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A description of data collection,
linkage of registers and
establishment of data files

Statens institutt for alkohol- og narkotikaforskning
National Institute for Alcohol and Drug Research

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Introduction

The Norwegian Conscript Study was primarily undertaken to assess the impact of various psychological factors as well as socio-economic background in predicting later alcohol abuse in terms of admission to alcohol treatment clinics. Later on the study objects were broadened so as to include also the impact of alcohol abuse on mortality in general and on suicide specifically.

The present manuscript is meant to serve as a documentation for the various parts of data collection as well as linkage of data registers and conversion of data into system files. Furthermore, the data will be described with respect to the distributions of some of the core variables. The necessity of describing these fundamentals of the study in a separate paper is due to the relatively unique character of the study in terms of sample size and observation time, as well as the various sources for information and the legal administrative limitations that are associated with access to and linkage of person identifiable and sensitive data.

Data collection

Data collected at conscription

In Norway virtually all non-institutionalized men are conscripted for compulsory military service at the age of 19. At conscription a medical and psychological examination is performed, in order to evaluate fitness for military service.

In the early 1950ies various psychological tests were performed in order to assess general intelligence, computational ability, and technical ability. The conscripts also completed a questionnaire comprising a neurotic inventory. These tests were performed in groups of 15 to 30 conscripts under the surveillance and instruction of trained military personnel. Hence, conscription data were collected by use of group-administered questionnaires. The completed questionnaires were read by trained psychologists who interviewed the conscripts and gave an evaluation of the conscripts' fitness for military service. The contents and the wording of the group-administered questionnaires varied somewhat for the two years (cfr Appendix 1). Structured interviews were undertaken with the conscripts individually by a recruiting service officer, a physician, and a psychologist, whereby information regarding educational level and social background was collected (Appendix 1). Based upon the test results and the physical examination the conscripts were evaluated with respect to fitness for military service. Taking into account the conscripts' experiences, abilities and interests, they were designated to various types of military service.

A total of 21 366 men born in 1932 (constituting 93.7% of this male birth cohort) were enrolled for conscription in 1951, and among these a total of 17 235 met for examination and completed the tests at conscription this year. In 1952 the corresponding figures were 20 033 men born in 1933, constituting 94.9% of the male birth cohort for 1933 of whom 15 989 met for examination and completed all tests and examinations. Thus, conscription data were available for 77.8 % of all Norwegian men born in 1932 and 1933 and enrolled in the General War Commissioner register. About 10 % of the conscripts were found unfit and would therefore not serve any military service. About 1 – 2 % were found to be temporarily unfit for military service, and these would have to meet for conscription again, usually the year after. Some conscripts who met for conscription

with obvious physical disabilities were found unfit for military service at an early point of the screening, and they would therefore not fulfill all the tests.

The conscripts were also medically examined by a physician who registered medical status and diseases. The physicians also gave an evaluation of fitness for military service, taking into account also the psychologist's evaluation, and designated the conscripts to various classes of fitness for military service. Data on registration of diseases were only available for those who met for conscription in 1951 (the cohort born in 1932).

Data on admissions to alcohol treatment clinics

From 1950 and up till 1987 a central national register was kept on a substantial part of all admissions to publicly financed or publicly licensed treatment units for alcohol problems (see Appendix 2). These units do mostly cover in-patient treatment. Data on admissions to alcohol treatment comprised year at first admission and name of the treatment unit for first admission. The central national register was based on the principal medical officer's evaluation for admissions to treatment units. This register did, however, not comprise all admissions to alcohol treatment units, as a number of patients were admitted to treatment units without any evaluation given by the principal medical officer for the alcoholics' care system. Hence, an estimate of this register's coverage of all treatment units within the care system for alcoholics could not be assessed. In order to compensate for any missing data on admissions to treatment units in the central register, seven major treatment units in the eastern, and most densely populated, part of Norway were manually checked for all admissions of male patients born in 1932 or 1933 for every year from 1951 to 1987. These admissions covered both in-patient treatment and out-patient treatment, although only to a minor extent the latter category. The admissions that were found by manual checking and which were not included in the national register, comprised 41.9 % of the total number of admissions found for males born in 1932 and 1933. These were also included in the data on admissions to alcohol treatment units.

As alcohol abusers tend to "wander around" in the care system, it is assumed that the data on admissions to alcohol treatment clinics cover the vast majority of *persons* who have been treated in publicly financed

and publicly licensed institutions for alcohol abusers in the central eastern part of Norway, and that the data cover a majority of all persons who have been admitted to alcohol treatment units on a national basis. As for the registration of year at first admission to treatment clinic, the data are more dubious, as a substantial part of those being registered as admitted to a treatment clinic, may have been treated in other clinics prior to the year they were registered in the central register or any of the central eastern units that were manually checked. Hence, the recorded year of first admission to treatment may to some extent represent a later admission than the first contact with the care system.

It should also be noted that data on admissions to alcohol treatment units do not include admissions to psychiatric hospitals for alcohol treatment. It may in this respect be argued that most people with severe and long lasting alcohol problems are very likely to seek treatment also in the publicly financed or licensed alcohol treatment units.

National registers:

Data on place of residence, in terms of municipality, for all males born in 1932 and in 1933 was obtained from the national register in 1971. These data were linked with the other data files on the basis of the 11 digit person number.

By January 1. 1987 a micro fiche was obtained from the central person register comprising the 11 digit person number, and status with respect to whether the person was registered as alive, emigrated or dead.

The final data source for the Norwegian conscript study is the national death register from which data were obtained on all males of Norwegian citizenship born in 1932 or 1933. These data were also obtained from the Central Bureau of Statistics in Norway. Underlying causes of death (main causes) and up to 3 contributing causes of death were given with 5 digit codes, applying the International Classification of Diseases (ICD) version 7 from 1951 to 1968, ICD-8 from 1969 to 1985, and ICD-9 from 1986. Year of death was also obtained.

Establishment of data files and data linkages

The data from the military screening at conscription were obtained from several sources. Vidkunn C. Thrane, – who had previously been the head of the psychological service unit within the Norwegian Military Defense, had done a tremendous job by collecting data from the screening examinations at conscription, originally for the purpose of studying vocational careers of the conscripts. Thrane also checked and cleared these data for errors, and he provided a copy of his files for the two years 1951 and 1952 to the National Institute for Alcohol Research (later NIAR). These data comprised, in addition to background variables and test results, a 7-digit military identification number, but they did, however, not include the names of the conscripts. On the basis of a granted application to the General War Commissioner a computer tape with all names, dates of birth and the 7-digit military identification number were obtained, and thus the conscripts could be identified also by name. The data files obtained from Thrane comprised the summary of the test results, but the original questionnaire forms with the neurotic inventory that were completed at conscription in 1951 and 1952 were made available and the data were punched on IBM-cards at NIAR. Hence, each item in the neurotic inventory constituted new variables that were merged with the original files obtained from Thrane. The errors that were detected after file merging could often be corrected by comparing data from several sources.

Further linkage of the data collected at conscription to other data registers could only be performed by means of the Norwegian 11 digit person identity number. The 11 digit person number was established in Norway in the years 1960-1962, mainly based upon a census in 1960. Therefore the identification of all males born in 1932 and 1933 enrolled in the General War Commissioner with respect to the 11 digit person number was done manually for all 41 399 conscripts. The person identification numbers were obtained from the Central Bureau of Statistics in Norway on micro-fiches covering all persons of Norwegian nationality resident in Norway from 1962 and onwards. The micro-fiches came in two sets, – one sorted alphabetically on family name, and one set was sorted on date of birth. The manual checking of the 11 digit person identity number constituted an enormous task. Some family names were spelled differently in the central person register and in the military files, for some persons middle names and family names were ordered differently in the two

registers, and some people had changed their family names. In the latter case, the central person register will only keep the new family name in their records. In the cases of change of family names the identity would have to be ascertained for instance by phoning the local (at municipality level) person register. As the national person identity number system was fully established in 1962, those who died or emigrated before 1962 had not been given an identity number. By obtaining floppy disks comprising names and dates of birth for all Norwegian males born in 1932 or in 1933 and who died during the years 1950 – 1962, the data on year of death and cause(s) of death could be merged to the files on the basis of name and date of birth also for those who died before the person identity number system was established. Although a substantial lot of work was put into obtaining a person identity number for as many conscripts as possible, a total of 1.346 conscripts born in 1932 and a total of 1.329 conscripts born in 1933 could not be identified with respect to the Norwegian person identity number. Among these persons some may have emigrated before 1962, and some may have been recorded with erroneously spelt names or erroneous birth dates in the military register.

The conscript data were linked to the central national register on admissions to treatment units, on the basis of name and birth date. Data on place of residence in 1971 was obtained from the Central Bureau of Statistics on all males registered in the general war commissioner register. Cause(s) of death and year of death were obtained for those who died after 1962 and before 1991 by a linkage to the national death register for all Norwegian males born in 1932 and 1933. Linkage was performed by applying the 11 digit person number for subject matching of files. For those who died before 1962 the data on year of death and cause(s) of death were linked manually on the basis of name and birth date. These data constitute the basis for the Norwegian conscript study.

Hence, the data file eventually comprised data on social background, psychological test results obtained at conscription, time and place for any admission to alcohol treatment, and finally year of death and underlying and contributing causes of death for those who died before 1991. Data on admissions to alcohol treatment and cause(s) of death were also obtained for men born in 1932-33 who met for conscription either one year earlier or one or several years later than scheduled, but in these cases data from conscription were not obtained.

Establishment of data files

Conscription data:

Data on name, birth date, military identity number, socio-demographic data, evaluation of fitness for military service, and designation to kind of military service were obtained from the General War Commissioner in ASCII-files on tapes. These were converted into DDPP-files (Discrete Data Program Package). This data program resembled, by and large, SPSS, but it was developed at the computer center at the University in Oslo to be run on Control Data and DEC main-frame machines.

Data from the self-administered questionnaires were registered on punched cards at the National Institute for Alcohol and Drug Research and converted to DDPP-files.

Data on admissions to alcohol treatment units:

Data on admissions to alcohol treatment units were based on paper file system, and the data were registered on punched cards at the National Institute for Alcohol and Drug Research, and the data were converted to DDPP-files.

Register data:

Data on place of residence in 1971 and data from the national death register were obtained from the Central Bureau of Statistics on micro fiches and on floppy discs, and these were converted to FOSS-files.

The initial analyses and error checks were run in DDPP on the main-frame machine at the computer center at the University of Oslo. Later on the files were converted into the PC version of DDPP, – FOSS, to be run at PCs at the Institute for Alcohol and Drug Research. In 1993-1994 the FOSS-files were also converted into SPSS-files, and the majority of the analyses are run in SPSS.

Legal administrative procedures

In Norway the protection of privacy with respect to access to sensitive data either for research purposes, for administrative or monitoring purposes or otherwise is authorized by the law. The interpretations and administration of the Act relating to the protection of privacy with respect to research purposes are undertaken by the Norwegian Data Inspectorate.

A conditional permission to link the above described data registers was applied for and granted by the Norwegian Data Inspectorate. The permission was given for the originally described purpose of describing and predicting alcoholism in terms of admission to alcohol treatment clinics and later mortality. The subsequent inclusion of new study objects with respect to suicide required, however, that a separate project was described, and that approval for use of the same data, – although for a somewhat different research purpose, was obtained from the Data Inspectorate. This was applied for and granted in 1993.

Description of the study subjects

Place of residence

Place of residence at the time of conscription (1951 or 1952) and in 1971 are given for the study subjects on a county level in Table 1.

Table 1. Percentage distribution of study subjects with respect to place of residence at conscription and in 1971.

County	Conscript.	In 1971
Østfold	5.4	5.8
Akershus	5.4	9.7
Oslo	9.5	11.1
Hedemark	5.8	4.5
Oppland	5.4	4.5
Buskerud	4.9	4.9
Vestfold	3.7	3.7
Telemark	2.3	2.0
Aust-Agder	3.1	3.4
Vest-Agder	6.9	7.1
Rogaland	7.0	6.8
Hordaland	3.2	2.8
Sogn og Fjordane	3.6	2.7
Møre og Romsdal	6.0	5.5
Sør-Trøndelag	6.0	6.1
Nord-Trøndelag	3.6	2.8
Nordland	7.8	6.1
Troms	4.1	3.4
Finnmark	2.4	2.1

Admission to alcohol treatment units

A total of 1 270 men in the conscript study were identified in the available registers of patients admitted to alcohol treatment units. For 1 258 of these men the year at first admission is given.

Mortality

From 1951 to 1990 a total of 4 468 men among the study subjects died, for whom an underlying cause of death is given according to the

International Classification of Diseases (ICD-7 from 1951 to 1968, ICD-8 from 1969 to 1985, and ICD-9 from 1986). Contributing causes of death are also given for some of the subjects. Among those who died a total of 445 men were diagnosed with an alcohol related underlying or contributing cause of death¹. Hence, exposure to high alcohol consumption could also be partly assessed among those who died. Distribution of underlying causes of death is given in Table 2. The most prevalent causes of death were cardiovascular diseases, malignant tumors and accidents, as could be expected for males who have died before the age of 60.

The distribution of number of deaths by age at death is illustrated in Figure 1, showing a significant increase in overall numbers of deaths with increasing age, particularly from the age of 40. Separating the major causes of death, gives however, a somewhat different picture of age distribution at death. Hence, deaths due to malignant tumors and cardiovascular diseases increase significantly after the age of 40, whereas deaths due to accidents are more evenly distributed across the age span from 20 to 60 (Figures 2, 3 & 4, respectively).

1 Alcohol related psychosis (291), alcohol dependence (303), alcohol misuse (305.0), alcoholic polyneuropathy (357.5), alcoholic cardiomyopathy (425.5), alcoholic gastritis (535.3), alcoholic liver disease (571.0 - 571.3), alcoholic poisoning (E860), damage with unclear, alcohol related cause (E980). ICD-9 codes are given in parentheses.

Table 2. Distribution of underlying causes of death among Norwegian males born in 1932, 1933 who died before 1991 (n=4 468).

Underlying causes of death	Number	Per cent
Infectious diseases	38	0.9
Malignant tumors	818	19.3
Benignant and unspec. tumors	169	3.8
Endocrinous diseases	87	2.1
Alcohol dependence	85	2.0
Other mental diseases	12	0.2
Diseases of the nervous system	105	2.5
Cardio-vascular diseases	1512	35.7
Respiratory diseases	110	2.6
Liver cirrhosis	85	2.0
Oth. diseases digestive organs	63	1.5
Diseases urogenital organs	50	1.2
Skin diseases	2	0.0
Musculo-skeletal diseases	43	1.0
Symptoms and undefined cond.	206	4.9
Accidents	784	18.5
Suicides	225	5.3
Homicides	11	0.3
Undeterm. deaths, oth. causes	63	1.4

Figure 1: Distribution of total number of deaths by age at death (n= 4 468)

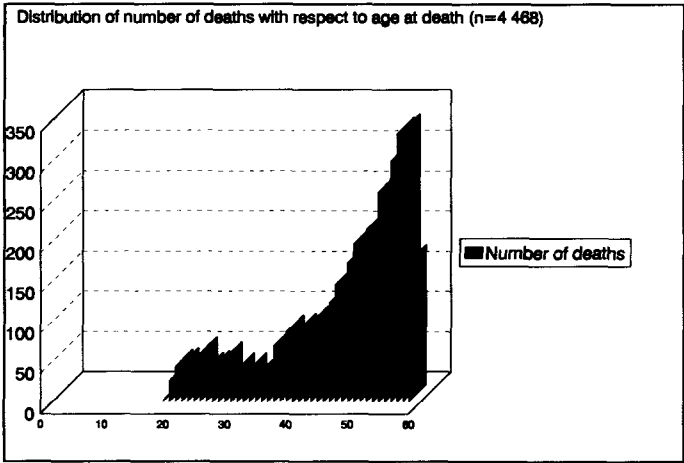


Figure 2: Distribution of number of deaths due to malignant tumors by age at death (n= 818)

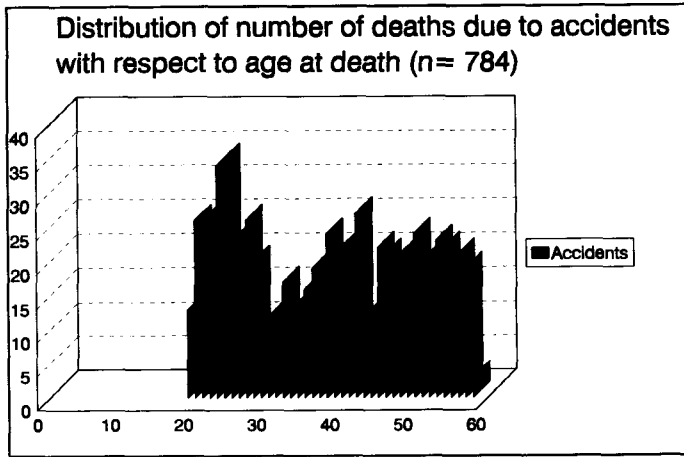


Figure 3: Distribution of number of deaths due to coronary heart diseases by age at death (n= 1 512)

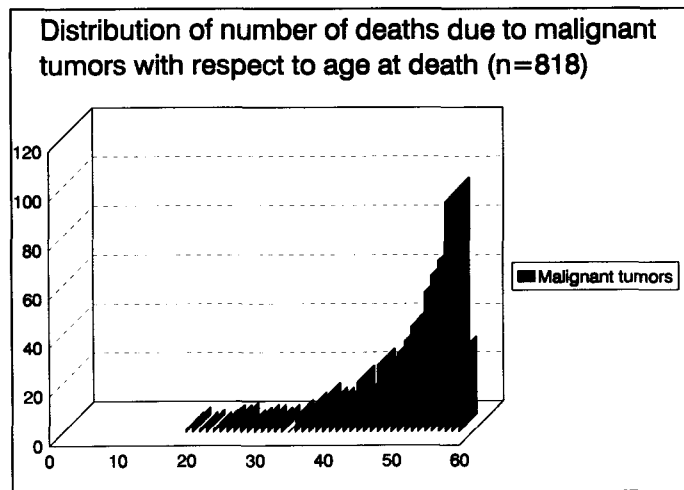
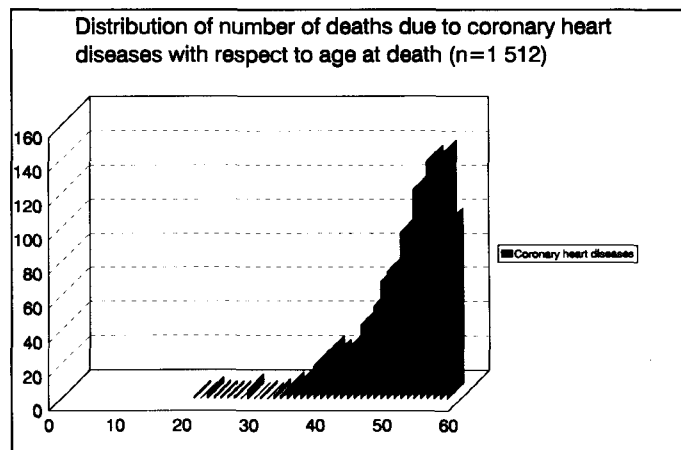


Figure 4: Distribution of number of deaths due to accident with age at death



APPENDIX 1.

Data collected at conscription, cohort born 1932:

Percentage distributions are given in parentheses

Military identity number

Date of birth

Place of residence, municipality

Skiing skills

Other skills

Type of military service designated to

Height

Present place of residence, municipality

Place of residence in school-age, municipality

Last year in primary school

Lived at home or outside home during secondary school

Reasons for living outside parental home

Travel distance, other reasons

Travel distance in hours from parental home to school

Means for transportation to school

Distance to nearest post office in travel time

Distance to main post office in travel time

Number of post deliveries per week

Distance to nearest assembly rooms in travel time

Are the conscript's parents alive?

Both (89.5), mother (6.6), father (3.3), none (0.4), do not know (0.2)

Parental relationship

Married (95.0), separated (0.6), divorced (1.9), unmarried (1.9), do not know (0.5)

Conscript's relationship with siblings

Single child in the family (10.4), elder (eldest) child (40.4), other (49.2)

Data collected by psychologist:

Occupation

Occupational continuity

Full job (89.4), seasonal jobs (7.4), sporadic jobs (3.3)

Job satisfaction

Very much (22.9), quite good (65.1), some good (9.3), not quite (2.6)

Reasons for occupational dissatisfaction

Nature of work, job environment, salary, work leaders, colleagues, combination

Reasons for change of employment

Dissatisfaction, prospects, salary, seasonal work, fired, other

Previous occupational dissatisfaction

Work, working conditions, salary, work leaders, colleagues, combinations

Education level

Father's occupation

Maladjustment in school

None (91.2), teacher (2.1), friends (0.3), school work (2.8), various (3.6)

Psychologist's evaluation of sociability

Very good (81.0), good (9.3), poor (3.6), very poor (1.2), indecisive (4.8)

Adjustment to new environment

Better, the same, worse

Psychologist's evaluation of fitness for service

Data collected by Physician:

Physician's evaluation of fitness for service

Mentally related reason for non-approval of military service (if so)

Bed-wetting, mental retardation, schizophrenia, other psychosis, neurosis, psychopathology, alcohol or drug abuse

Registration of any diseases (number of conscripts with registered disease in parentheses)

Tuberculosis (n=172), lues (n=3), malignant tumor (n=3), asthma bronchiale (n=114), diabetes (n=30), psychosis (n=167), epilepsy (n=69), endocarditis, pericarditis, rheumatic fever (n=206), chronic bronchitis (n=85), peptic ulcer, gastritis (n=136), pancreatitis (n=2), nephritis, nephrosis (n=83), polyarthritis, morbi Bechterew (n=103), congenital heart failure (n=10)

Questions posed in a group-administered questionnaire:

Do you think you will enjoy your military service?

Yes probably (24.3), perhaps (59.4), no (16.2)

Do you have difficulties concentrating your mind?

Always, often (3.9), sometimes (51.7), seldom, never (44.4)

Do you take command together with friends when you are going to do something collectively?

Yes, often (11.4), sometimes (68.9), never (19.7)

Do you feel that you lack self-confidence?

Absolutely or some (23.9), a little, no (76.1)

Are you so extremely accurate in all your work that it bothers you?

Yes (9.0), no (91.0)

Are you bothered when being watched by superiors at work?

Very much (4.8), a little (51.0), not at all (44.2)

Does the way you look make you feel shy?

Often (2.0), sometimes (25.6), never (72.4)

Did it happen that you got into fights when you were at primary school?

Often (6.6), sometimes (62.9), never (30.4)

Do you get bothered by useless thoughts that are difficult to get rid of?

Often (3.1), sometimes (29.6), never (67.4)

Does it happen that you feel lonely?

Often (4.0), sometimes (40.7), never (55.4)

Does it happen that you drink in order to get away from sorrows and worries?

Often (0.6), sometimes (6.9), never (92.5)

Do you usually lay awake for a long time before you fall asleep?
Often (5.9), sometimes (40.0), never (54.0)

Does it happen that you have nightmares?
Often (1.7), sometimes (31.1), never (67.2)

Do you have difficulties in relaxing completely when you rest?
Yes (10.9), no (89.1)

Are there some people who continually annoy you and irritate you?
Yes (13.4), no (86.6)

Do you ask others for help and advise when you are going to make a decision?
Often (7.6), sometimes (77.8), never (14.6)

Does it happen that people hurt you?
Yes (8.6), no (91.4)

Are you very sensitive to sounds?
Yes (40.8), no (59.2)

Does it happen that you feel like being an outsider when together with others?
Often (3.0), sometimes (49.6), never (47.4)

Does it happen that you get scared without knowing why?
Often (1.6), sometimes (19.9), never (78.5)

Did it happen that you did not go to school even when you were not ill?
Often (0.9), sometimes (20.2), never (79.0)

Do you have a troublesome impression that people look at you or talk about you?
Often (2.0), sometimes (23.5), never (74.5)

Have you been worried about any condition concerning your heart?
Often (1.8), sometimes (13.5), never (84.7)

Does it happen that you get a strong desire to run away from it all?
Often (2.5), sometimes (27.8), never (69.7)

Have you ever had a strange feeling of not really being yourself?
Yes (12.9), no (87.1)

Have you ever been afraid of having a nervous break-down?
Yes (6.0), no (94.0)

Do you often feel tired and indisposed?
Yes (20.3), no (79.7)

Do you suffer from headaches?
Often (6.1), sometimes (45.9), never (48.1)

Is there any aspect of your health that bothers you?
Often (9.2), sometimes (30.2), never (60.6)

Do you have difficulties in forgetting embarrassing events?
Yes (24.5), no (75.5)

Does it happen that your hands tremble?
Often (5.5), sometimes (48.5), never (46.0)

Are you afraid that other people will make a fool out of you?
Yes (13.0), no (87.0)

Have you been bed-wetting after you started in primary school?
Often (1.6), sometimes (6.4), seldom (14.7), never (77.3)

Does it happen that you think there is someone behind you when you walk alone in the dark?
Often (2.2), sometimes (26.7), never (71.1)

Have you ever had the feeling that things around you were not real?
Yes (8.6), no (91.4)

Does it happen that you bite your nails?
Often (4.9), sometimes (28.3), never (66.8)

Have you been bothered by cramps or convulsions or other kinds of attacks?
Yes (9.1), no (90.9)

Does it happen that you get so angry that you don't know what you are doing?
Often (1.2), sometimes (16.5), never (82.3)

Have you ever had a nervous breakdown?
Yes (1.9), no (98.1)

Does it happen that you feel so depressed that you don't feel like doing anything at all?
Often (1.1), sometimes (19.0), never (79.9)

Are you very forget-full or absent-minded?
Yes (18.0), no (82.0)

Are you bothered with damp and clammy palms?
Often (7.7), sometimes (53.7), never (38.5)

Are you bothered with bad conscience?
Often (1.2), sometimes (38.7), never (60.1)

Do you easily jump up at sudden sounds?
Yes (32.6), no (67.4)

Do you feel shy towards girls?
Often (4.6), sometimes (49.8), never (45.6)

Are you bothered about something about your stomach?
Often (5.6), sometimes (33.0), never (61.4)

Do you easily give up if there is something that you don't manage yourself?

Often (4.2), sometimes (55.6), never (40.3)

Do you think that you have enemies who influence you or who do their best in order to annoy you or hurt you?

Yes (3.4), no (96.6)

Are there any specific foods or courses that you can not tolerate?

Many (2.2), a single one (32.2), none (65.6)

Do you take any tranquilizing or stimulant drugs?

Often (1.1), sometimes (12.4), never (86.6)

Do you have quite a lot of worries?

Yes (3.8), no (96.2)

Have you ever been admitted to hospital for over-strain, nervousness or similar conditions?

Yes (3.3), no (96.7)

Have you ever had asthma or hay-fever?

Yes (6.5), no (93.5)

Have you ever fainted?

Often (1.3), sometimes (20.2), never (78.5)

Do you think people regard you as weird?

Yes (1.4), perhaps (25.2), no (73.4)

Do you often feel restless?

Yes (17.8), no (82.2)

Data collected at conscription, cohort born 1933:

Percentage distributions are given in parentheses

Military identity number

Date of birth

Person identity number

Place of residence, municipality

Type of military service designated to

Height

Evaluation of fitness for service

Parents alive

Both (90.7), only mother (6.1), only father (2.8), none (0.3), do not know (0.2)

Parental relationship

Married (95.3), separated (0.6), divorced (1.6), unmarried (2.0), do not know (0.5)

Number of habitation (living) rooms at home

Habitation density at home (number of persons per room)

Number of siblings in the family

Father's education

Accuracy test

Conscript's education level

Data collected by psychologist:

Conscript's occupation

Present job satisfaction

Present well-being with friends

Previous job satisfaction

Previous well-being with friends

Home environment

Psychologist's evaluation of fitness for service

Data collected by physician:

Physician's evaluation of fitness for service

Mentally related reason for discharge from military service (if so)

Bed-wetting, mental retardation, various reasons, psychosis, neurosis

Questions posed in a group-administered questionnaire:

Do you think you will enjoy your military service?
Yes (18.4), probably (54.2), perhaps (22.8), no (4.6)

Do you take command together with friends?
Yes (6.2), often (26.4), rarely (53.3), never (14.1)

Do you easily give in?
Yes (3.4), often (5.0), rarely (75.5), never (16.1)

Do you have difficulties in concentrating your mind?
Always (3.1), often (6.2), sometimes (40.0), seldom (50.7)

Do your hands tremble?
Yes (4.8), often (7.0), seldom (50.3), never (37.9)

Are there sounds that will make you nervous or that you are particularly sensitive to?
Many (2.1), some (10.5), a single (38.7), none (48.7)

Do you jump up at unexpected sounds?
Yes (4.4), often (9.4), seldom (68.0), never (18.2)

Do you have nightmares?
Yes (1.9), often (4.0), seldom (43.5), never (50.6)

Have you experienced involuntary urination after schoolage?
Yes (2.1), often (5.5), seldom (10.0), never (82.4)

Were you truant at school?
Yes (1.0), often (9.1), seldom (19.2), never (70.7)

Did you have to fight in order to achieve respect?
Yes (2.2), often (14.6), seldom (22.9), never (60.3)

Do you think people regard you as weird?
Yes (1.7), perhaps (5.7), do not know (47.7), no (44.8)

Do you have an unpleasant impression that people look at you or talk about you?

Yes (1.7), often (2.8), seldom (31.3), never (64.2)

Do you feel nervous?

Yes (4.7), often (18.6), seldom (37.6), never (39.1)

Do you lack self-confidence?

Absolutely (2.5), some (19.4), a little (43.4), no (34.6)

Do you tend to forget?

Very much (3.2), quite (18.0), a little (61.6), no (17.2)

Do you remember embarrassing events?

Many (2.3), some (11.1), a single (42.6), none (44.0)

Have you ever fainted?

Yes (1.5), often (5.5), seldom (22.4), never (70.5)

Do you suffer from headaches?

Yes (7.2), often (20.9), seldom (39.4), never (32.5)

Do you take or have you taken drugs for nervous conditions?

Yes (0.7), often (2.4), seldom (5.4), never (91.5)

Do you usually feel tired and indisposed?

Yes (1.5), often (5.4), seldom (71.9), never (21.3)

Does it happen that you are in a so bad mood that you don't feel like doing anything at all?

Yes (1.6), often (10.7), seldom (31.8), never (55.9)

Does it happen that you feel anxious or scared without knowing why?

Yes (1.2), often (7.1), seldom (17.8), never (74.0)

Does it happen that you think someone follows after you in the dark?

Yes (1.4), often (2.0), seldom (21.6), never (75.0)

Are there people who often annoy you or irritate you?
Many (0.9), some (4.6), a single person (34.2), none (60.4)

Do you have difficulties in making your mind up even when it comes to trifles, without consulting others?
Yes (1.5), often (3.2), seldom (50.0), never (45.2)

Are you so extremely accurate in all your work that it bothers yourself and others?
Yes (0.9), often (3.8), seldom (30.7), never (64.6)

Does it happen that you get nervous and clumsy when superiors watch you when you work?
Yes (2.7), often (9.2), seldom (49.9), never (38.2)

Do you usually work slowly or fast?
Very slowly (1.8), a little slowly (28.3), quite fast (65.6), very fast (4.3)

Are you afraid that others will make a fool out of you?
Yes (2.3), often (15.8), seldom (36.5), never (45.5)

Do you enjoy drinking alcohol?
Alone (0.5), with friends (18.9), at parties (35.9), never (44.7)

Are you troubled with thoughts that are difficult to get rid of?
Yes (1.9), often (11.5), seldom (33.8), never (52.8)

Have you had attacks of convulsions or similar conditions?
Yes (1.3), often (3.8), seldom (8.5), never (86.4)

Have you ever stammered?
Very much (1.1), some (3.5), a little (12.9), never (82.5)

Do you feel uneasy and restless?
Yes (1.5), often (3.5), seldom (47.2), never (47.8)

Have you ever had asthma or hay-fever?
Yes (4.6), perhaps (2.5), do not know (14.4), no (78.5)

Do you usually feel lonely?

Yes (0.9), often (3.7), seldom (44.6), never (50.8)

Are you jumpy (nervous)?

Yes (4.1), perhaps (14.3), do not know (45.1), no (36.5)

Have you ever had a strange feeling of not being yourself?

Several times (0.9), some times (7.0), a single occasion (23.0), never (69.1)

Does it happen that you feel different from most people?

Yes (0.9), often (2.6), seldom (28.8), never (67.7)

Does it happen that you get so angry that you don't know what you are doing?

Yes (1.2), often (7.1), seldom (23.8), never (67.9)

Have you ever had the feeling that things around you were not real?

Yes (0.5), often (4.2), seldom (11.6), never (83.7)

Do you think you are more anxious and cautious than most people?

Yes (1.6), perhaps (5.8), do not know (42.5), no (50.0)

How do you usually perform your work with respect to accuracy?

Neglect (1.2), inaccurate (16.3), accurate (75.1), precise (7.4)

Would you change your work if you were to have the same salary as you have now?

No (33.7), perhaps (31.0), probably (17.7), not salaried (17.6)

Do you feel uncomfortable and shy in the company of people you don't know?

Yes (4.7), often (6.9), seldom (61.0), never (27.3)

Does it happen that you get hurt from what people say to you?

Yes (1.7), often (5.2), seldom (52.2), never (41.0)

Are you bothered with sweat in your palms?

Absolutely (5.1), somewhat (17.4), a little (49.1), no (28.4)

Do you like to put all your efforts into a long-lasting and exhausting competition?

Fine (29.0), bad (14.3), no (9.6), have not tried (47.1)

Do you have difficulties in relaxing completely when you rest?

Yes (3.1), often (4.9), seldom (40.9), never (51.1)

Have you ever been afraid of having a nervous break down?

At many occasions (1.4), some times (7.4), a single occasion (17.3), never (73.9)

Does it happen that you feel like an outsider when being with others?

Yes (0.9), often (3.8), seldom (50.2), never (45.1)

Do you have difficulties falling asleep at night?

Yes (3.5), often (15.3), seldom (29.8), never (51.4)

Is there anyone who always threatens you or try their best to hurt you?

Definitely (0.5), think so (1.8), do not know (30.8), no (66.9)

Is there any aspect of your health that bothers you?

Yes (5.7), often (7.0), seldom (21.7), never (65.6)

Have you been admitted to hospital for any nervous condition?

Yes (1.3), perhaps (0.8), do not know (3.6), no (94.3)

Do you have troubles with your stomach?

Yes (2.9), often (4.6), seldom (32.7), never (59.8)

Are there any kinds of foods or courses that you disgust?

Many (3.0), some (14.0), a single (48.1), none (34.9)

APPENDIX 2.

The central register on admissions to alcohol treatment units was established in 1950 and existed throughout 1986. The principal medical officer of the alcoholics care system authorized admissions to treatment units on the basis of reports from local temperance boards or police reports, or on the basis of applications from the abusers themselves, their families, physicians, hospitals or prisons, to be admitted to treatment. Over the 37 year period that this central register existed, more than 75 000 authorizations for admissions to treatment were registered for a total of 25 721 persons. Although authorization of admission to treatment could be given on the basis of police reports or temperance board reports, treatment was voluntary. Hence, a proportion of those who were registered for admission to treatment may not actually have received treatment.

The register comprised authorized admissions to 118 treatment units, supervision homes and protection homes over the years from 1950 to 1986. A small number of treatment units were assumed to be poorly or insufficiently covered by the central register with respect to number of authorized admissions. Seven major treatment units, mostly in the central eastern (and most densely populated) part of Norway, were therefore manually checked for males born in 1932 and 1933, and those who were found by this manual checking and who had not been registered in the central register, were also included. Number of patients admitted to treatment units found in the central register and number of patients admitted that were found additionally by manual checking are given for the central register and each of the seven treatment clinics separately on the list below (Table 3).

Table 3. Distribution of Norwegian men born in 1932 or 1933 enrolled in the General War Register and later admitted to an alcohol treatment unit according to data source for registration of admission to treatment.

	Number of admissions	Percentage
Central register	705	55.5
Economic Medical System register	189	14.9
Sosialbygget in Oslo	113	8.9
Opstad work camp	5	0.4
Bergen Blue Cross	6	0.5
Trasop clinic	133	10.5
Incognito clinic	54	4.0
Oslo Blue Cross	51	4.0
Others	14	1.1

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