

Track: Understanding depression risk through demographics, clinical factors & mindfulness interventions

0. Objective

The goal of this track is to analyze how demographic factors, clinical characteristics, and engagement with mindfulness-based therapies influence patients' risk of depression. Participants will investigate whether mindfulness participation reduces depression risk in the **short term** (12 weeks, end of intervention) and whether these effects are sustained in the **long term** (24 weeks, follow-up). Analyses should identify which factors, demographic, clinical, or therapy-related, are most impactful, both at a global level and across different disease groups.

1. Dataset

The dataset integrates multiple dimensions:

- **Demographics:** age, sex
- **Clinical Factors:** condition (specific disease), condition type (disease group), baseline BDI-II depression score, identifier of the hospital.
- **Mindfulness Therapy:** number of sessions started, number of sessions completed
- **Health Outcomes:** BDI-II depression score at 12 weeks, BDI-II depression score at 24 weeks

2. Challenge Tasks

Participants will be required to:

- **Predictive Analysis:** Build and evaluate models to estimate depression risk scores at 12 and 24 weeks.
- **Factor Importance & Visualization:** Identify and visualize the most influential variables (e.g., SHAP, feature importance, comparative plots).
- **Temporal Impact Analysis:** Compare the short-term vs. long-term impact of demographics, clinical conditions, and mindfulness participation.
- **Disease-Specific Comparison:** Explore differences across condition types (e.g., cancer, cardiovascular, etc.) to uncover disease-specific effects.

3. Deliverables

- **Mid-term submission:** A **paper-style report (max. 4 pages)** describing the planned methodology, preliminary analyses, and intended approach.
- **Final submission:** A **paper-style report (max. 8 pages)** detailing the full methodology, results, analyses (global and disease-specific), visualizations, and key conclusions.

4. Evaluation Criteria

Submissions will be evaluated qualitatively, focusing on:

- **Depth of analysis** at both global and disease-specific levels.
- **Clarity and rigor** in explaining short-term vs. long-term effects.
- **Strength of evidence-based insights**, particularly regarding the effectiveness of mindfulness.