**Appendix**

*Definition of Alcohol Use Disorders*

AUD was defined by ICD codes for main and secondary diagnoses from Swedish medical registries (the Swedish Hospital Discharge Register, containing hospitalizations for all Swedish inhabitants from 1973-2010 and the Outpatient Care Register, containing information from outpatient clinics from 2001 to 2010) for the following diagnoses: ICD8 and 9: alcohol-related psychiatric disorders (291), alcohol dependence (303), alcohol abuse (305A), alcohol-related polyneuropathy (357F), alcohol-related cardiomyopathy (425F), alcohol-related gastritis (535D), alcoholic fatty liver, alcohol hepatitis, alcoholic cirrhosis, unspecified liver damage caused by alcohol (571A-D), toxic effects of alcohol (980), alcoholism (V79B); ICD10: alcohol6 related psychiatric and behavioral disorders (F10, excluding acute alcohol intoxication: F10.0), rehabilitation of a person with alcohol abuse (Z50.2), guidance and medical advice to a person with alcohol abuse (Z71.4), alcohol-related pseudo-Cushing syndrome (E24.4), alcohol-related degeneration of the nervous system and brain (G31.2), alcohol-related polyneuropathy (G62.1), alcohol-related myopathy (G72.1), alcohol-related cardiomyopathy (I42.6), alcohol-related gastritis (K29.2), liver diseases caused by alcohol (K70.0-K70.9), acute pancreatitis caused by alcohol (K85.2), chronic pancreatitis caused by alcohol (K86.0), treatment of pregnant alcoholic woman (O35.4), toxic effects of alcohol (T51.0-T51.9), and based on Anatomical Therapeutic Chemical (ATC) codes in the Prescribed Drug Register (containing all prescriptions in Sweden picked up by patients from 2005 to 2010): disulfiram (N07BB01), acamprosate (N07BB03), or naltrexone (N07BB04). Additionally, we identified individuals with at least two convictions of drunk driving (law 1951:649) or drunk in charge of maritime vessel (law 1994:1009) in the Crime registers (the Swedish Crime Register included national complete data on all convictions from 1973-2010, the Swedish suspicion register included national complete data on all individuals strongly suspected of crime from 1998-2010) insuring that we did not count arrests in the suspicion register that descried the same event contained in the conviction register.

*Definition of Educational Status*

Educational status was defined into three groups: (1) <=9 years, (2) 10-11 years, (3) 12 years or more.

*Definition of Neighborhood Social Deprivation*

All individuals in the databases are registered at a neighborhood at each year. The neighborhoods (as defined by Statistics Sweden, the Swedish government-owned statistics bureau) are called Small Areas for Market Statistics (SAMS). There are approximately 9,200 SAMS throughout Sweden, with an average population of 1,000. The neighborhood social deprivation index for each of the SAMS neighborhoods (calculated yearly) was based on register data for all residents in the neighborhood aged 25-64, i.e., the working-age population, which are assumed to have a stronger impact on the neighborhood than others. The SD composite contained the following: the proportion of residents with low education (9 years or less), the proportion of residents with low household income (below half the median income), the proportion of unemployed residents, and the proportion of individuals on financial assistance. In the models the composite was kept as a continuous variable, with the SD score ranging between -11 and 3 with lower values indicating greater levels of neighborhood deprivation.

*Definition of Criminal Behavior/Drug Abuse prior to age 25*

*Drug Abuse (DA)* was identified in the Swedish medical (the Swedish Hospital Discharge Register, containing all hospitalizations for all Swedish inhabitants from 1973-2010 and the Outpatient Care Register, containing information from outpatient clinics from 2001 to 2010) and mortality registries by ICD codes (ICD-8: drug dependence [304]; ICD-9: drug-induced psychoses [292] and drug dependence [304]; ICD-10: mental and behavioral disorders due to psychoactive substance use [F10–F19], except those due to alcohol [F10] or tobacco [F17]); in the Suspicion Register, which records arrests by codes 3070 (driving under the influence of drugs), 5010 (drug possession), 5011 (drug use), and 5012 (possession and use), which reflect crimes related to drug abuse; and in the Crime Register, which reflects convictions by references to laws covering narcotics (law 1968:64, paragraph 1, point 6) and drug-related driving offenses (law 1951:649, paragraph 4, subsection 2 and paragraph 4A, subsection 2). Drug abuse was identified in individuals (excluding cancer patients) in the Prescribed Drug Register who had filled prescriptions of hypnotics and sedatives (Anatomical Therapeutic Chemical [ATC] Classification System N05C and N05BA) or opioids (ATC: N02A) in dosages consistent with drug abuse, that is, on average more than four defined daily doses a day for 12 months.

*Criminal Behavior (CB)* was defined from the Swedish Crime Register based on the following convictions, law and chapter in parentheses: (aggravated) assault (3:5, 3:6); illegal threat (4:5); threats and violence against an officer (17:1, 17:2); intimidation (4:7); (Gross) violation of a person’s/woman’s integrity (4:4a); kidnapping (4:1); illegal confinement or restraint (4:2); (aggravated) robbery (8:5, 8:6); illegal coercion (4:4); (aggravated) Arson (13:1, 13:2); murder, manslaughter or filicide (3:1, 3:2, 3:3); sexual crimes (excluding prostitution and the buying of sexual services but including child pornography) (6:1–6:10, 6:12, 16:10A); theft of a vehicle (8:1–2, 8:4, 8:7–8); theft (including burglary) (8:1–2, 8:4); vandalism (12:1–4); vandalism causing danger to the public, sabotage, hijacking (13:3–10 (5a–b)); unlawful entering of a person’s home, trespassing (4:6); fraud (9:1–10); embezzlement (10:1–8 (5a–e)); dishonesty/crime towards a creditor (includes forged book-keeping in companies) (11:1–5); and forgery (14:1–10); and thereby excluding convictions for minor crimes like traffic infractions.