

# PREFERENCES AND WILLINGNESS TO PAY FOR MAINTENANCE INHALERS AMONG ADULTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN THAILAND: A DISCRETE CHOICE EXPERIMENT

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## INTRODUCTION

- Chronic obstructive pulmonary disease (COPD) requires good treatment adherence.
- New combination inhalers improve ease of use but are costly and not covered by universal health coverage in Thailand.
- Understanding patient preferences and their willingness to pay (WTP) is crucial to guiding treatment and policy.
- Discrete choice experiments (DCEs) are widely used method to elicit such preferences.

## OBJECTIVE

To assess patient preferences and WTP for key attributes of maintenance inhalers among COPD patients in Thailand.

## METHODS

### Discrete choice experiment design

- Key inhaler attributes and levels were identified through (1) literature review, (2) clinical expert interviews, and (3) patients focus group discussions.
- Five attributes (2-3 levels each) were included in the DCE questionnaire.
- A D-efficient design generated 36 choice sets, divided into six blocks with two alternatives.
- Each participant completed eight choice sets: six for preference elicitation, one for consistency, and one for reliability.

### Experimental procedure

- COPD patients aged 40–65 years using inhalers were recruited via convenience sampling.
- The survey was conducted at outpatient clinics in hospitals across four regions of Thailand.

### Analyses

- Only participants who correctly answered the dominance test were included in the analysis.
- A mixed logit regression model was used to estimate preference weights and WTP.

## RESULTS

- 197 COPD patients** completed the DCE.
- Most important attribute:** ease of use (no mistakes), followed by single inhaler and once-daily dosing.
- WTP:** patients would pay for the best versus worst level of each attribute, except inspiratory flow.
- Monthly WTP:** US\$15.7 for ease of use, US\$14.0 for using a single inhaler.

Table 2 Attributes, levels, and preferences weights of maintenance inhalers

| Attribute                      | Level                    | Marginal utility | 95%CI          | RI (%) |
|--------------------------------|--------------------------|------------------|----------------|--------|
| Ease of inhaler use            | No mistakes              | 1.321***         | 0.844, 1.797   | 19.7   |
|                                | Some mistakes            | 0.259*           | 0.012, 0.506   |        |
|                                | Frequent mistakes        | Reference level  |                |        |
| Number of maintenance inhalers | One inhaler              | 1.180***         | 0.764, 1.597   | 17.6   |
|                                | Two different inhalers   | 0.062            | -0.195, 0.318  |        |
|                                | Three different inhalers | Reference level  |                |        |
| Dosing frequency               | Once daily               | 0.325**          | 0.094, 0.557   | 4.8    |
|                                | Twice daily              | Reference level  |                |        |
| Inspiratory flow requirement   | Low                      | 0.086            | -0.195, 0.367  | 1.3    |
|                                | Moderate                 | 0.003            | -0.026, 0.212  |        |
|                                | High                     | Reference level  |                |        |
| Monthly out-of-pocket cost     |                          | -0.0023809***    | -0.003, -0.002 | 56.7   |

95%CI, 95% confidence interval; RI, relative importance  
\*P<0.05. \*\*P<0.01. \*\*\*P<0.001.

Table 1 Attributes and levels of maintenance inhalers

| Attributes                     | Level 1                        | Level 2                          | Level 3                              |
|--------------------------------|--------------------------------|----------------------------------|--------------------------------------|
| Ease of inhaler use            | No mistakes during inhaler use | Some mistakes during inhaler use | Frequent mistakes during inhaler use |
| Number of maintenance inhalers | One inhaler                    | Two different inhalers           | Three different inhalers             |
| Dosing frequency               | Once daily                     | Twice daily                      |                                      |
| Inspiratory flow requirement   | Low                            | Moderate                         | High                                 |
| Monthly out-of-pocket cost     | THB 0 (US\$0)                  | THB 800 (US\$24.34)              | THB 1,600 (US\$48.68)                |

If this were your only option, which maintenance treatment for COPD would you choose?

| Attribute                      | Treatment A                                    | Treatment B                                    |
|--------------------------------|--|--|
| Ease of inhaler use            | Some mistakes during inhaler use               | No mistakes during inhaler use                 |
| Number of maintenance inhalers | Three different inhalers                       | Two different inhalers                         |
| Dosing frequency               | Twice daily                                    | Once daily                                     |
| Inspiratory flow requirement   | Low  | Moderate                                       |
| Monthly out-of-pocket costs    | THB 0  | THB 1,600                                      |
| Which would you choose?        | <div>Treatment A<input type="checkbox"/></div> | <div>Treatment B<input type="checkbox"/></div> |

Figure 1 Example of a choice set

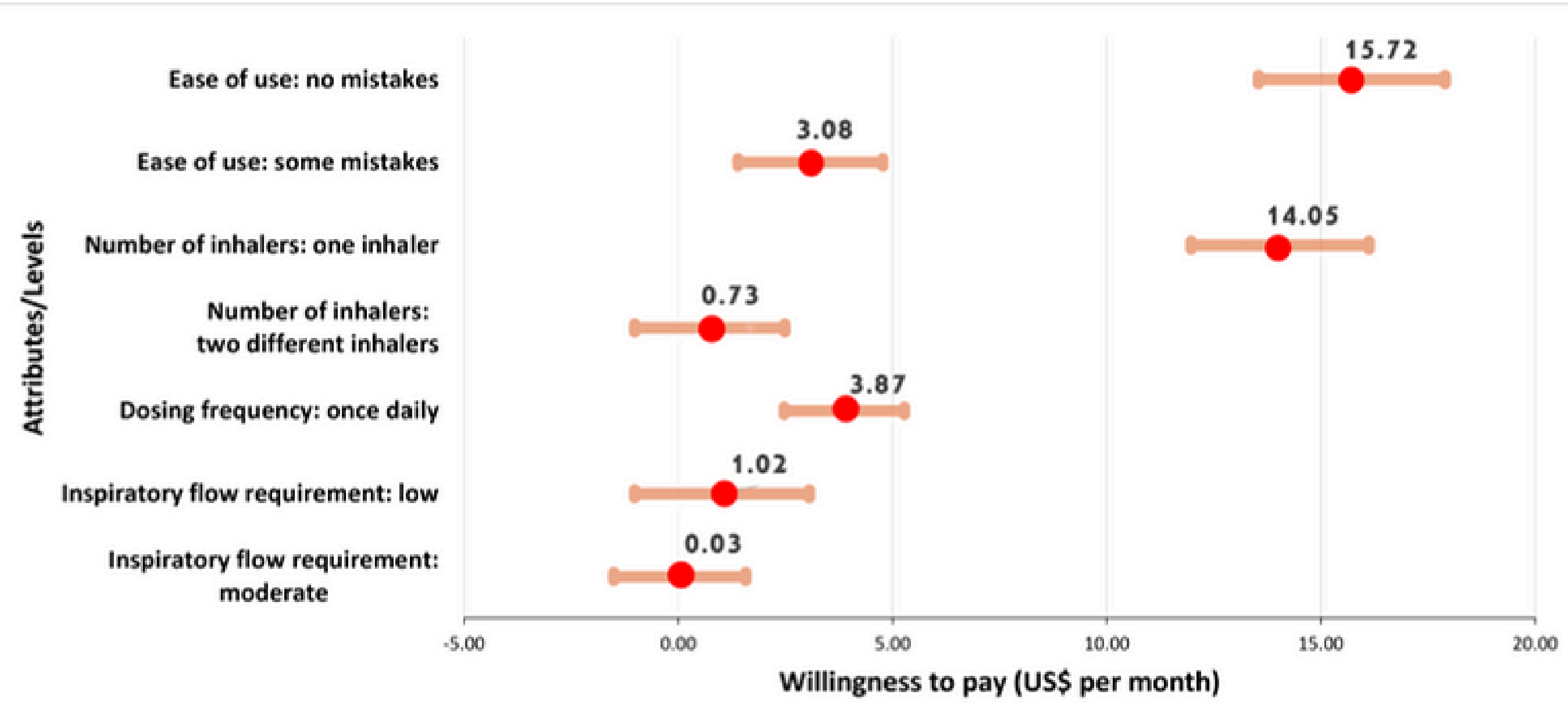


Figure 2 Patients' willingness to pay for attributes and levels

## DISCUSSION & CONCLUSION

- Thai adults with COPD prioritize inhaler ease of use and reduced treatment complexity, while inspiratory flow is the least important attribute.
- Patients were willing to pay approximately US\$15 per month for inhalers with these improved features.

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