



Evidence That Transition from Health to Psychotic Disorder Can Be Traced to Semi-Ubiquitous Environmental Effects Operating against Background Genetic Risk

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Abstract:

Background: In order to assess the importance of environmental and genetic risk on transition from health to psychotic disorder, a prospective study of individuals at average ($n=462$) and high genetic risk ($n=810$) was conducted.

Method: A three-year cohort study examined the rate of transition to psychotic disorder. Binary measures indexing environmental exposure (combining urban birth, cannabis use, ethnicity and childhood trauma) and proxy genetic risk (high-risk sibling status) were used to model transition.

Results: The majority of high-risk siblings (68%) and healthy comparison subjects (60%) had been exposed to one or more environmental risks. The risk of transition in siblings ($n=9$, 1.1%) was higher than the risk in healthy comparison subjects ($n=2$, 0.4%; $OR_{adj} = 2.2, 95\%CI: 5-10.3$). All transitions (100%) were associated with environmental exposure, compared to 65% of non-transitions ($p=0.014$), with the greatest effects for childhood trauma ($OR_{adj} = 34.4, 95\%CI: 4.4-267.4$), cannabis use ($OR=4.1, 95\%CI: 1.1, 15.4$), minority ethnic group ($OR=3.8, 95\%CI: 1.2, 12.8$) and urban birth ($OR=3.7, 95\%CI: 0.9, 15.4$). The proportion of transitions in the population attributable to environmental and genetic risk ranged from 28% for minority ethnic group, 45% for urban birth, 57% for cannabis use, 86% for childhood trauma, and 50% for high-risk sibling status. Nine out of 11 transitions (82%) were exposed to both genetic and environmental risk, compared to only 43% of non-transitions ($p=0.03$).

Conclusion: Environmental risk associated with transition to psychotic disorder is semi-ubiquitous regardless of genetic high risk status. Careful prospective documentation suggests most transitions can be attributed to pow-



erful environmental effects that become detectable when analysed against elevated background genetic risk, indicating gene-environment interaction.

Biography:

Jim van Os is Professor of Psychiatric Epidemiology and Chairman of the Division Neuroscience at Utrecht University Medical Centre, Utrecht, The Netherlands, and Visiting Professor of Psychiatric Epidemiology at the Institute of Psychiatry, London, UK. He trained in Psychiatry in Casablanca (Morocco), Bordeaux (France) and finally at the Institute of Psychiatry and the Maudsley/Bethlem Royal Hospital in London (UK) and after his clinical training was awarded a three-year UK Medical Research Council Training Fellowship in Clinical Epidemiology at the London School of Hygiene and Tropical Medicine. In 1995, he moved to Maastricht University Medical Centre and in 2017 to Utrecht University Medical Centre. He is on the editorial board of European and US psychiatric journals such as *Acta Psychiatrica Scandinavica*, *European Psychiatry*, *Psychological Medicine*, *Schizophrenia Research*, *Schizophrenia Bulletin*, *Early Intervention in Psychiatry*, *Epidemiology and Psychiatric Sciences*, *Psychosis Journal*

Publication of speakers:

1. Vassos E, Pedersen CB, Murray R, Collier DA, Lewis CM (2012) Meta-analysis of the association of urbanicity with schizophrenia. *Schizophrenia Bull* 38(6): 1118-1123.
2. Cantor-Graae E, Selten JP (2005) Schizophrenia and migration: a meta-analysis and review. *Am J Psychiat* 162: 12-24.

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