

INTRODUCTION

Lung cancer (LC) is a highly prevalent malignancy and a leading cause of cancer mortality worldwide, often diagnosed at advanced stages. Malnutrition and metabolic alterations are frequent and are linked to poorer quality of life, lower treatment tolerance, and worse prognosis. Precision nutrition, integrating nutritional, metabolic, and nutrigenomic approaches, may help reduce sarcopenia, treatment toxicity, and improve quality of life (QoL).

DISCUSSION AND CONCLUSION

This integrative approach will help elucidate the impact of lung cancer on patients' nutritional status, creating predictive models based on phenotypic/genotypic traits.

These models will guide precision nutrition strategies to improve patient outcomes.

METHODS

The MENTORING project aims to develop and validate a precision nutrition models (PNM) for patients with LC, with the goal of improving nutritional and metabolic status, optimizing patients' ability to better tolerate anticancer therapies, and ultimately enhancing QoL.

The MENTORING project comprises two complementary multicentre prospective studies.

1. LISTENING – Observational study

Characterisation of nutritional and metabolic status through body composition, nutrient biomarkers, and multi-omics data to develop the PNM.

Patients with advanced LC (n=150; small cell lung cancer: n=30) receiving active treatment will be recruited at the **Infanta Sofia University Hospital** (Madrid, Spain) and **University Hospital of Parma** (Italy).

Patients will be followed for 6 months, with assessments at baseline (V0), 3 months (V1), and 6 months (V2).

At each study phase, validated questionnaires, dietary records, anthropometric parameters will be collected, together with biological samples for biomarker and multi-omics analyses.

2. MENTORING – Randomized controlled trial

Validation of the PNM by comparing precision nutrition-based dietary plans with general dietary advice in patients with advanced LC.

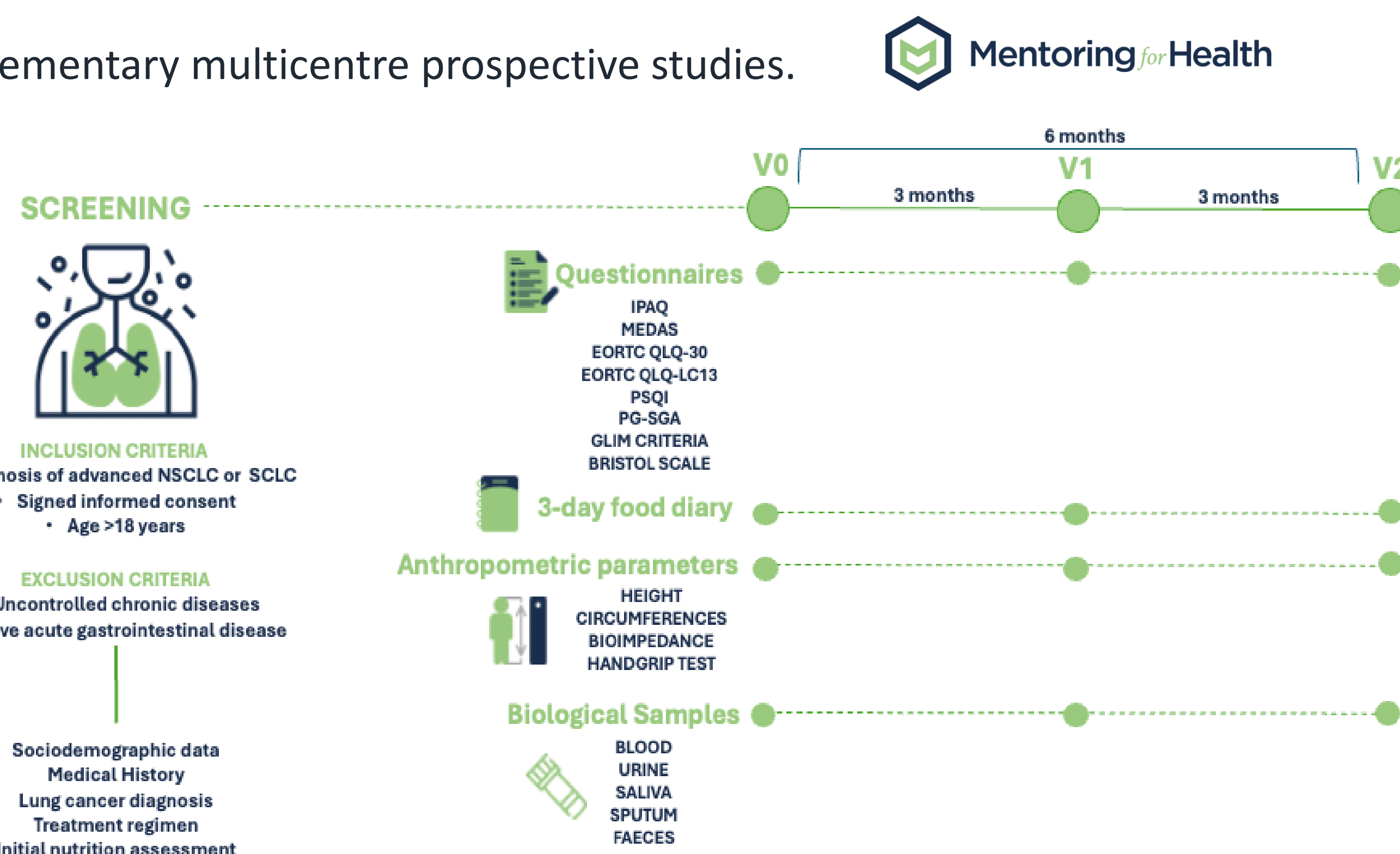


Figure 1. LISTENING study design.

RESULTS

The LISTENING study received approval from the respective Ethics Committees on 11 December 2024 in Spain and 11 February 2025 in Italy. To date, 52 patients have been enrolled across the two study centres.

PATIENTS CHARACTERISTIC

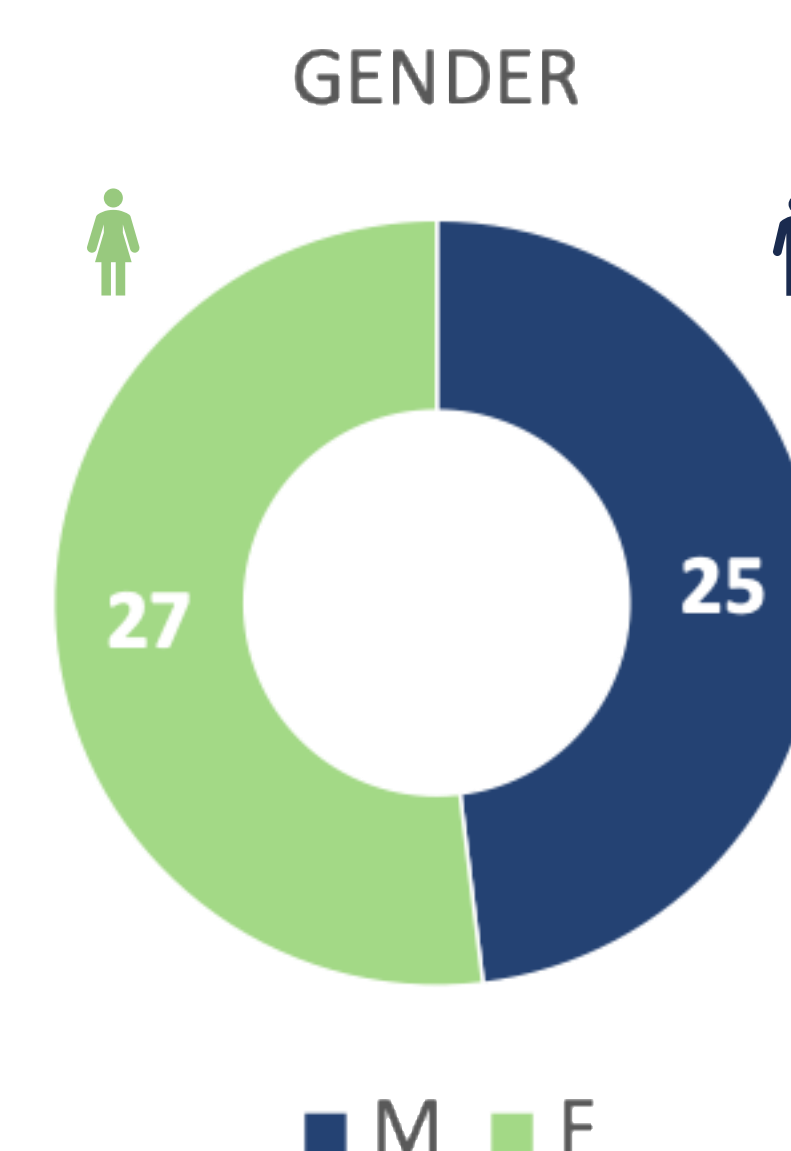


Figure 2. Number of male and female recruited in the LISTENING study.

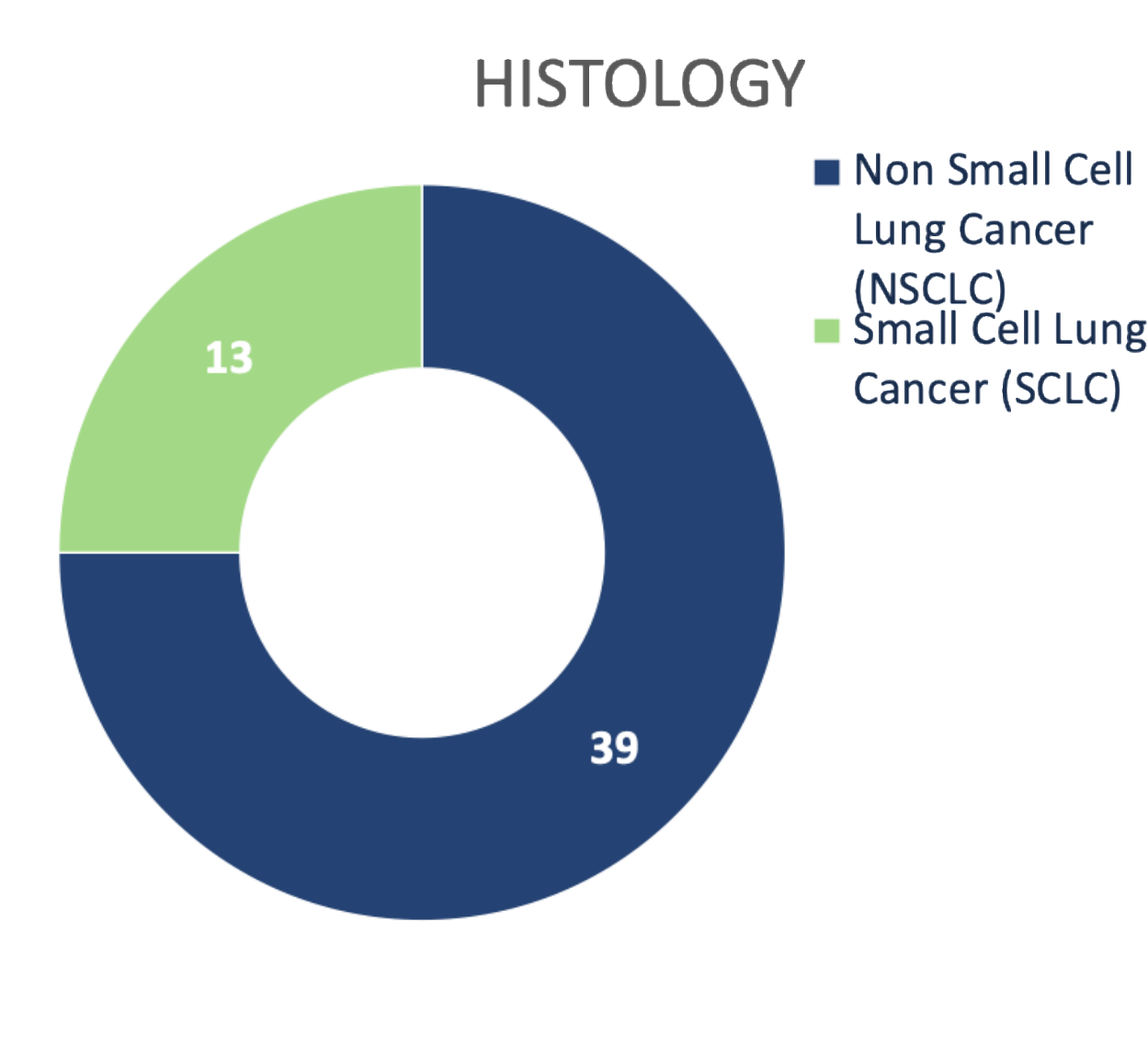


Figure 3. Lung cancer types of patients recruited in the LISTENING study.

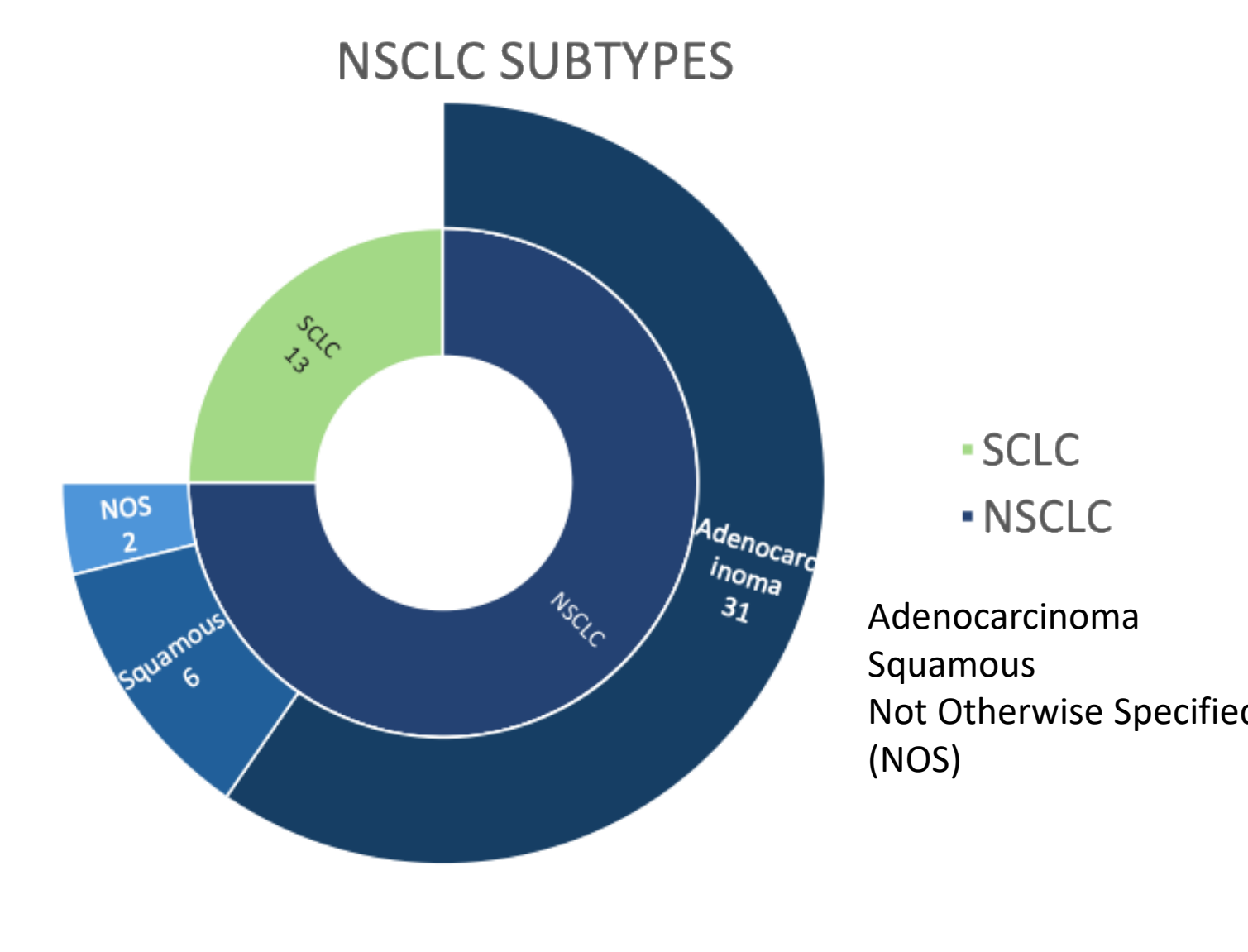


Figure 4. NSCLC subtypes of patients recruited in the LISTENING study.

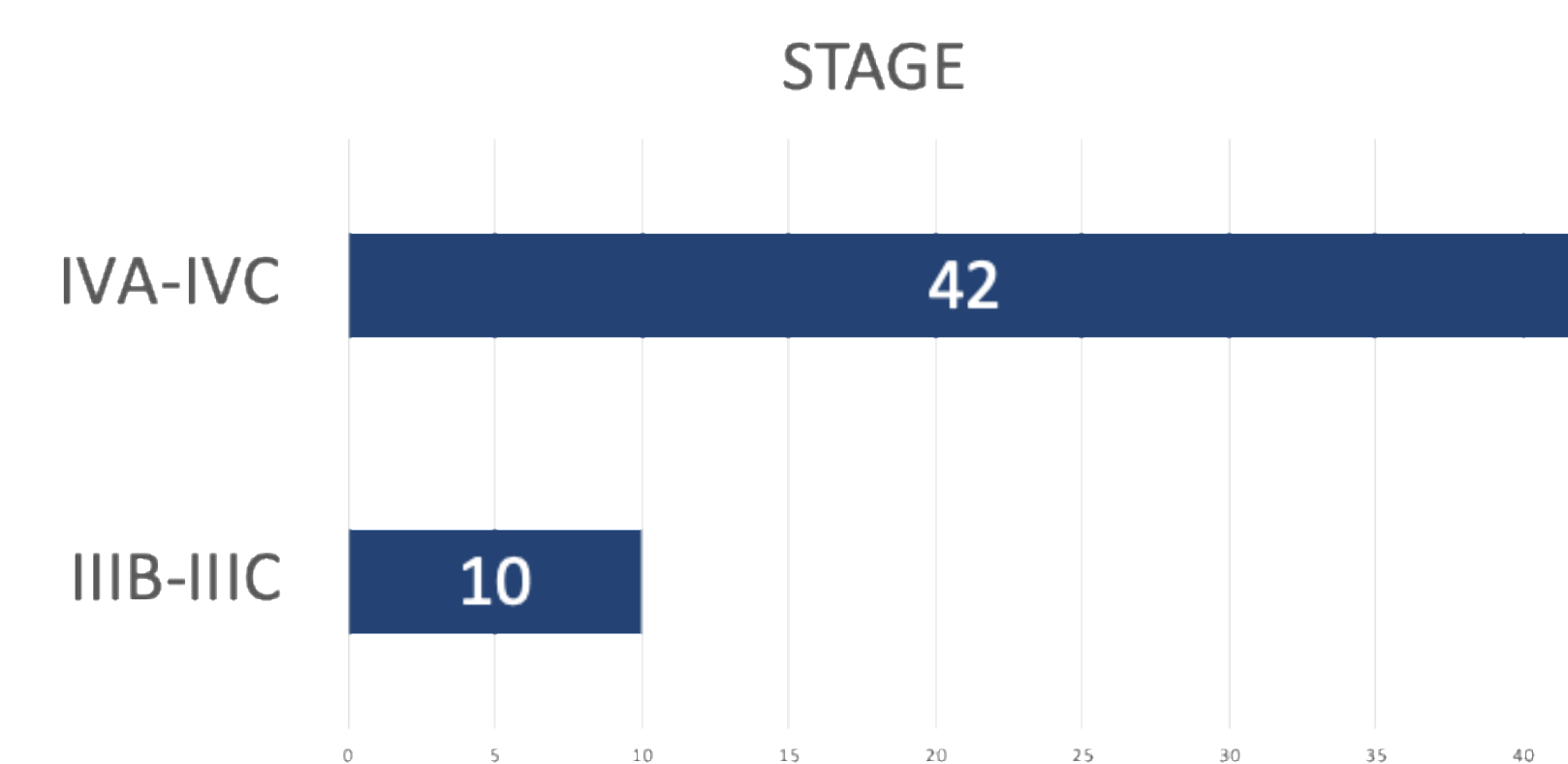


Figure 5. Cancer stage of patients recruited in the LISTENING study.

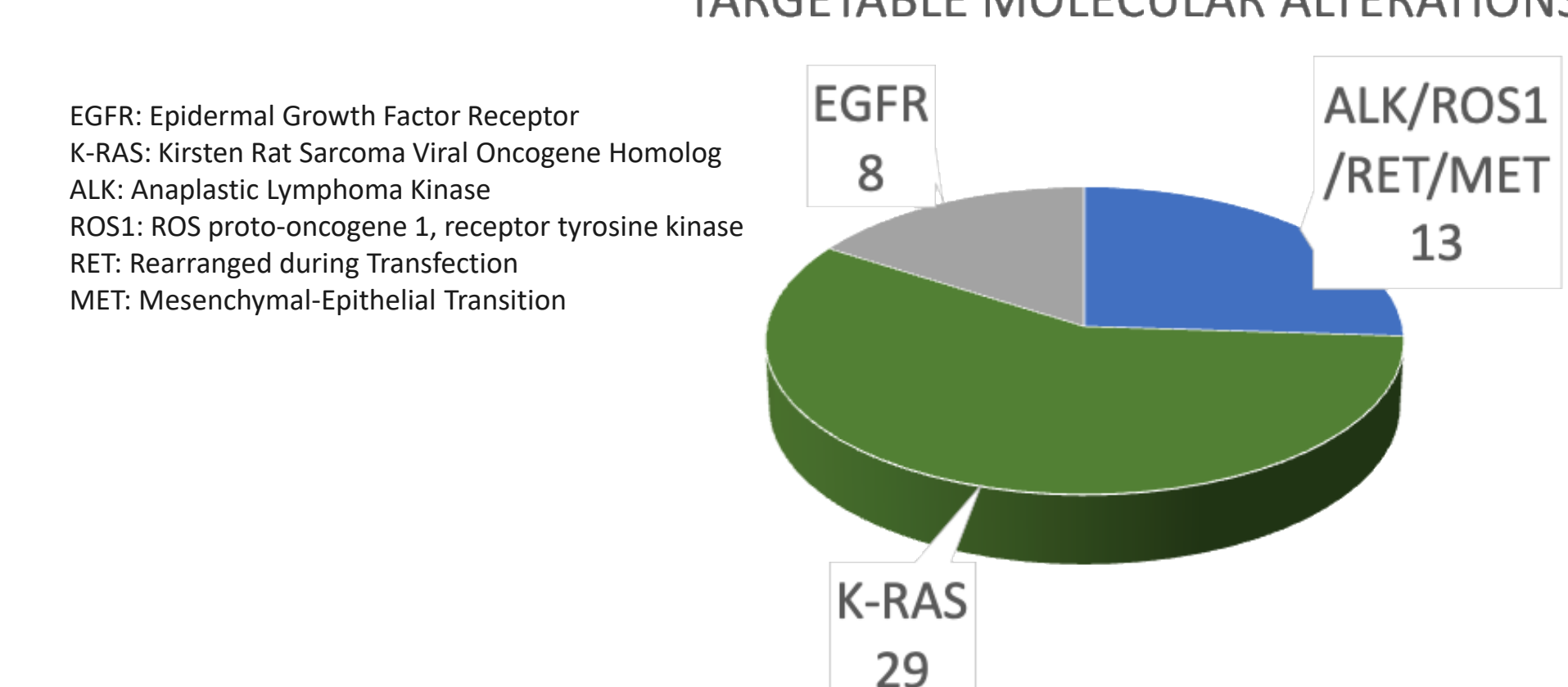


Figure 6. Target mutation alterations of patients recruited in the LISTENING study.

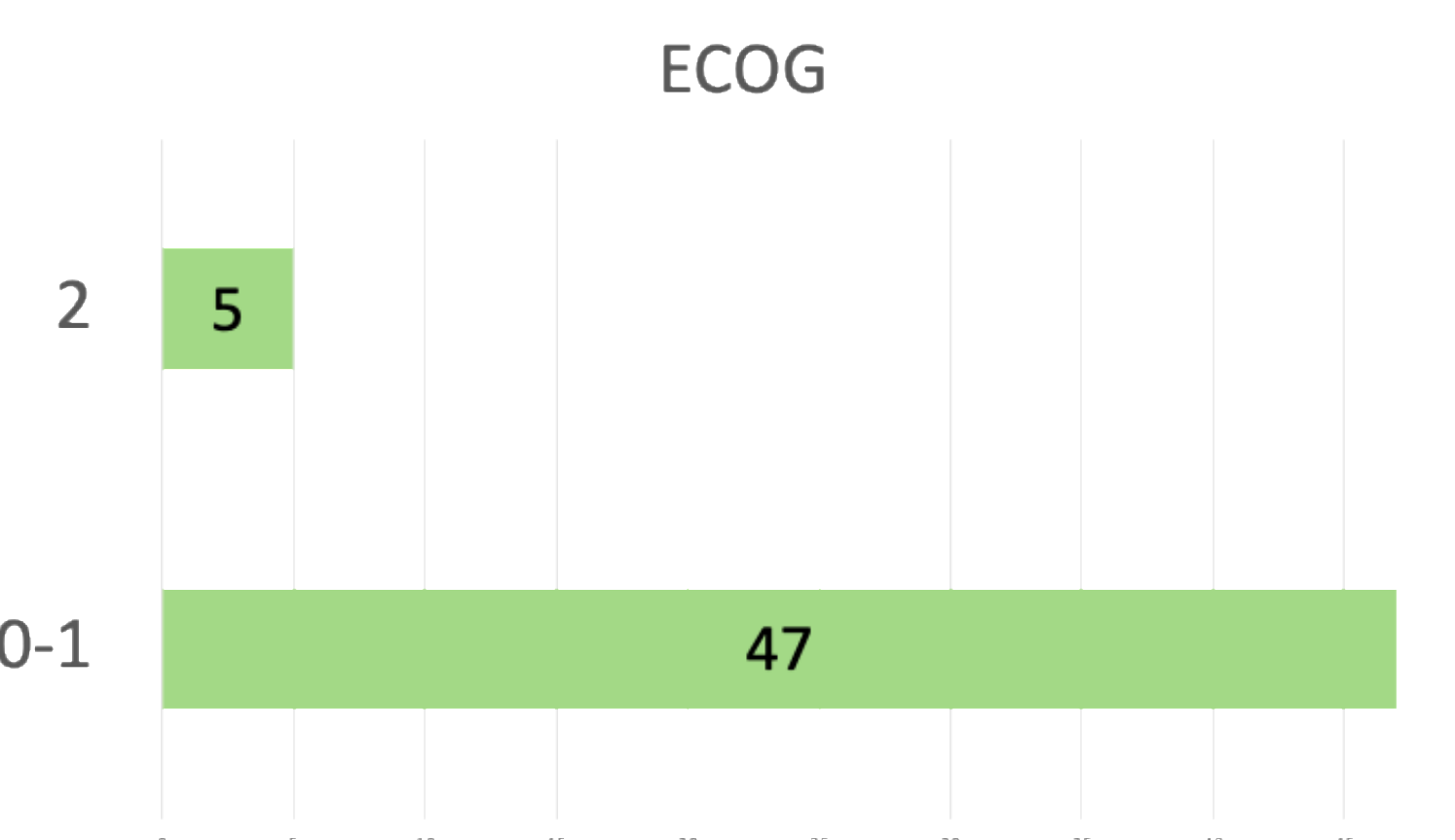


Figure 7. ECOG Performance status of patients recruited in the LISTENING study.

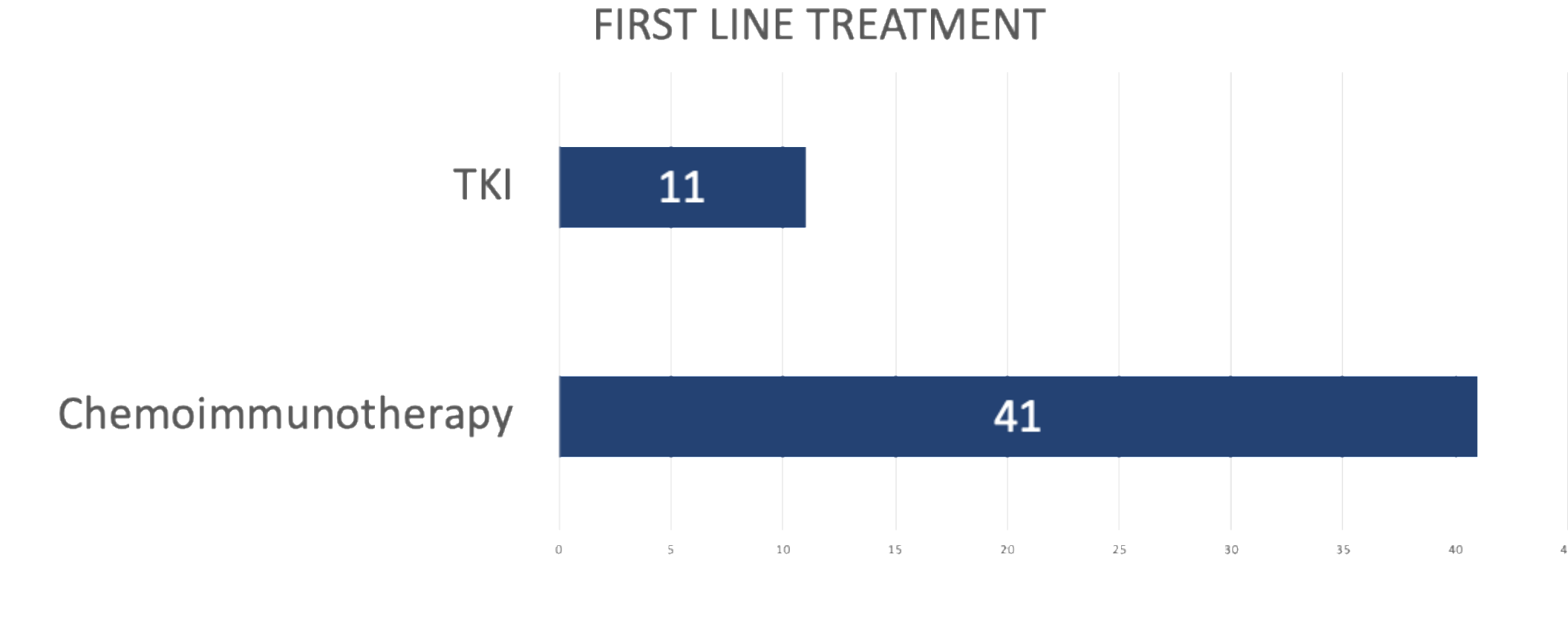


Figure 8. First line treatment of patients recruited in the LISTENING study.

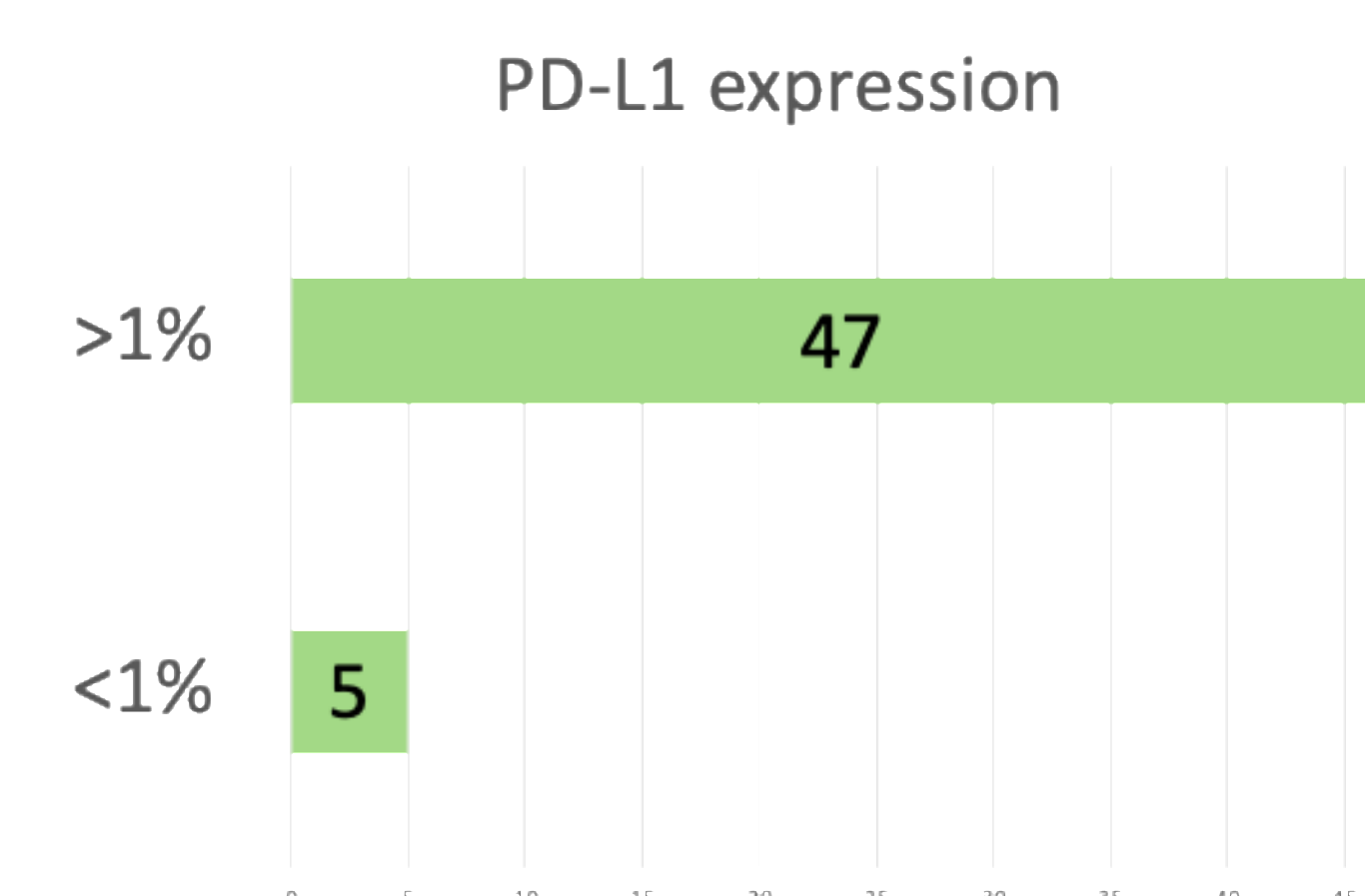


Figure 9. Programmed Death-Ligand 1 (PD-L1) expression of patients recruited in the LISTENING study.

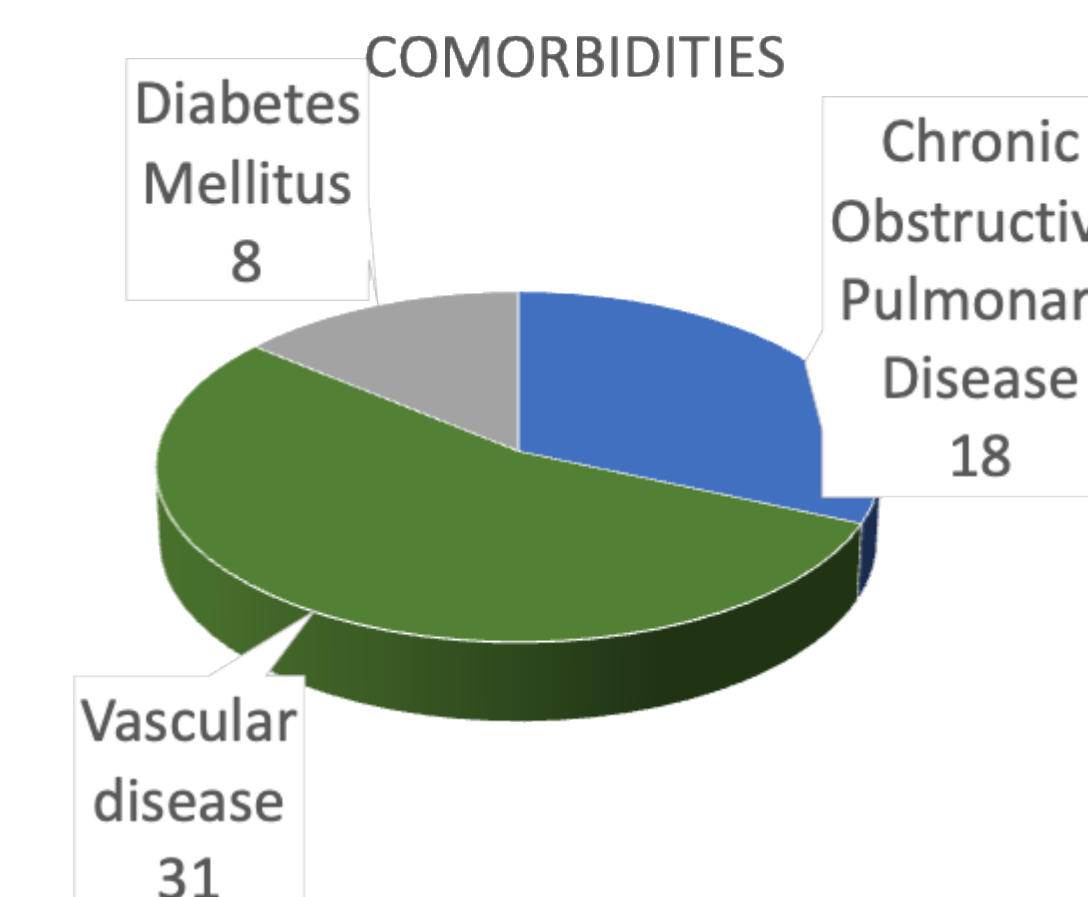


Figure 10. Comorbidities of patients recruited in the LISTENING study.

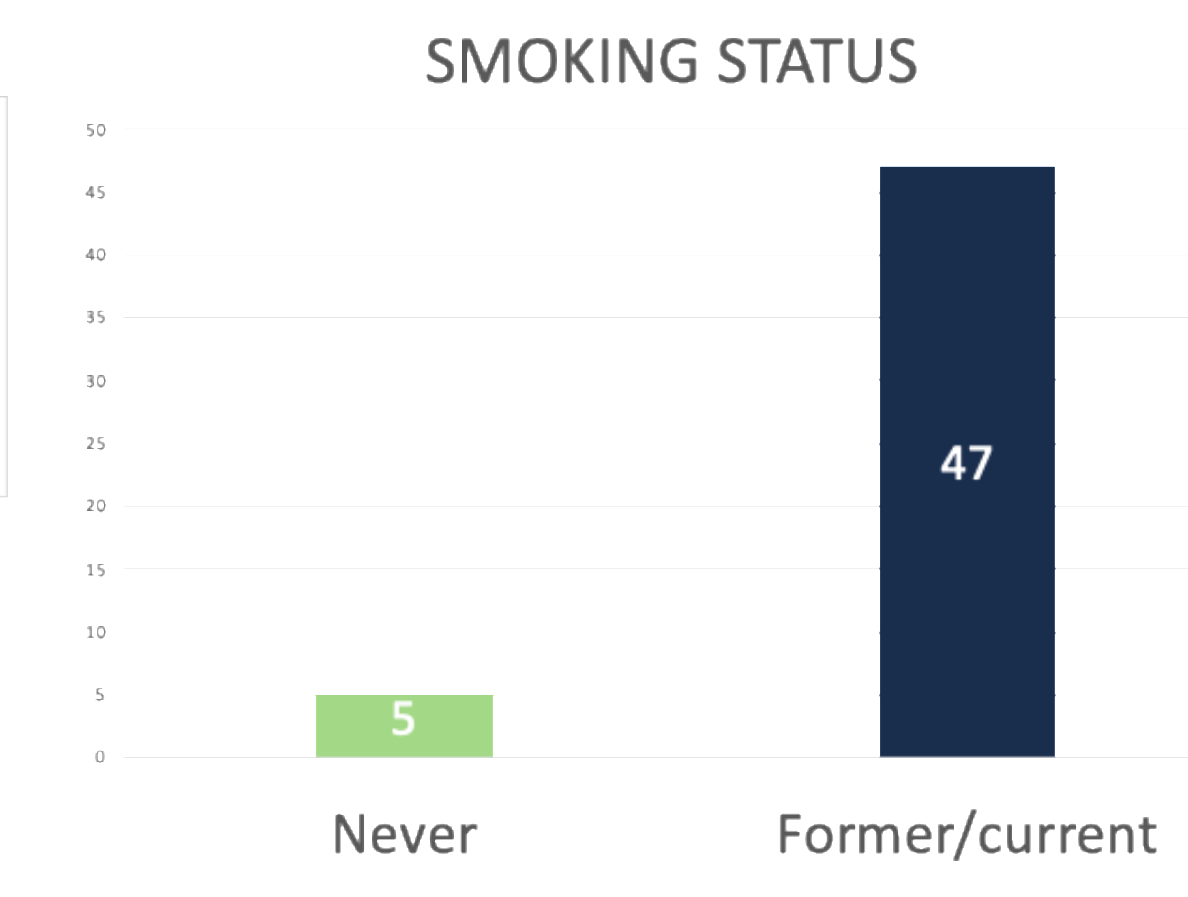


Figure 11. Smoking status of patients recruited in the LISTENING study.

REFERENCES AND ACKNOWLEDGEMENTS

MENTORING is a multicentre project involving 6 partner from Europe.



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