

# PSYSCAN Final report

## Tables & Figures

**Grant agreement number:** 603196

**Project acronym:** PSYSCAN

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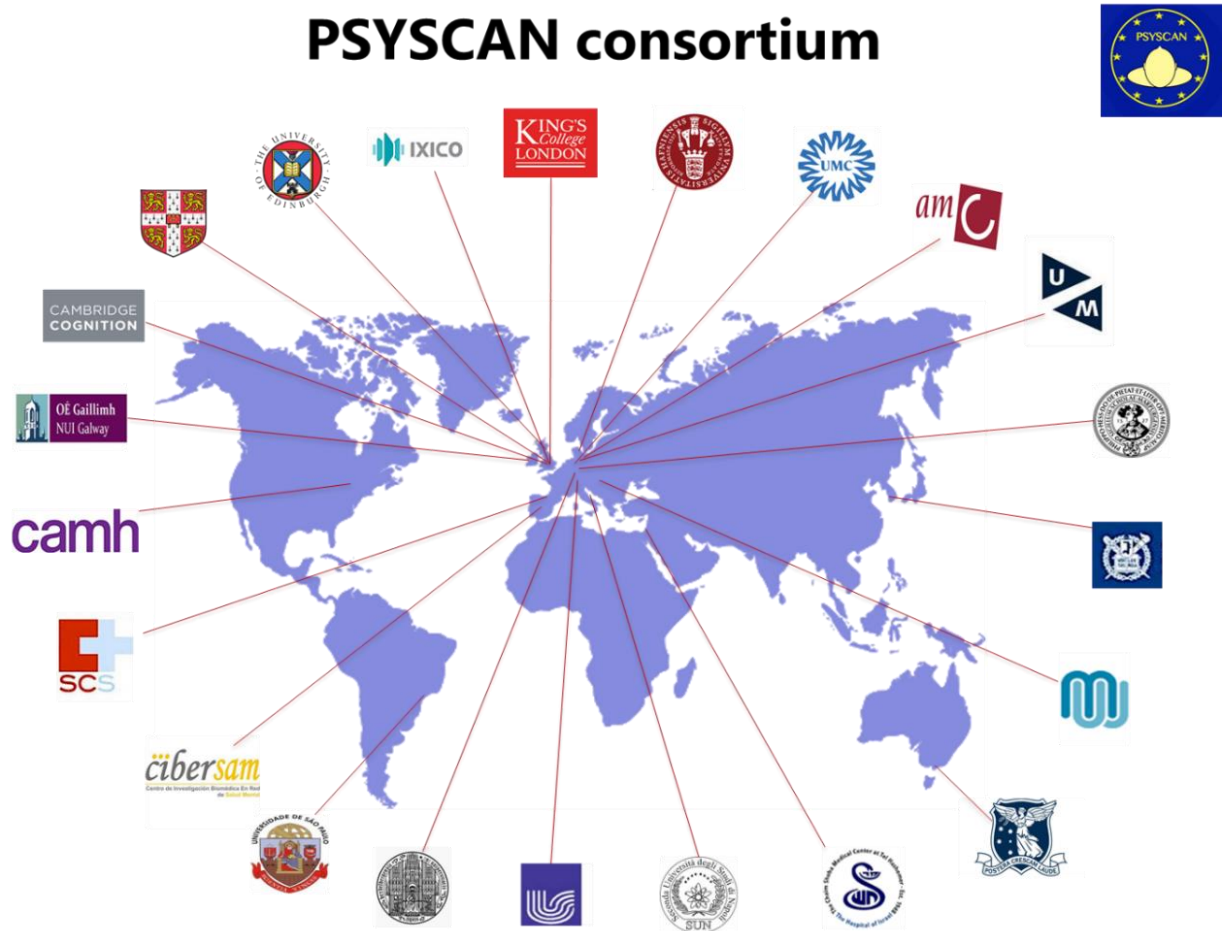
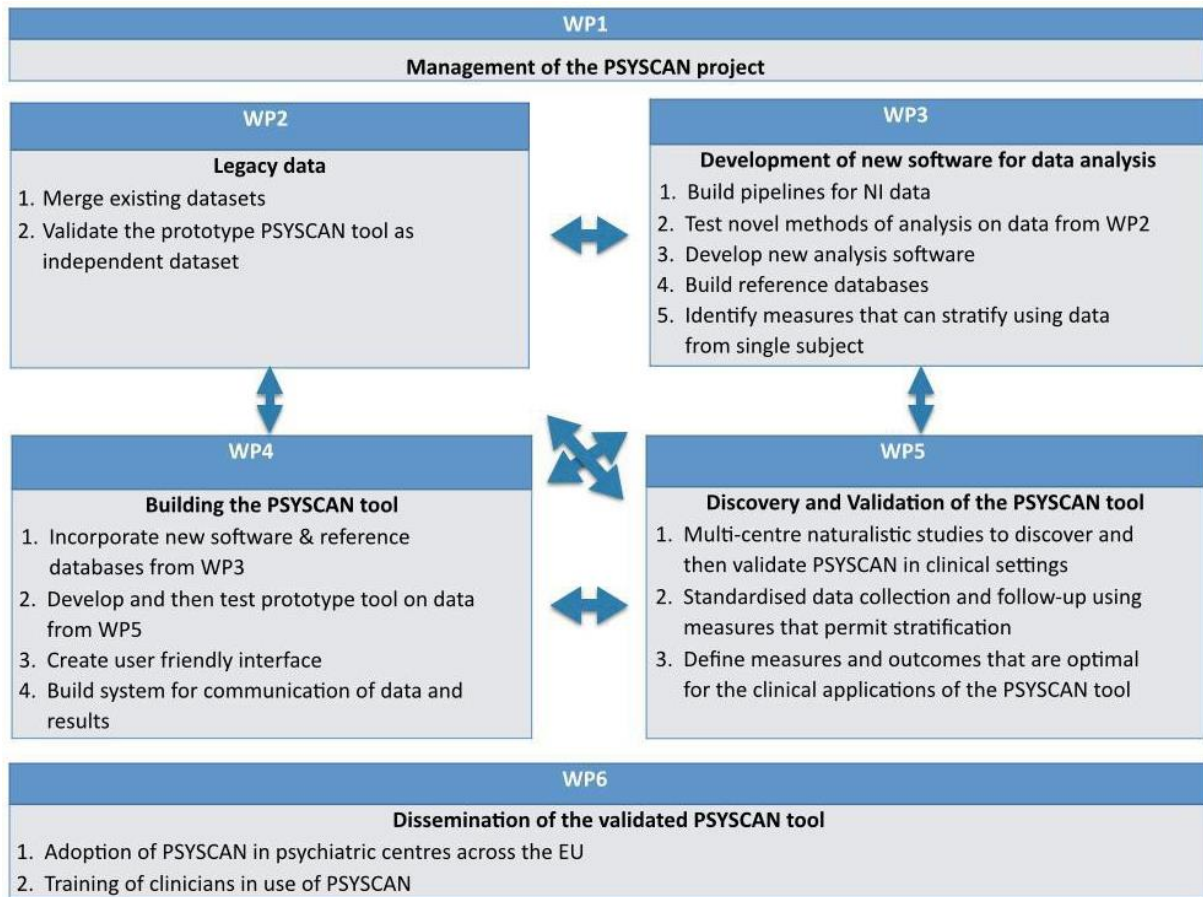
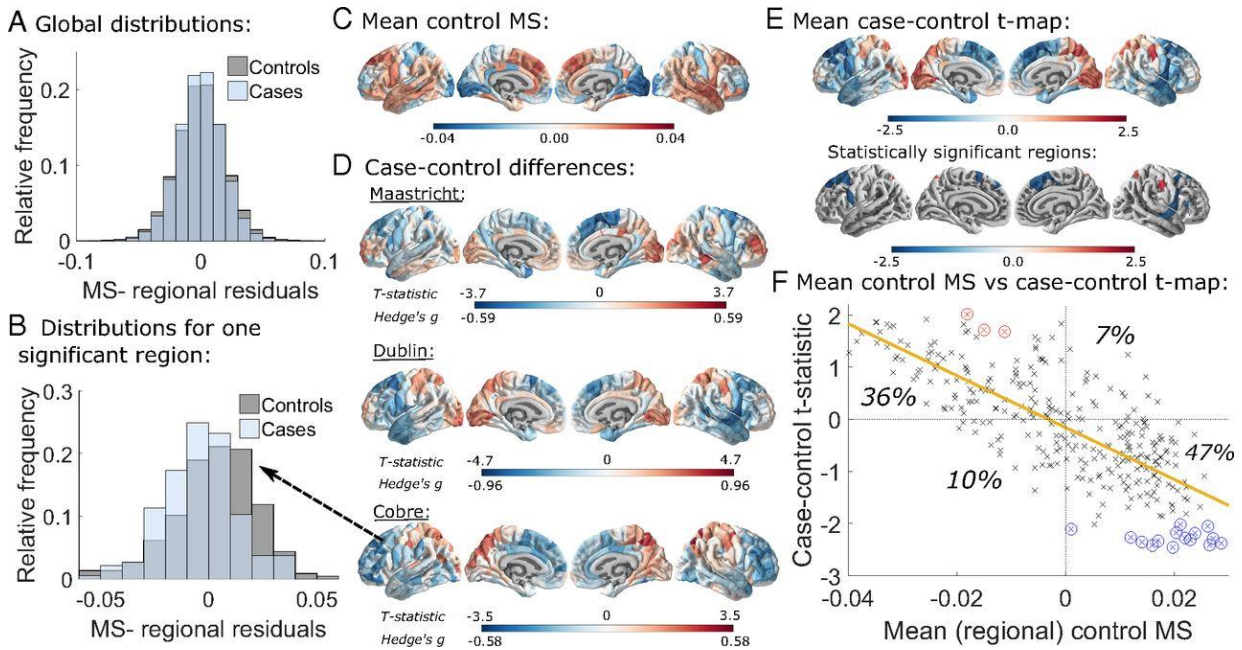


Figure 1. The PSYSCAN consortium

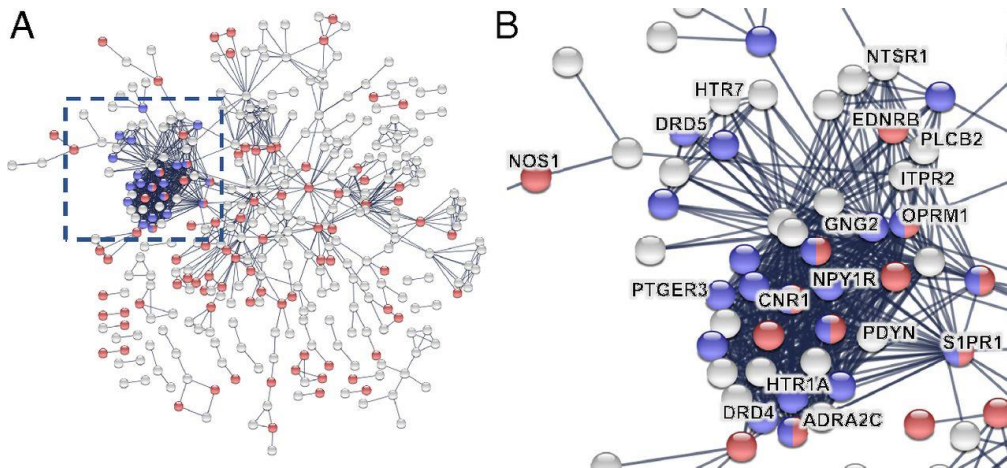


**Figure 2.** PSYSCAN Work Packages and their interrelations.

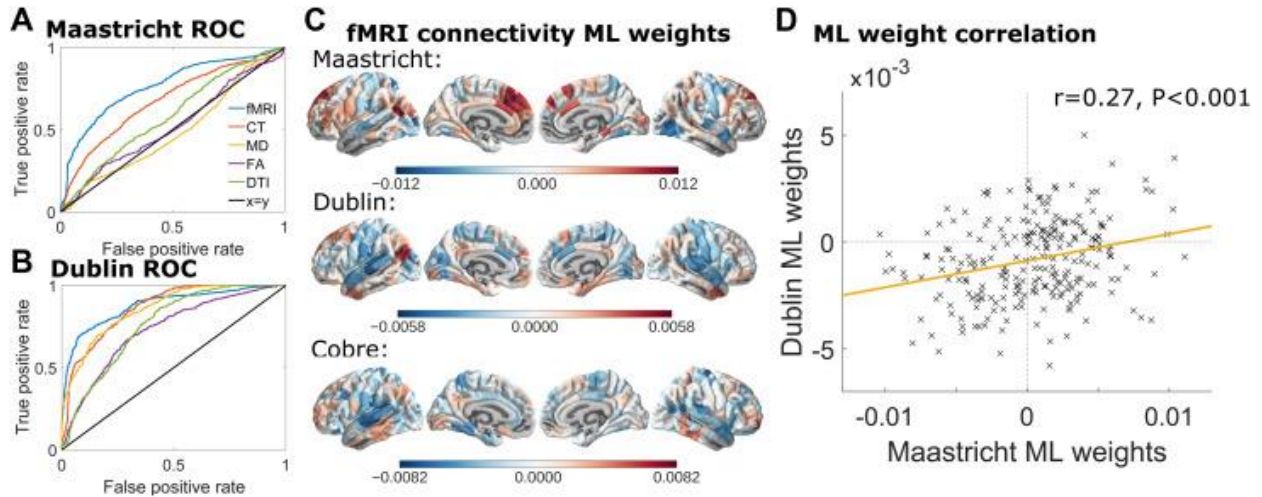


**Figure 3.** Case-control differences in morphometric similarity

*Note.* A) Distributions of global morphometric similarity (MS). B) Distributions of regional MS for the region indicated in the figure. C) Cortical pattern of mean MS across all control subjects. D) Case-control differences in MS, in three independent studies (Maastricht, Dublin and Cobre). E) Mean case-control T-map. F) Correlation between the mean case-control T-map in panel E and the mean control MS map in panel C.



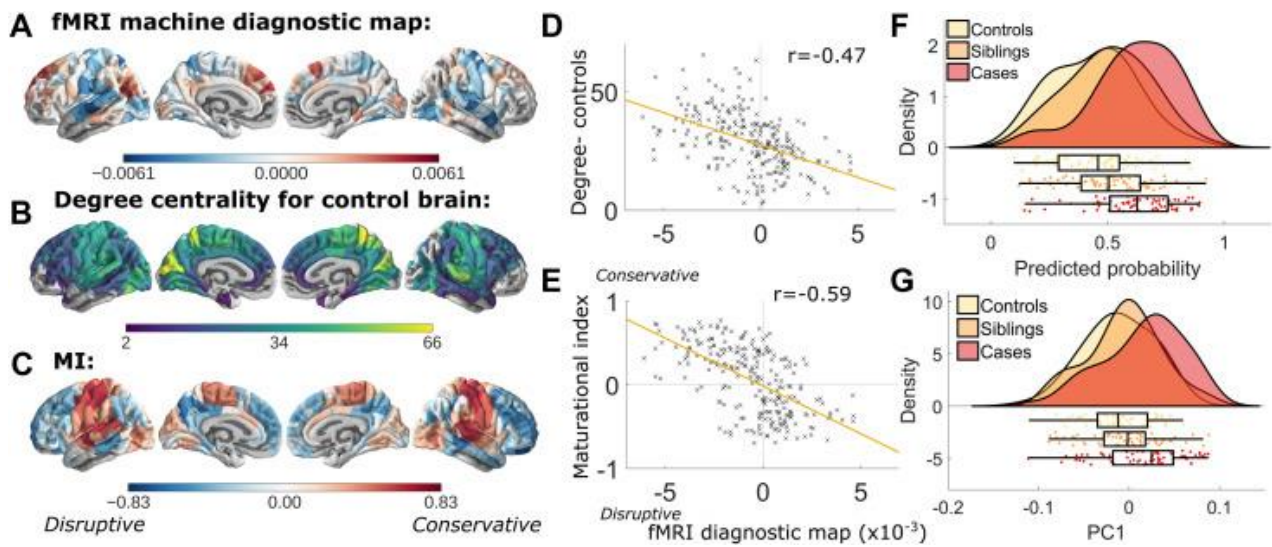
**Figure 4.** Protein-protein interaction network of genes found to be associated with the cortical pattern of case-control differences in morphometric similarity.



**Figure 5.** ROC curves for case-control classification

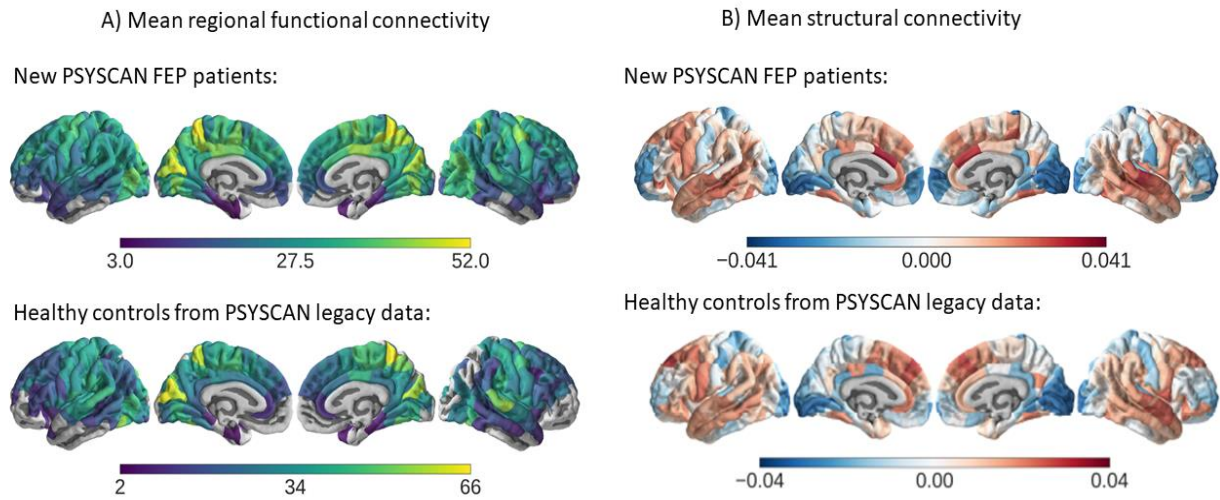
*Note.* A) Maastricht and B) Dublin. C) Cortical maps of the regions which were most informative for case-control classification, in the three datasets. D) Correlation between the Maastricht and Dublin cortical machine learning (ML) weights.





**Figure 6.** Brain network development maps and machine diagnosis of siblings.

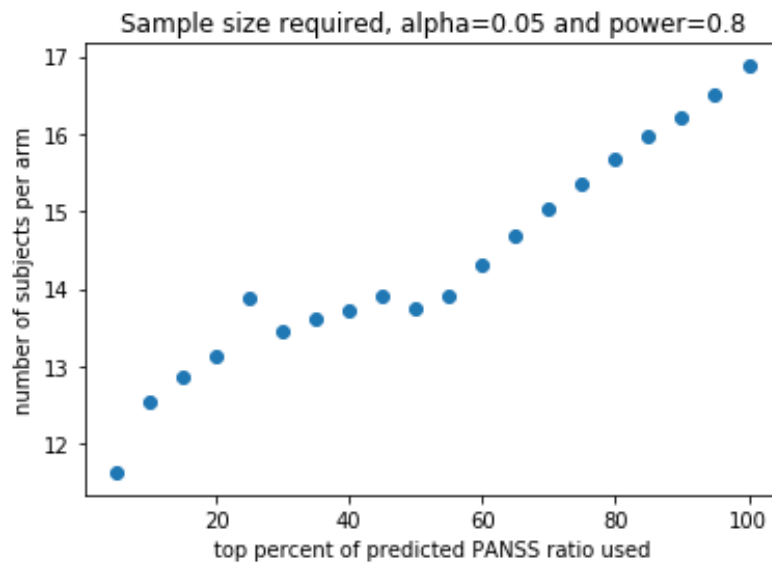
Note. A) fMRI machine diagnostic map from Figure 5. B) Degree centrality in the control brain. C) A map of maturational index- denoting which brain regions change most during adolescence in an independent sample of healthy adolescents (Vasa et al, 2020). D) and E) show correlations between the fMRI diagnostic map and degree centrality and maturational index. F) and G) Predicted probabilities of psychosis and first principal component (PC1) scores (indicative of whole brain functional connectivity) for cases, controls, and siblings of cases in the Maastricht dataset. Siblings were assigned intermediate probabilities of psychosis and had intermediate PC1 scores, compared with cases and controls.



**Figure 7.** Mean regional connectivity maps for PSYSCAN FEP and control groups.

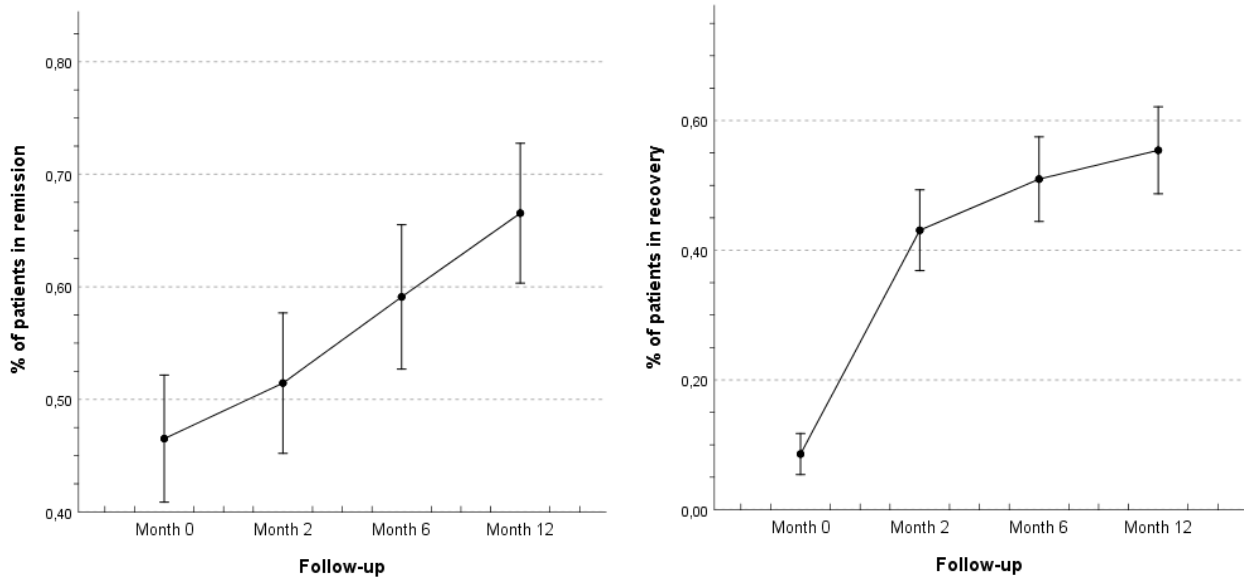
*Note. A) fMRI and B) morphometric (structural) similarity networks. Values from both the PSYSCAN FEP patients and the healthy controls from the PSYSCAN legacy data are shown. For fMRI, brain maps between the two groups were correlated with  $R=0.77$ , for structural connectivity  $R=0.85$ .*





**Figure 8.** Output from the enrichment prototype based on PSYSCAN data.

*Note. Percent of subjects sorted by descending predicted follow-up total PANSS vs required sample size per arm in a simplified clinical trial scenario. An example enrichment scenario is illustrated where 40% of cases are screened out based on slow predicted PANSS ratio. In this scenario, the number of subjects required to show significant treatment effect reduces from approx. 17 to approx. 14, a reduction of approx. 15%.*



**Figure 9.** Trajectories of remission and recovery in PSYSCAN first-episode patients

*Note.* Percentage of first-episode psychosis patients in remission (left) and in recovery (right) throughout the study. Vertical bars represent 95% confidence intervals.