Patients' Priorities for Treatment in Moderate to Severe COPD

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BACKGROUND

- Chronic obstructive pulmonary disease (COPD) is associated with significant symptom burden, psychological distress, physical limitations, and social isolation.[1]

- Management and control of exacerbations is an important component of pharmacological management of COPD.[2]

- The standard of care for COPD includes anti-inflammatories and bronchodilators. There remain subsets of patients with severe disease for whom high doses of the standard of care are not effective.[3]

OBJECTIVE

- This pilot study explored the priorities of patients with moderate to severe COPD in relation to treatment using best-worst scaling (BWS).

METHODS

Patient Sample

- Interviews were conducted with 20 individuals in the United Kingdom.

- Participants were aged 40 years or older; had self-reported moderate, severe, or very severe COPD with moderate to severe breathlessness; and had been treated with antibiotics or steroids for their COPD within the last 3 months.

- The study was reviewed and granted approval from one of RTI International's institutional review board committees.

BWS Questionnaire

- BWS is an experimental choice-based technique that can be used to elicit an individual's preferences across a set of attributes or features related to a treatment.

- A total of 15 features were included to represent potential benefits, harms, or administration features that might be associated with a COPD treatment.

- The 15 features were incorporated into a set of 12 BWS questions using an experimental design generator based on the PROC OPTEX procedure in SAS (version 9.3).

- Each question included five features, with each feature appearing four times across the 12 questions. An example BWS question is given in Figure 1.

- For each question, participants were asked (1) to select the one feature that would be the most important to them when trying to decide whether to take the treatment, and (2) to select the one feature that would be the least important to them in making this decision.

Figure 1. Example BWS Question

MOST IMPORTANT TO DECISION	Feature	LEAST IMPORTANT TO DECISION
	Mild skin reaction at the site of the injection (9)	
	Coughing is improved (6)	
	Needing a blood test before starting the medication (15)	
	Your ability to perform daily activities is improved (7)	
	Improvement in lung function (3)	

Data Analysis

- Within each BWS question, the feature chosen as most important was assigned a score of 1, the feature chosen as least important was assigned a score of −1, and all other features in the question were assigned a score of 0.

- For each feature, BWS weights were derived by summing assigned scores across questions and participants and then divided by the number of times the feature was presented.

- Weights ranged from −1 to +1, with larger positive values indicating higher relative importance.

RESULTS

Sample Characteristics

- Table 1 presents the demographic and disease characteristics of the interview participants.

Table 1. Demographic and COPD Characteristics

Sample Characteristic		Interview Sample (N = 20)
Age (years)	Median	65
	Range	48-86
Sex, n (%)	Male	11 (55)
	Female	9 (45)
Relationships status, n (%)	Married or living as married	9 (45)
	Divorced/single	11 (55)
Employment status, n (%)	Working	4 (20)
	Not working	16 (80)
Years since diagnosis	Median	7
	Range	0.1-27.0
Self-reported severity, n (%)	Mild	1 (5)
	Moderate	11 (55)
	Severe	5 (25)
	Very severe	2 (10)
	Missing	1 (5)
Number of exacerbations in previous 12 months treated with antibiotics or oral corticosteroids	Median	3
	Range	1-7
Number of exacerbations in previous 12 months requiring hospital admission	Median	0
	Range	0-4

BWS Weights

- The most important features were improved ability to perform daily activities, improved lung function, and improved shortness of breath (Figure 2).

- The least important features were needing a blood test before starting the medication and having a mild skin reaction at the site of the injection (Figure 2).

- Being able to walk further, and making your body less able to deal with infection were both selected as the most important feature in more than 25% of presentations but also were selected as least important in 16% and 10%, respectively, of presentations (Figure 2), thus lowering the overall BWS weight.

- Similarly, having a doctor or nurse inject you with the drug every 2-4 weeks was selected as the least important in 38% of presentations but also selected as most important in 10% (Figure 2).

Qualitative Comments on Feature Selection

- The three most important features were all benefit outcomes (perform daily activities, lung function, and shortness of breath).

- Participants often perceived these features (as well as walk further and/or as often coinciding; the perceived benefits of improvements in these outcomes were the same or highly related (Figure 3).

- Opinions on the least important features were generally consistent among participants (Figure 4).
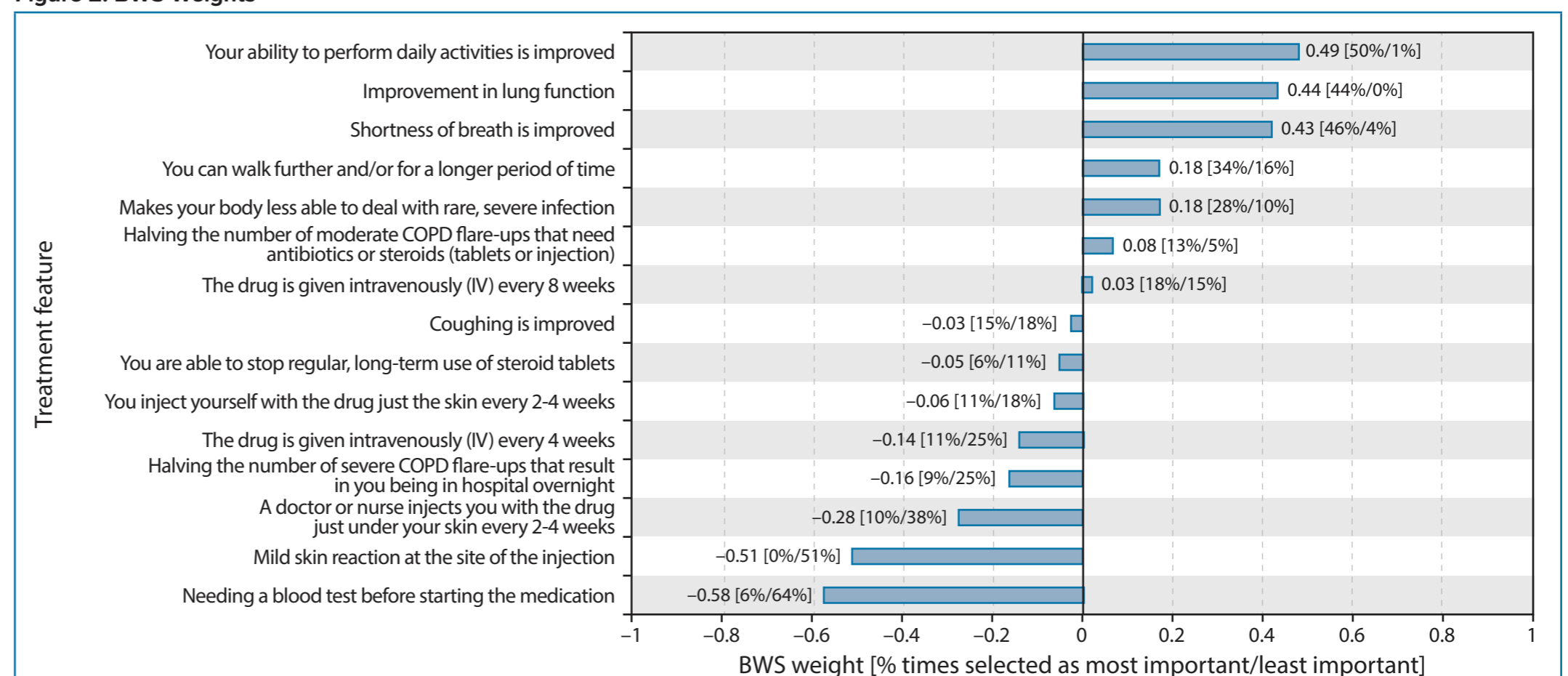
Figure 3. Summary of Qualitative Comments on Most Important Feature Selection

Feature	Reasons for Selection
Your ability to perform daily activities is improved	Benefit of being able to have a more active lifestyle, particularly with family.
Improvement in lung function	Benefit of having more breath and reduced shortness of breath, thus allowing participants to be more active and do more things in life and with their families.
Shortness of breath is improved	Benefit of being able to walk and to undertake activities. Also considered to be a frightening symptom.

Figure 4. Summary of Qualitative Comments on Least Important Feature Selection

Feature	Reasons for Selection
Needing a blood test before starting the medication	Not considered an issue, particularly as it is a one-time procedure, and many participants had received many injections in the past.
Mild skin reaction at the site of the injection	Mild reaction considered little or no bother.

CONCLUSIONS

- In this sample of individuals with self-reported moderate to severe COPD, positive outcomes relating to daily activities and breathing were prioritised over potential harms or administration features of a treatment.

- Patients saw strong associations among the benefit features, indicating potential interdependency and a lack of differentiation between symptomatic and functional outcomes when patients are evaluating treatments.

- The results of this pilot study need to be explored further in a full-scale preference elicitation study.

ACKNOWLEDGEMENT

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Figure 2. BWS Weights

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- Your ability to perform daily activities is improved — 0.49 [50%/1%]
- Improvement in lung function — 0.44 [44%/0%]
- Shortness of breath is improved — 0.43 [46%/4%]
- You can walk further and/or for a longer period of time — 0.18 [34%/16%]
- Makes your body less able to deal with rare, severe infection — 0.18 [28%/10%]
- Halving the number of moderate COPD flare-ups that need antibiotics or steroids (tablets or injection) — 0.08 [13%/5%]
- The drug is given intravenously (IV) every 8 weeks — 0.03 [18%/15%]
- Coughing is improved — −0.03 [15%/18%]
- You are able to stop regular, long-term use of steroid tablets — −0.05 [6%/11%]
- You inject yourself with the drug just the skin every 2-4 weeks — −0.06 [11%/18%]
- The drug is given intravenously (IV) every 4 weeks — −0.14 [11%/25%]
- Halving the number of severe COPD flare-ups that result in you being in hospital overnight — −0.16 [9%/25%]
- A doctor or nurse injects you with the drug just under your skin every 2-4 weeks — −0.28 [10%/38%]
- Mild skin reaction at the site of the injection — −0.51 [0%/51%]
- Needing a blood test before starting the medication — −0.58 [6%/64%]

BWS weight [% times selected as most important/least important]

The power of knowledge.
The value of understanding.

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