Of Potential and Potential Pitfalls: Polygenic Scores, Psychiatry, and the Clinical Encounter

Polygenic (Risk) Scores (PRS) have been the subject of biomedical research across medical specialties for several years now. PRSs as bioinformatical and statistical tools aim to calculate the "genomic burden of risk variants in an individual, which relates to the likelihood that a person has a particular disorder"(Fullerton and Nurnberger, 2019) In the field of psychiatry, PSCs are primarily applied in biomedical research, elucidating genetic associations of conditions such as schizophrenia, bipolar disorder and major depressive disorder (Andlauer and Nöthen, 2020).

At present, Polygenic Risk Scores are employed to research genetic loci associated with susceptibility for the development of psychiatric conditions, relying on large populations of participants for the collection of genetic data. While researchers attest to PRS already being a "a standard tool in psychiatric research" (Andlauer and Nöthen, 2020), Polygenic Risk Scores are also deemed to "show promise in aiding clinical decision-making"(Murray et al., 2021) in the future, e.g., in risk stratification or to (aid to) predict treatment response (Fullerton and Nurnberger, 2019). And while the biomedical community seems in agreement that PRSs alone will not be sufficient to predict the onset of psychiatric conditions in individuals, discussions, ideas and speculations about the clinical potential of PRS abound.

In response to such discussions, in this talk I will investigate - albeit necessarily in an equally speculative manner - which consequences the arrival of PS in the clinical arena may entail for the clinical encounter between patients and their health care providers. (I) First, I will show how current methodological limitations of PRS as well as with our current understanding and knowledge of psychiatric conditions - i.e. a knowledge that can often be labelled as non-etiological - combine to a greater epistemic uncertainty with ethically relevant limitations to the utility of PRSs in the clinic. Secondly, I will elaborate what kinds of pitfalls these limitations hold for the clinical encounter and (III) thirdly, offer points to consider for addressing such concerns.

ANDLAUER, T. F. M. & NÖTHEN, M. M. 2020. Polygenic scores for psychiatric disease: from research tool to clinical application. Medizinische Genetik, 32, 39-45.

FULLERTON, J. M. & NURNBERGER, J. I. 2019. Polygenic risk scores in psychiatry: Will they be useful for clinicians? F1000Research, 8.

MURRAY, G. K., LIN, T., AUSTIN, J., MCGRATH, J. J., HICKIE, I. B. & WRAY, N. R. 2021. Could Polygenic Risk Scores Be Useful in Psychiatry?: A Review. JAMA Psychiatry, 78, 210-219.