. Participant Characteristics

	Participants (n=157)
Age at survey date (years), mean ± SD	47 ± 18
Sex, male, n (%)	69 (43.9)
Race, n (%)	
White or Caucasian	112 (71.3)
Black or African American	22 (14.0)
Asian	9 (5.7)
Multiracial	6 (3.8)
Other[a]	8 (5.1)
Region of residence, n (%)	
Northeast	33 (21.0)
Midwest	34 (21.7)
South	61 (38.9)
West	29 (18.5)
Employment status, n (%)	
Full-time	72 (45.9)
Part-time	9 (5.7)
Retired	31 (19.7)
Self-employed/homemaker	18 (11.5)
Unemployed	14 (8.9)
Disabled	7 (4.5)
Student	6 (3.8)
Total annual household income before taxes, n (%)	
<$20,000	13 (8.3)
$20,000 to $34,999	29 (18.5)
$35,000 to $49,999	23 (14.6)
$50,000 to $74,999	30 (19.1)
$75,000 to $99,999	25 (15.9)
$100,000 to $149,999	28 (17.8)
$150,000 to $199,999	6 (3.8)
≥$200,000	3 (1.9)
Highest education level, n (%)	
Less than high school	3 (1.9)
High school degree or equivalent (e.g., GED)	27 (17.2)
Some college or associate's degree	48 (30.6)
Bachelor's degree/college graduate	57 (36.3)
Advanced degree	22 (14.0)
Most common comorbidities (≥10%), n (%)	
None	70 (44.6)
Hypertension	39 (24.8)
Asthma	23 (14.6)
Diabetes	20 (12.7)
Depression	16 (10.2)
Other[b]	16 (10.2)
High cholesterol	3 (18.8)
Participants' current health (VAS), mean ± SD (range)	80 ± 16 (10-100)

SD, standard deviation; GED, general educational development; VAS, visual analog scale.
[a]Includes other and American Indian or Alaska Native.
[b]Includes seizure disorder, glaucoma, sleep apnea, narcolepsy, gout, osteoporosis, Parkinson's Disease, Dupuytren's contracture, acid reflux, pulmonary embolism, chemical allergies, Graves' disease, anemia, migraine, hypothyroidism, urinary incontinence, and hay fever.

Outcomes

- The mean ± SD utility for TD alone was estimated to be 0.59 ± 0.38 based on TTO responses and 0.50 ± 0.21 based on VAS responses
- Among health states without TD, mean TTO utilities for schizophrenia (with predominantly positive or negative symptoms) were similar and lower than those for bipolar disorder and MDD (Figure 1)
  - Utility decrements for TD ranged from 0.13 to 0.16, depending on the underlying psychiatric disorder, suggesting that respondents were willing to give up 1.3 to 1.6 years of life during a 10-year lifespan to avoid living with TD (Figures 1 and 2)
- VAS utility values were found to be in the same range as TTO utility values (data not shown)
  - VAS utility decrements for TD ranged from 0.09 to 0.15, depending on the underlying psychiatric disorder

Figure 1. Utility Values for the Main Sample Based on TTO (n=157)[a]
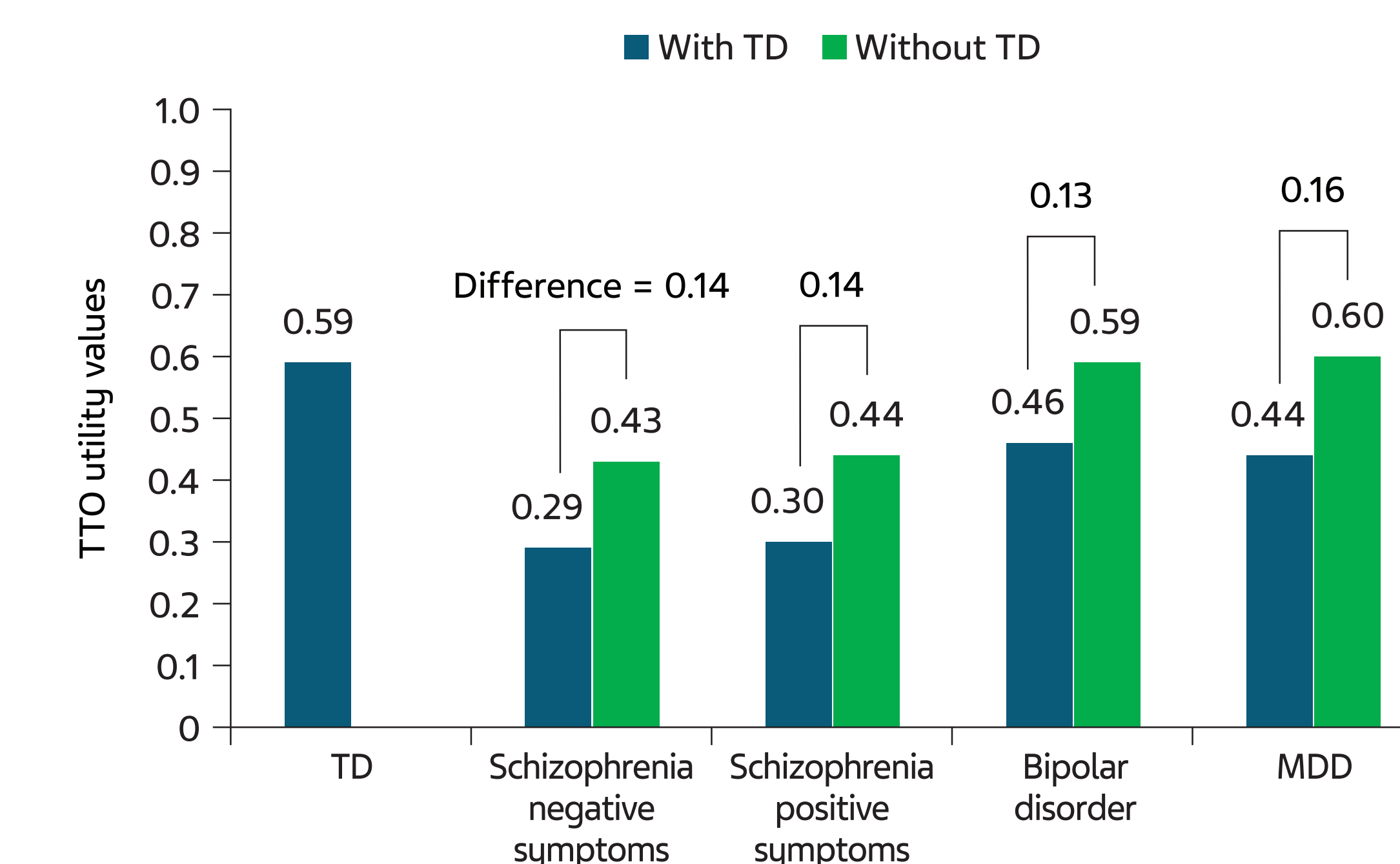
TTO, time tradeoff; TD, tardive dyskinesia; MDD, major depressive disorder.
[a]Participants who demonstrated a misunderstanding of the health states by answering that the health state plus TD was preferable to the health state alone in the TTO have been removed from the sample.

Figure 2. TTO Results for the Primary Analysis (n=157)[a]
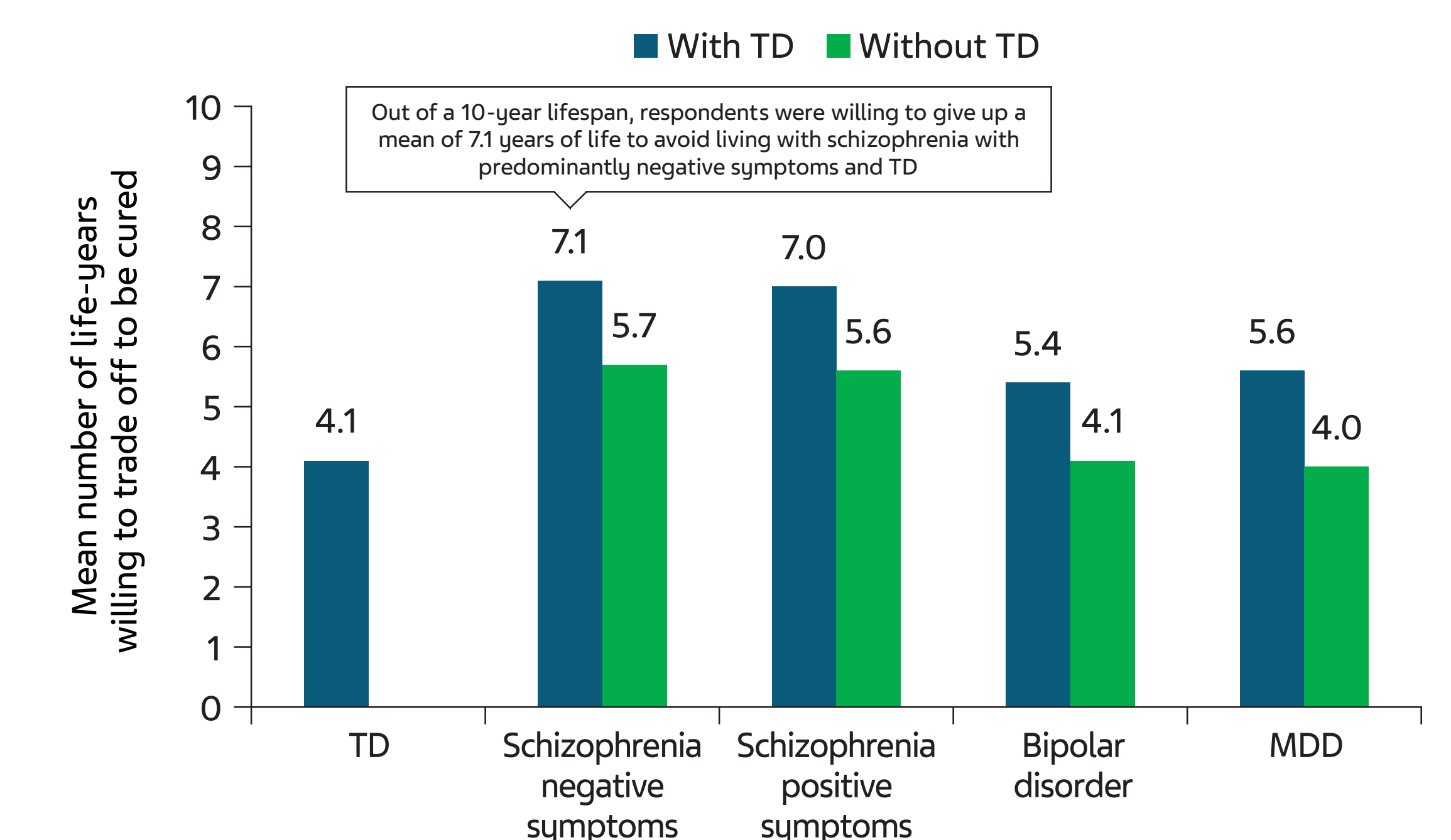
TTO, time tradeoff; TD, tardive dyskinesia; MDD, major depressive disorder.
[a]Participants who demonstrated a misunderstanding of the health states by answering that the health state plus TD was preferable to the health state alone in the TTO have been removed from the sample.

Discussion

Strengths

- The utility decrement of TD was assessed in the presence of multiple psychiatric disorders (schizophrenia, bipolar disorder, and MDD)
- Participants from the general population were able to see a visual presentation of TD symptoms through the use of videos
- This study used TTO methods to elicit utility values, which may be associated with less bias than methods used in other studies (e.g., SG method)
  - To address the limitations of TTO, this study used VAS in conjunction with TTO to validate utility values
- The respondent sample was representative of the United States general population
- Unlike previous studies of utility values for TD, this study accounted for confounding factors affecting QOL and social consequences of the health states in the utility assessment

Limitations

- While clinicians and TD patients provided feedback on the videos and written vignettes, discrepancies may still have existed between participants' understanding of the health states and patients' real-life experiences
- The study was not able to assess utility values by specific disease symptoms and severity

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