

APPENDIX

Creation of Data Set

The following sources were used to create our dataset: the Total Population Register, containing information about year of birth, sex, family and marital status; the Swedish Census, containing household information in 1960, 1965, 1970, 1975, 1980, 1985, and 1990; the Multi-Generation Register, linking individuals born after 1932 to their parents; the Twin Register, including information of known zygosity; the Hospital Discharge Register, containing hospitalizations for Swedish inhabitants from 1964-2010; the Prescribed Drug Register, containing all prescriptions in Sweden picked up by patients from 2005 to 2010; the Outpatient Care Register, containing information from all outpatient clinics from 2001 to 2010; the Primary Health Care Register, containing outpatient diagnoses from 2001-2007 for 1 million patients from Stockholm and southern Sweden; the Crime Register that included national complete data on all convictions in lower court from 1973-2011; and the Swedish Suspicion Register that included national data on individuals strongly suspected of crime from 1998-2011.

Definition of Alcohol Use Disorder

AUD status was identified from Swedish medical registries by the following ICD codes: ICD8: 571.0, 291, 303, 980; ICD9: V79B, 305A, 357F, 571A, 571B, 571C, 571D, 425F, 535D, 291, 303, 980; and ICD 10: E244, G312, G621, G721, I426, K292, K700, K701, K702, K703, K704, K709, K852, K860, O354, T510, T512, T511, T513, T518, T519, F101, F102, F103, F104, F105, F106, F107, F108, F109; and from the Prescribed Drug Register if retrieved disulfiram (Anatomical Therapeutic Chemical (ATC) Classification System N07BB01), acamprosate (N07BB03), or naltrexone (N07BB04). In addition, we identified AUD as convicted for or suspected of at least two alcohol-related crimes according to law 1951:649, paragraph 4 and 4A, and law 1994:1009, Chapter 20, paragraph 4 and 5 from the Swedish Crime Register, and code 3005 and 3201 in the Suspicion Register.

Appendix Table 1

Descriptive statistics for Co-relative analyses

Informative pairs are those pairs where at least one subject has the event and the follow up times differ.

Males

	Sex	MZ twins		Full siblings		Cousins	
		In total	Informative pairs	In total	Informative pairs	In total	Informative pairs
Individuals /pairs	Male	958/479	6/3	60,648/30,324	1,298/649	143,298/71,649	3,390/1,695
Individuals /pairs	Female	1,272/636	8/4	66,974/33,487	576/288	171,146/85,573	1,742/871

Appendix FIGURE LEGENDS

Figure 1a – The temporal relationship between widowhood and the yearly prevalence of first onset of AUD in males (red dots) who were married between the ages of 18 and 35. See legend to figure 1a in the main text for further methodological details.

Figure 1b - The temporal relationship between widowhood and the yearly prevalence of first onset of AUD in females (red dots) who were married between the ages of 18 and 35. See legend to figure 1a in the main text for further methodological details.

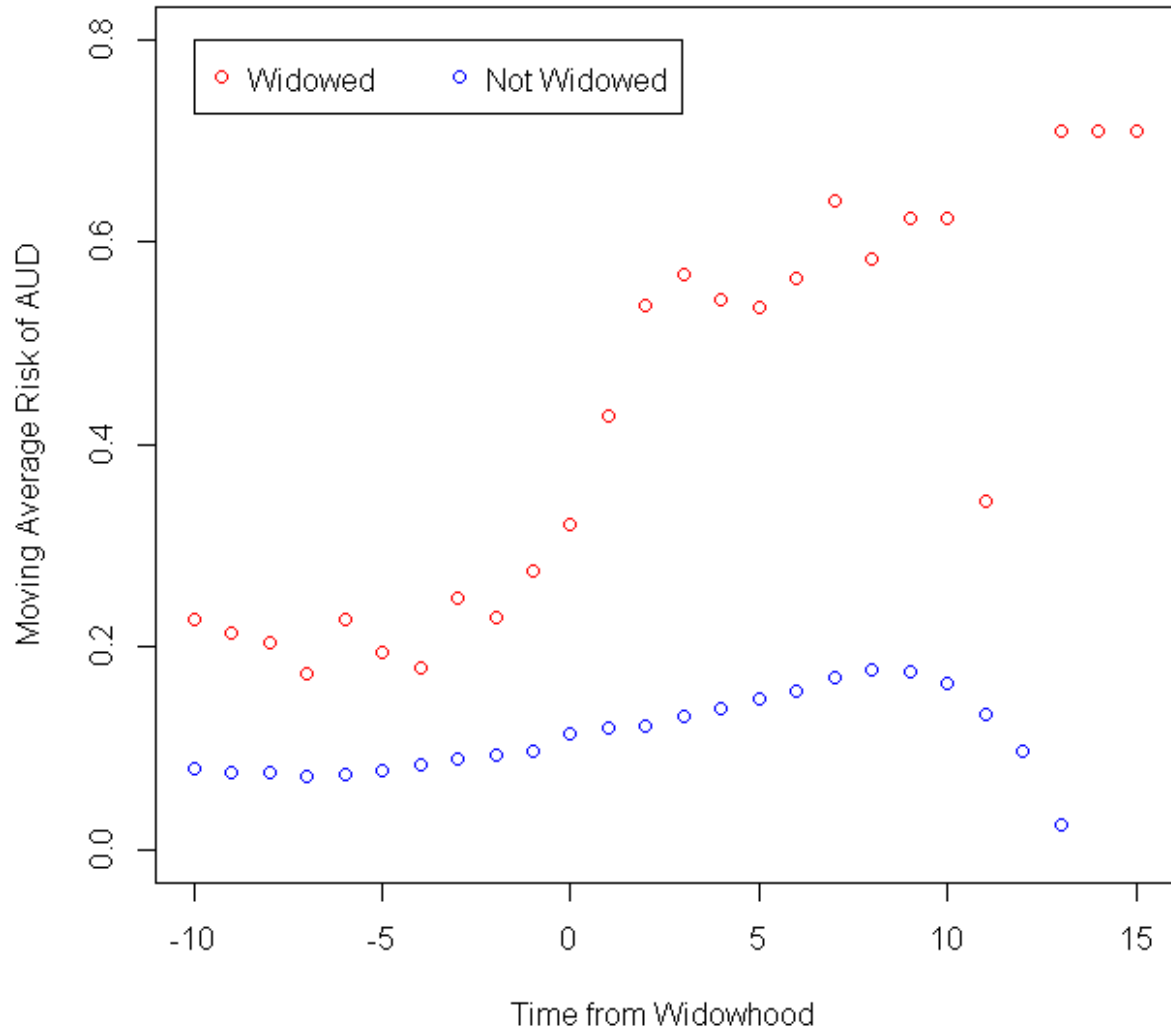
Figure 2a – Adjusted additional risk of AUD in males if divorced, presented for individuals with and without family history of AUD. For subjects without a family history of AUD, the yearly increased risk of AUD onset after divorce was 0.24% ($p < 0.0001$). A male with family history of AUD had an additional yearly risk increase of AUD after divorce of 0.27% ($p < 0.0001$). Estimates are from an Aalen's Additive regression model, adjusted for birth year, parental education and EB before age 18.

Figure 2b - Adjusted additional risk of AUD if divorced in females, presented for individuals with and without family history of AUD. For subjects without a family history of AUD, the yearly increased risk of AUD onset after divorce was 0.10% ($p < 0.0001$). For a female with a family history of AUD the additional yearly risk increase of AUD onset was 0.15% ($p < 0.0001$). Estimates are from an Aalen's Additive regression model, adjusted for birth year, parental education and EB before age 18.

Figure 3a - Adjusted additional risk of AUD in males if divorced, presented for individuals with and without externalizing behavior (EB) before age 18. For subjects without EB before age 18, the yearly increased risk of AUD onset after divorce was 0.29% ($p < 0.0001$). A male with EB before age 18 had an additional yearly risk increase of AUD after divorce of 0.46% ($p < 0.0001$). Estimates are from an Aalen's Additive regression model, adjusted for birth year, parental education and relative with AUD.

Figure 3b - Adjusted additional risk of AUD in females if divorced, presented for individuals with and without EB before age 18. For subjects without EB before age 18, the yearly increased risk of AUD onset after divorce was 0.15% ($p < 0.0001$). A female with family history of had an additional yearly risk increase of AUD after divorce of 0.24% ($p = 0.0004$). Estimates are from an Aalen's Additive regression model, adjusted for birth year, parental education and relative with AUD.

Appendix Figure 1a



Appendix Figure 1b

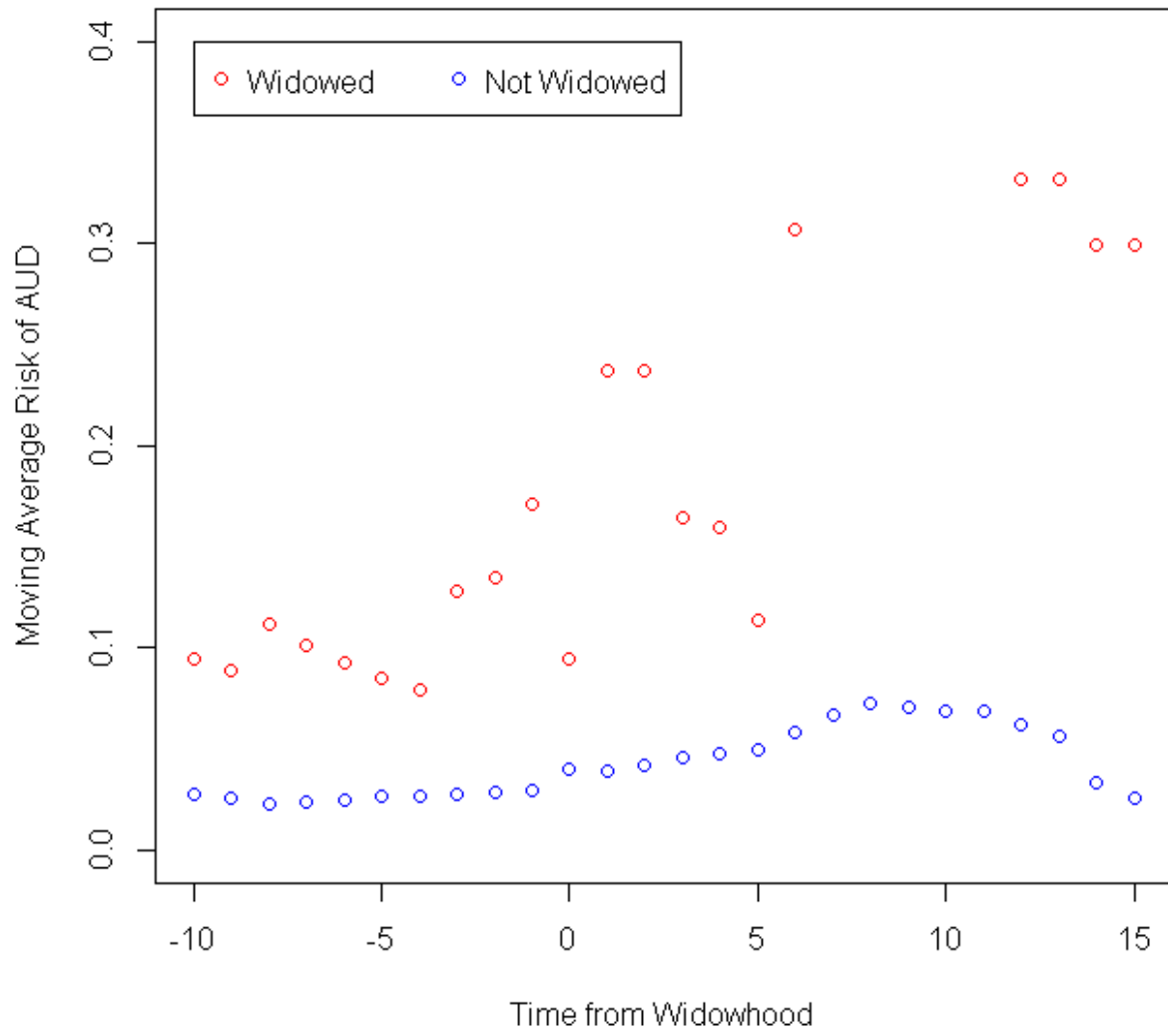


Figure 2a

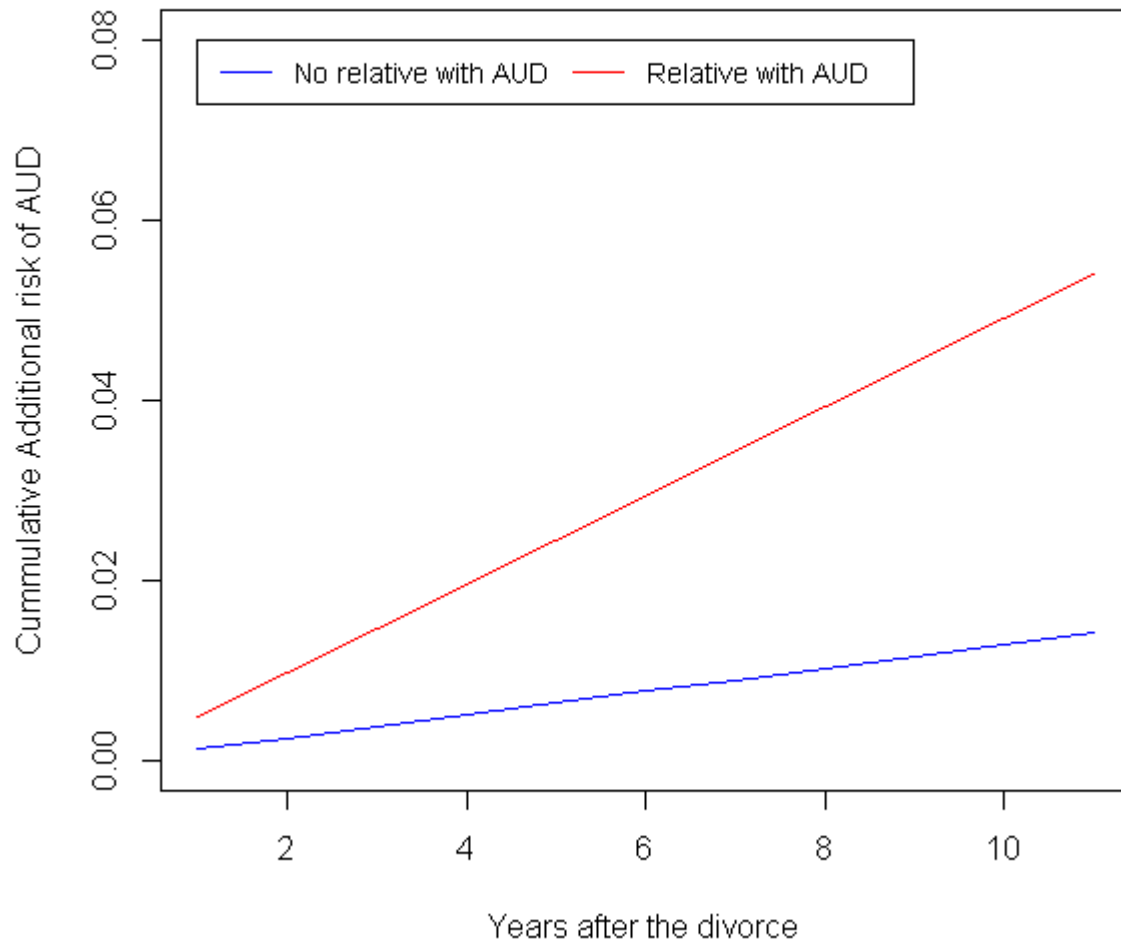


Figure 2b

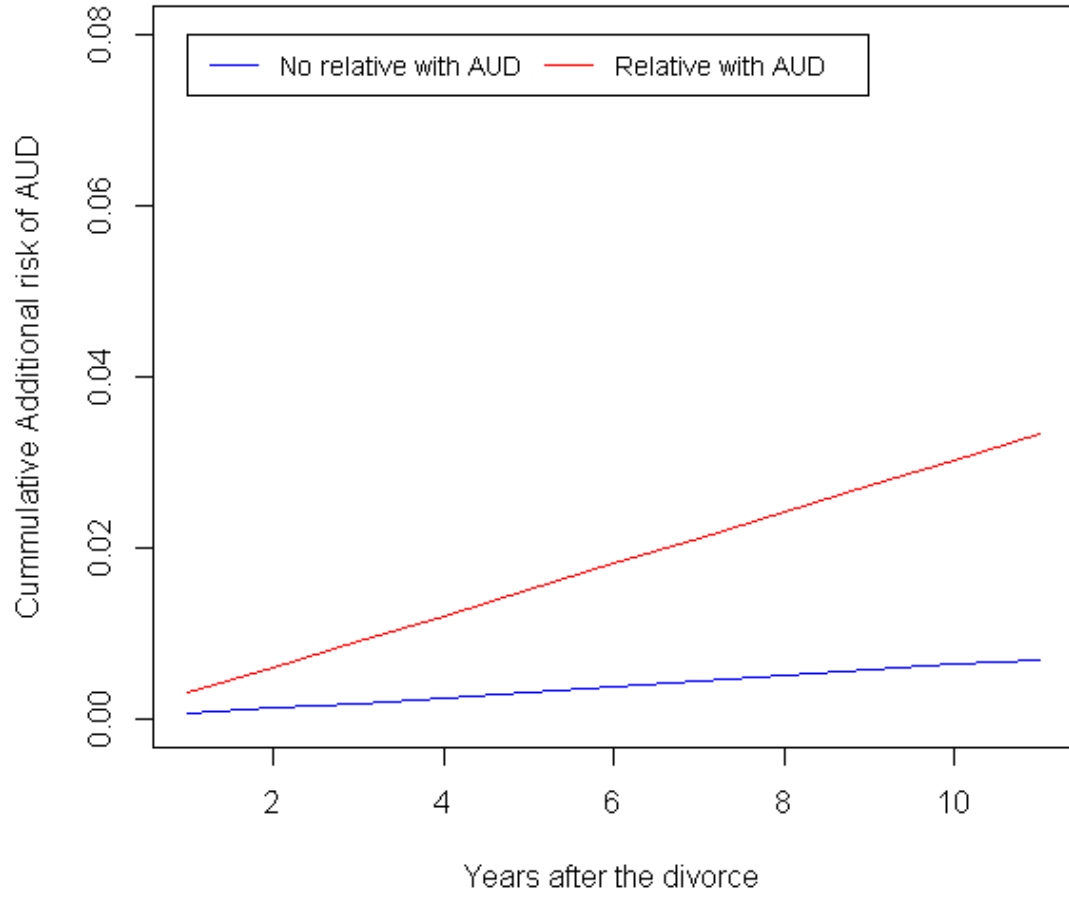


Figure 3a

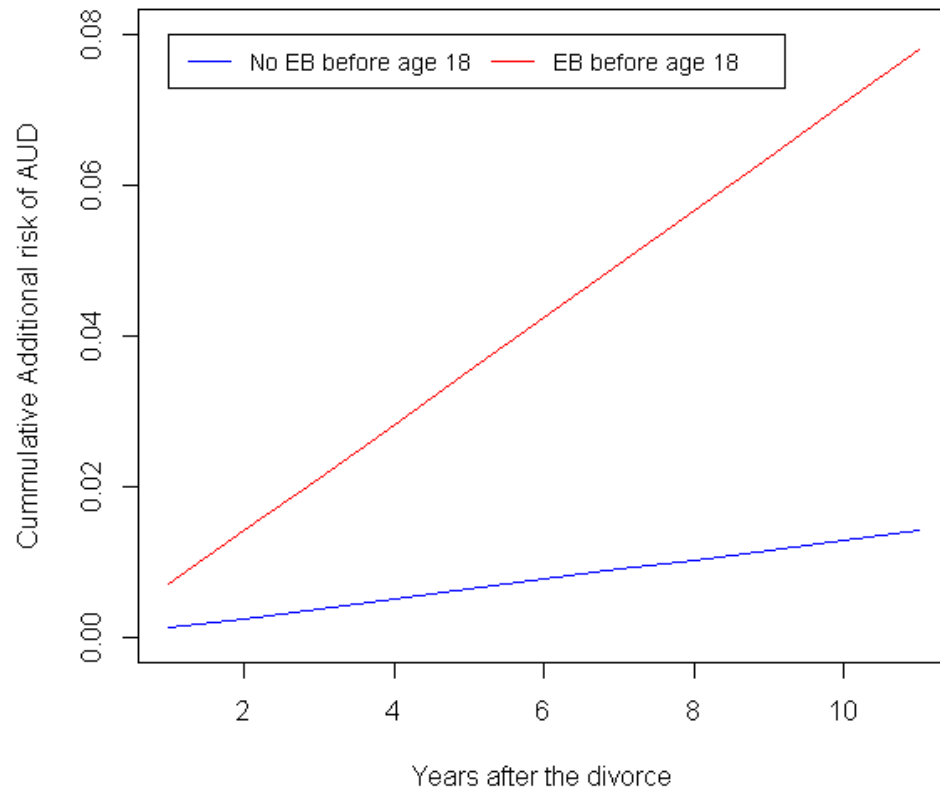


Figure 3b

