

Portuguese users' preferences about ergonomic requirements of autonomous vehicles



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Introduction and motivation

One of the most important steps towards creating a sustainable and inclusive transportation system of the future is the integration of autonomous vehicles (AVs). The transportation sector is a major source of emissions, and urban mobility faces challenges like congestion and parking. AVs are expected to help address these problems and improve sustainability. It is anticipated that these vehicles would completely transform how people and commodities are moved, providing personalized services that cater to each person's unique requirements and preferences.

While research on general ergonomic preferences for autonomous vehicles (AVs) exists for some countries, there is limited data specific to Portuguese users. Cultural differences, driving behaviors, and lifestyle choices may influence how users in Portugal interact with AVs interiors.

The objectives of this research is:

- Focus on understanding what ergonomic features Portuguese users expect or prefer in autonomous vehicles.
- Collect data on these preferences to help design AVs that meet the needs and expectations of Portuguese users.

Demographic characteristic of the participants

➤ Based on the research objectives and gaps, we created a 21-item questionnaire from a literature review, focusing on autonomous vehicle perception, technology knowledge, comfort with autonomous vehicle technology, intelligent components, and ergonomic preferences.

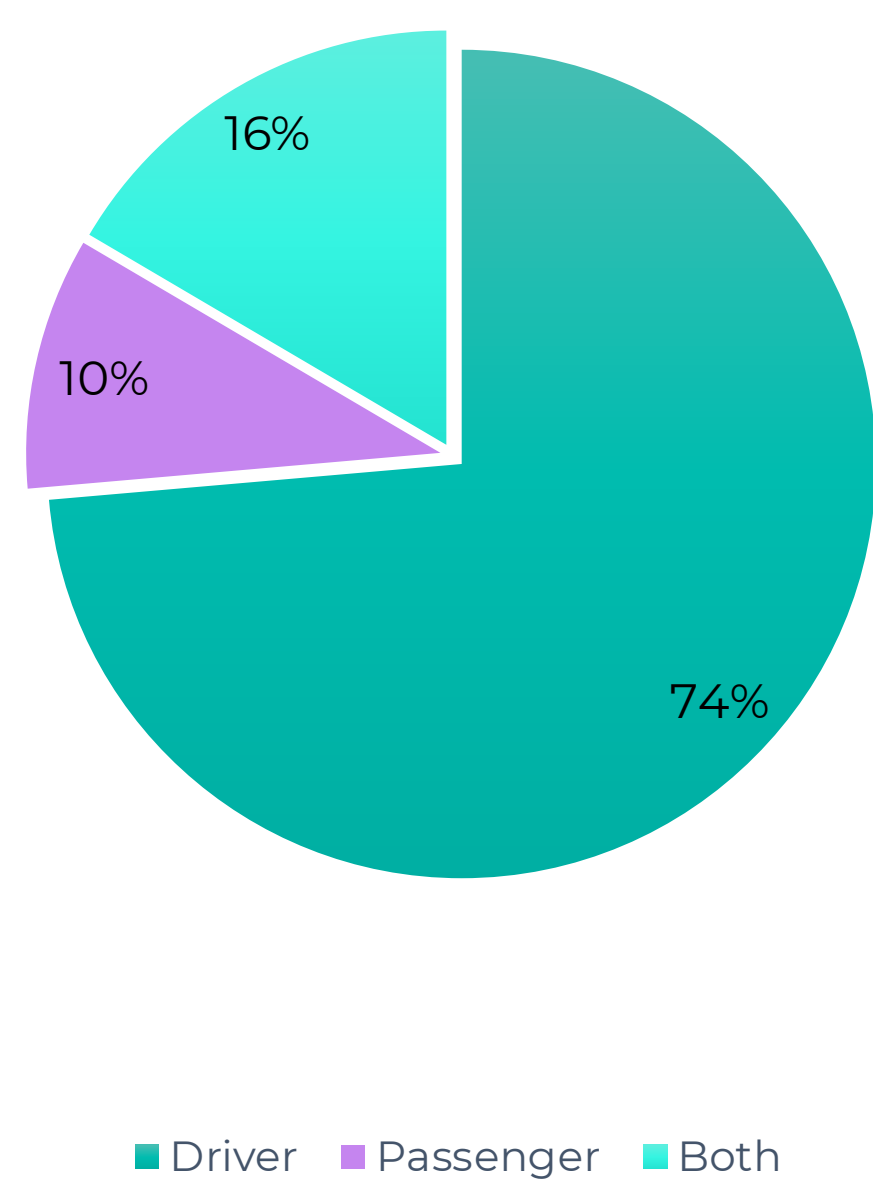
➤ Questionnaire applied through online platform and In total 254 participants answered the questionnaire.

Participants pool showed :

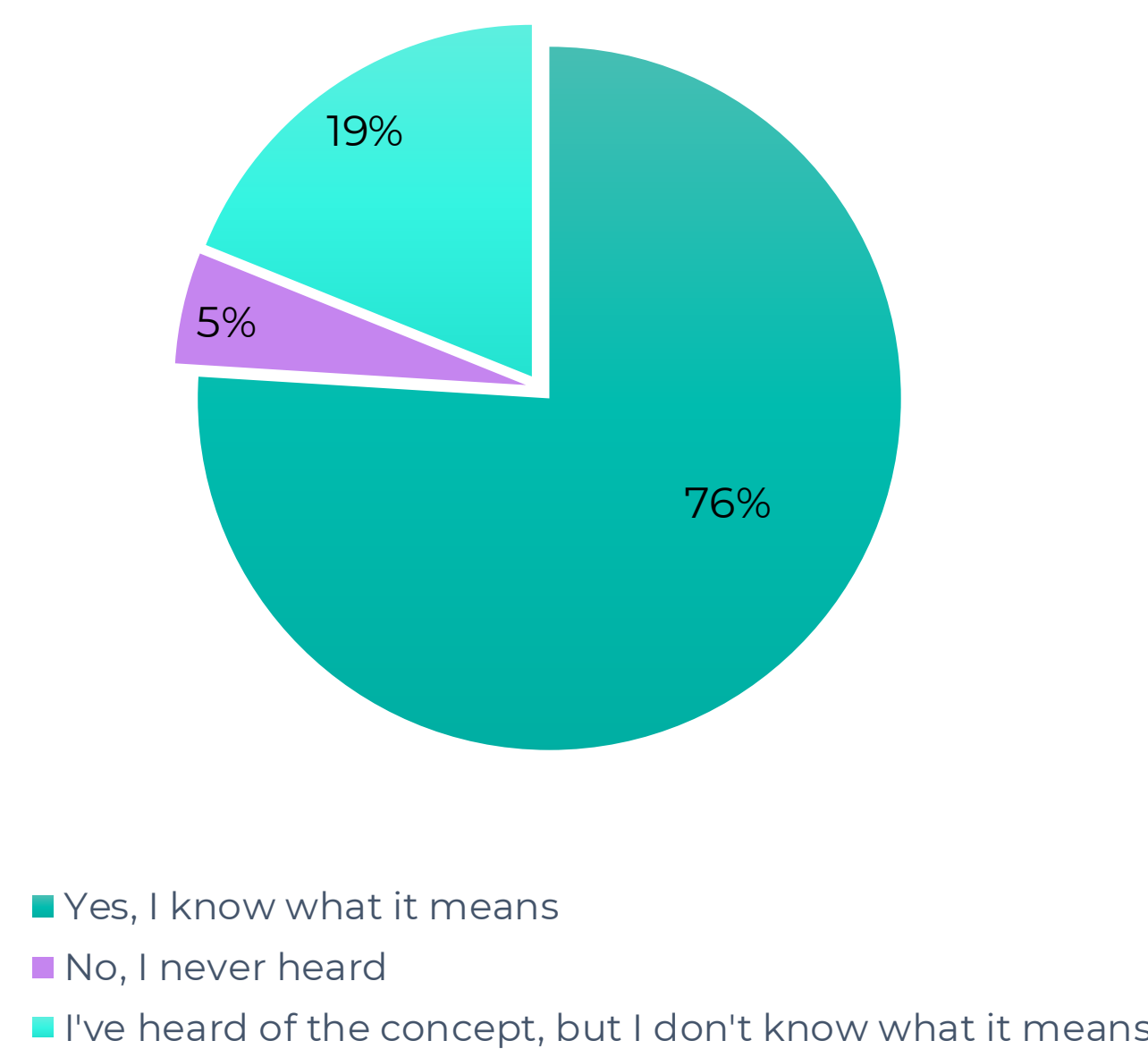
- Slightly bigger representation of the woman participants (54% women, 46% men).
- Mostly younger age group (34% 26-35 age group, 22% 18-25 age group).
- Mostly bachelor or higher education degree (31% Bachelor, 26% Master degree).

Main Results

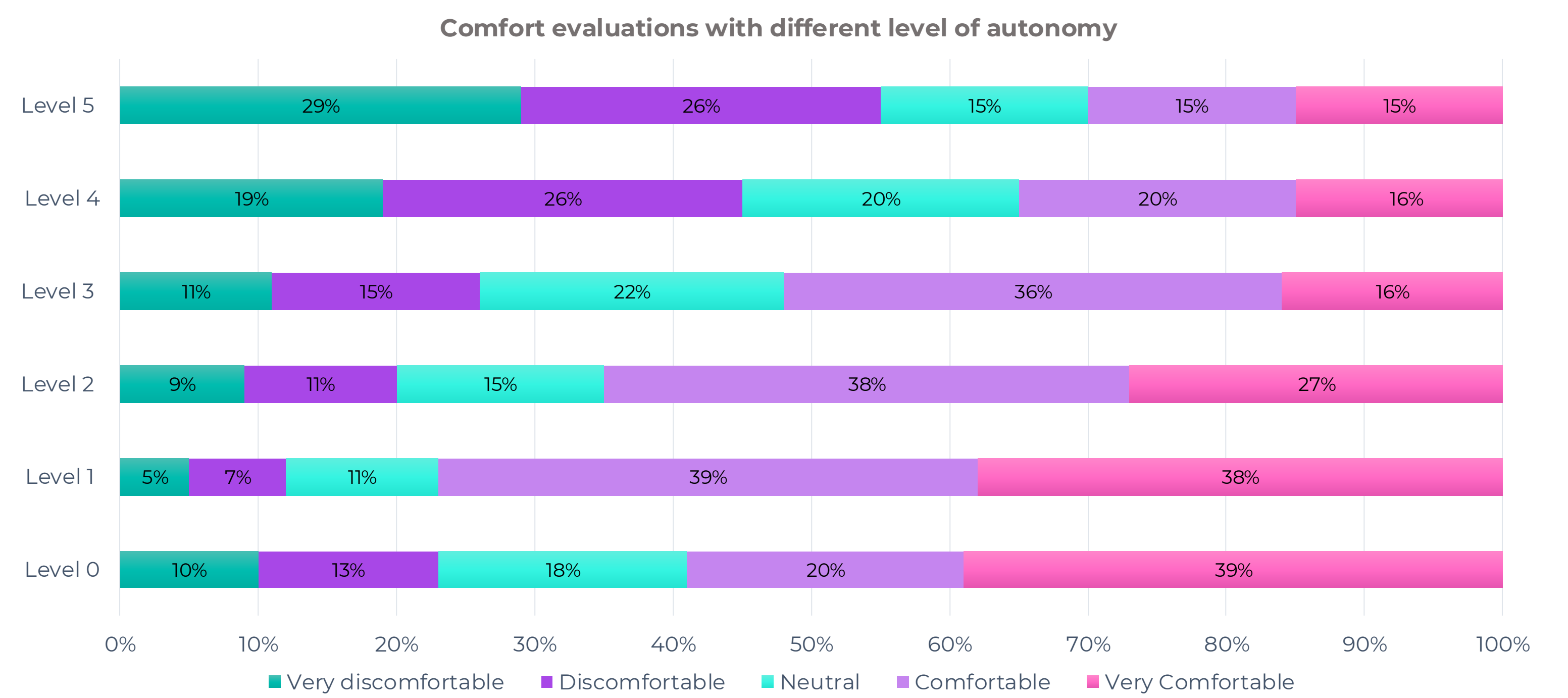
Driving in general?



Are you familiar with the concept of an autonomous driving?

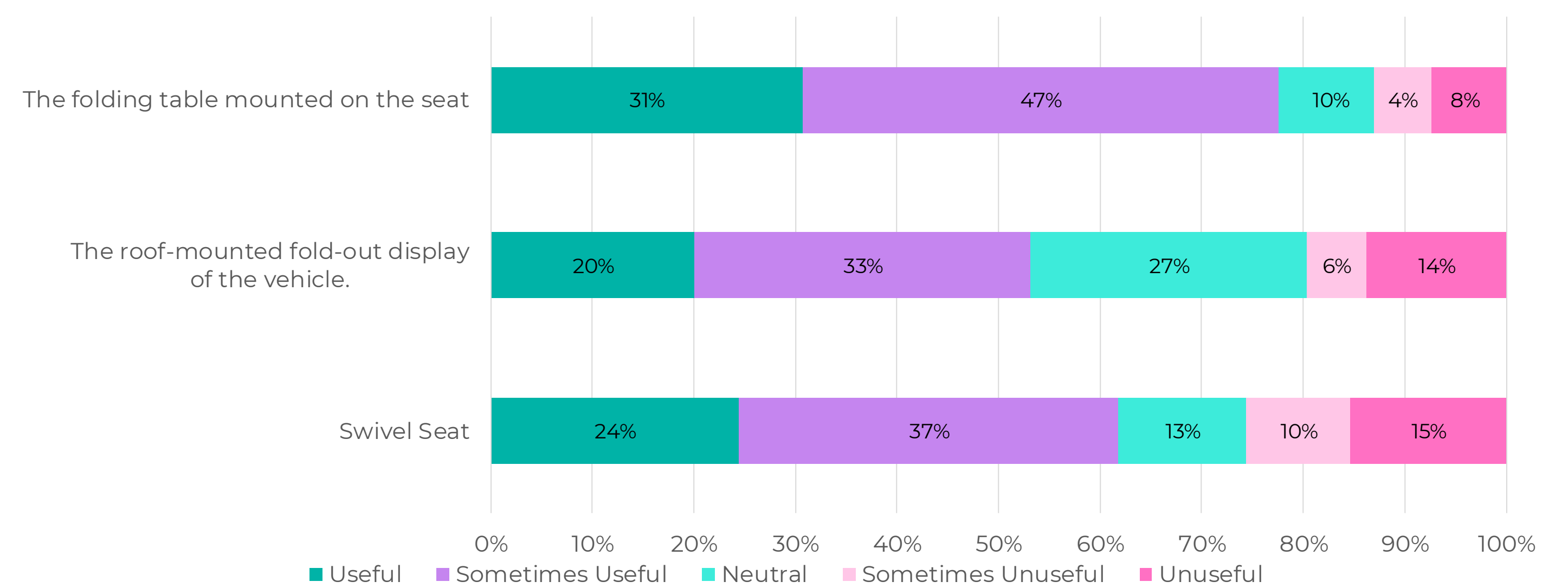


74% percent of the participants were drivers most of the time and 76% of the participants were familiar with Autonomous vehicle concept. Based on these results, we can conclude that the participants are experienced drivers and already possess some knowledge of the concept of autonomous driving.



The participants' responses indicated that as the level of vehicle autonomy increased, their comfort levels decreased. This can be attributed to the fact that people may not fully trust autonomous vehicles, particularly at higher autonomy levels like Level 4 or 5. Many individuals feel more secure when they have control, and higher levels of autonomy remove that control, often causing discomfort and unease.

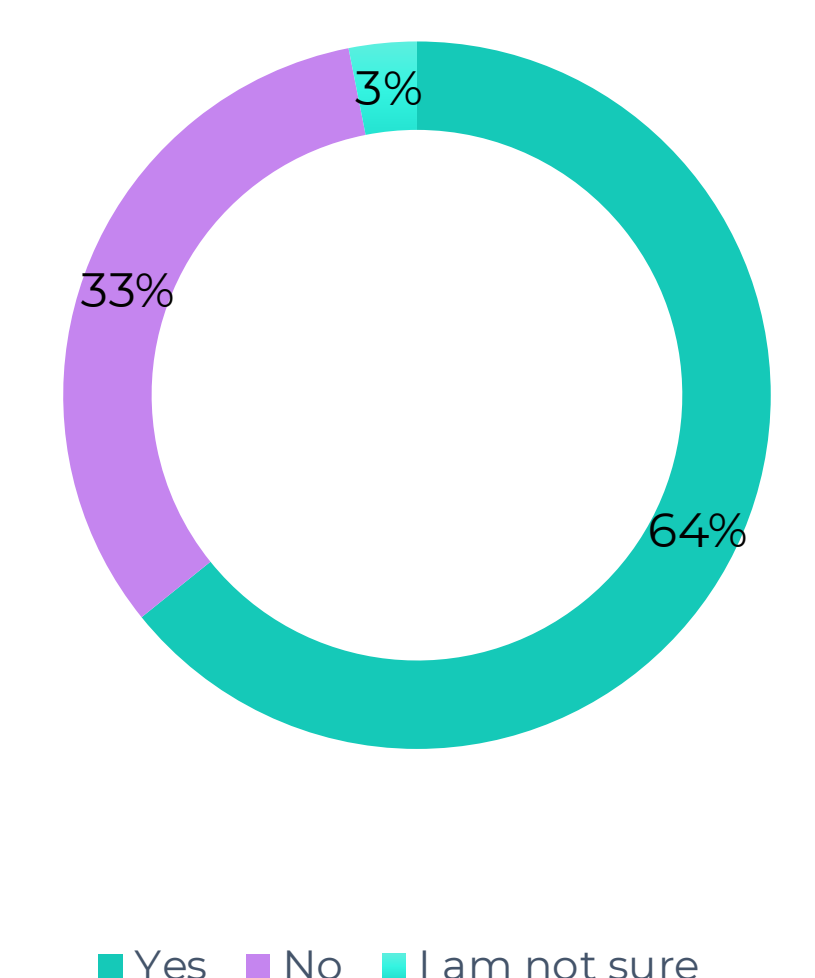
The usefulness of new features or functionalities inside the autonomous car



The seat-mounted folding table and swivel seat were regarded by participants as useful and functional new features.

When you're the passenger, have you ever felt carsick?

64% of participants reported experiencing carsickness during travel. They further indicated that their symptoms were most pronounced when engaging in activities such as reading, using their phones, or watching videos. We can conclude that carsickness could be a major concern in autonomous driving. Portuguese users prioritize new ergonomic features, such as swivel seats and seat-mounted folding tables. However, preventing carsickness remains an important preference.



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