

# GUSTATORY DISCRIMINATION ABILITIES OF ELDERLY PEOPLE IN APPLE PURÉES AND IMPACT ON LIKING

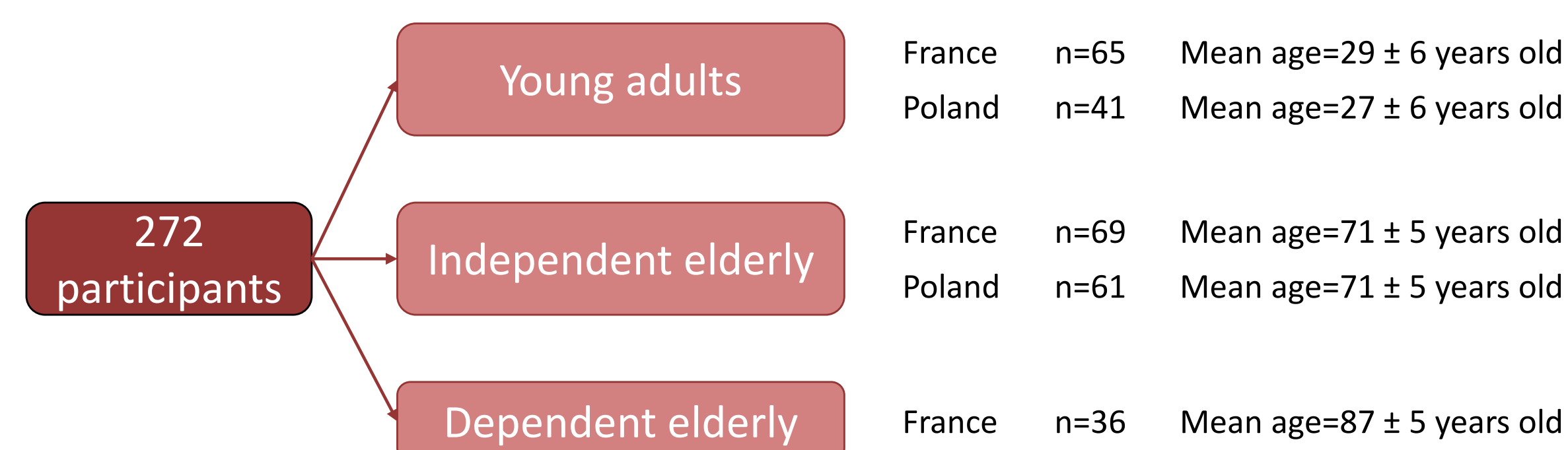
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## Introduction

The number of elderly people is growing in Europe. Aging is associated with frailty, dependency and a decrease of the gustatory capabilities (detection, identification, perceived intensities). However, little is known about the gustatory discrimination abilities of elderly people. In literature, discrimination abilities were mainly studied in aqueous solutions, but rarely in real food matrices. This study aims to compare discrimination abilities of young adults and elderly people, with various degrees of dependency, when consuming apple purées with different concentrations of sugar.

## Material and Methods



- **Product:** long conservation apple puree, without pieces, reduced sugar content (Andros, “Compote pomme allégée”)

### - Gustatory discrimination abilities

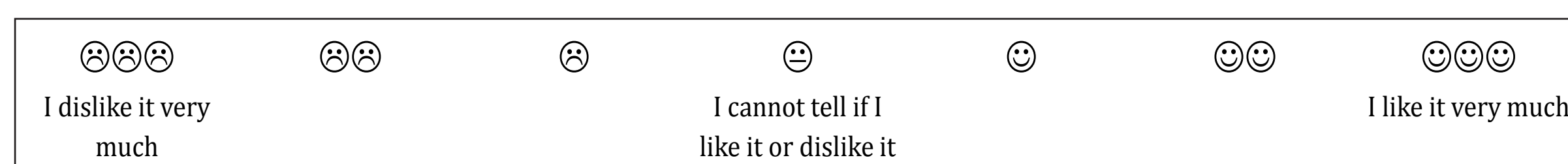
- + Paired forced-choice: **Which sample is the sweetest?**
- + 4 pairs of apple purées, presented in a balanced order:

Pair	Sample	[sugar] g/100g
Pair 1	S0	20
	S1	21
Pair 2	S0	22
	S2	24
Pair 3	S0	28
	S3	28
Pair 4	S0	28
	S4	28

*Young adults and independent elderly people tasted the 4 pairs twice. Due to their frailty, dependent elderly people tasted the 4 pairs only once.*

### - Liking for apple purées

Participants were asked to evaluate their liking of 3 samples from the discrimination test (S0, S2, S4) on a 7-point liking scale, adapted to elderly people<sup>(1)</sup>. They also indicated the most liked sample and the least liked one.



## Discrimination abilities

Proportions of errors are significantly higher ( $\chi^2=14.34$ ,  $p<0.001$ ) in dependent elderly people (34%, FR only) than in independent ones (15%, FR and PL) and young adults (15%, FR and PL). Figure 1 shows the percentages of correct and incorrect answers per pairs and age groups.

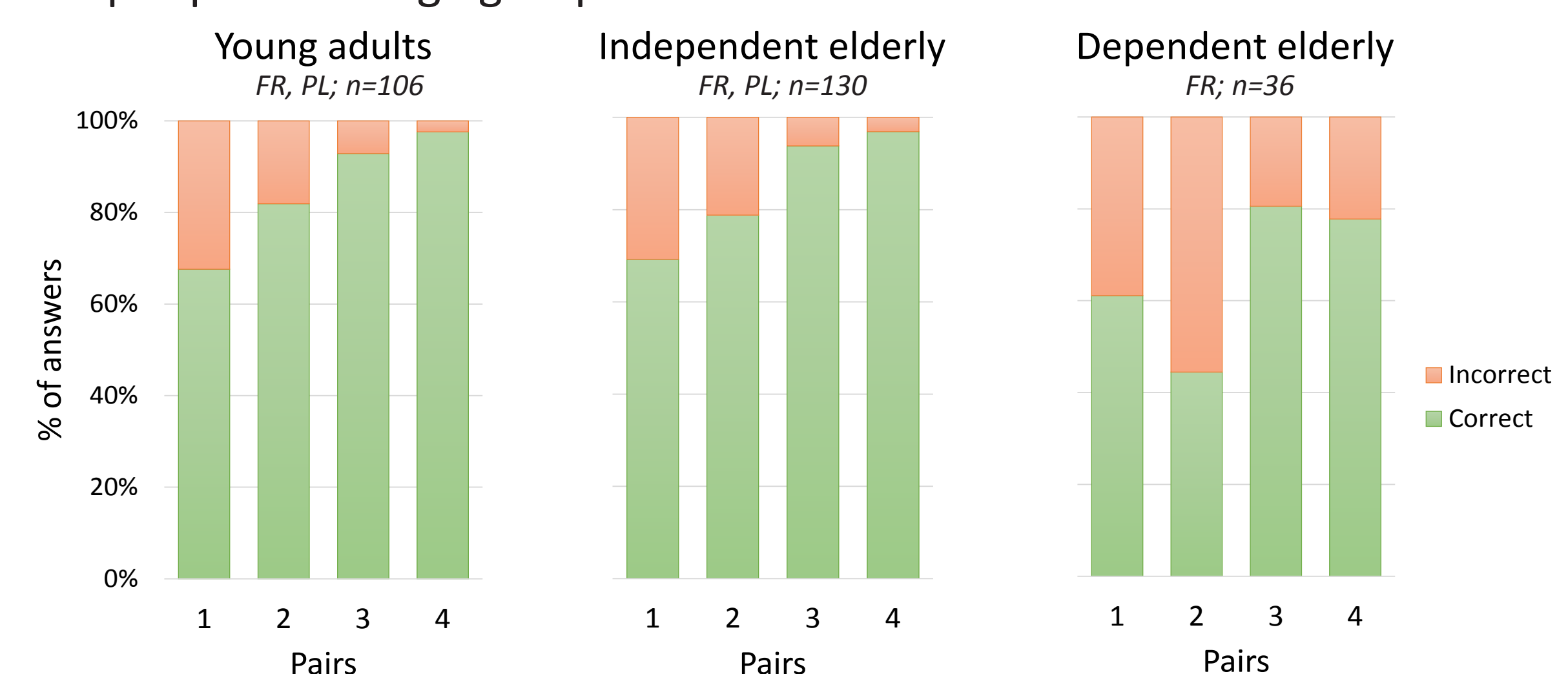


Figure 1: Percentages of answers to discrimination test per pairs and age groups

## Liking of apple purées (French sample)

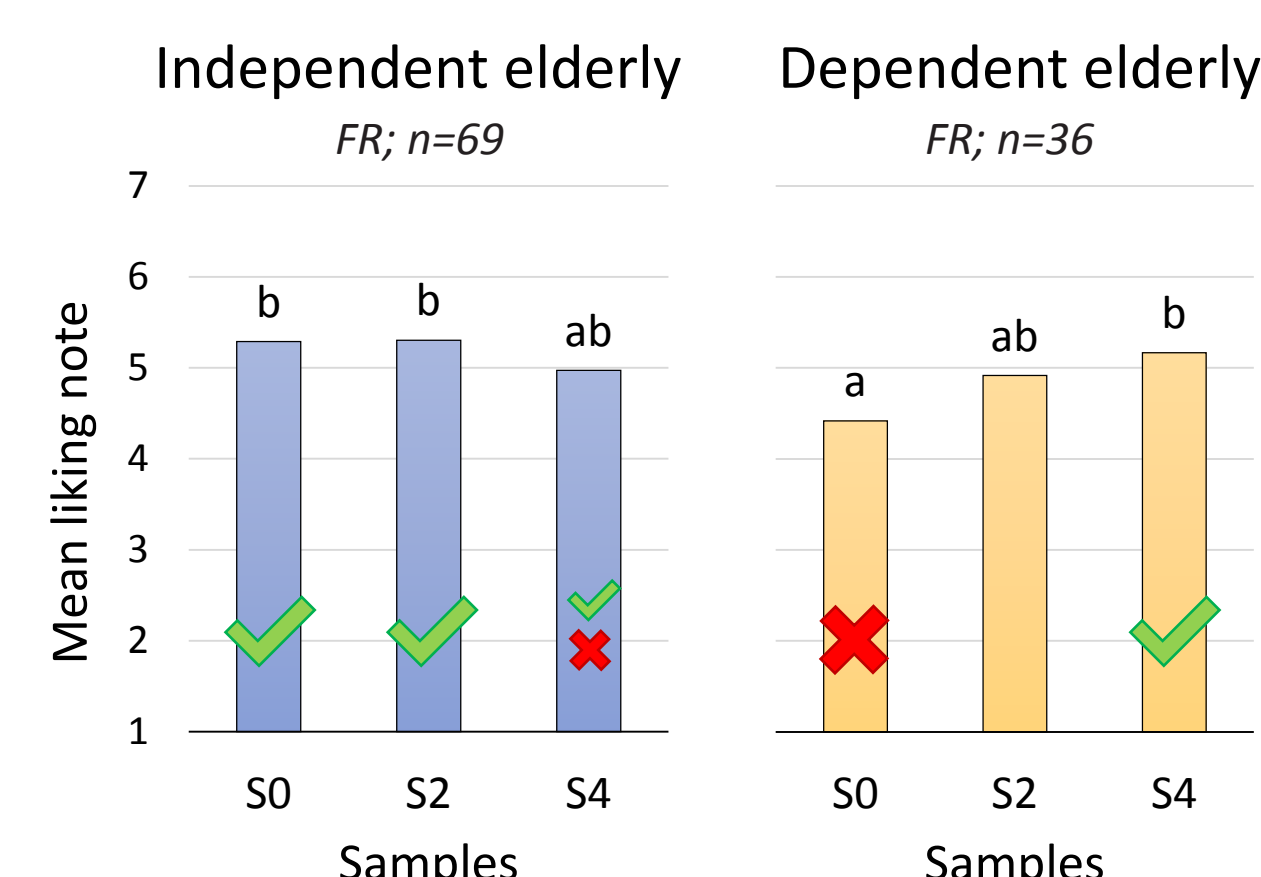


Figure 2: Liking for apple purées for elderly people

- ✓ Cited as «the most liked»
- ✗ Cited as «the least liked»

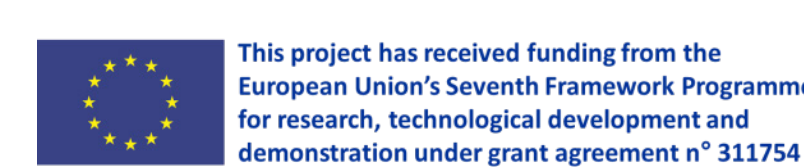
Mean liking notes were not significantly different in independent elderly, whereas dependent ones significantly prefer the sweetest sample (S4,  $p<0.05$ , Figure 2).

A greater number of independent elderly people cited S0 / S2 samples as the most liked; whereas an equivalent number cited S4 as the most / the least liked sample. In the dependent elderly group, a greater number of participants cited S0 as the least liked and S4 as the most liked samples.

## Conclusion

Ability to discriminate sweetness was lower in the group of older and more dependent elderly people compared to the other groups. More dependent elderly people significantly preferred sweeter products. From an industrial point of view, our results highlight ranges where formulation variations are perceived by consumers and allows to better meet their expectations. Further investigations are needed to quantify elderly people's discrimination abilities and their role in liking and food choices.

References: (1) Maitre, I., Symoneau, R., & Sulmont-Rossé, C. (2015) 23 Sensory testing in new product development: working with older people. In Rapid Sensory Profiling Techniques (pp. 485-508). Elsevier.



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