

Advancing Precision Psychiatry: A French-German Consortium to Structure a Reproducible Model

Interview with Prof. Peter Falkai

Professor of psychiatry, Chair of the Department of Psychiatry at the University of Munich and spokesperson for the German Centre for Mental Health (DZPG)

• Could you explain how the centres of excellence in Germany operate, specifically regarding their geographical distribution and the operating model they follow?

The German Centres of Excellence were selected through a multi-step national selection process. Initially, around 20 university-hospital networks submitted their applications. From these, 14 were shortlisted, and finally, after interviews supported by European support, 6 centres were selected. Each centre represents a network and is designed to ensure wide population coverage. For example, the Munich centre alone serves a catchment area of approximately 6 million people.

Together, the six centres cover, through prospective studies to include patients from all 6 centres, half of Germany's population. However, it is worth noting that the northern regions are less represented in this network.

Funding has been allocated not only for ongoing infrastructure but also for special projects and, with a plan extending over 7 to 8 years for financial support. This financial stability allows us to consistently monitor and improve or stabilize mental health outcomes.

Our model includes integrating general practitioner (GP) networks, where selected individuals suffering from mental illness can receive short interventions up to four times. Another example involves identifying individuals who have experienced childhood abuse to provide them with targeted treatment.

The goal of the centres is to measure mental health in Germany, improve it and focus on prevention (especially secondary range).

Although the centres are not each specialized in a specific mental illness – as is the case for the FondaMental Foundation's Centres of Expertise -, they all cover a broad range of psychiatric conditions. Similarly, our primary focus areas are major psychiatric disorders: depression, bipolar disorder and schizophrenia, but we also address all other disorders such as personality disorders. Geriatric psychiatry and dementia fall outside this remit and are covered by a dedicated additional centre.

Interview FondaMental – May 2025

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- **What are the main challenges and opportunities in replicating the French expert centers in Germany?**

It is a great opportunity to join forces across countries, as we are currently doing with Germany and France, and to replicate findings and expand our cohorts, thereby increasing the reliability and clarity of our data to further develop precision psychiatry, specialized, patient-centered approach that tailors diagnosis and treatment to subgroups of individuals sharing similar clinical, biological, or behavioral characteristics.. Larger and better-characterized cohorts could significantly enhance research. Currently, cohort data can be quite heterogeneous.

Using tools like machine learning, we could enrol new patients and match them across cohorts, both French and German, based on clinical, imaging, genetic, and biological characteristics. This would strengthen research and move us closer to precision psychiatry.

However, key challenges include harmonizing both existing and future cohorts and ensuring they are large and uniform enough to detect meaningful patterns across the wide range of mental disorders. Collaborations like the one initiated by Marion Leboyer's cohort club, [a project under the PEPR Propsy initiative (France 2030) which aims to create a global mapping of longitudinal cohorts in psychiatry in order to make metadata on these cohorts publicly available] are essential in this regard.

- **What is the future of neurobiological research on mental disorders, and what breakthroughs are needed to advance the field?**

A major priority is to better understand the underlying mechanisms of mental disorders, much like in the field of oncology has done by identifying hormone receptors behaviours to guide treatment. We need similar breakthroughs to define mental disorder phenotypes and underlying mechanisms.

Once we understand these mechanisms, we must develop biomarkers that correlate with them. For example, in dementia, the presence of specific deposits in the brain, such as amyloid plaques, serves as a biomarker indicating the presence of the disease. These biomarkers linked to disease mechanisms will help us distinguish subgroups within disorders and eventually lead to mechanistically informed, tailored treatments.

Collaborative networks are vital as they allow for consent, cohort development, and data management. However, sustaining them requires long-term investments from the government.

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- **What role do large, multilayered cohorts (integrating behaviour, brain analysis, genetic and non-genetic factors) play in driving precision psychiatry?**

They are essential. You can test hypotheses in small samples, but to generalize those findings, large, well-structured, multilayered cohorts are necessary. These should integrate behavioural data, brain imaging, genetic, and non-genetic information to identify mechanistically defined subgroups and improve treatment accuracy.

- **How can international cooperation between research centres, such as those in Europe especially between France (Fondation FondaMental) and Germany and beyond, optimize the use of tools, data, and essential technologies like machine learning?**

The first step is agreeing on a common set of measurement tools. Then, we must combine datasets from different centres, ensuring they are anonymized and standardized. Ideally, these should be blinded, so researchers don't know which data comes from which country and made open source to promote wide scientific collaboration on predictive calculation regarding perspective studies and cohort analysis.

- **What steps are needed to align research efforts, define shared frameworks, and identify key mechanisms to support precision psychiatry initiatives?**

There are three main steps:

1. **Agreement on methodology:** align methodologies and data collection standards in the existing cohorts.
2. **Assemble large, multilayered cohorts**
3. **Calculate:** use the cohort to make predictive models, identify homogeneous subgroups, discover relevant biomarkers, and test targeted treatments.