APPENDIX

Definition of Psychiatric illness

Major depression, Anxiety disorders, Bipolar illness and Non-affective psychosis were defined in the Hospital Discharge, Outpatient (Specialist) Care Registry, and the Primary Care Registry by the ICD codes seen in the table below. In the models each disorder was categorized into a dichotomous variable based on at least 1 registration (regardless of time of registration) vs no registration.

	ICD10	ICD9	ICD8
Non-affective psychosis	F200, F201, F202, F203, F205, F209, F22, F23, F24, F25, F26, F27, F28, F29, F208	297, 298E, 298W, 298X 295E, 295H, 295W, 295B, 295C, 295D, 295G, 295X	297, 298,3, 298,9 295.4, 295.7, 295,1, 295,2, 295,3, 295,9, 295,6
Bipolar illness	F30, F31	296A, 296C, 296D, 296E, 296W, 298B	296,1, 296,3, 296,8, 296,9, 298.1
Major depression	F32,F33	296B,, 298A, 300E	296,0, 296,2, 298,0, 300.4
Anxiety disorders	F40, F41	300A, 300C	300,0, 300,2

Drug Abuse was identified in the Swedish medical registries by ICD codes (ICD8: Drug dependence (304); ICD9: Drug psychoses (292) and Drug dependence (304); ICD10: Mental and behavioral disorders due to psychoactive substance use (F10-F19), except those due to alcohol (F10) or tobacco (F17)); in the Suspicion Register by codes 3070, 5010, 5011, and 5012, that reflect crimes related to DA; and in the Crime Register by references to laws covering narcotics (law 1968:64, paragraph 1, point 6) and drug-related driving offences (law 1951:649, paragraph 4, subsection 2 and paragraph 4A, subsection 2). DA was identified in individuals (excluding those suffering from cancer) in the Prescribed Drug Register who had retrieved (in average) more than four defined daily doses a day for 12 months from either of Hypnotics and Sedatives (Anatomical Therapeutic Chemical (ATC) Classification System N05C and N05BA) or Opioids (ATC: N02A). DA was treated as dichotomous variable (any registration vs no registration) with an assumed underlying normal liability distribution.

Alcohol Use disorder was identified in the Swedish medical and mortality registries by ICD codes: ICD9: V79B, 305A, 357F, 571A-D, 425F, 535D, 291, 303, 980; ICD 10: E244, G312, G621, G721, I426, K292, K70, K852, K860, O354, T51, F10); in the Crime Register by codes 3005, 3201, which reflect crimes related to alcohol abuse; in the Suspicion Register by codes 0004, 0005 (Only those individuals with at

least two alcohol-related crimes or suspicion of crimes from both Crime Register and Suspicion Register were included); in the Prescribed Drug Register by the drugs disulfiram (Anatomical Therapeutic Chemical (ATC) Classification System N07BB01), acamprosate (N07BB03), and naltrexone (N07BB04). AUD was treated as dichotomous variable (any registration vs no registration) with an assumed underlying normal liability distribution.

Calculation of the Genetic Correlations

The genetic correlation between two disorders were calculated as follows: $rG = Cov(AB) / sqrt(VA*VB)$ where Cov(AB) equals tow times the weighted average of the correlation between A and B from biological father to offspring and offspring to biological fathers from Not-lived with fathers families, and from Biological Fathers to offspring, Biological Mothers to offspring, Offspring to Biological Fathers and Offspring to Biological Mothers in adopted families. VA equals two times the weighted correlation between A and A from biological father to offspring from Not-lived with father's families, and from Biological Fathers to offspring, Biological Mothers to offspring, in adopted families. VB equals two times the weighted correlation between B and B from biological father to offspring from Not-lived with father's families, and from Biological Fathers to offspring, Biological Mothers to offspring, in adopted families. The 95% CI was created using bootstrapping; i.e., we created three samples (1,000,000 each) of correlations (VA, VB, Cov(AB)) based on their mean and SE. Thereafter we calculated the rG and used the 2.5 and 97.5th percentile for our confidence intervals.

Appendix Table S1

Appendix Table S1 - Cross-Generational Transmission of Suicide Attempt and Suicide Death as Assessed by Tetrachoric Correlation (95% CIs) in Four Different Family Types and Two Different Cohorts Reflecting the First and Second Chronological Halves of Our Cohort						
Relationship	Phenotypes: Parent to Offspring in Cohorts 1 and 2	Sources of Resemblance	Intact Families	Not-lived-with Father Families	Step-Father Families	Adoptive Families
Mother – Offspring	Attempt to Attempt (1)	Genes+ Rearing	0.25 (0.24; 0.26)	0.19 (0.16; 0.21)	0.19 (0.15; 0.22)	
	Attempt to Attempt (2)		0.25 (0.24; 0.26)	0.21 (0.19; 0.23)	0.19 (0.16; 0.23)	
	Death to Death (1)		0.17 (0.13; 0.21)	0.18 (0.09; 0.28)	0.13 (-0.04; 0.29)	
	Death to Death (2)		0.18 (0.11; 0.25)	0.21 (0.09; 0.34)	0.14 (-0.12; 0.40)	
	Attempt to Attempt (1)	Genes only				0.14 (0.08; 0.19)
	Attempt to Attempt (2)					0.09 (-0.04; 0.22)
	Death to Death (1)					-0.04 (-0.24; 0.15)
	Death to Death (2)					0.14 (-0.26; 0.54)
	Attempt to Attempt (1)	Rearing only				0.09 (0.01; 0.17)
	Attempt to Attempt (2)					0.15 (-0.05; 0.36)
	Death to Death (1)					0.05 (-0.22; 0.32)
	Death to Death (2)					-
Father- Offspring	Attempt to Attempt (1)	Genes+ Rearing	0.23 (0.22; 0.24)			
	Attempt to Attempt (2)		0.26 (0.25; 0.27)			
	Death to Death (1)		0.12 (0.08; 0.15)			
	Death to Death (2)		0.16 (0.10; 0.21)			
	Attempt to Attempt (1)	Genes only		0.13 (0.10; 0.15)		0.04 (-0.03; 0.12)
	Attempt to Attempt (2)			0.15 (0.13; 0.17)		0.19 (0.03; 0.35)
	Death to Death (1)			0.09 (0.02; 0.16)		0.03 (-0.19; 0.25)
	Death to Death (2)			0.07 (-0.01; 0.15)		0.22 (-0.21; 0.66)
	Attempt to Attempt (1)	Rearing only			0.15 (0.10; 0.19)	0.13 (0.04; 0.22)
	Attempt to Attempt (2)				0.14 (0.09; 0.18)	0.27 (0.04; 0.49)
	Death to Death (1)				-0.11 (-0.32; 0.10)	-0.04 (-0.29; 0.21)
	Death to Death (2)				-	-