

A discrete choice experiment to elicit patient preferences on pen injectors users for assisted reproduction technology in France: results of the pilot phase

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CONCLUSION

- ✓ This pilot phase enables to determine patient preference factors concerning the characteristics of their pen injector. The full online survey (150 patients) will confirm which attributes are the most important for French women undergoing ART in France.
- ✓ This pilot phase also allowed the questionnaire design to be improved to optimize responses to the main questionnaire.
- ✓ Regarding their pen injectors, patients place the most importance on confirmation of injection of the dose and the model of injection device.
- ✓ Estimation of the utility of each pen's characteristics showed statistically significant difference in favor of Gonal-f/Pergoveris compared to the biosimilars.

Challenges with Discrete choice experiment method:

- Making the questionnaire as comprehensive and accessible as possible, despite its length and the difficulty of making certain choices between 2 complex scenarios
- Creating a performant experimental design based on the theoretical properties of the DCE



CONTEXT

- The preference of patients in the choice of injections pens for Assisted Reproduction Technology (ART) is a major issue.
- Misuse of pens injectors can impact treatments efficacy and safety.
- To optimize ART treatments and prevent misuse, the choice of medical device must consider the needs and preferences of each patient.
- Several models of pen injector are available on the French market, and patient preferences are poorly documented in the literature.

Gonal-f® / Pergoveris®	Bemfola® - BIOSIMILAR	Ovaleap® - BIOSIMILAR



OBJECTIVES



- Elicit patients' preferences of pen injector attributes used for ovarian stimulation in ART



- Quantify the relative importance of each of these attributes



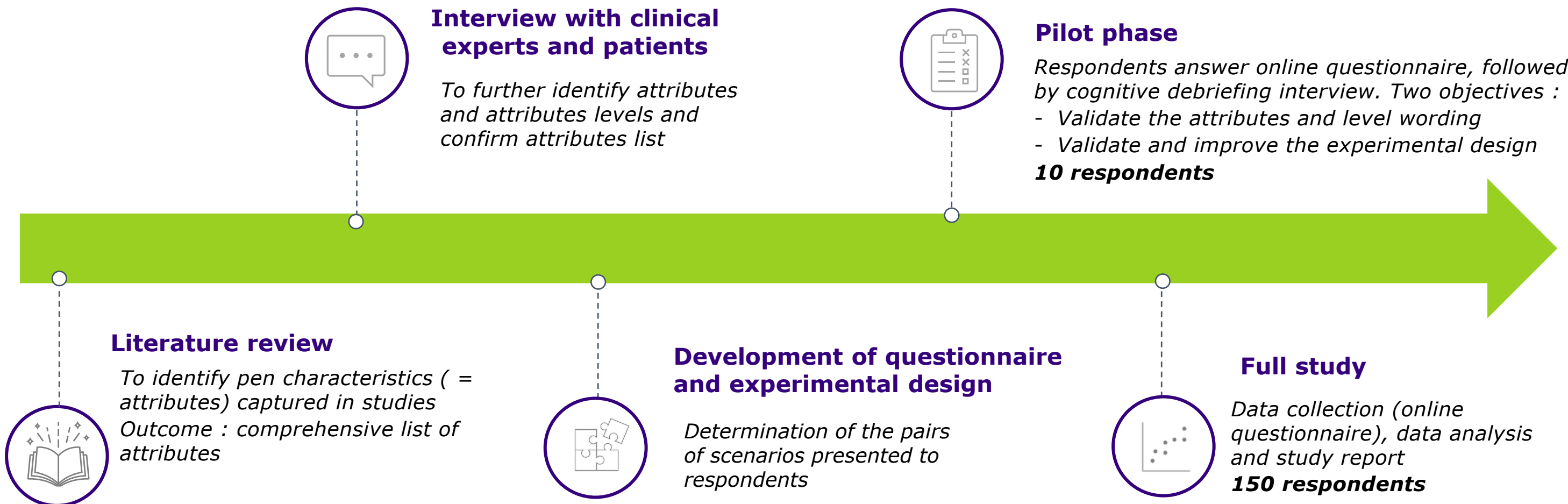
- Generate utility scores for the different follitropin alfa pen injectors



METHODS

- A **Discrete Choice Experiment (DCE)** method was used to elicit preferences from participants¹.
- It is a quantitative method increasingly used in healthcare to elicit preferences from participants **without directly asking them to state their preferred options** (revealed preferences)
- Participants were presented with a series of **2 hypothetical scenarios** described by several characteristics ("**attributes**"), each of which can take on different values ("**levels**"). They had to choose between two pen injectors, each pen defined by a set of hypothetical characteristics.
- The pilot phase is an important stage in the construction of the DCE, allowing the questionnaire to be readjusted before the main phase.
- Data from the pilot phase was collected from volunteer women coming from patient associations in the field.
- A multinomial logit model was developed to analyze patient preferences².

Figure 1. Study design



RESULTS

The attributes and levels were included in the study, following the literature review, expert interviews, and validation by the scientific committee. Each attribute has 2 or 3 levels of variation (list below).

Pre-injection steps

- ✓ The pen is ready to use
- ✓ The cartridge must first be inserted into the pen

Model of injection device

- ✓ The pen contains several doses and can be reused after replacing the cartridge
- ✓ The pen contains several doses and should be discarded when the cartridge is empty
- ✓ The pen contains only one dose and must be discarded after injection

Injection button mechanism

- ✓ The pen has a single push-button
- ✓ The pen has 2 buttons: one to set the dose, the other to release it

Display after injection

- ✓ The dial returns to 0 to confirm the injection or displays the additional dose if the dose is insufficient
- ✓ The dial returns to 0 to confirm the injection but does not display the additional dose to be injected if the dose is insufficient
- ✓ The dial does not display an injection confirmation, nor does it show the additional dose to be injected if the dose is insufficient

Dose reduction method

- ✓ The button can be turned in 2 directions
- ✓ The user must press the button until she returns to the desired dosage
- ✓ The button must be turned all the way to cancel the selected dose, then pressed to reset the dose to 0

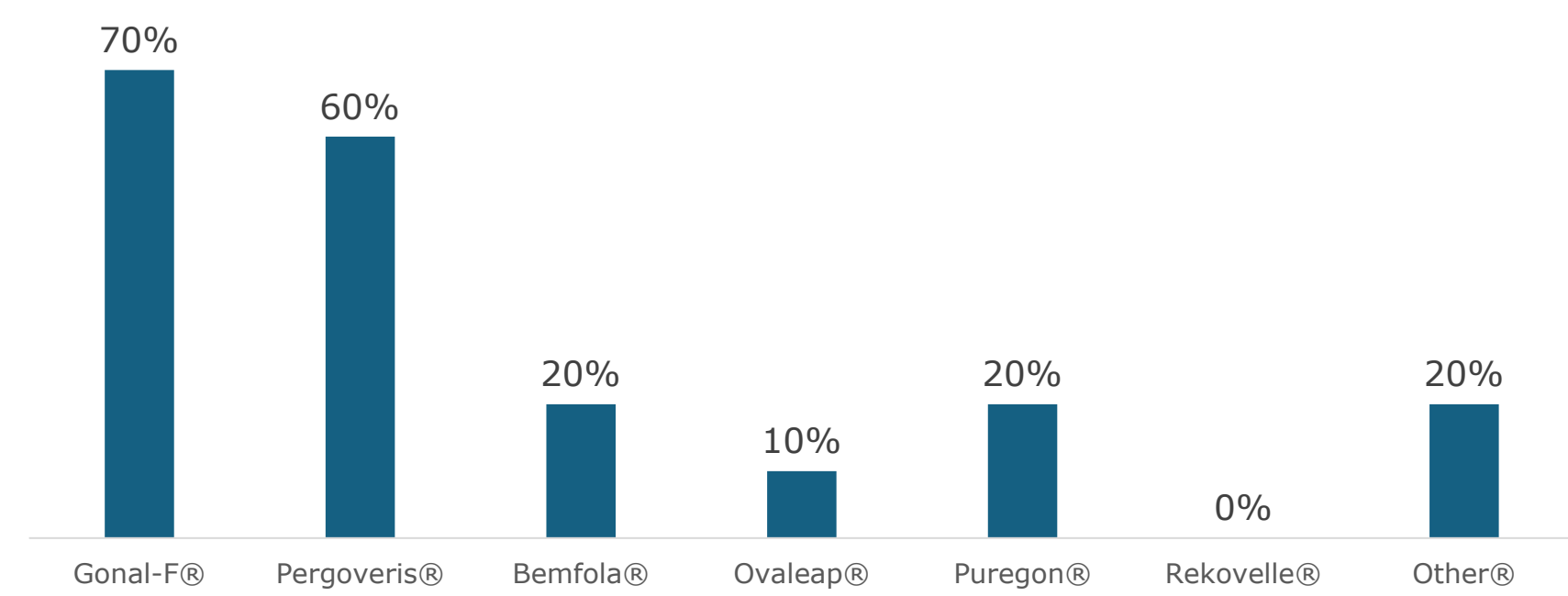
Injection dose reading

- ✓ The dose is displayed in dashes
- ✓ The dose is displayed with digits

The pilot phase involved **10 women**, with an average age of 37 years.

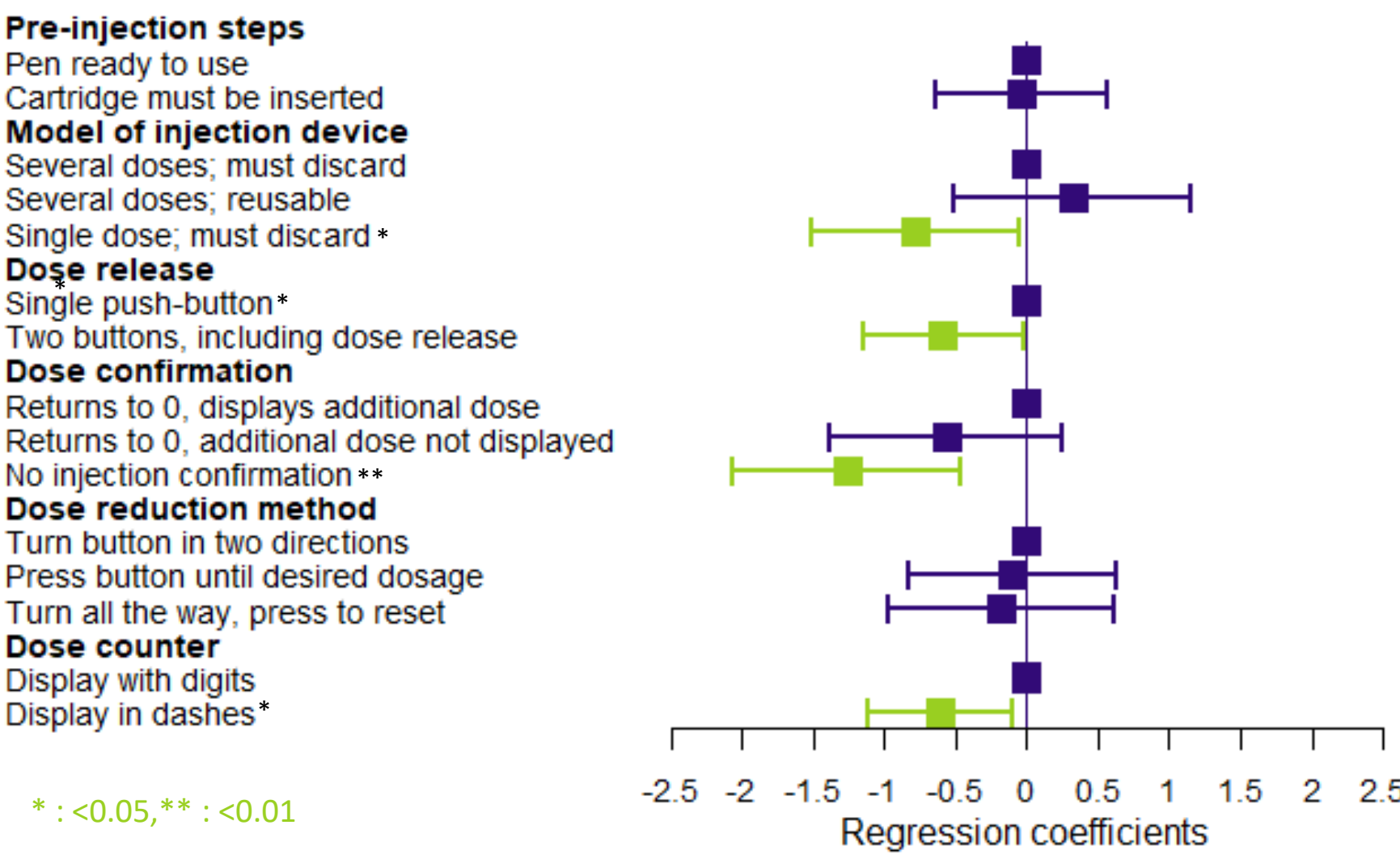
Their ART journey lasted on average 3 years, and the mean number of ovarian stimulations (intrauterine insemination and in vitro fertilization) performed was 6.4.

Figure 2. Pens used by respondents over their ART course



Attributes corresponding to the Gonal-f/Pergoveris pen are defined as reference modalities. As a result, the utility score of these pens were equal to 0. Figure 3 presents the results of the multinomial logit model.

Figure 3. Results of the multinomial logit model



The influence of different attributes on respondents' preferences is assessed through a relative importance score (Figure 3). Utility scores for each pen is calculated by summing the coefficients given by the model (Table 1).

Figure 4. Attribute preference ranking

- Dose confirmation (1.260)
- Model of injection device (1.103)
- Dose counter (0.606)
- Dose release (0.586)
- Dose reduction method (0.175)
- Pre-injection steps (0.031)

Table 1. Pen utility scores

	Gonal-F / Pergoveris	Ovaleap	Bemfola
SCORE	0	-0.40	-2.04
CI 95%		[-1.78;0.99]	[-3.12;-0.96]

- This pilot phase showed that **dose injection confirmation** was the greatest driver of the patient preference ($p < 0.005$).
- Statistically significant results have shown that the others **three most essential characteristics** for patients regarding their injection pen used for ovarian stimulation were: **dose counter with digit values** ($p = 0.019$), **multi-use pens** ($p = 0.035$), and **dose release with a single push-button** ($p = 0.041$).
- The attributes "pre-injection steps" and "dose reduction methods" were not statistically significant at the pilot phase stage.
- Estimation of the disutility of each pen's characteristics in the pilot phase has shown **no statistically significant difference between Gonal-f® and Ovaleap®** [IC 95% : -1.78 ; 0.99], but a **statistically significant difference in favor of Gonal-f® compared with Bemfola®** [95% CI: -3.12; -0.96]

1 - Bridges JF, Hauber AB, Marshall D, Lloyd A, Prosser LA, Regier DA, Johnson FR, Mauskopf J. Conjoint analysis applications in health--a checklist: a report of the ISPOR Good Research Practices for Conjoint Analysis Task Force. Value Health. 2011 Jun;14(4):403-13. doi: 10.1016/j.jval.2010.11.013. Epub 2011 Apr 22. PMID: 21669364.

2 - Ispor Task Force Report, Statistical Methods for the Analysis of Discrete Choice Experiments: A Report of the ISPOR Conjoint Analysis Good Research Practices Task Force, Value in Health 19 (2016) 300-315