

Supplementary Material for the Article:

A developmental etiological model for drug abuse in men

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Table 1: The definition of the variables used in this study

Variable	Register	Period	Definition
Father Alcohol Consumption	CSRD	Birth	How often has your father used alcoholic beverages? Never; Occasionally; Sometimes; Often. Coding: 2=Often (3.9%); 1=Occasionally, Sometimes (76.1%); 0=Never (19.9%)
Low Parental education	PoR	Birth	Highest education achieved by either parent. Coding: 1=Low (<=9 years, 59.5%); 2=Mid (10-11 years, 29.9%); 3=High (>=12 years, 10.6%).
Genetic Risk	MGR, CR, MR, PR	Birth	We calculated the morbid risk for HRB (that is a registration for DA, CB or AUD) for the population born 1940-1960 using an abridged Weinberg age correction. We defined three age groups defined as the first, second/third, and fourth quartiles of the age distribution of first HRB registration: <24 years weighted 0; 25-45 years weighted 0.5; and individuals > 45 years weighted 1. Thereafter, we performed a logistic regression analysis based on information from the Swedish population born 1940-1960 and their relatives (MZ twins, DZ twins and full-siblings, half-siblings, mother, father, and cousins). The model outcome variable was HRB and the predictor variable the morbid risk of HRB among the different relative types. Coding: The individual predicted probabilities for HRB were categorized into three groups: High risk (highest decile); Medium risk (75th-90th p-tile); Low risk (0-75th p-tile)
Frequency of Corporal Punishment	CSRD	Childhood and Early Adolescence	How often was corporal punishment used in your upbringing? Often; Sometimes; Occasionally; Never. Coding: 4=Often (1.2%); 3=Occasionally (10.6%); 2=Sometimes (48.7%); 1=Never (39.5%)
Disruption in family	CSRD	Childhood and Early Adolescence	Are both your parents alive? (Q1) Yes, No Are your parents divorced? (Q2) Yes, No Coding: 1=No (Q1), Yes (Q2) (17.2%); 0=Yes (Q1), No (Q2) (82.8%)
Parental Monitoring	CSRD	Childhood and Early Adolescence	Do you tell your parents what you do in your spare time? Often, Sometimes, Rarely, Never Coding: 4=Never (2.9%), 3=Rarely (14.1%), 2=Sometimes (51.9%), 1=Often (31.1%)
Move During Childhood	CSRD	Childhood and Early Adolescence	How many places have you resided in during your childhood? Coding: 1=1 place (59.1%); 2= 2places (22.9%); 3=3 places (9.9%); 4=4 places (8.0%)
Urbanization	CSRD	Childhood and Early Adolescence	Where have you mainly been residing during you childhood? Greater-Stockholm, Göteborg or Malmö; Other city with more than 50,000 inhabitants; Other city with less than 50,000; In the countryside; Abroad Coding: 1= Greater-Stockholm, Göteborg or Malmö (20.8%), 0=Else (79.2%)
Internalizing Behavior	CSRD	Childhood and Early Adolescence	Factor analysis based on the following variables: How is your health status at the moment? 1=Very Well; 2=Ok; 3=Neither good or bad; 4=Not so good; 4=Bad Does it happen that you have a headache? 1=Yes, often; 2=Yes, sometime; 3=Yes, rarely; 4=No, never Do you have trouble sleeping? 1=Yes, often; 2=Yes, sometime; 3=Yes, rarely; 4=No, never Do you often have an upset stomach? 1=Yes, often; 2=Yes, sometime; 3=Yes, rarely; 4=No, never Are you often nervous? 1=Yes, often; 2=Yes, sometime; 3=Yes, rarely; 4=No, never Have you ever taken medication for your nerves? 1=Yes, often; 2=Yes, sometime; 3=No, never Do you often feel low? 1=Yes, often; 2=Yes, sometime; 3=Yes, rarely; 4=No, never Do you feel uncertain when you are together with others? 1=Yes, often; 2=Yes, sometime; 3=Yes, rarely; 4=No, never Do you think you are more sensitive than others? 1=Yes, a lot; 2=Yes, slightly; 3=Like others; 4=No, slightly less; 5=No, a lot less Do you easily get anxious and restless? 1=Yes, very easy; 2=Yes, rather easy; 3=Like others; 4=No, rarely; 5=No, never Do you get irritated when things are supposed to go quickly? 1=Yes, often; 2=Yes, sometimes; 3=Yes, once in a while; 4=No, never
Externalizing Behavior	CSRD	Childhood and Early Adolescence	Factor analysis based on the following variables: How did you get along with your teachers in school? 1=Very Well; 2=Ok; 3=Not so good; 4=Bad Have you ever been treated unfairly in school? 1=Yes, several times; 2=Yes, sometime; 3=No, never How often did you skip school? 1=Once a week; 2=Once a month; 3=Once every semester; 4=Few times Have your ever have bad grades in order and conduct? 1=Yes, several times; 2=Yes, once; 3=No, never Have you ever been in contact with the police or child welfare committee? 1=Yes, several times; 2=Yes, sometime; 3=No, never Have you ever quit a work due to unfair treatment? 1=Yes, several times; 2=Yes, once; 3=No, never Have you ever been fired from a job? 1=Yes, several times; 2=Yes, once; 3=No, never

			<p>Have you ever run away from home? 1=Yes, twice or more; 2=Yes, once; 3=No, never</p> <p>Have you ever taken anything from a store without paying? 1=Yes, several times; 2=Yes, sometime; 3=No, never</p>
Neighborhood Socioeconomic Status	PR	Late Adolescence	Factor analysis based on the share of unemployed males in the age range 24-65 in the parish the individual resided in in 1965 and in 1970 and the share of individual within the parish that were defined by statistics Sweden as living in a household that was "overcrowded".
Resilience	CTS	Late Adolescence	Resilience is designed to measure the ability to cope with psychologically stressful situations and is assessed on a 1 to 9 graded scale corresponding to a categorized Normal distribution centered at 5. The score is assigned by a psychologist who conducts with every conscript a semi-structured conversation that averages 20–25 minutes. The psychologists conducting the interview are specially trained and their performance does not vary from region to region, because training is conducted nationally. The interview is in a free form in which the conscript describes his everyday life. There are five predefined sections (experiences from school, work experiences, leisure time, home environment, and emotional stability) though the order can vary. Background information such as school grades, job experiences, and test results are provided to the interviewer in advance.
IQ	CTS	Late Adolescence	IQ is measured by four subtests representing logical, spatial, verbal, and technical abilities. The global IQ score, derived from a summation of the four subtests, was standardized to give a Gaussian distributed score between one and nine.
Sniffing Glue	CSRD	Late Adolescence	Have you ever sniffed glue or something similar? 1=More than 10 times; 2=Yes 2-10 times; 3=Yes, Once; 4=No. Coded into Yes (13.2%) and No (86.8%).
Drug Use	CSRD	Early adulthood	<p>Factor analysis based on the following variables: Have you ever used narcotics? Yes/No Q4: What type of drug have you used most often? Preludin (0.17%), Amfetamin (0.25%), Hasch/Marihuana (8.61%), Morphine (0.11%), LSD (0.39%), Mebumal/Nembutal (0.69%), Opium (0.11%), Meproban (0.20%), Other (0.16%) Recoded into 0=No use, 1=Hasch/Marihuana, 2=Else How many times have you used narcotics? 1=More than 50 times; 2=11-50 times; 3=5-10 times; 4=2-4 times; 5=once; 6=Never Have you ever used a needle to inject narcotics? 1=Yes, several times; 2=Yes, once; 3=No, never How many times have you used narcotics the last 4 weeks? 1=More than 10 times; 2= 5-10 times; 3=2-4 times; 4=Once; 5=0</p>
Low Education	PoR	Early adulthood	<p>Educational level achieved in 1975. Coding: 1=Low (<=9 years, 23.4%); 2=Mid (10-11 years, 45.3%); 3=High (>=12 years, 31.4%).</p>
Unemployed	PoR	Early adulthood	Not employed the final week in October 1975. Coding 1=Not Employed (3.5%); 0=Else (96.5%)
Unmarried	PoR	Early adulthood	Coding: 0=Married prior to 1976 (42.5%); 1=Else (57.5%)
Criminal Behavior	CR	Early adulthood	Criminal behavior (CB) was identified by registration in the Swedish Crime (or conviction) register which excluded convictions for minor crimes like traffic infractions. The registration had to occur prior to 1976 (5.3% registered for CB)
Alcohol Use Disorders	CR	Early adulthood	For a definition of Alcohol Use Disorders (AUD) see (Kendler et al., 2015). The registration had to occur prior to 1976 (1.5% registered for AUD)

Table 2: Correlation Matrix Of Model Variables

	GR	FAC	LPE	FCP	DF	PM	Mo	UR	IB	EB	NSE	IQ	RE	GL	DS	LE	UE	UM	CB	AUD	DA	
GR	1																					
FAC	0.21	1																				
LPE	0.02	0.04	1																			
FCP	0.09	0.08	0.00	1																		
DF	0.23	0.19	0.01	0.03	1																	
PM	0.10	0.05	0.15	0.12	0.13	1																
Mo	0.12	0.04	0.23	0.09	0.18	0.00	1															
UR	0.04	0.15	0.23	0.01	0.15	0.08	0.08	1														
IB	0.08	0.14	0.03	0.18	0.16	0.19	0.04	0.02	1													
EB	0.25	0.25	0.07	0.25	0.29	0.39	0.13	0.13	0.52	1												
NSE	0.01	0.02	0.08	0.02	0.06	0.03	0.11	0.17	0.04	0.03	1											
IQ	0.13	0.06	0.26	0.05	0.07	0.21	0.02	0.11	0.10	0.19	0.06	1										
RE	0.13	0.14	0.08	0.15	0.25	0.29	0.05	0.02	0.62	0.49	0.03	0.27	1									
GL	0.17	0.17	0.05	0.16	0.20	0.26	0.08	0.10	0.35	0.66	0.07	0.13	0.33	1								
DS	0.15	0.18	0.09	0.15	0.22	0.21	0.08	0.31	0.35	0.64	0.04	0.02	0.35	0.58	1							
LE	0.11	0.08	0.35	0.07	0.08	0.20	0.03	0.09	0.08	0.28	0.03	0.49	0.23	0.20	0.03	1						
UE	0.08	0.08	0.04	0.07	0.11	0.10	0.10	0.13	0.15	0.29	0.06	0.02	0.14	0.15	0.23	0.00	1					
UM	0.01	0.00	0.04	0.01	0.01	0.01	0.01	0.04	0.04	0.03	0.03	0.03	0.08	0.01	0.07	0.09	0.19	1				
CB	0.20	0.15	0.05	0.13	0.18	0.23	0.09	0.09	0.21	0.56	0.00	0.14	0.26	0.37	0.36	0.22	0.35	0.14	1			
AUD	0.17	0.15	0.09	0.14	0.19	0.23	0.13	0.09	0.27	0.56	0.08	0.13	0.29	0.37	0.37	0.18	0.34	0.22	0.63	1		
DA	0.16	0.20	0.02	0.14	0.18	0.20	0.09	0.14	0.31	0.54	0.03	0.09	0.30	0.38	0.47	0.13	0.37	0.18	0.56	0.57	1	

*Numbers in red are negative

FAC = Father Alcohol Consumption	UR = Urbanization	DS = Drug Use
SES = Parental Education	IB = Internalizing Behavior	LE=Low Education
GR = Genetic Risk	EB = Externalizing Behavior	UE = Unemployed
FCP = Frequency of Corporal Punishment	NSE = Neighborhood SES	UM = Unmarried
DF = Disruption in family	RE = Low Resilience	CB = Criminal Behavior
PM = Low parental Monitoring	IQ = Low IQ	AUD = Alcohol Use Disorder
Mo=Move	GL = Sniffing Glue	DA = Drug Abuse

References

Kendler, K.S., Ji, J., Edwards, A.C., Ohlsson, H., Sundquist, J., Sundquist, K., 2015. An extended Swedish national adoption study of alcohol use disorder. *JAMA Psychiatry* 72, 211-8.