

Initial psychometric evaluation of the adult PKU-SSIS using an interim data cut from the OPAL study

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Aim

- To assess the **initial psychometric performance** of the **adult PKU-SSIS** in the OPAL study



Background

- The **PKU-SSIS** provides a holistic view of the impact of PKU on patients' **emotional, cognitive, and physical well-being**
- This study is an **interim data cut** (December 2022) of OPAL, a Phase 4 multicenter observational study evaluating the real-world outcomes of pegvaliase in people with PKU



Study methods

- Adult PKU-SSIS was compared with 5 other multi-domain outcome measurement tools commonly used in PKU at baseline and at weeks 24, 48, and 96: PKU-QoL, QLES-Q-SF, EQ-5D-5L, PGI-S/CGI-S and PGI-C/CGI-C



Results

Item completion

- PKU-SSIS reliably distinguishes varying **symptom burden** across individuals, with high completion rates



Internal consistency

- Item-level correlations within the PKU-SSIS supported **internal consistency**



Convergent validity

- Convergent validity** was supported through **moderate to strong correlations** between the PKU-SSIS total score and related outcome measures at baseline and week 24



Conclusions

- These findings suggest that the adult PKU-SSIS is a **valid and reliable tool** for assessing the **symptom severity** and **impact** of PKU on patients' lives
- A **psychometric evaluation** is **ongoing** to further establish the psychometric properties of the PKU-SSIS



EQ-5D-5L, EuroQol 5 Dimensions 5 Levels; PGI-S/CGI-S and PGI-C/CGI-C, patient and clinician global impression scales for symptom severity and change; PKU, phenylketonuria; PKU-SSIS, PKU Symptom Severity and Impacts Scale; PKU-QoL, PKU-Quality of Life scale; QLES-Q-SF, Quality of Life Enjoyment and Satisfaction Questionnaire-Short Form.

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Background



- **OPAL** is an ongoing, Phase 4, multicenter, observational study of real-world safety profile and efficacy of pegvaliase in adults with PKU
- This study is an interim data cut (December 2022) of OPAL to assess the **initial psychometric performance** of the **adult PKU-SSIS**



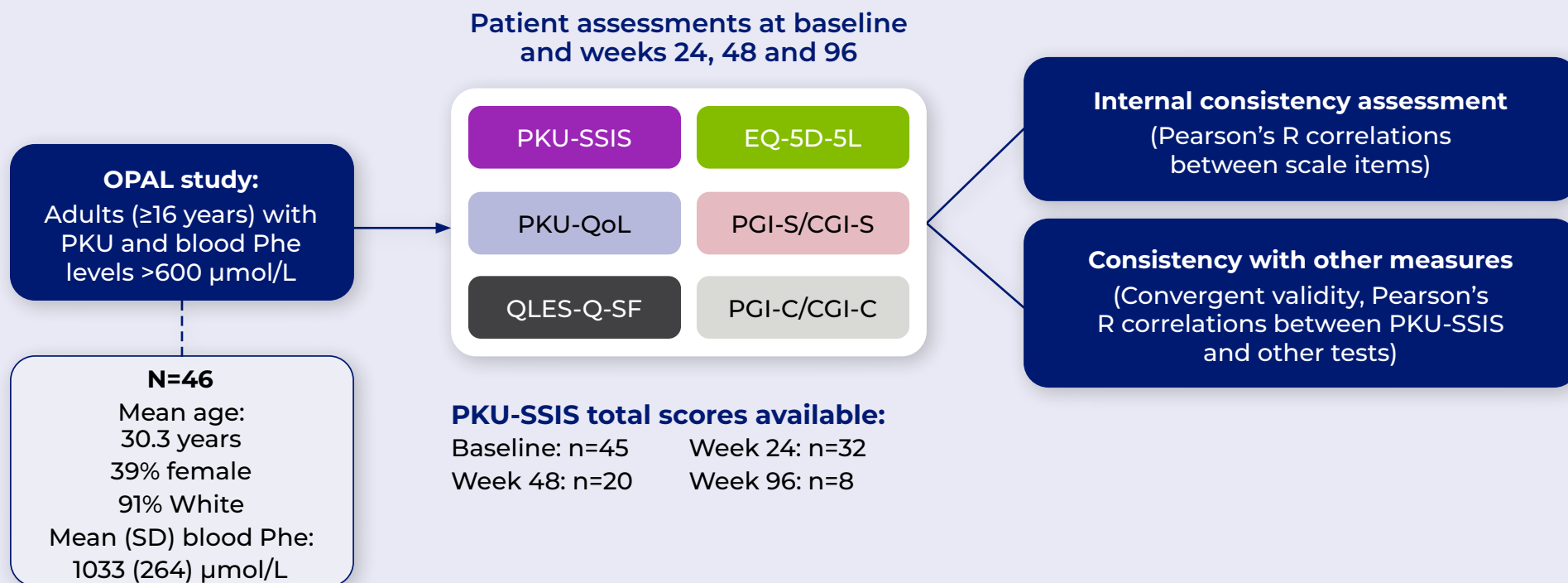
- The **22-item PKU-SSIS** provides a holistic view of the impact of PKU on patients' emotional, cognitive and physical wellbeing¹
 - Traditional approaches to assess QoL in PKU have largely concentrated on the implications of dietary management and do not capture the broader impact of PKU on QoL¹



- Content validity of PKU-SSIS is established¹, but psychometric properties require quantitative assessment



Evaluation of psychometric properties of PKU-SSIS





PKU-SSIS distinguishes varying symptom burden across individuals



**High PKU-SSIS
completion rates**
98% at baseline*
100% at follow-up



Baseline scores ranged from **7** to **73** reflecting variability
in symptom severity and impacts reported



*45 participants at baseline.
PKU-SSIS, PKU Symptom Severity and Impacts Scale.
Adapted from Karimi M, et al. Poster #P029: Presented at ACMG 2025.



PKU-SSIS is a reliable scale



PKU-SSIS inter-item correlations are **moderate** (85%, $r > 0.2$) or **high** (38%, $r > 0.5$)

PKU-SSIS items measure coherent aspects of **symptom severity** and **impact**, supporting the **reliability** of the scale





Strong correlation between PKU-SSIS and other assessments



Convergent validity refers to how closely the new scale is related to other variables and other measures of the same construct²



Correlations were as expected (except for CGI-S at baseline) with **higher** symptom burden associated with **lower QoL** and functioning



Convergent validity supported through **moderate to strong correlations** between PKU-SSIS total score and related outcome measures at baseline and W24





Strong correlation between PKU-SSIS and other assessments

Correlations with PKU-SSIS total score were as expected at Week 24

Comparison instrument	Baseline, R	Week 24, R	Expected correlation?
EQ-5D VAS	-0.32	-0.27	✓
PKU-QoL overall impact	0.51	0.32	✓
QLES-Q-SF: physical health	-0.47	-0.36	✓
QLES-Q-SF: total score	-0.64	-0.40	✓
QLES-Q-SF: wellbeing	-0.60	-0.65	✓
PGI-S	-0.21	-0.47	✓
CGI-S*	-0.13	0.51	

*CGI-S correlation was negative at baseline, but positive as expected at Week 24.
Sample sizes for the correlations differ due to different follow-up maturity and questionnaire completion rates.

Data demonstrate that PKU-SSIS is a valid, robust and reliable tool to assess the impact of PKU symptom severity on patient-reported outcomes



Convergent validity was determined by comparing PKU-SSIS with established measures.
EQ-5D VAS, EuroQoL Visual Analogue Scale; PGI-S/CGI-S, patient and clinician global impression scales for symptom severity; PKU, phenylketonuria; PKU-QoL, PKU Quality of Life; PKU-SSIS, PKU Symptom Severity and Impacts Scale; QLES-Q-SF, Quality of Life Enjoyment and Satisfaction Questionnaire-Short Form; QoL, quality of life.
Adapted from Karimi M, et al. Poster #P029: Presented at ACMG 2025.



PKU-SSIS: a valid and reliable tool for assessing the symptom severity and impact of PKU on patients' lives

Baseline item distribution



PKU-SSIS accurately reflects variability in symptom severity and impacts reported

Internal consistency



PKU-SSIS shows moderate to high inter-item correlation

Convergent validity



Correlations were in the expected directions



Psychometric evaluation with a larger sample size is ongoing to further establish the psychometric properties of the PKU-SSIS

PKU-SSIS is demonstrated to be a valid, robust and reliable tool to assess PKU QoL



References

1. Quinn J, et al. Adv Ther. 2022;39:971–991
2. Krabbe PFM. The Measurement of Health and Health Status. Academic Press. 2017:113–134

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Indications and prescribing information per region

Australia: PALYNZIQ[®] is indicated for the treatment of patients with PKU aged 16 years and older who have inadequate blood Phe control despite prior management with available treatment options. The Australian product information can be found [here](#).

Europe: PALYNZIQ[®] (pegvaliase) is indicated for the treatment of patients with PKU aged 16 years and older who have inadequate blood phenylalanine control (blood phenylalanine levels greater than 600 $\mu\text{mol/L}$) despite prior management with available treatment options. The latest SmPC can be found on the PKU.expert website or click [here](#) for the SmPC.

Canada: PALYNZIQ[®] (pegvaliase injection) is indicated to reduce blood Phe concentrations in patients with PKU aged 16 years and older who have inadequate blood Phe control (blood Phe levels greater than 600 $\mu\text{mol/L}$) despite dietary management. The product monograph can be found [here](#).

Japan: PALYNZIQ[®] (pegvaliase) is indicated for the treatment of adult patients with PKU. The prescribing information can be found [here](#).

Brazil: PALYNZIQ[®] is indicated for the treatment of patients with PKU from 16 years of age with inadequate control of phenylalanine in the blood (phenylalanine levels in the blood greater than 600 $\mu\text{mol/L}$ [10.0 mg/dL]) with existing treatment. The prescribing information can be found [here](#).

Scan for prescribing information

Australia



Europe



Canada



Japan



Brazil

