

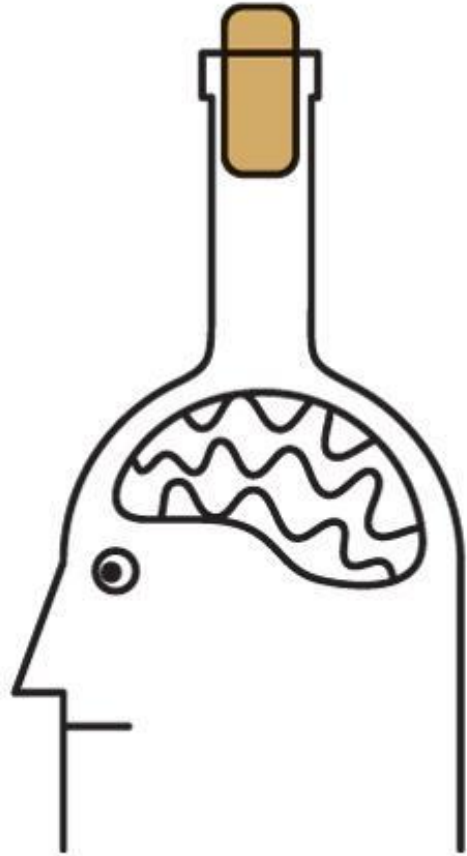
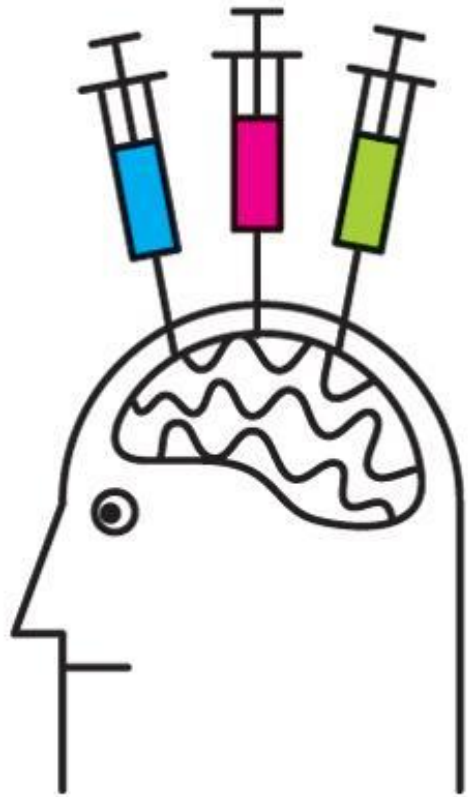
# Genetica van middelengebruik

Karin Verweij

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Amsterdam UMC, Universiteit van Amsterdam

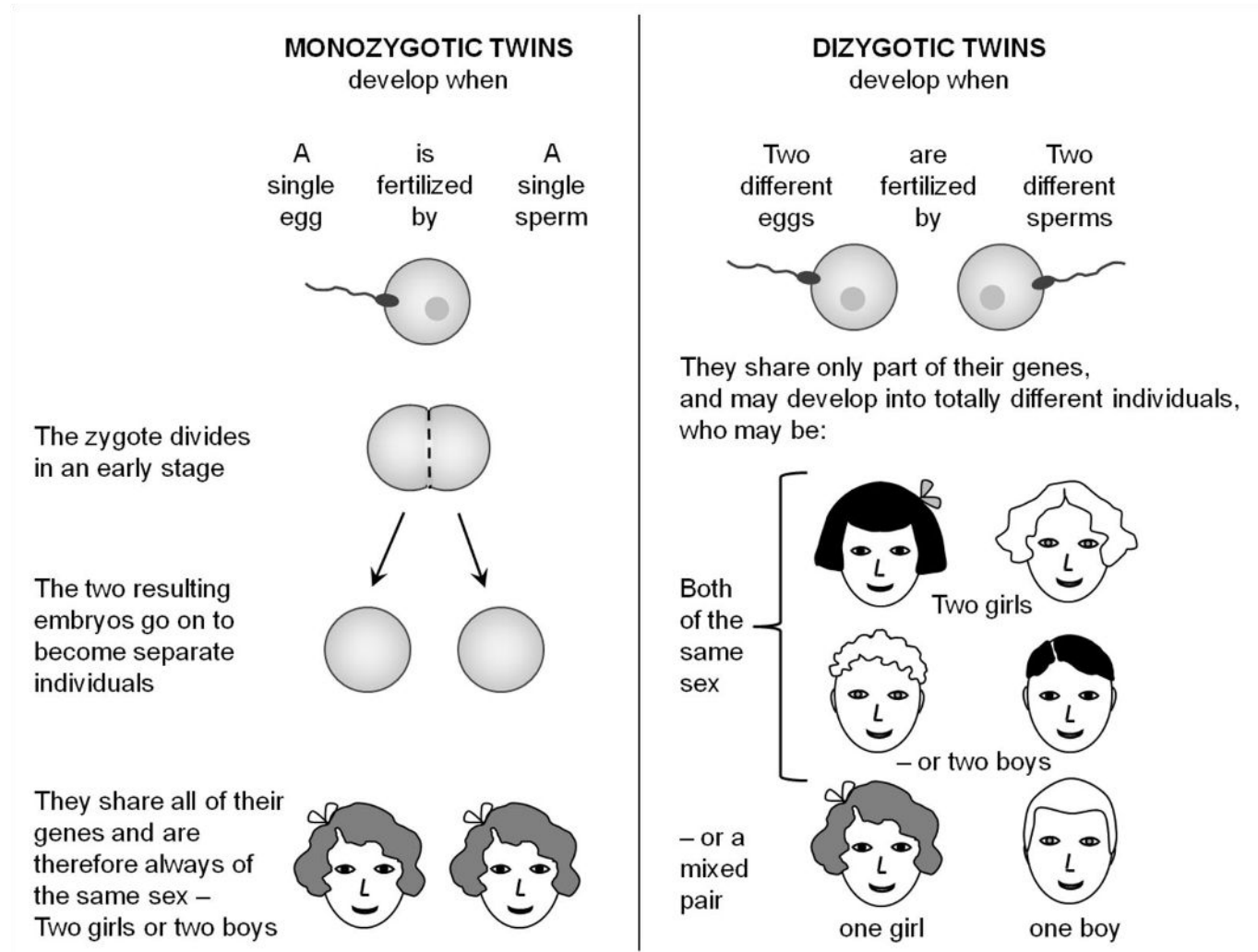


Stichting  
Volksbond  
Rotterdam

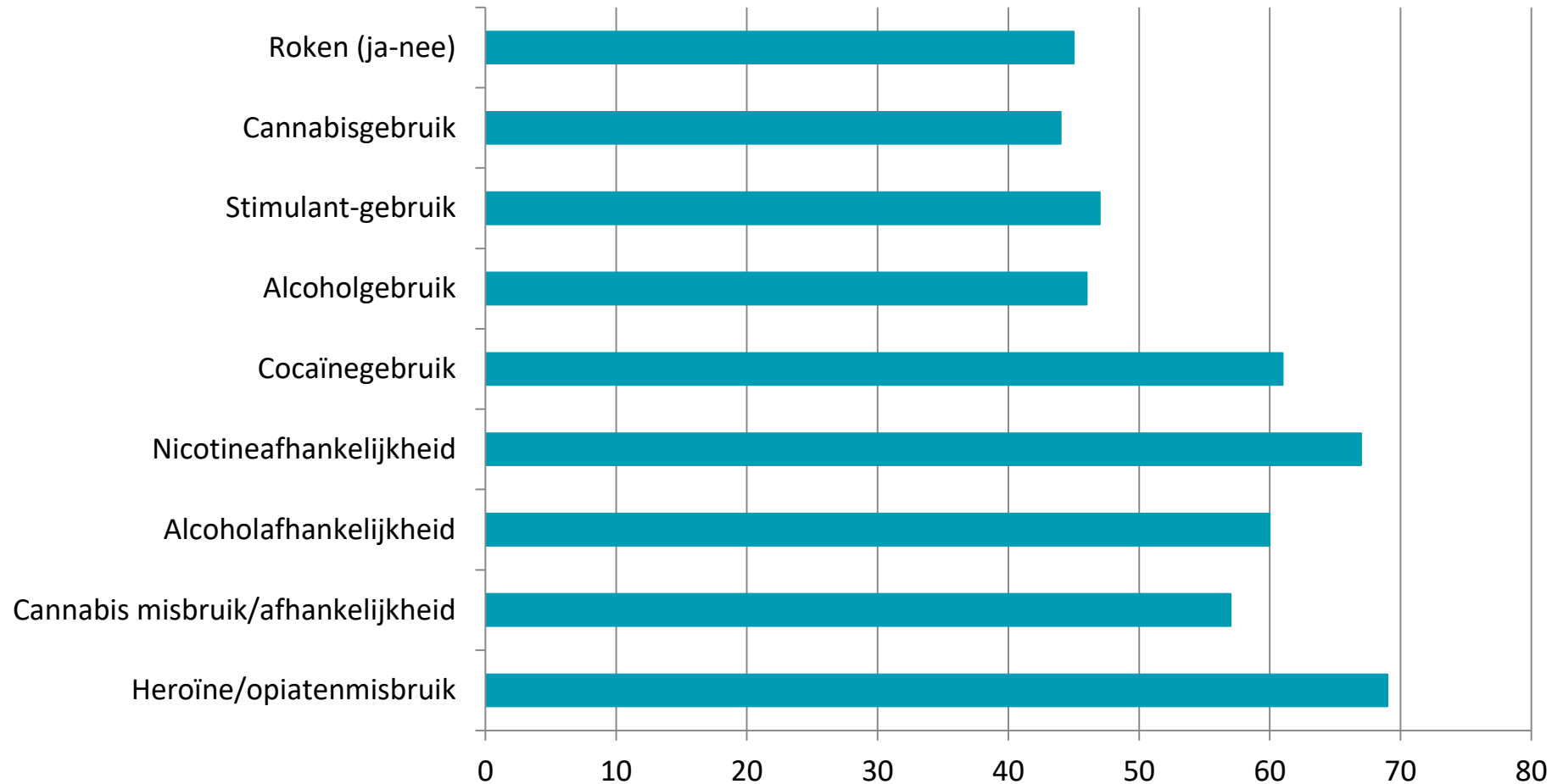


# Schatten van erfelijkheid

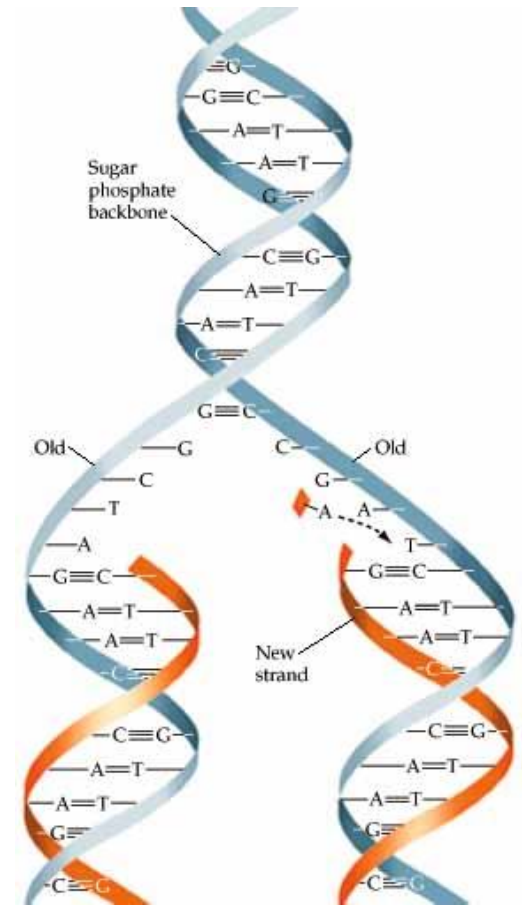
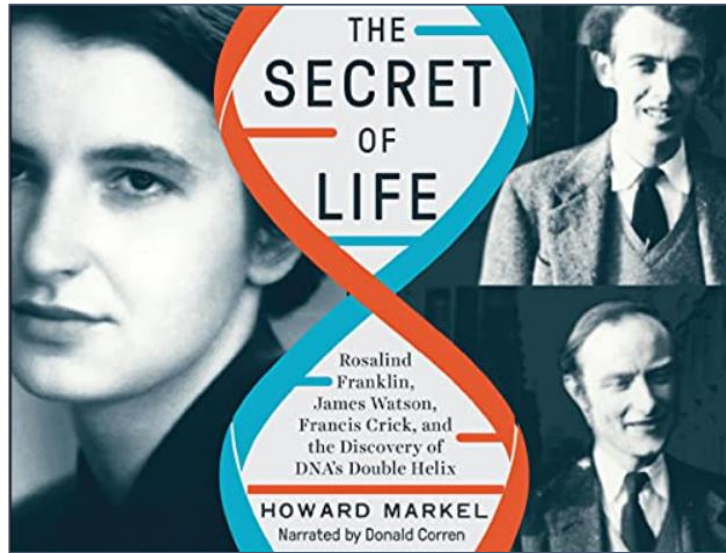
- Familiestudies
- Adoptiestudies
- Tweelingstudies



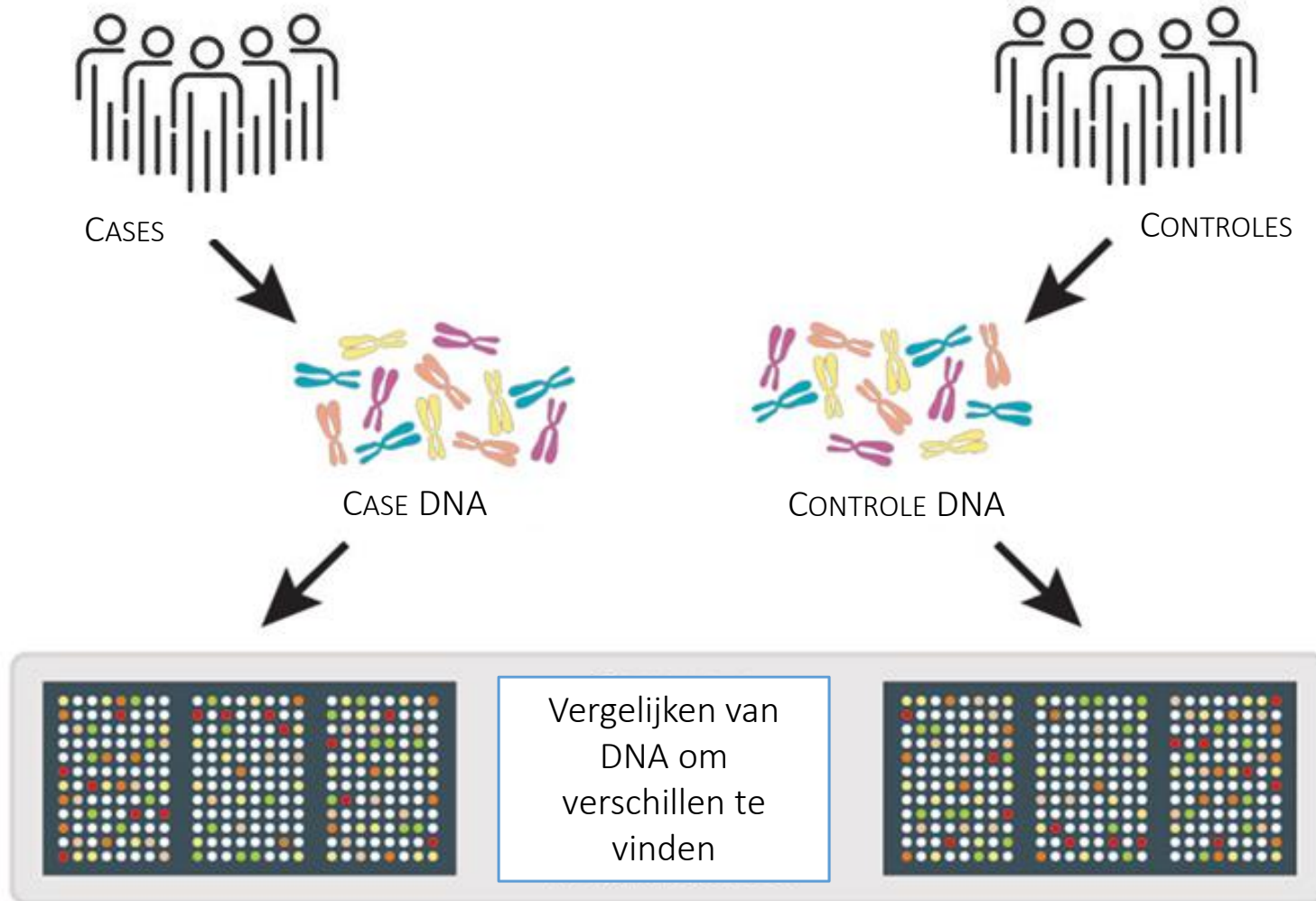
# Erfelijkheidsschattingen middelengebruik

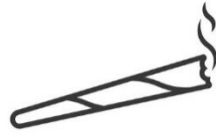


# De zoektocht naar genen

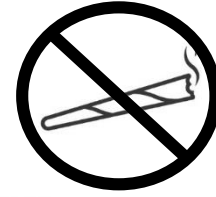


# Genoomwijde associatiestudie





CANNABIS-GEbruikers



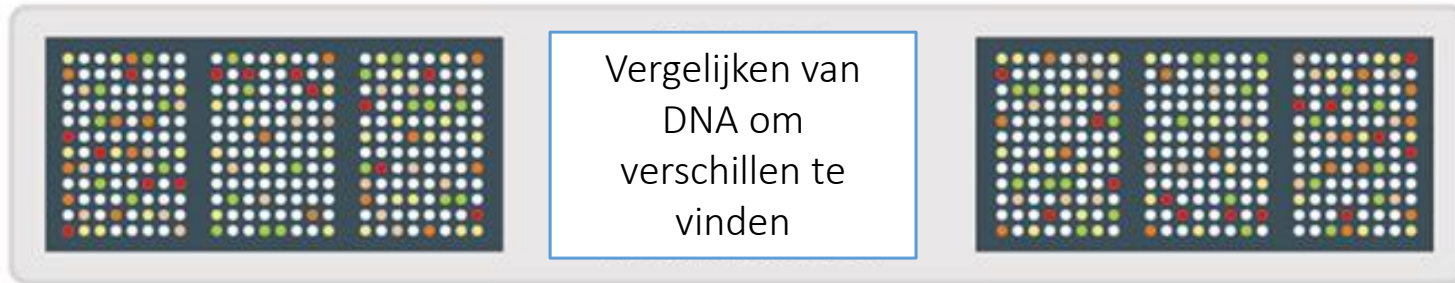
NIET-GEbruikers



CASE DNA

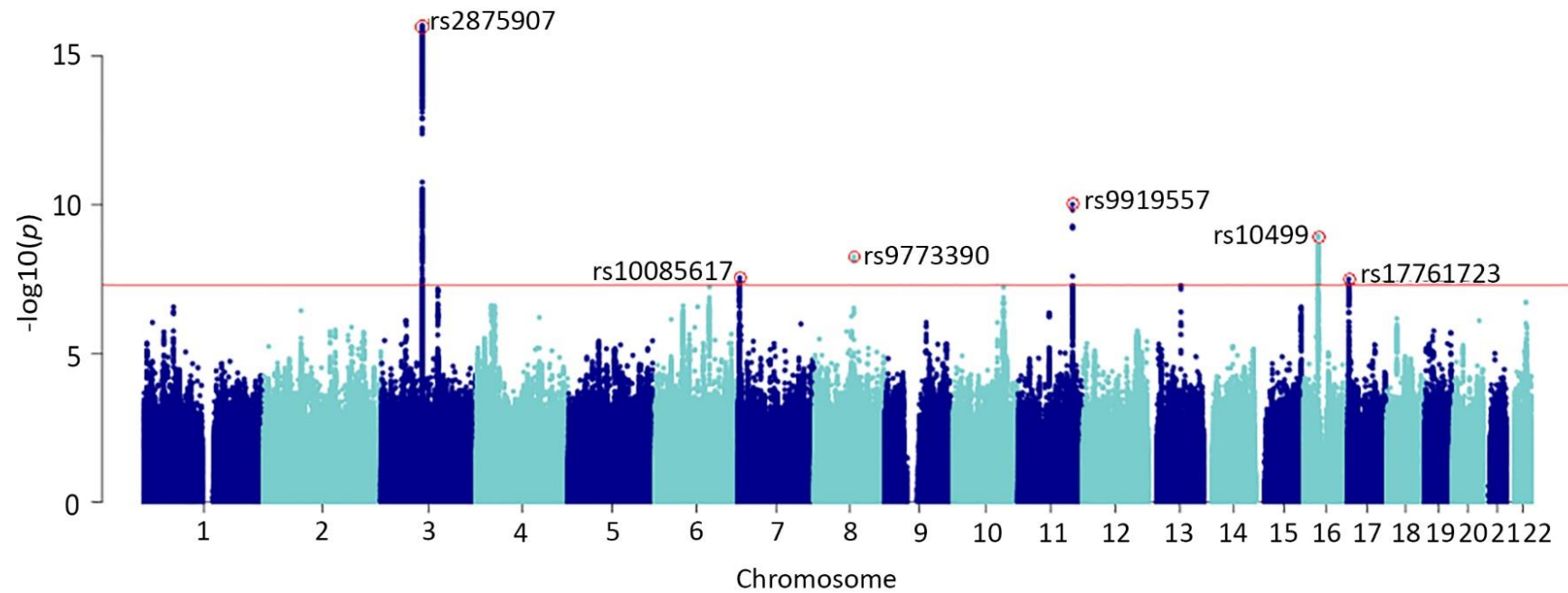


CONTROLE DNA



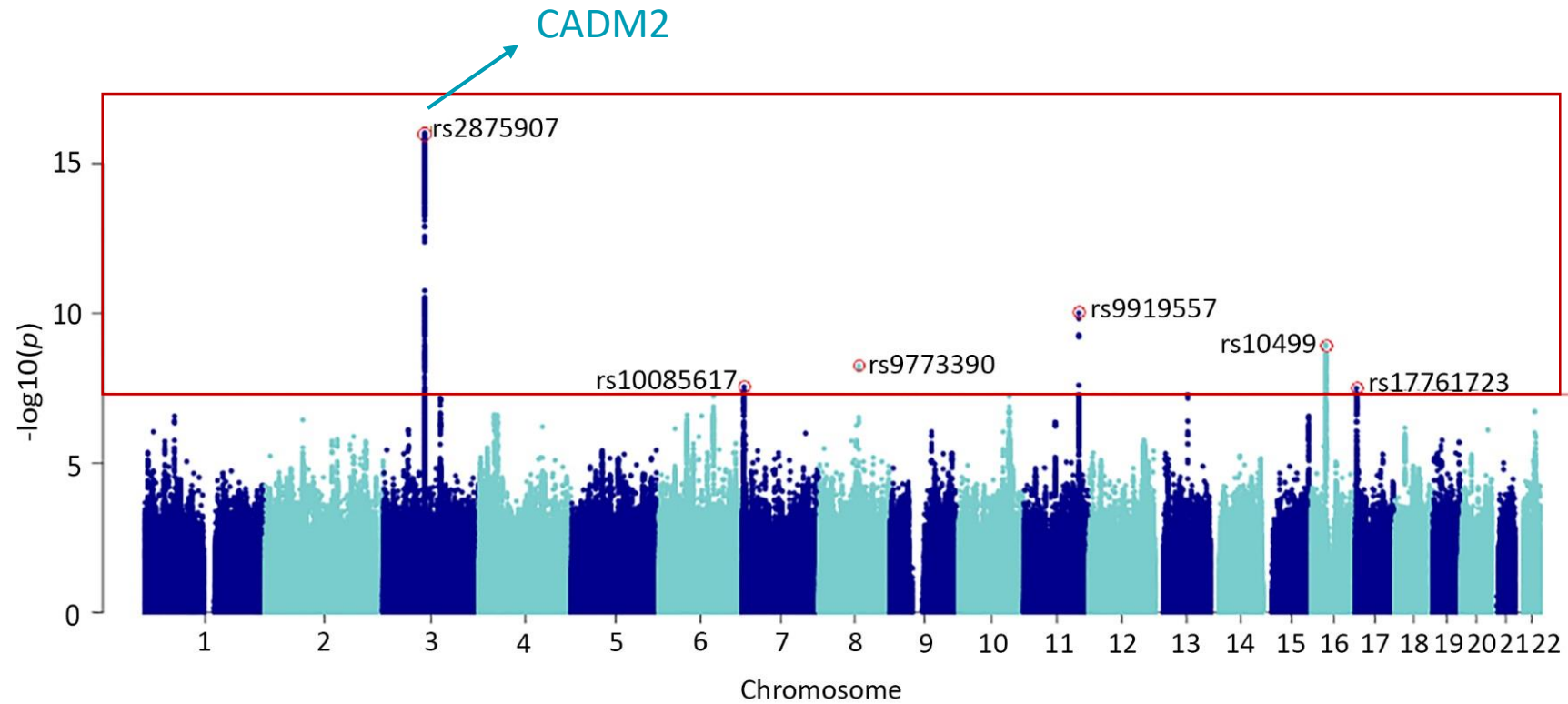
Vergelijken van  
DNA om  
verschillen te  
vinden

# Cannabisgebruik; genomwijde associatiestudie

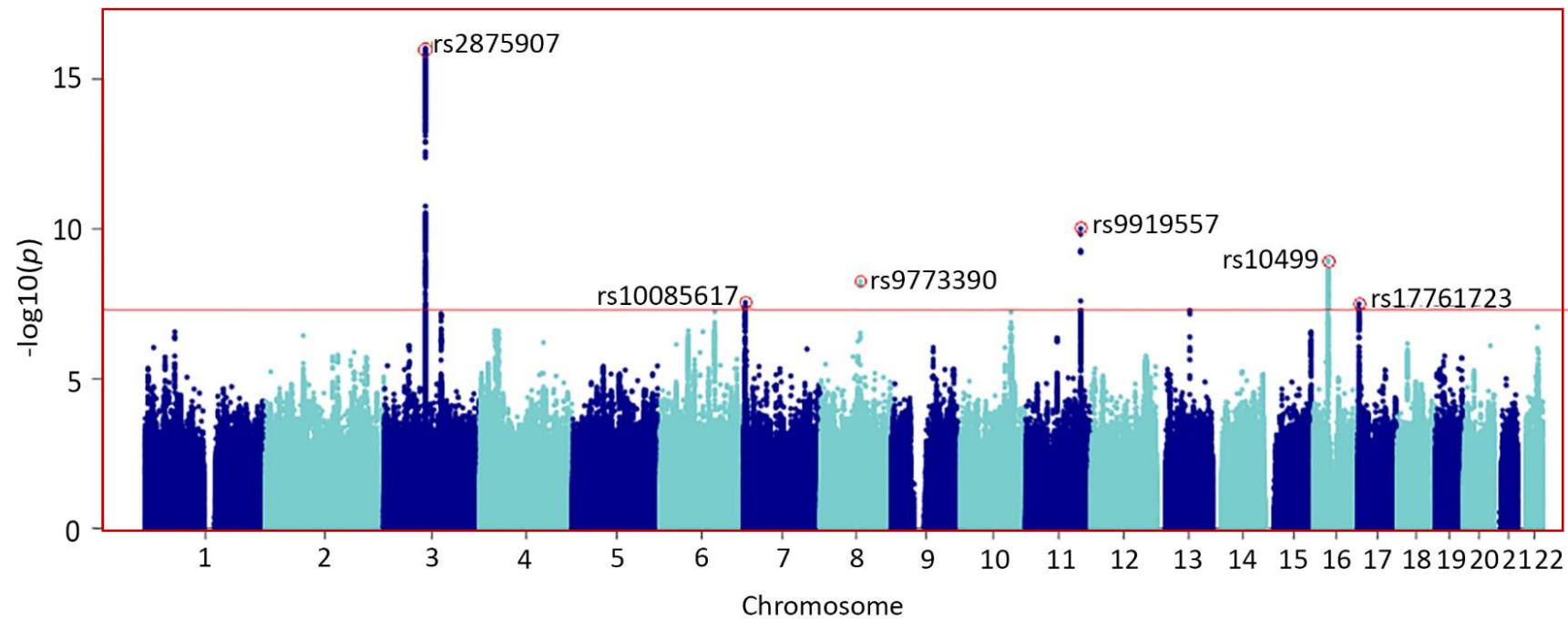




# Cannabisgebruik; genomewijde associatiestudie

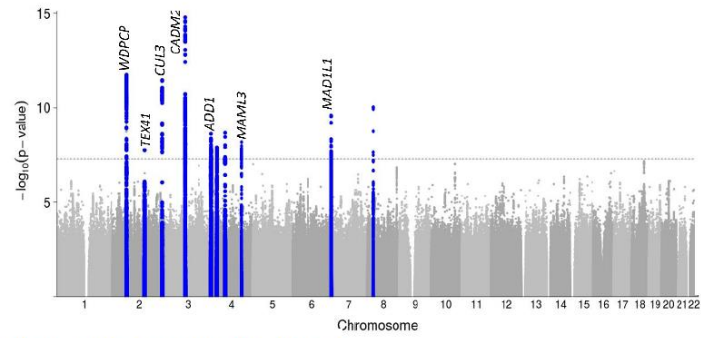


# Cannabisgebruik; genomewijde associatiestudie

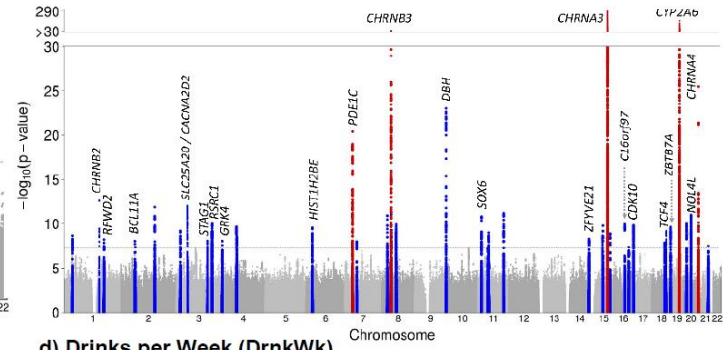


# Association studies of up to 1.2 million individuals yield new insights into the genetic etiology of tobacco and alcohol use

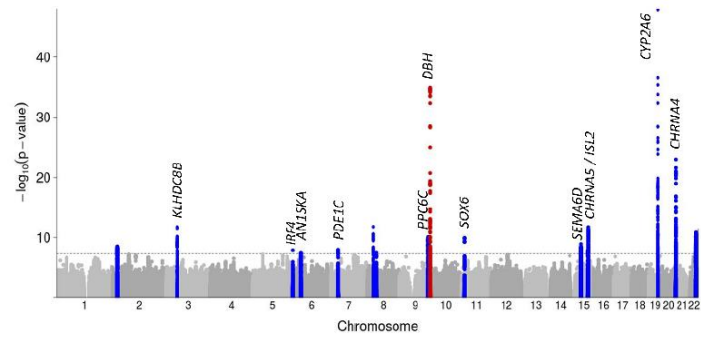
a) Age of Initiation of Regular Smoking (AgeSmk)



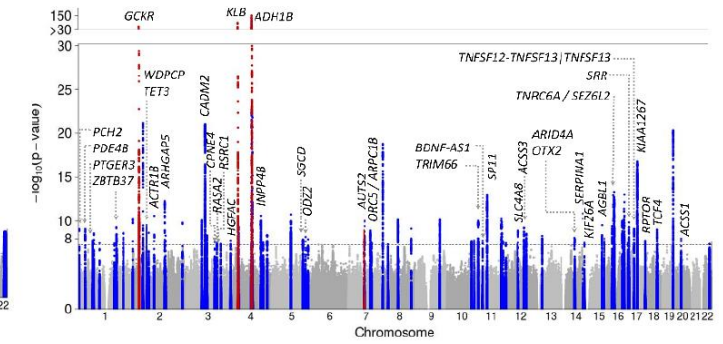
b) Cigarettes per Day (CigDay)



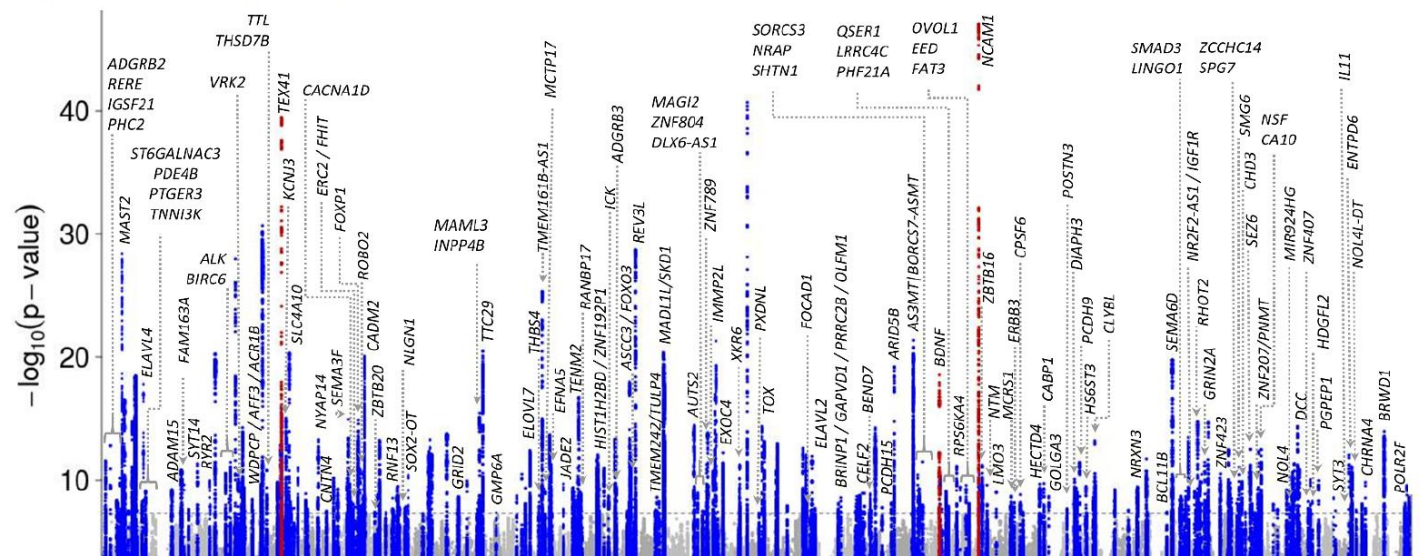
c) Smoking Cessation (SmkCes)



d) Drinks per Week (DrnkWk)

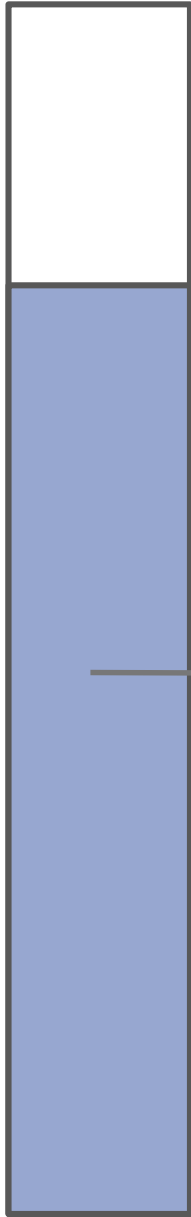


e) Smoking Initiation (SmkInit)

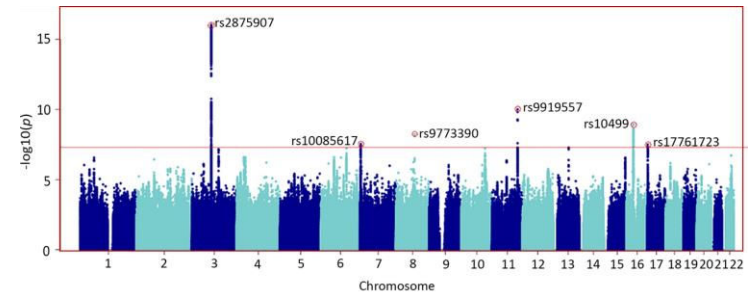
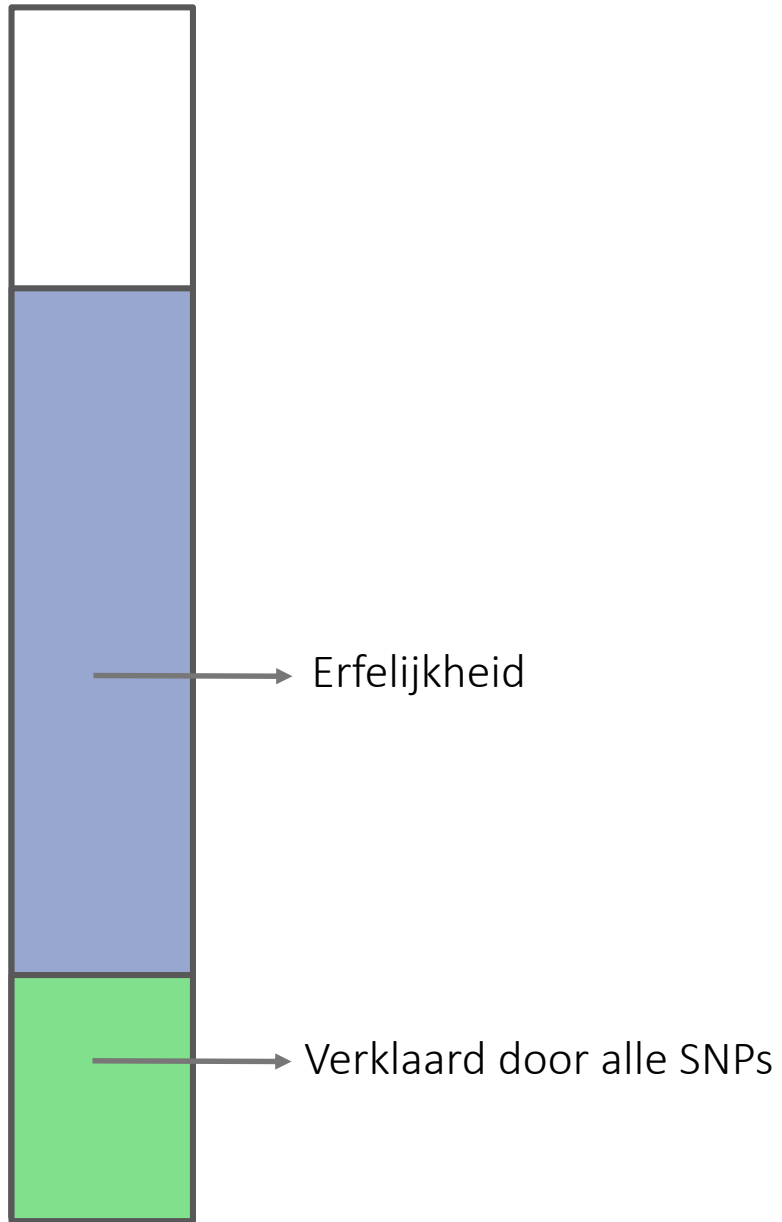


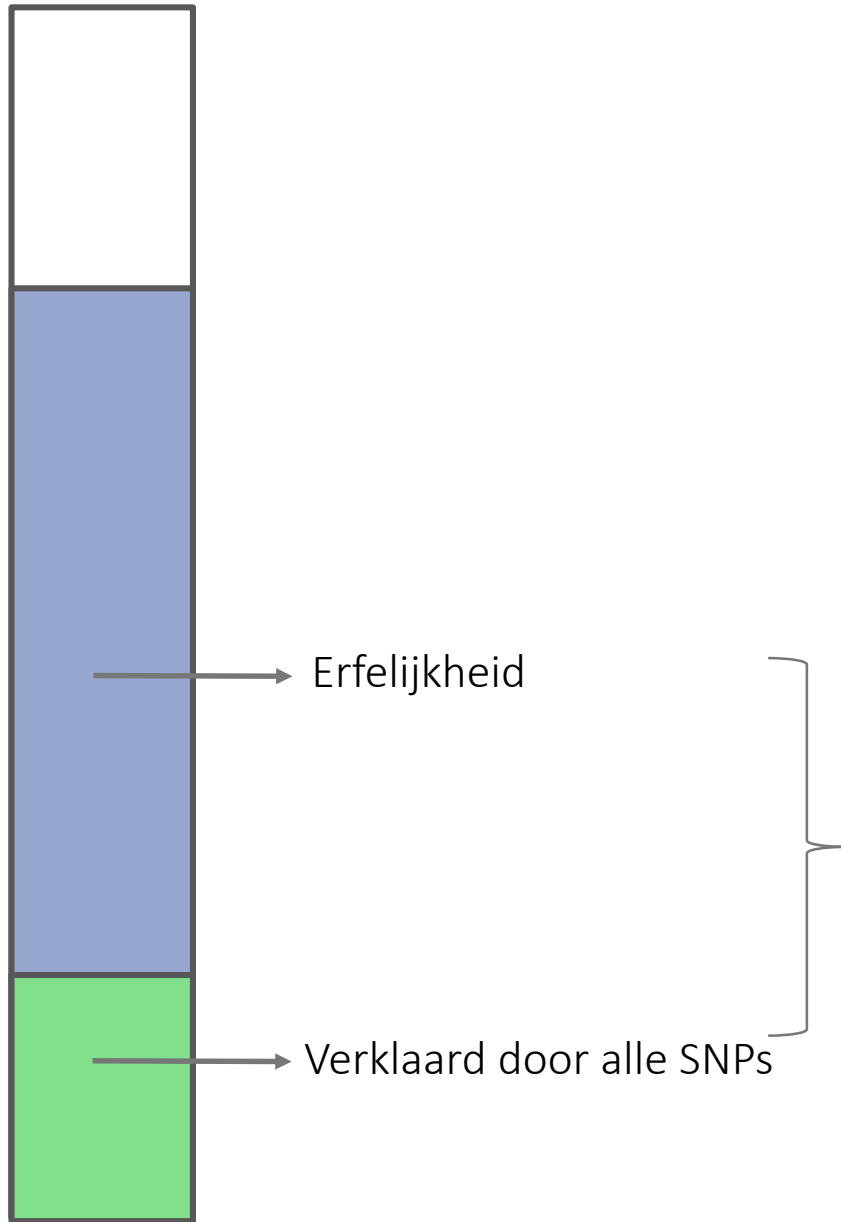


→ Individuele verschillen

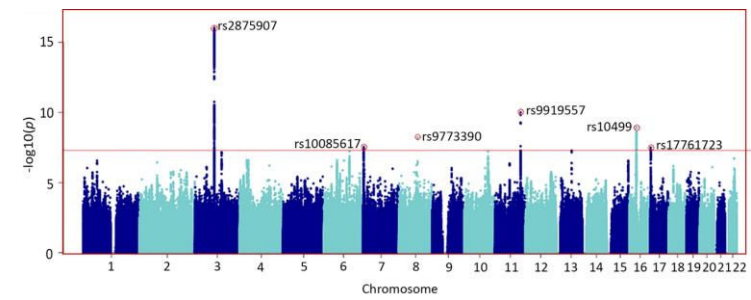


→ Erfelijkheid

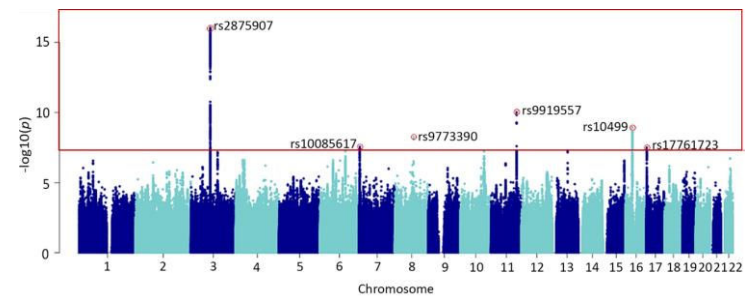
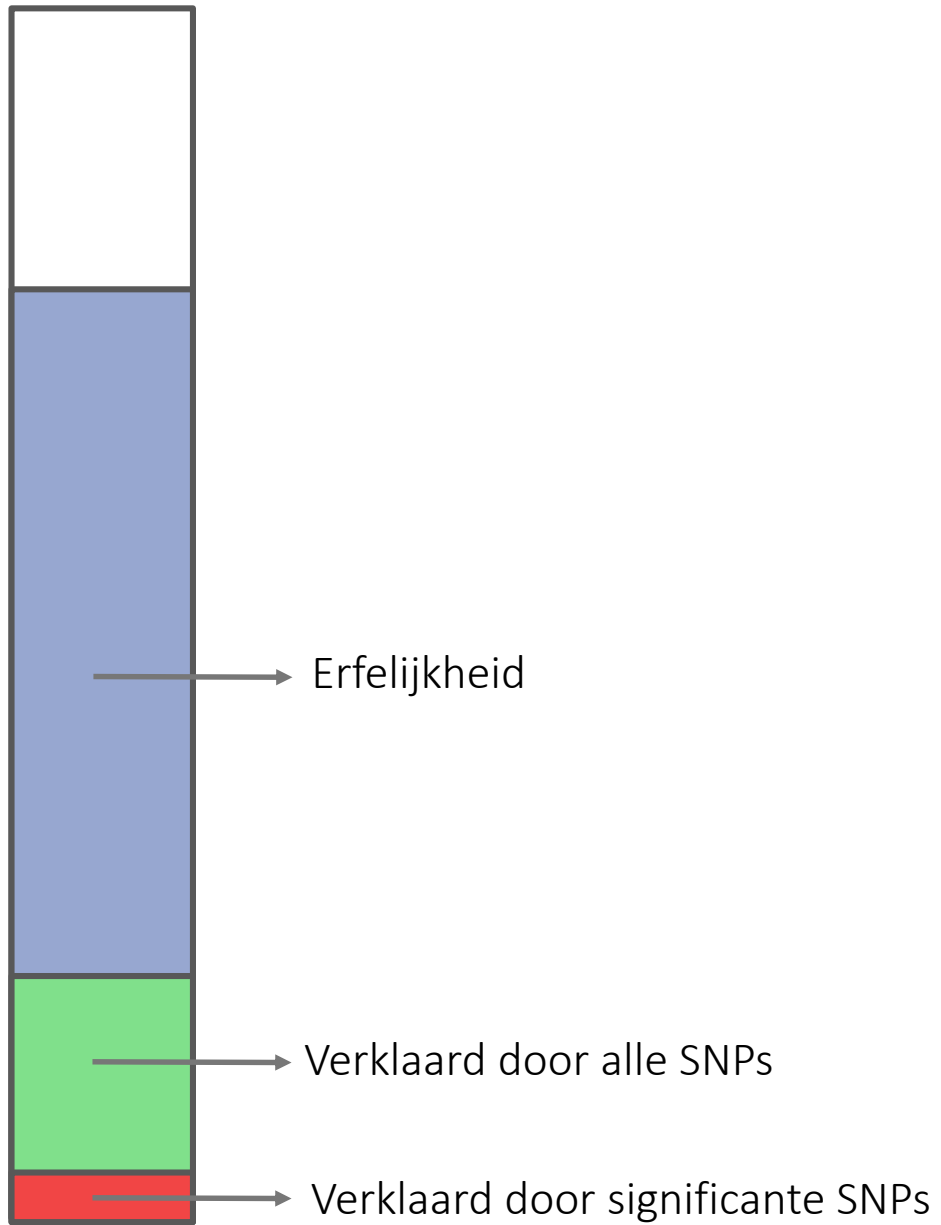


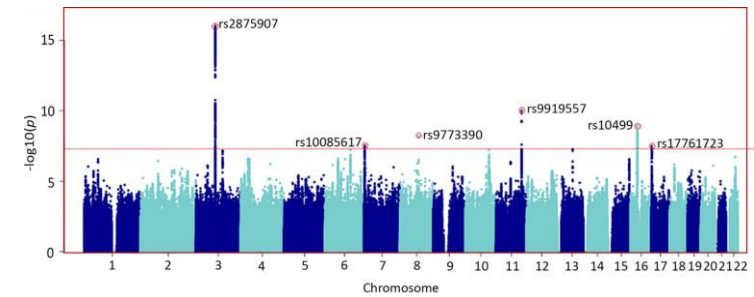
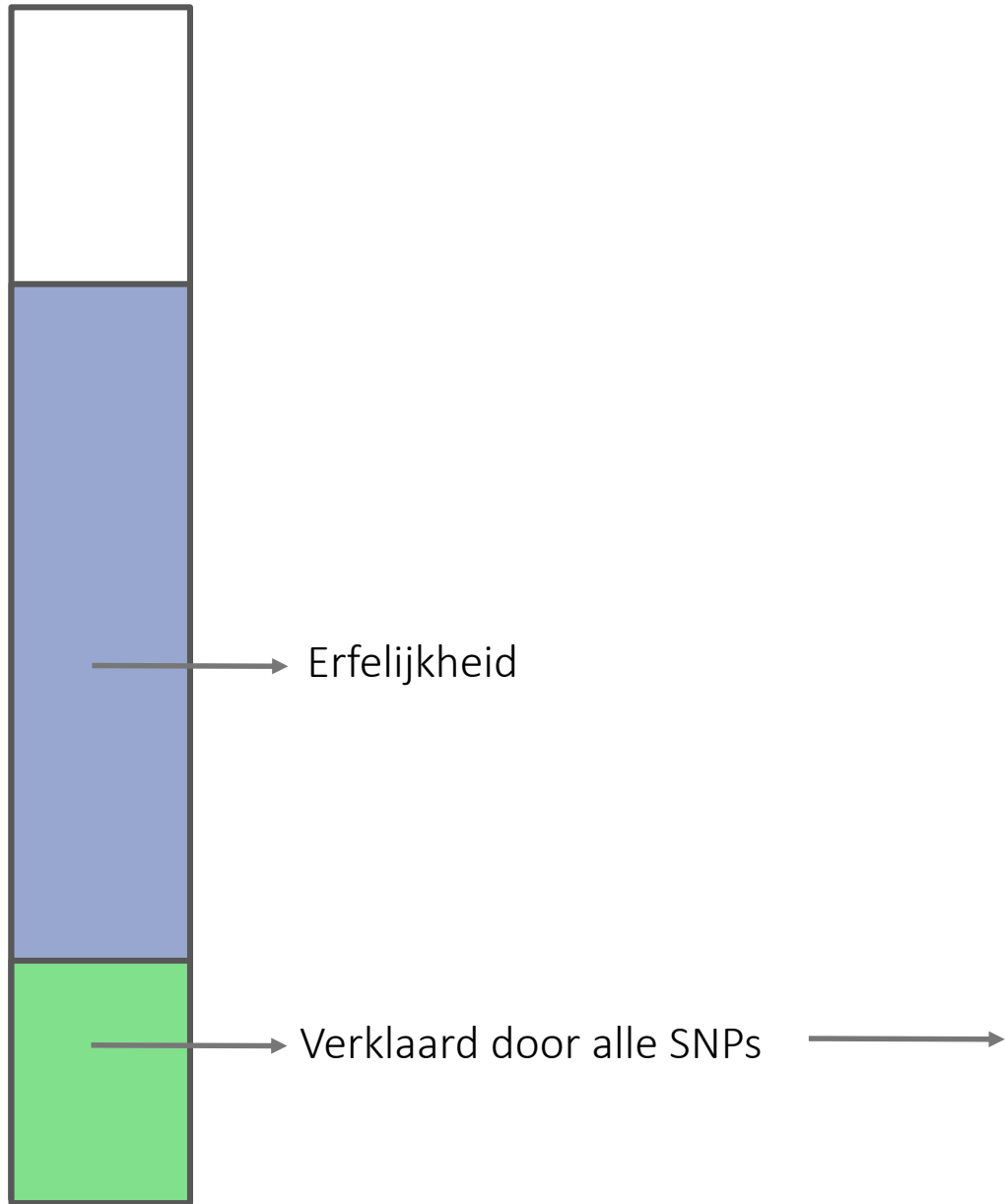


Missing heritability



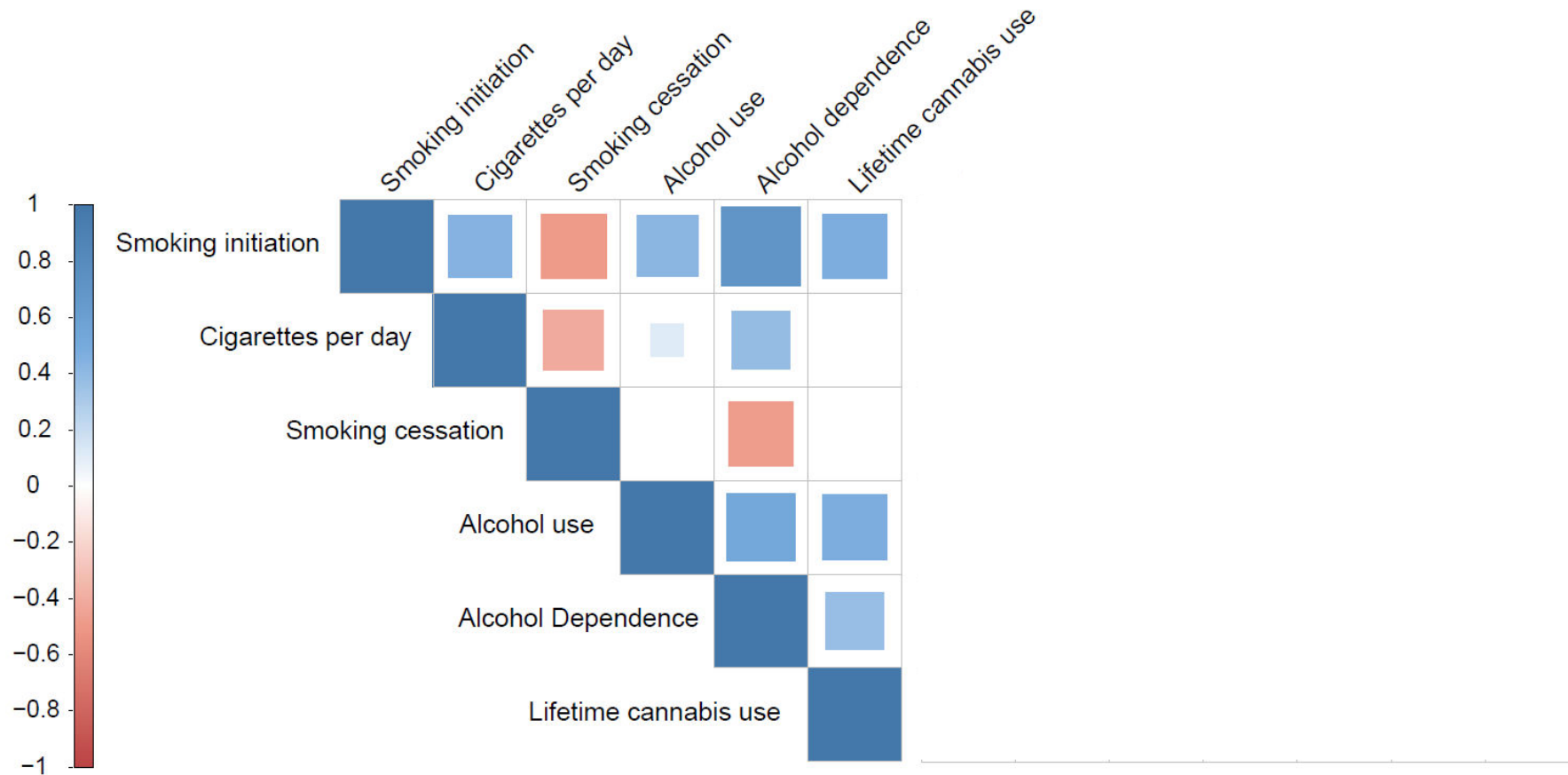




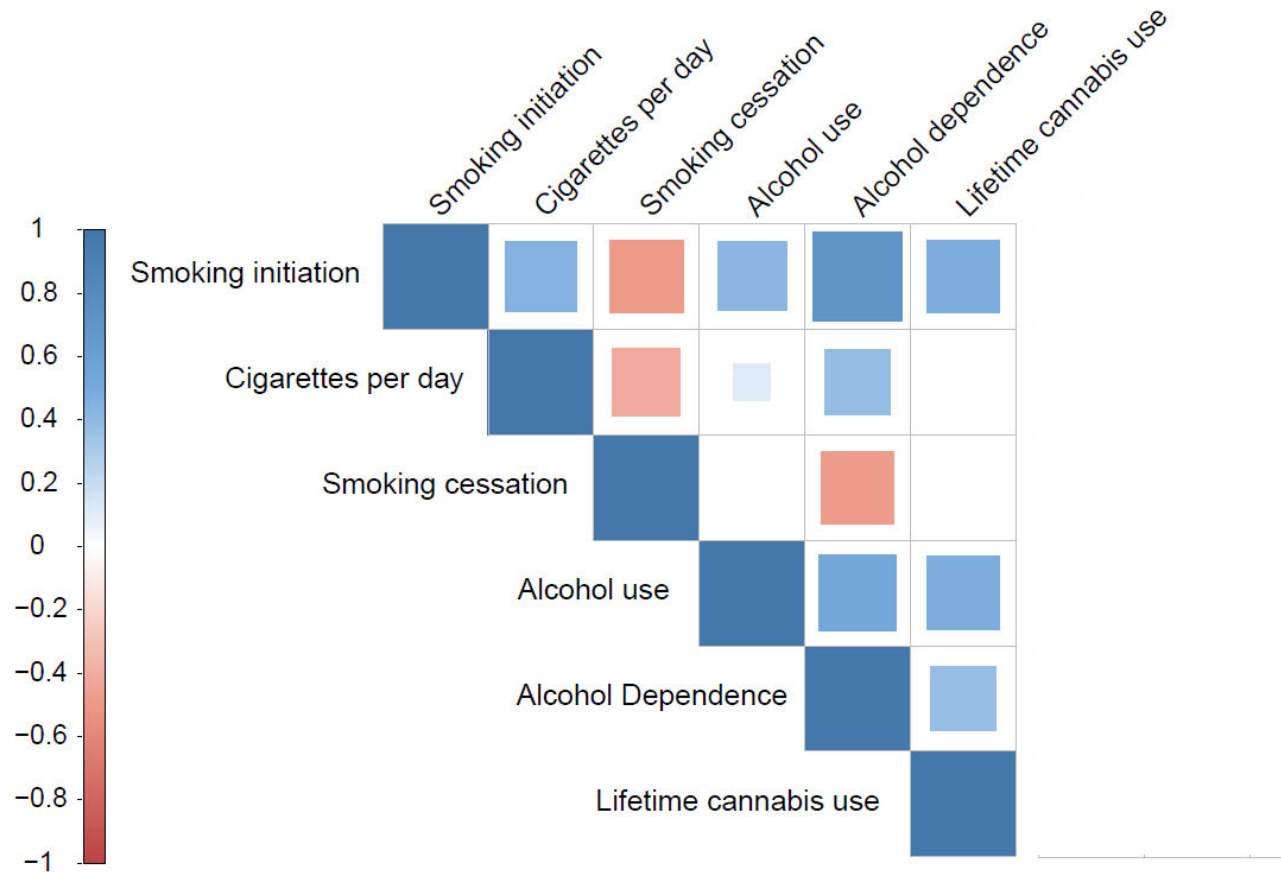


Te gebruiken voor:  
genetische correlaties, polygene scores

# Genetische correlaties middelengebruik



# Genetische correlaties middelengebruik



nature mental health

Article

<https://doi.org/10.1038/s44220-023-00034-y>

## Multivariate genome-wide association meta-analysis of over 1 million subjects identifies loci underlying multiple substance use disorders

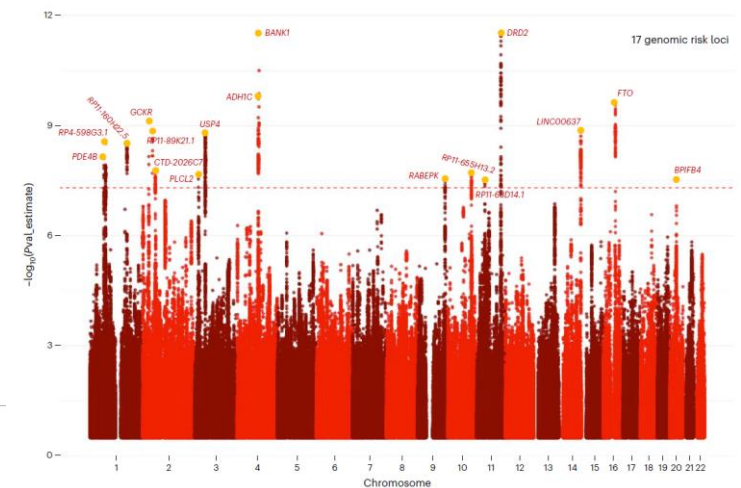
Received: 21 September 2022

Accepted: 10 February 2023

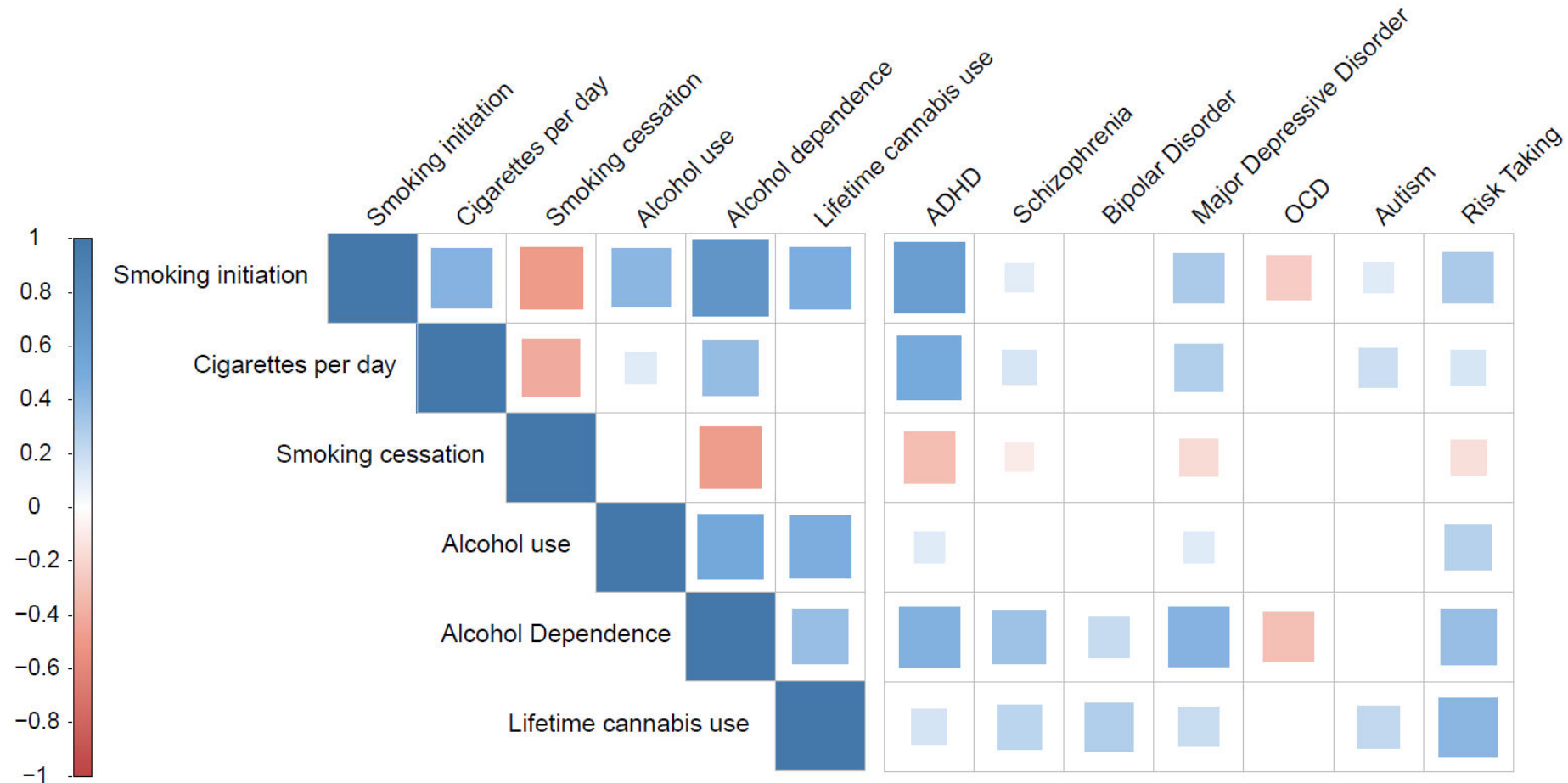
Published online: 22 March 2023

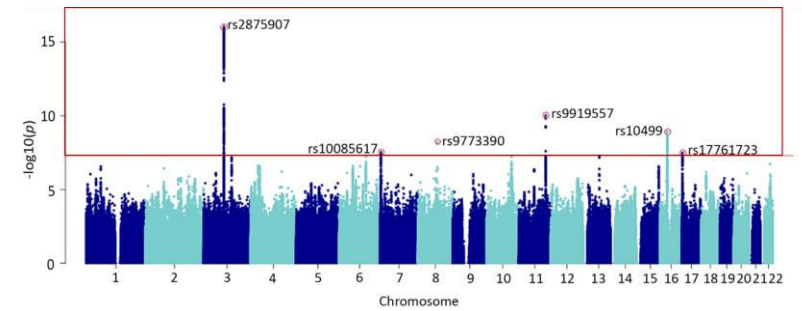
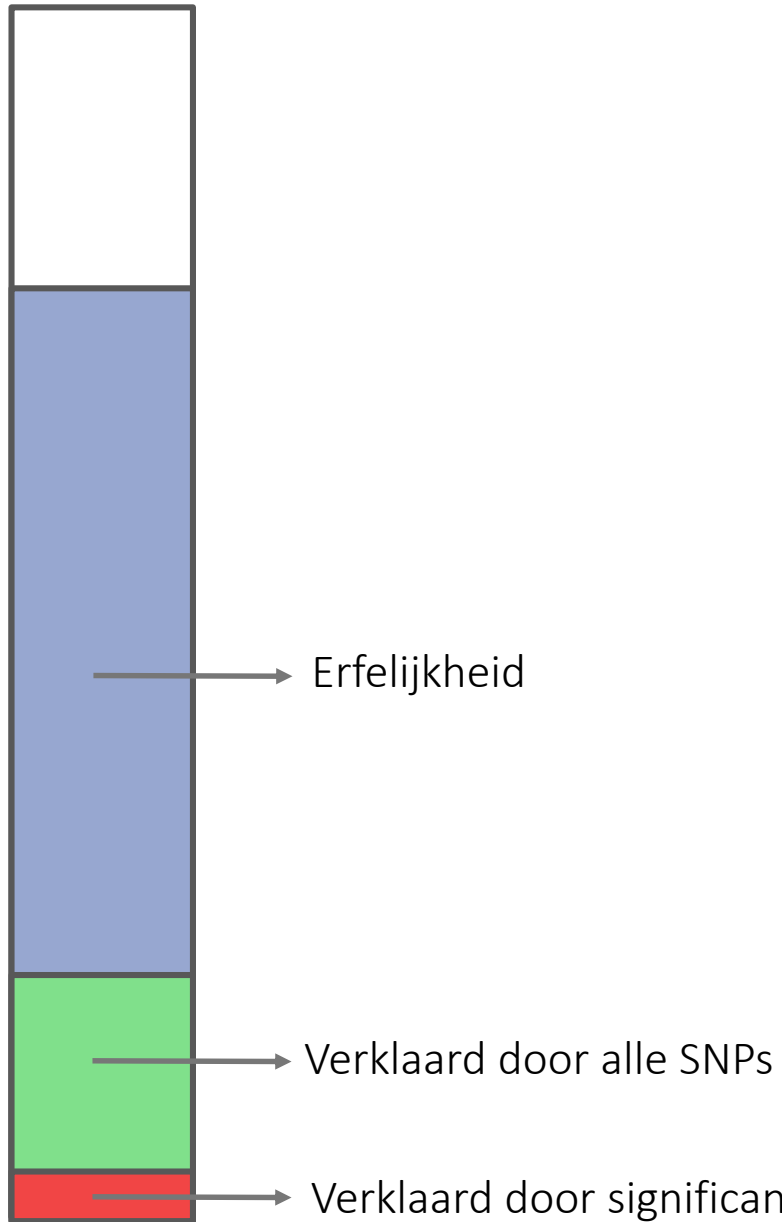
[Check for updates](#)

Alexander S. Hatoum<sup>1,2,3</sup>, Sarah M. C. Colbert<sup>1</sup>, Emma C. Johnson<sup>1</sup>, Spencer B. Huggett<sup>2</sup>, Joseph D. Deak<sup>3,4</sup>, Gita A. Pathak<sup>2</sup>, Mariela V. Jennings<sup>5</sup>, Sarah E. Paul<sup>6</sup>, Nicole R. Karcher<sup>7</sup>, Isabella Hansen<sup>8</sup>, David A. A. Baranger<sup>9</sup>, Alexis Edwards<sup>10</sup>, Andrew D. Grotzinger<sup>8</sup>, Substance Use Disorder Working Group of the Psychiatric Genomics Consortium<sup>11</sup>, Elliot M. Tucker-Drob<sup>12</sup>, Henry R. Kranzler<sup>13,14</sup>, Lea K. Davis<sup>15,16,17</sup>, Sandra Sanchez-Roige<sup>18</sup>, Renato Polimanti<sup>19,20</sup>, Joel Gelernter<sup>3,15,16,18,21</sup>, Howard J. Edenberg<sup>22,23,24</sup>, Ryan Bogdan<sup>25,26</sup> & Arpana Agrawal<sup>1,26</sup>



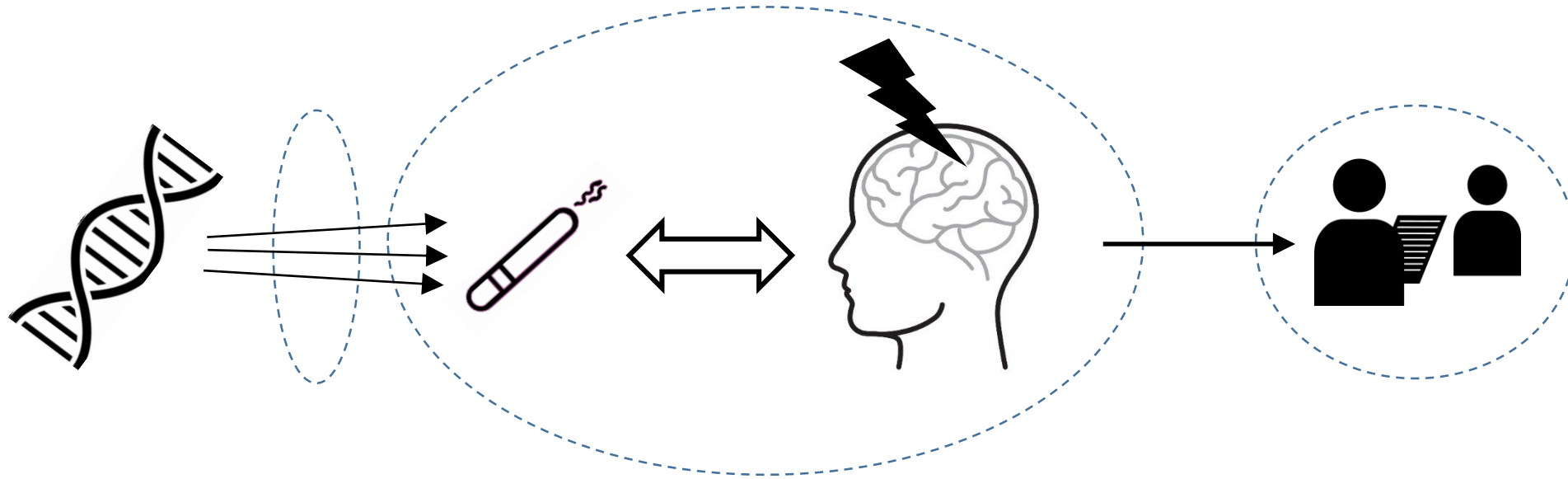
# Genetische correlaties middelengebruik en psychische gezondheid



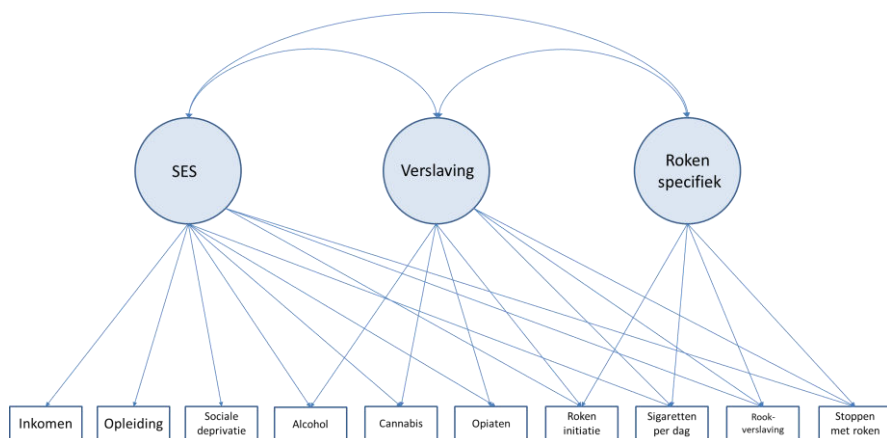
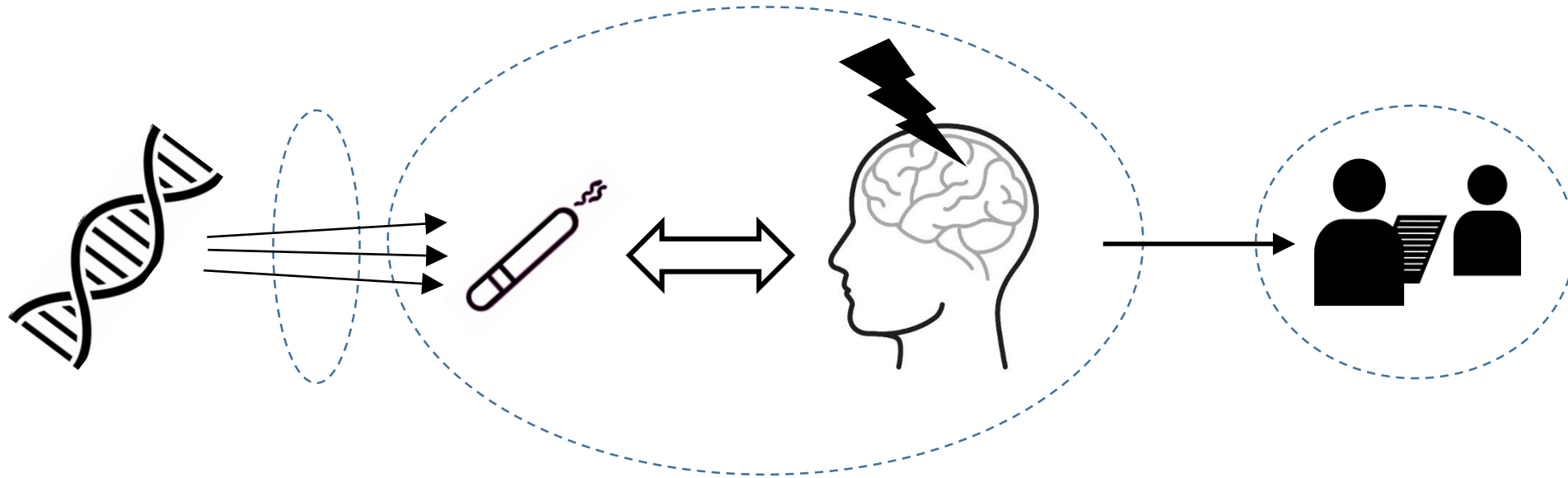


Te gebruiken voor Mendelian Randomization

# Causale relatie tussen roken en psychische problemen

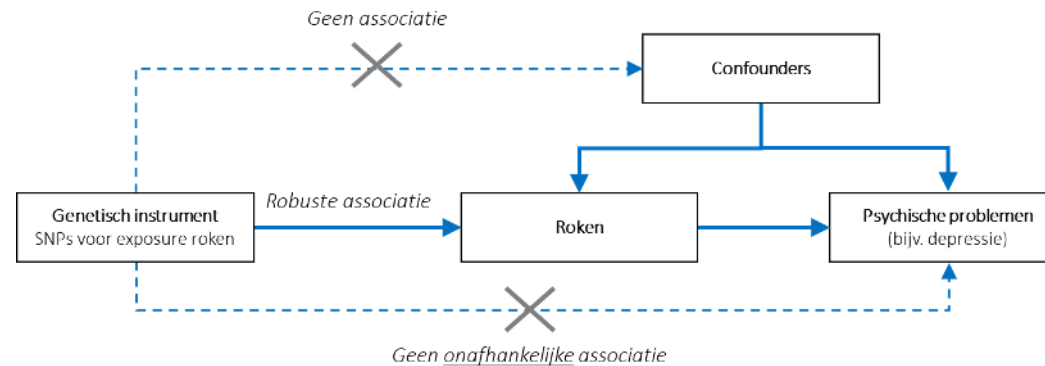
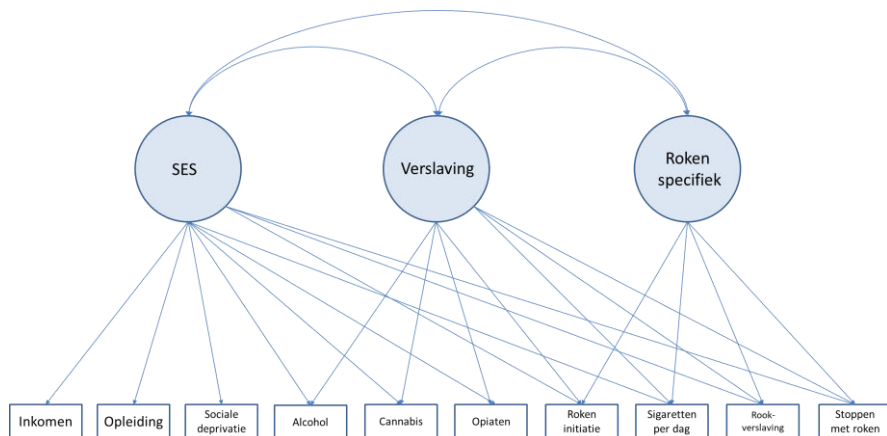
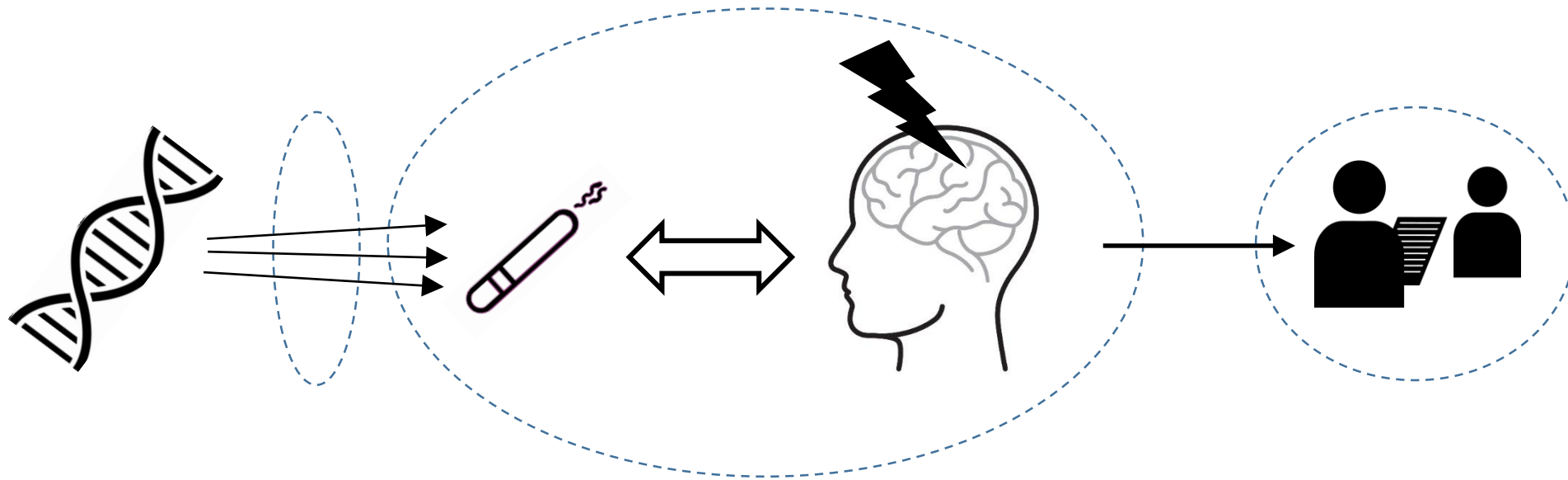


# Causale relatie tussen roken en psychische problemen





# Causale relatie tussen roken en psychische problemen



# Samengevat

- Middelengebruik en verslaving zijn erfelijk
- Veel genen spelen een rol, ieder met klein effect
- Alle genetische varianten samen verklaren een substantieel deel van de individuele verschillen
  - Eventueel op de termijn bruikbaar in de kliniek
- Met GWAS resultaten kan je veel belangrijke vervolgvraagstukken onderzoeken

Bedankt voor jullie aandacht

