

INTRODUCTION

- A multicriteria decision analysis (MCDA) is a group of techniques which allows a rigorous approach to making decisions in complex environments. It includes explicitly the preferences of the stakeholders involved and systematizes the decisions in different stages in a more transparent and structured way^{1,2}.
- A previous multi-stakeholder MCDA³ established the 10 relevant criteria for decision-making in diabetic macular edema (DME) out of the 31 criteria included in the analysis (**Table 1**).
- Nineteen participants were allocated in 4 stakeholder groups:
 - Physicians (5)
 - Pharmacists (3)
 - Health authorities and management experts (6)
 - Patient perspective (1 psychologist and 4 patients' representatives).
- This MCDA included the 10 criteria considered as relevant for decision making in the previous study³ (**Table 1**). These were established for a 50-65 year old diabetic patient with DME. The 10 criteria were classified in 4 groups: efficacy/effectiveness, safety, organisational and economic impact and patient-reported outcomes.
- A discrete choice experiment (DCE) was developed to determine the relative importance weight of the 10 criteria per stakeholder group by eliciting their preferences through an online questionnaire.
- From the combination of levels of the selected criteria, a set of 36 pairs of hypothetical treatments were obtained to be included in the DCE questionnaire.
- A multinomial logit model was fitted to analyze the questionnaire responses regarding the stakeholders' preferences on DME management.
- Considering n criteria evaluated, relative importance (WD) was estimated through the following formula:

$$V_D = |Coef_D|/SE_D \text{ and } W_D = \frac{V_D}{\sum_{i=1}^n V_{Di}} \cdot 100$$

Coef: coefficient; SE: standard error

- A final deliberative process was used to discuss the DCE results and draw conclusions with the participants.

METHODS

OBJECTIVE

This is an extension MCDA study to determine the relative importance of the previously selected criteria according to each stakeholder group separately.

Table 1. Selected criteria and levels for decision-making in DME

CRITERIA	LEVELS
EFFICACY/EFFECTIVENESS	
Mean change in BCVA (5 letter improvement)	0-5 letters // 6-10 letters // 11-15 letters // >15 letters
≥15 letter improvement in BCVA	0-15% patients // 16-30% patients // >30% patients
Effect duration per administration	≤1 month // >1-4 months // >4-12 months // >12 months
SAFETY	
Ocular adverse events: endophthalmitis	0-5 cases per 1000 injections // >5-10 cases per 1000 injections
Ocular adverse events: retinal detachment	0-5 cases per 1000 injections // >5-10 cases per 1000 injections
Ocular adverse events: vitreous haemorrhage	0-5 cases per 1000 injections // >5-10 cases per 1000 injections
Systemic adverse events: acute myocardial infarction	0-0.5% // >0.5-2.0%
ORGANISATIONAL AND ECONOMIC IMPACT	
Annual pharmaceutical cost per patient	< €500 // €500-1500 // > €1500-3000 // > €3000
PATIENT-REPORTED OUTCOMES	
Disability	Improvement of functional capacity and performance of activities of daily living // No effect in functional capacity and performance of activities of daily living // Worsening of functional capacity and performance of activities of daily living
Health Related Quality of life	Improvement of quality of life (social/occupational) // No effect in quality of life (social/occupational) // Worsening of quality of life (social/occupational)

RESULTS

- A decision-making model was obtained from the DCE results. This allowed to established the relative importance of the 10 relevant criteria for the management of a 50-65-year-old DME patient per stakeholder group (**Figure 1**).

- Four criteria on each group (7 different criteria in total) were the key drivers for the decision-making process (**Table 2**). Mean change in BVCA (5-letter improvement) was a relevant criteria throughout all the stakeholder groups.

Figure 1. Relative importance of DME criteria by stakeholder group

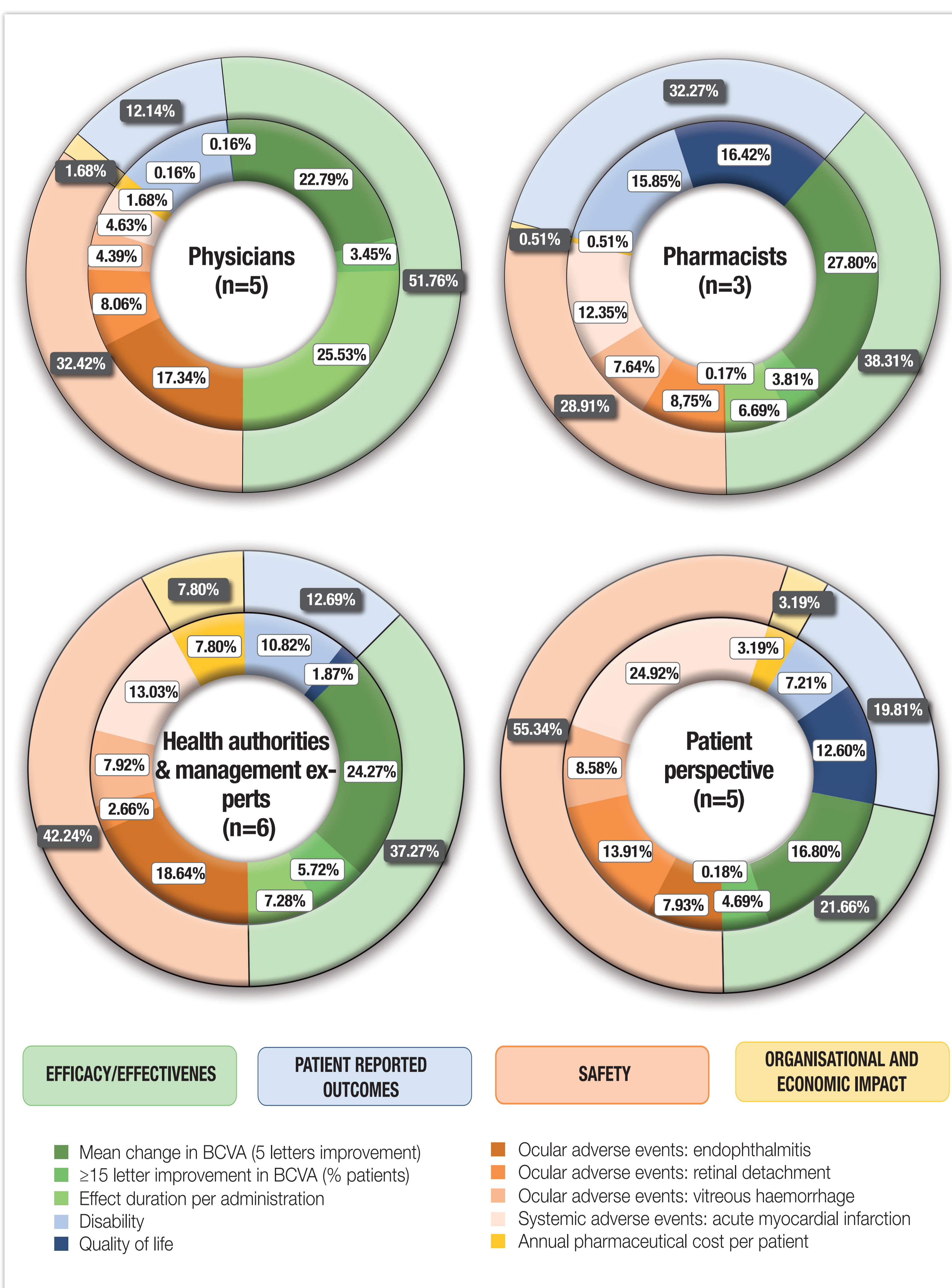


Table 2. Statistical result per category

Criteria	Physicians (n=5)	Pharmacists (n=3)	Health authorities & management experts (n=6)	Patient perspective (n=5)
Mean change in BCVA (5-letter improvement)	0.000***	0.000***	0.000***	0.006**
≥15 letter improvement in BCVA (% patients)	0.469	0.465	0.272	0.441
Effect duration per administration	0.000***	0.200	0.162	0.977
Ocular adverse events: endophthalmitis	0.000***	0.974	0.000***	0.193
Ocular adverse events: retinal detachment	0.091	0.094	0.610	0.022*
Ocular adverse events: vitreous haemorrhage	0.357	0.143	0.128	0.158
Systemic adverse events: acute myocardial infarction	0.332	0.018*	0.012*	0.000***
Annual pharmaceutical cost per patient	0.725	0.922	0.134	0.600
Disability	0.012*	0.002**	0.038*	0.236
Health-related quality of life	0.973	0.002**	0.719	0.038*

* p<0.05; ** p<0.01; *** p<0.001

BCVA: best-corrected visual acuity

CONCLUSIONS

- Considering the revealed preferences of the participants, safety and efficacy/effectiveness criteria were the most relevant for decision-making in DME patients to all the stakeholder groups, accounting for more than half of the relative importance, with a low relative importance to treatment costs.

REFERENCES

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- Adunlin G, et al. Health Expect. 2015;18(6):1894-905.
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