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Prospective Patient Preference Study for Bruton Tyrosine Kinase Inhibitor Treatment Attributes and Factors Affecting Patient Shared Decision-Making in Chronic Lymphocytic Leukemia and Small Lymphocytic Lymphoma in the United States

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INTRODUCTION

- The prognosis for chronic lymphocytic leukemia (CLL)/small lymphocytic lymphoma (SLL) has improved with the advent of novel therapeutic classes, including Bruton tyrosine kinase (BTK) inhibitors¹⁻⁴
- While comparative data for several BTK inhibitors have been published,^{2,5-7} there are limited data on patient preferences in BTK inhibitor treatment attributes
- Understanding and integrating CLL/SLL patients' perspective in treatment selection process is crucial to shared decision-making and attaining optimal treatment outcomes
- Discrete choice experiment (DCE) is a research method that uses surveys to quantify individual preferences and trade-offs between different features in decision-making

Aim

- This comprehensive quantitative analysis of patient preferences on BTK inhibitor treatment attributes was conducted to understand the priorities of patients with CLL/SLL for different treatment attributes that impact their treatment decisions

METHODS

Data Source and Study Population

- A web-based patient survey with a DCE design was conducted from March to June 2024 among United States (US) adults (≥18 years) with confirmed diagnosis of CLL/SLL, recruited through online patient panels, physician referrals, and support groups

Study Design

- The DCE survey was developed to assess patients' preferences for different BTK inhibitor treatment options for CLL/SLL, in accordance with the recommendations of the International Society for Pharmacoeconomics and Outcomes Research (ISPOR) Good Research Practices for Conjoint Analysis Task Force^{8,9}
- BTK inhibitor treatment attributes included in the DCE were identified based on targeted literature review and clinical inputs (**Table 1**)

Table 1. DCE Attributes and Levels

Type of Attributes	Attributes	Levels
Efficacy	Prevention of disease progression	3 years 4 years 5 years
	Impact of diarrhea on quality of life	None or mild Moderate Significant
	Impact of headache on quality of life	None or mild Moderate Significant
	Impact of hypertension on quality of life	None or mild Moderate Significant
Safety	Impact of atrial fibrillation on quality of life	None or mild Moderate Significant
	Impact of hypertension on quality of life	None or mild Moderate Significant
Convenience	Formulation type	Oral tablet Oral capsule
	Dosing frequency	Once per day Twice per day

- In the DCE survey, patients were presented with a series of 11 choice questions (shown as choice cards). Patients were asked to choose their preferred treatment option between two hypothetical treatment profiles (Treatment A and Treatment B), with varying combinations of levels associated with each attribute in each choice card (**Figure 1**)

Figure 1. Example of a Choice Card

Treatment attributes	Treatment A	Treatment B
The treatment can <u>prevent disease progression</u> for...	5 years	4 years
Impact of <u>diarrhea</u> on quality of life	Moderate	Significant
Impact of <u>headache</u> on quality of life	Moderate	Significant
Impact of <u>atrial fibrillation</u> on quality of life	Significant	Moderate
Impact of <u>hypertension</u> on quality of life	Moderate	Significant
Formulation type	Oral tablet	Oral capsule
Dosing frequency	Twice per day	Once per day
Which treatment do you prefer?	<input type="radio"/>	<input type="radio"/>

When a patient hovered over or clicked on an attribute (underlined in the figure), the description of the attribute was shown in a pop-up window.

- In addition to DCE questions, the survey also included questions related to patient sociodemographic and clinical characteristics
- Importance of efficacy measures related to pausing disease progression, increasing life expectancy, and increasing the chance of remission or cure were further explored using rating questions on a scale of 0 to 10, with 0 indicating “not at all important” and 10 indicating “extremely important”

Statistical Analysis

- Continuous variables were reported using means, medians, and standard deviations; categorical variables were reported using frequency counts and percentages
- Participants' preference data collected from the DCE were analyzed using a conditional logistic regression model. Coefficients were used to calculate the relative importance of each attribute, as well as patient willingness to trade off specified BTK inhibitor treatment attributes

RESULTS

Patient Characteristics

- A total of 200 patients with CLL/SLL completed the survey (median age: 61 years; 78% White or Caucasian; 55% female; 60% commercially insured; 82% suburban/urban residence) (**Table 2**)
- Less than half (43%) were diagnosed ≥5 years ago, and 61% received ≥3 lines of therapy
- Almost all (97%, N=178) patients reported having experienced ≥1 AE from treatment previously

Table 2. Summary of Patient Demographic and Clinical Characteristics

	Patients (N=200)
Age, mean ± SD [median]	58.9 ± 11.6 [61.0]
Gender, ^a n (%)	
Male	85 (42.5)
Female	110 (55.0)
Race, ^{a,b} n (%)	
White or Caucasian	156 (78.0)
Black or African American	19 (9.5)
American Indian or Alaska Native	7 (3.5)
Asian or Pacific Islander	5 (2.5)
Ethnicity, ^a n (%)	
Not Hispanic or Latino	149 (74.5)
Hispanic or Latino	33 (16.5)
Region of residence, n (%)	
West	95 (47.5)
South	56 (28.0)
Northeast	29 (14.5)
Midwest	20 (10.0)
Residence area, n (%)	
Suburban or urban	164 (82.0)
Rural	36 (18.0)
Employment, ^a n (%)	
Full-time, part-time, self-employed	82 (41.0)
Retired	63 (31.5)
Unemployed	23 (11.5)
Other ^c	28 (14.0)
Insurance coverage, ^b n (%)	
Commercial/private insurance	120 (60.0)
Public insurance	94 (47.0)
Number of lines of treatment received, n (%)	
Treatment naïve	22 (11.0)
First line	26 (13.0)
Second line	30 (15.0)
Third line and above	122 (61.0)
Experienced ≥1 side effects ^d	173 (97.2)

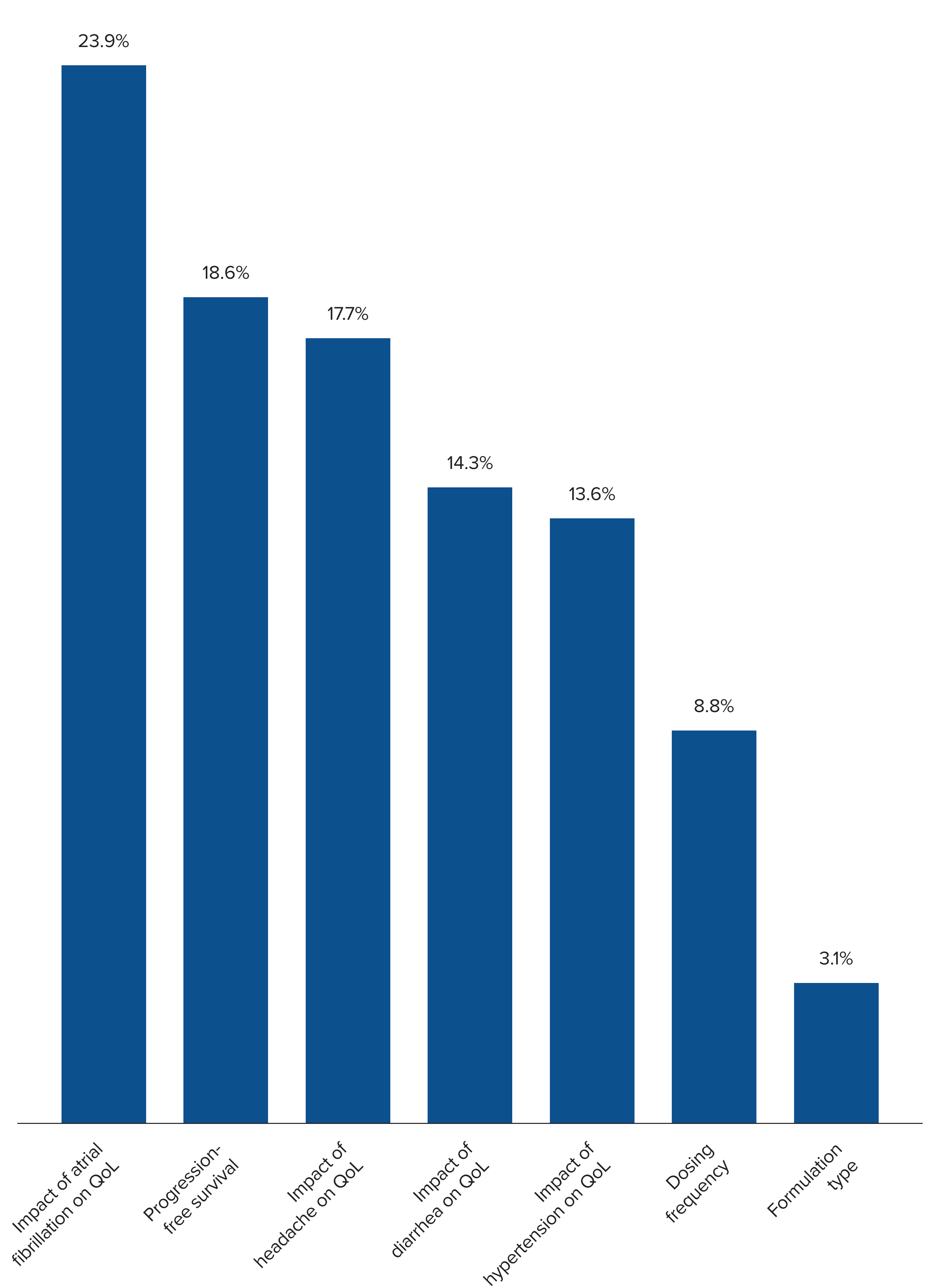
^aResponse categories do not add up to 100% because the proportion of respondents who selected “Prefer not to answer” is not presented in the table.
^bResponse categories were not mutually exclusive.
^cOther category includes homemaker, on disability, and student.
^dAsked among participants who have received at least one chronic lymphocytic leukemia/small lymphocytic lymphoma treatment (N=178)
SD, standard deviation.

- Of patients who rated the importance of efficacy measures to be 8, 9, or 10, most prioritized R/R CLL/SLL treatments that extended life expectancy (93%), followed by those that increased the likelihood of remission or cure (84%) and those that paused the progression of disease (67%), with corresponding average rating scores of 9.5, 9.0, and 7.7 out of 10

Patient Preference From DCE Results

- The top 3 treatment attributes with the highest relative importance to patients were impact of atrial fibrillation on QoL (24%), PFS (19%), and impact of headache on QoL (18%), followed by impact of diarrhea (14%) and hypertension (14%) on QoL, dosing frequency (9%), and formulation type (3%) (**Figure 2**)
- The DCE showed that patients preferred treatments with higher efficacy, less impact of AEs on QoL, lower dosing frequency and tablets over capsules (*P*<.05)
- On average, patients were willing to accept a reduction of 2.6, 1.9, 1.4, and 1.4 years of PFS to receive a treatment with less (none or mild vs significant) impact of atrial fibrillation, headache, diarrhea, and hypertension on QoL, respectively. Patients were also willing to accept a reduction of 1.0 years of PFS to receive once-daily versus twice-daily treatment and 1/3 year to receive oral tablet versus capsule (**Figure 3**)

Figure 2. Attributes' Relative Importance for Patients with CLL/SLL

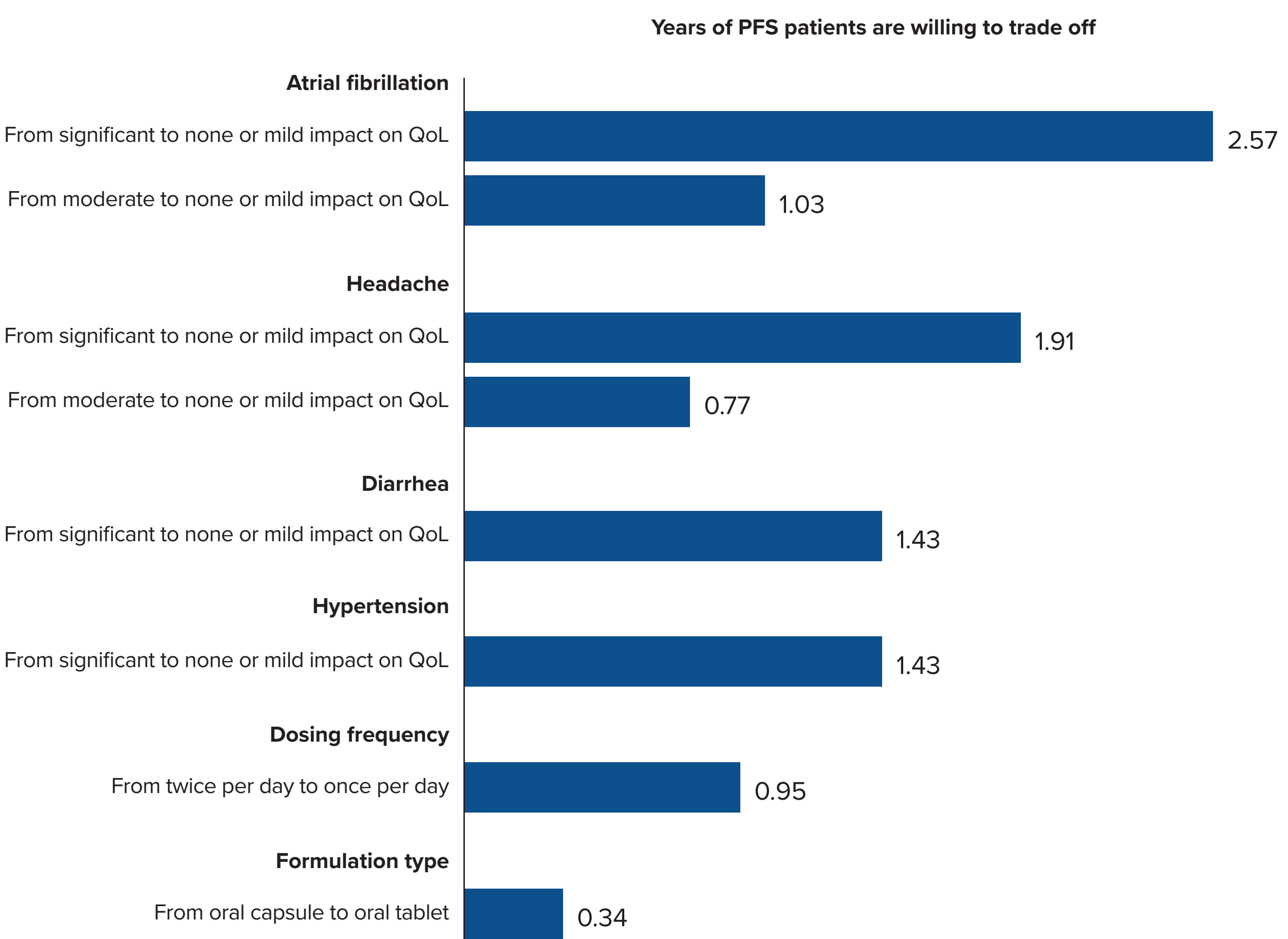


CLL, chronic lymphocytic leukemia; QoL, quality of life; SLL, small lymphocytic lymphoma.

CONCLUSIONS

- Shared decision-making in CLL/SLL treatment selection should include an informed discussion about AEs. In addition to efficacy considerations, patients may prefer treatments with less impact of AEs on their QoL
- Findings from this patient preference survey suggested that impact of atrial fibrillation on QoL, PFS, and impact of headache on QoL were the most important attributes of BTK inhibitor treatment for patients with CLL/SLL in the US
- Future prospective studies evaluating the effects of shared treatment decision-making on treatment adherence and outcomes are needed to better understand their impact on CLL/SLL patient care and inform clinical practice

Figure 3. Willingness to Trade Off Years of PFS for Patients With CLL/SLL



Attribute levels that did not have a statistically significant impact on treatment preferences (ie, *P*<.05) are not presented. CLL, chronic lymphocytic leukemia; PFS, progression-free survival; QoL, quality of life; SLL, small lymphocytic lymphoma.

DISCUSSION

- This is the first study measuring CLL/SLL patient preferences specifically focusing on BTK inhibitor treatment attributes in the US
- An understanding of patient perspectives on treatment attributes helps facilitate treatment discussions between patients and physicians and improves shared decision-making. Given the importance of safety attributes to patients found in this study, potential AEs associated with various treatment options should be considered during CLL/SLL shared treatment decision discussions

Study Limitations

- Patient respondents in this DCE survey may not be representative of the broader general CLL/SLL population, potentially limiting generalizability of study results. Nonetheless, about 90% of the participants were recruited via referrals from physicians nationwide
- To minimize participants' response burden, a limited number of BTK inhibitor treatment attributes were included in the DCE questions. Other attributes not assessed in the study could have an impact on patient preferences. However, DCE literature suggests inclusion of five to seven attributes in a DCE design and the study included seven attributes¹⁰

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