The military service: mental distress and changes in health related behaviours among Norwegian army conscripts

Edvin Schei

Institute of Community Medicine
University of Tromsø
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"All is change, all yields its place and goes." Euripides, 422 BC
"The more things change, the more they stay the same." Alphonse Karr, 1849

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Among the many unlikely circumstances leading to the appearance of this thesis, one stands out as especially memorable in its classic randomness. A flip of the coin gave me the job of chief medical officer in Brigade North, the highest ranked and best paid job of any conscript in the armed forces. With unique potentials, it turned out, for doing the kind of research presented in the present work. I want to thank my conscripted colleague Morten Rostrup for opening my eyes to those potentials, as well as to the fascinations of mountain climbing, during our long ascent to the top of Piggtind, in the Lyngen Alps, a sunny magical midsummer night in 1986.

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The bulk of the present work has been carried out at the department of preventive medicine, Institute of Community Medicine, University of Tromsø. During these years I have learned to appreciate the institute as a highly qualified research institution, employing an astonishing number of helpful, bright and inspiring persons. My closest collaborator has been professor Anne Johanne Søgaard. Notwithstanding her limited experience with the military world, Anne Johanne has been a continuous source of support and sound advice - a good guide through what the novice may easily perceive to be a "jungle of research". I also want to express my gratitude to Vinjar Fønnebø for his friendship and his well informed comments and advice concerning analytical procedures.

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1. LIST OF PAPERS.

I. Schei E, Søgaard AJ. The impact of military service on young men's smoking behaviour. Preventive Medicine 1994; 23:242-8.

II. Schei E, Fønnebø V, Aarø LE. Use of smokeless tobacco among conscripts. Preventive Medicine 1990; 19:667-74.

III. Schei E. A strengthening experience? Mental distress during the military service. J Soc Psychiatr Psychiatr Epidem 1994; 29:40-5.

IV. Schei E. Sweet comfort. Changes in food habits during military service. European Journal of Public Health. In press.

V. Schei E. The impact of military service on young men's alcohol consumption. International Journal of the Addictions. Submitted.

2. THE PROJECT

A short history of the initiation of the research project may serve to clarify its nature:

During my military service as chief physician in Brigade North in 1986, reports from 15 other conscripted doctors who were in daily contact with soldiers made it clear that cigarette smoke was a major reason for medical complaints. Besides general discomfort and irritation among (mainly) non-smokers, afflictions such as running eyes and nose, sore throat, sleeplessness, car-sickness, coughing, infections of the respiratory tract and hypersensitivity reactions were often attributed to the cigarette smoke that pervaded most vehicles and indoor areas. At the time, it was a widespread opinion among military personnel and in the civilian community that many men started to smoke during military service.

Military regulations placed no restrictions on smoking, except in kitchens, mess halls and areas with danger of fire. Most soldiers lived in 6-bed dormitories. It was later documented that smoking occurred in the dormitories of 91% of the conscripts (Paper I). In July 1986, a pilot survey in two infantry companies (N=180) revealed that 66% were smokers, yet more than 50% wanted smoking banned in their dormitory. The results were forwarded to the Chief of Defence, general Fredrik Bull-Hansen, in a letter arguing for a ban on smoking in dormitories, recreation rooms and military vehicles.

With support from the National Council on Smoking and Health, the Norwegian Cancer Association and the National Cancer Registry in Oslo, the Institute of Social Psychology, University of Bergen, and the Institute of Community Medicine, University of Tromsø, a questionnaire with 28 questions concerning smoking and use of smokeless

tobacco was constructed, and completed by some 2000 conscripts (cf. chapter 4.2.1.). By the end of the year a detailed report of the results was forwarded to the Chief of Defence, repeating the recommendations regarding smoking regulations. Half a year later, in July 1987, new regulations were implemented in the Norwegian army, navy and air force, banning smoking in dormitories, most indoor areas and all military vehicles[1].

My first experiences with research had proved fruitful, the social psychology of military service fascinated me, and eventually I decided to follow the path a bit further. In the autumn of 1988 I started out as a research fellow in Tromsø, funded by the Norwegian Cancer Association. With the main focus still on tobacco behaviour, new surveys of conscripts and officers in Brigade North were carried out in 1989. Over time focus has broadened, and the work presented in this thesis has come to include other aspects of health and health-related behaviour among conscripts, namely mental well-being and consumption of junk-food and alcohol.

Among the major motives for continuing, after military service, to study this particular field were the following:

- Military service is a society-imposed duty. Society therefore has a special responsibility for monitoring the effects of military service on men's health, lifestyle and life career.
- There is little knowledge and little public debate about the influence of military service on the values and behaviour of Norwegian men.
- The 1986 study had confirmed that many conscripts develop negative behaviours (increased smoking and use of smokeless tobacco) during military service.
- The military service is an educational institution with unused potentials for health promotion. Increased awareness of and interest in the conscripts' personal development ought to be possible without interfering with military training.

Any piece of research will bear the mark of its originator, despite all attempts to prevent bias. Selection of research topics, methods and interpretations reflect the author's knowledge and prior opinions on the matter. It is never easy to tell what sources one's own thoughts stem from. Generally, my insight in the military world is based both on what I have learned while carrying out my own research, and on personal experience from 8 weeks as a military recruit in 1978 and 12 months as a military doctor in Brigade North in 1986. In addition, impressions from interaction with conscripts, officers of all ranks, and civilian men of all standings who once were conscripts have shaped my view of the military world and its influence on young Norwegian men.

3. PURPOSE OF THE STUDY

The purpose of the study was to examine whether conscription entails mental distress and significant behavioural changes in young Norwegian men during the period of military service.

More specifically, the study examined prevalence of, changes in, and predictors of: cigarette smoking, use of smokeless tobacco, snacking, alcohol consumption, and mental distress among Army conscripts.

4. MATERIALS AND METHODS.

4.1. The military.

The aim of this chapter is to give factual information concerning the function of the Norwegian conscription system, and a few main characteristics of Brigade North, where the present study was carried out. A more detailed exposition of the transition from being a young civilian male to being a soldier - culturally, socially and psychologically - is given in chapter 7.

4.1.1. Conscription

All Norwegian males are seen at a medical board at age 18, one year before military service. About 70% of each cohort complete military service. The following details concerning selection and attrition during the 1980s are based on a recent study by Grøgaard & Ugland[2].

Conscientious objectors, who generally are in excellent health and on a high cognitive level, represent 4-6% of the total. A further 8-11% are transferred to the civil defence, mostly because of inferior medical and/or cognitive classification.

Dismissal for medical reasons occur both at the medical board, at enrolment one year later, and during the service. Altogether, medical attrition amounts to approximately 14%.

Grøgaard & Ugland concludes that the conscript is "a common Norwegian boy on all dimensions, except for his health, which is better than average."

The final selection to army, navy or air force, and the ultimate geographical destination, is based on a combination of the recruits' personal choice and the needs of the various units, where the latter is given first priority. Both air force and navy has a somewhat higher demand for well educated personnel than the

army, which on the other hand has a higher demand for physically strong recruits. This means that social class and level of cognitive ability on average is somewhat lower in army recruits than in navy and air force conscripts. When comparing army conscripts and civilian males, however, it must be kept in mind that the 10-15% with the lowest ability levels are dismissed or transferred to the civil defence before enrolment.

An idea of the comparability of conscripts in Brigade North and civilian men is given in table 1, which gives the educational levels of conscripts in Brigade North (Paper I) and civilian males ages 19-21 in 1986. (Census data from the Norwegian Central Bureau of Statistics).

Table 1. Educational level in 1986 of Norwegian males ages 19-21 (census data) and conscripts in Brigade North (Paper I).

Years of education	Norwegian males ages 19-21. (N=102585)	Conscripts. Mean age 20.6 years (N=2097)
9	16.5%	16.0%
10-11	43.6%	41.9%
12 +	39.9%	42.2%

4.1.2. Brigade North.

Brigade North is the main training unit of the Norwegian army. Situated 400 kilometres north of the Arctic circle, it is a major part of Norwegian defences against the former Soviet Union, today Russia.

Conscripts are transferred to Brigade North four times a year, after three months at military training school. They normally spend nine months in the brigade. Due to the seasonality of the education system, with graduation normally taking place in June, the educational level of the recruits in the four yearly contingents varies considerably.

The military camps are situated in four different localities in the county of Troms, mostly in rural and sparsely populated surroundings where the military establishment has a major impact on economy and influences daily and public life. The climate is relatively mild in summer and cold in winter. Average temperatures (Bardufoss): July +13.0, January -10.4 degrees centigrade.

Running an organisation with some 4000 persons on a 24 hour basis implies much activity besides training for war. Housing, food, transport, maintenance of equipment, social and medical services must function. Soldiers are given extremely varying tasks within the brigade, ranging from the infantryman's strenuous bodily activities via the jobs of mechanics, nurses, cooks or policemen to the sedentary life of the mess assistant. Not only the nature of the daily activities, but also the social climate, including self-perception and traditions of "correct" behaviour varies from one group to another.

Conscripts never spend more than nine months in the brigade, officers rarely more than two years. This high turnover necessitates a constant educational program involving practically all personnel groups, and requires daily schedules and service functions to be highly routinized, with detailed plans and regulations governing each and every aspect of the service.

4.2. The surveys.

Table 2. Summary of surveys carried out among conscripts in Brigade North and used in the present thesis.

Survey	Month - year	Survey population	N eligible subjects	N partici-pating	N accepted questionnaires	Response rate
1986.I	Aug/Sept 1986	All conscripts	3150 (approx.)	2238	2112	90.4%
1986.II	Oct 1986	Conscripts, random sample	463	308	264	87.4%
1989.I (Q1)	April 1989	Conscripts, contingent A	1504	1205	1169	97.0%
1989.II (Q2)	Nov/Dec 1989	All conscripts	3100 (approx.)	2130	2066	97.0%

The data were collected in two waves, each including two surveys, in 1986 and 1989. Table 2 gives an overview of the surveys. Papers I and II used 1986 data, Papers III, IV and V data from 1989. The questionnaires can be found in Appendix 2.

Administration of the surveys was facilitated by the military organisation. All potential participants could be, and indeed were, ordered to attend the survey sessions. Answering the questionnaire was voluntary (this was explicitly stated at every session), but non-respondents were not allowed to leave the room until the first respondents had completed and returned their questionnaires. The soldiers were assembled in platoons or companies, varying in size from 30 to 200 soldiers, and were supervised during the sessions by their regular officers. With the exception of the first 1989 survey, a physician was present at all sessions and introduced the questionnaire and the purpose of the study, and counted the number of soldiers present as well as the number of completed questionnaires that were returned. No communication between respondents was allowed during the survey sessions.

4.2.1. 1986 I

The questionnaire, containing 28 items (Appenix 2) was developed in collaboration with the National Council on Tobacco and Health. The questions concerning tobacco use were identical with those used by the Norwegian Central Bureau of Statistics (CBS) in national population surveys. The National Data Inspectorate granted permission to include names and national identification numbers in the data base. This information makes it possible to trace individual respondents and make follow-up studies of health related behaviour in the future.

During August and September 1986, the questionnaire was completed as part of the companies' monthly so-called "doctor's hour". All soldiers except those on leave of absence, hospitalised or otherwise occupied by randomly assigned service duties participated.

Afterwards, the questionnaires were brought to the hospital ward where nurses and medical orderlies filled in data on height,

weight, pulse rate and blood pressure from the soldiers' health records. These data had been recorded during routine health checks at enrolment, using standard scales and sphygmomanometers. Data from the questionnaires were punched, and the national identity numbers checked by comparing with CBS files, at the Norwegian Cancer Registry in Oslo. The questionnaire was presented to 2336 conscripts, and 2238 questionnaires were completed. 126 anonymous or unidentifiable questionnaires were discarded, leaving 2112 (90.4%) to be analysed.

4.2.2. 1986 II

As a validation procedure of self-reported smoking status, serum thiocyanate levels were measured in a 15% random subsample of the conscripts. In October 1986, 15 platoons in Brigade North (each with from 15 to 50 soldiers, a total of 463 conscripts) were selected by drawing of random numbers, and ordered to meet at the hospital ward. They were informed about the study, which consisted in giving a blood sample and filling in a questionnaire almost identical to the one used in the main survey. The purpose of the study was stated as a comparison of the amount of a certain chemical compound in the blood of smokers, passive smokers and snuff users.

324 (70% of the 463 names on the platoon lists) attended the study. Except for one platoon in which all 16 soldiers gave blood samples, but where completion of the questionnaires was postponed and eventually never done, all participants (308) completed the questionnaire. Of those who completed the questionnaire, 264 (86%) gave a blood sample. The serum thiocyanate analyses were carried out at the central laboratory of Ullevål hospital, Oslo, by Dr. O. P. Foss.

4.2.3. 1989 I

A main interest of the 1989 survey was to collect longitudinal data on a group of conscripts. Figure 1 gives the outline of the data collection. A short questionnaire (Henceforth called Q1, cf. Appendix 2) was distributed to all soldiers of contingent A in April 1989, as part of the transfer routine from training school to Brigade North. Soldiers in contingent A had served 3 months at the time. The completion of the questionnaire was performed in platoons under supervision by officers. Q1 was presented to 1205 conscripts, 1169 of whom completed the questionnaire (response rate 97%). The questionnaire was designed to record baseline data concerning present and premilitary alcohol consumption, food habits, smoking, use of smokeless tobacco, physical activity, and overall satisfaction with military life so far.

Q1 contained a tear-off code number, which was to be pasted in the soldier's paybook and eventually copied to the follow-up questionnaire (Q2). By using the code number, it was possible to match the 2 questionnaires of an individual soldier from contingent A without threatening his anonymity. On the practical level the code system was quite vulnerable (see chapter 6.1.1. for a detailed discussion). In the end, valid code numbers were reported by 418 (54%) of the 781 contingent A soldiers who

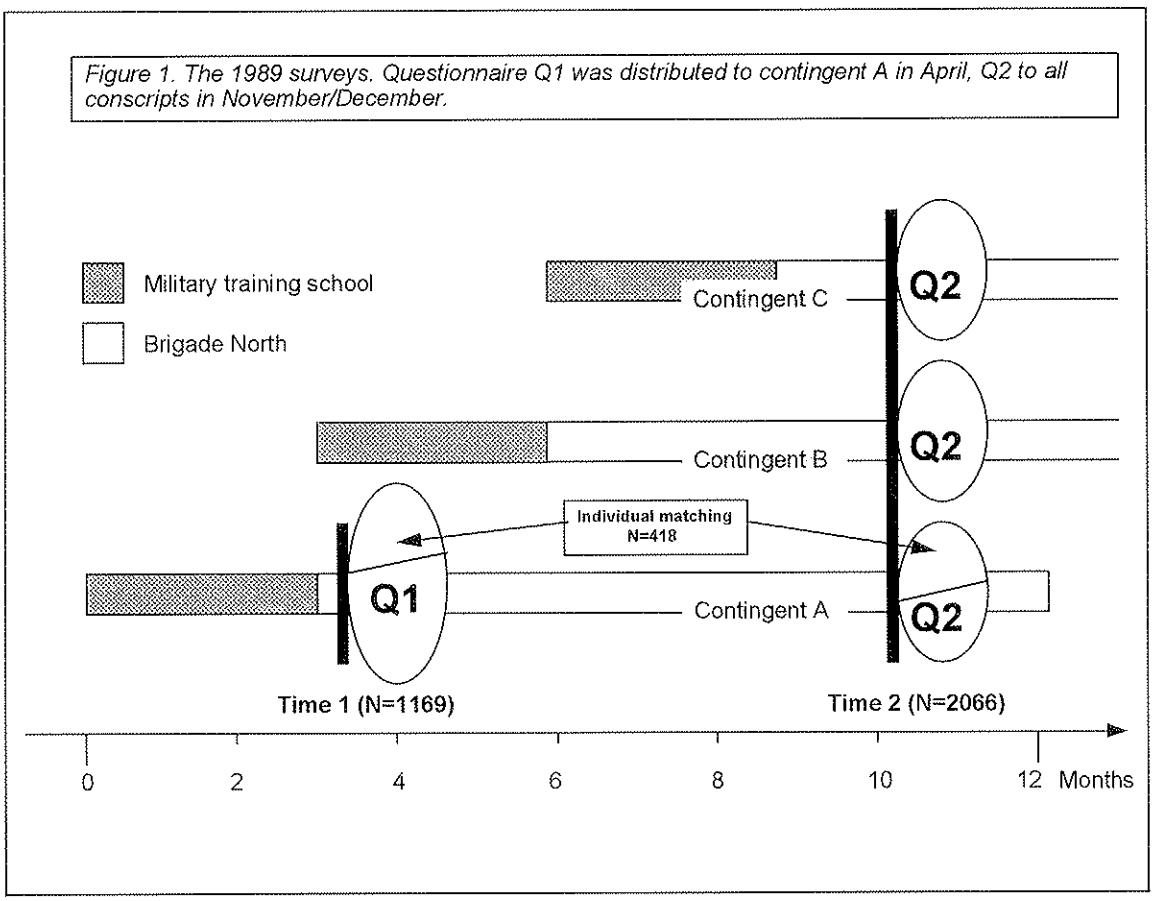
participated in the follow-up survey 7 months later.

4.2.4. 1989 II

The second 1989 survey was carried out in November/December, and addressed all conscripts in Brigade North. Only those able to participate at the single survey session arranged within each company were labelled "participants". Given the practical advantages of doing the survey in a military organisation, it was deemed feasible to use a relatively long questionnaire addressing a large number of topics. Because some questions concerned sensitive data, it was decided to make the survey anonymous.

The practical procedures were similar to those followed in 1986 I. In addition to officers from the respective units, the author was present, introduced the study and answered questions where clarification was demanded. In all sessions the great majority of soldiers expressed eagerness to take part in the study,

Figure 1. The 1989 surveys. Questionnaire Q1 was distributed to contingent A in April, Q2 to all conscripts in November/December.



and concentrated silently on the task of answering all questions. The soldiers used between 30 and 60 minutes to complete the questionnaire, which was then collected by the author. In all, the questionnaire was distributed to 2130 soldiers in groups of 30 to 200. 2098 questionnaires were returned, 32 of which were judged to be inconsistent or too incomplete to be used, leaving a total sample of 2066 questionnaires (97.0%). Coding and punching was done at the Institute of Community Medicine, University of Tromsø.

5. RESULTS.

5.1. Cigarette smoking, snuff use, and attitudes to smoking restrictions (Papers I and II).

The studies of cigarette smoking and use of snuff during military service are based on 2112 questionnaires from the 1986 survey. The prevalence of daily smoking was 50.9%. 55.7% of the smokers reported increased smoking during the service. 7.8% of the premilitary non-smokers had started to smoke, whereas 2.4% of all premilitary smokers had stopped smoking. Increased smoking and starting to smoke were correlated with having a best friend who smoked, with dissatisfaction with military service, with physical inactivity, and with frequent alcohol consumption.

Smokeless tobacco (wet snuff) was used daily by 10.2% and occasionally by 22.7%. Of those who used snuff, 6.7% had started during the service, 8.1% had increased their consumption. On the other hand, 2.2% had stopped using snuff, and 4.0% had decreased. Starting to use snuff was positively correlated with cigarette smoking, with having a best friend who smoked, and with frequent alcohol consumption. In contrast to cigarette smoking, daily use of snuff was associated with high physical activity, but not with length of education. 39.7% of all snuff users, and 72.3% of those having started during the service, believed they would give up snuff use shortly after military service.

Many individuals reported both smoking and use of snuff. 81.6% of the snuff users were smokers, but only 2% used both kinds of tobacco daily. Altogether, 59.6% of the

conscripts used tobacco daily, 9% occasionally, and 31.4% never.

Few smoking restrictions existed at the time of the survey, and 91% of the conscripts lived in dormitories where cigarette smoking occurred regularly. Smokers as well as non-smokers having a best friend who smoked reported being significantly less bothered by cigarette smoke than others. Attitudes toward smoking restrictions were determined mainly by the subjects' smoking behaviour, followed by the discomfort of being exposed to cigarette smoke. Whether a subject's best friend was a smoker or not had a certain influence on the attitudes of soldiers where personal smoking habits were discordant with the perceived unpleasantness of cigarette smoke, - i.e. among smokers bothered by smoke and non-smokers unaffected by smoke.

5.2. Mental distress (Paper III).

The mental health of 1961 conscripts was assessed using a 12-item version of the widely used General Health Questionnaire. Applying the standard definition of "caseness" as a sum score of 3 or more when using a binary score on individual items, the case prevalence was 48.2%. This is one of the highest prevalences reported in the literature, a remarkable finding given that the study population had been screened for mental disease on several occasions, and a large number of recruits with symptoms of mental disease had been dismissed before the survey. Statistical analyses indicated that caseness was to a large extent associated with situational factors. Four problem areas were identified: (1) social relations with family, peers, and officers, (2) structural factors inherent in the system of obligatory military service, (3) the meaningfulness of daily tasks and (4) financial problems. Mental distress was associated with physical inactivity and consumption of junk-food, tobacco, alcohol and cannabis.

5.3. Snacking (Paper IV).

Four food habits - skipping military dinner, eating fast food (hamburgers, potato chips, sausages etc.), eating sweets (including chocolate), and drinking sweet soft drinks, were studied using data from the 1989 follow-up survey. The frequencies were as follows: 14% skipped military dinner and 14% consumed fast food 3 days a week or more, whereas 60% consumed sweets and 71% drank soft drinks 3 days a week or more. In addition, self-reported overall change in consumption of snacks, sweets and soft-drinks during military service was registered in both 1989 surveys, allowing longitudinal analysis of development in junk-food consumption during the last nine months of the service. Increased consumption was reported by 57% after 3 months' military service and by 80% after 10 months.

High frequencies of the four food habits were associated with negative attitudes to and experiences with the military system and with colleagues, with little occasion for regular home visits and with mental distress. Soldiers reporting strongly increased snacking were more likely to be daily smokers, to have increased their alcohol consumption and/or reduced their physical activity during military service.

Table 3. Summary of statistical associations between the five dependent variables 1) daily use of snuff, 2) daily cigarette smoking, 3) increase in snacking and 4) alcohol consumption, and 5) GHQ caseness, and the main independent variables used in the 5 Papers. (Some of the associations are bivariate, some are adjusted for other variables. For details see the tables of Papers I to V.)

	Daily snuff	Daily smoking	Increase snacks	Increase alcohol	GHQ caseness
Physical exercise (often - rarely)	↓	↑	↑	▫	↑
Daily snuff use (no - yes)	-	↓	▫	▫	▫
Daily smoking (no - yes)	↓	-	↑	↑	↑
Snacks increase (little - much)			-	↑	↑
Alcohol drinking (rarely - often)	↑	↑	↑	-	↑
Cannabis (no - yes)				▫	↑
Education (high - low)	↓	↑	▫	↑	↑
Belief in God (yes - no)			▫	▫	
Occasion to return home (often - rarely)			↑	▫	↑
Living area (rural - urban)	▫	↑			
Time served (short - long)	▫	▫	↑	↑	↑
Girlfriend (no - yes)	▫	↑	▫	▫	↑
Friendship (yes - no)*	↓	↓	▫	▫	↑
Finances (OK - not OK)			↑	↑	↑
Overall satisfaction (high - low)	▫	↑	↑	↑	↑
GHQ12 (non-case - case)			↑	↑	-
Sense of coherence (high - low)			▫	↑	↑
"Attitude to military service" (pos. - neg.)			↑	↑	↑
"Relationship with officers" (pos. - neg.)			▫	↑	↑
"Relationship with peers" (pos. - neg.)			↑	↑	↑

* "Friendship" in analyses of tobacco consumption: whether best friend uses snuff/smokes, or not.

↑ = positive association
↓ = negative association
▫ = no association
- = not applicable

5.4. Alcohol consumption (Paper V).

In the 1989 follow-up survey, 32.9% reported drinking alcohol once a week or more. 39.2% had reduced their frequency of alcohol consumption after enrolment, whereas 13.1% had increased.

The rate of reduction varied little across categories of demographic, personal and behavioural variables, indicating that the reduction may have been mainly the result of low availability, restrictions on use, social control and financial limitations. Increased frequency of alcohol consumption, on the other hand, was associated with general dissatisfaction concerning military service, with negative opinions about the military system and with strained relations to fellow conscripts.

Comparison of answers at surveys 1989 I and 1989 II showed that the major reduction occurred between enrolment and 3 months of service. From 3 months to 10 months of service there was a slight increase both in reported frequency of drinking at the time of the surveys and in recall of premilitary drinking.

5.5. Comparative summary of some main results.

Table 3 shows the directions of the significant associations between five dependent variables: 1) daily use of snuff, 2) daily cigarette smoking, 3) increase in snacking and 4) alcohol consumption, and 5) GHQ caseness, and the main independent variables used in the 5 Papers. The correlations between independent variables and changes in tobacco use are not presented in the table.

Daily snuff use and daily cigarette smoking demonstrate clearly different patterns: Whereas smoking is more common among conscripts with urban background who have little education, a girlfriend, who are generally dissatisfied and who rarely exercise, snuff use is relatively more common among the physically active and well-educated, and not associated with general satisfaction, area of upbringing or relationship with women. Interestingly, occasional use of snuff is strongly associated with daily smoking (not showed in the table).

Despite the fact that more than 50% of the conscripts increased snacking, and only 13% increased their alcohol consumption, the two behaviour patterns show distinct similarities. Both are associated with smoking, belonging to the oldest contingent, financial stress, general dissatisfaction, negative attitudes to military service, negative relationships with other conscripts, and GHQ caseness. Snacking was associated with little physical exercise and rarely having occasion to return home, whereas increased alcohol consumption was negatively associated with length of education.

Snacking, alcohol drinking and cigarette smoking were associated with each other and with level of general satisfaction with military service. None of these behaviours were associated with daily snuff use.

Being scored as a GHQ case was associated with most variables shown in table 3, notably with daily smoking, increased snacking and increased alcohol drinking, but not with use of snuff.

6. GENERAL DISCUSSION

6.1. Methodological considerations.

Survey research allows collection of much information from large populations, but the tenability and generalizability of the results obviously depend upon the quality of the data. "Bias" may be defined as any source of distortion or misinterpretation due to questionable methodology. The sources of bias may be grouped as follows[3]: distortion connected with selection of the study population (selection bias), with measurement error (information bias), and with confounding and interaction.

In the following subchapters, questions of selection, information bias and confounding related to common aspects and core elements of the five papers are discussed. More topic-specific and detailed aspects of the separate papers are treated in chapter 6.2.

6.1.1. Selection and generalizability.

Survey procedures

The high response rate in the surveys of the present study imply that the data are representative of the conscripts who were given the opportunity to participate. Soldiers not present at the main survey sessions (1986 I and 1989 II) represented approximately a third of the Brigade's manpower, both in 1986 and in 1989, and consisted mainly of conscripts who were occupied with specific duties or on leave of absence. It seems unlikely that this may have been a source of bias, due to the regular turnover of duties and leaves of absence among soldiers. A negligible number of eligible subjects were hospitalised. It therefore seems legitimate to conclude that the study populations represent random samples of army soldiers in Brigade North at the times of the surveys.

The second 1986 survey (1986 II) was subject to similar selection mechanisms as the main surveys discussed above, thus approximately a third of the selected conscripts were unable to meet at the military hospital and participate. 44 subjects (of the total 308 who completed the questionnaire) refused to have a blood sample taken. There was no association between smoking behaviour and refusing to give a blood sample; the percentage of daily smokers was 50% among those who refused and 56% among those who participated. Thus no serious selection bias seems to have influenced the serum thiocyanate analyses.

The procedures connected with the first 1989 survey (1989 I) were slightly different, in that the questionnaires were completed only by soldiers in contingent A, as part of the transfer routine from training school to the brigade. Theoretically, all subjects in this group (1504 on the official lists) were ordered to be present at the survey sessions in the respective military units, 20 in number. However, the official lists available when preparing the survey were not exact personnel lists, but relatively rough estimates of each unit's replacement demand. These lists were prepared some time before transfer, with a considerable margin, allowing for the attrition known to occur regularly at

training schools during the last weeks before transfer to the brigade. This accounts for the major part of the discrepancy between the 1504 on the lists and the 1205 conscripts reported to be present at the survey. Leaves of absence and hospitalisation caused some additional attrition of the group.

Matching procedure

Selection bias may have been introduced by the matching procedure used to establish a longitudinal study sample from the two 1989 surveys. On the practical level the code system was quite vulnerable, and missing code numbers in the follow-up survey resulted from problems at several stages:

- some conscripts forgot to bring the paybook to the first survey.
- in some cases the sticker disappeared from the paybook in the 7-month interval between the surveys.
- although orders were issued twice to all units that soldiers must be reminded to bring the paybook to the second survey, this was not done in a number of platoons, resulting in quite large numbers lost to follow-up.

As mentioned in the Papers, however, no statistically significant differences were found between the follow-up subjects and their peers, either at Time 1 (Q1) or Time 2 (Q2), when comparing eating behaviour, smoking, alcohol use, physical activity or satisfaction with military life.

Non-responding

Selective non-responding to certain questions in the questionnaires may have introduced a bias. The number of missing answers to the questions concerning smoking, smokeless tobacco, junk-food and alcohol was fairly low, and can hardly have caused any serious distortion of the results. The 12 items of the General Health Questionnaire were, however, the last items in the long questionnaire Q2. Only 1961 conscripts (94.9% of the 2066 participants) completed more than half the items. It seems reasonable to think that subjects with reading and writing difficulties and subjects with low motivation for participating in the study are over represented in the group of non-responders. If so, this would have caused an underestimation of the prevalence of mental distress among conscripts. This is supported by the observation that "caseness" among soldiers who had completed between 7 and 11 items was 60.6%, as contrasted with 47.5% among those having completed all 12 items.

Concluding from the above considerations, selection bias does not seem to markedly flaw the data of the present thesis.

Generalizability

Another question is to what extent the soldiers in Brigade North are representative of other conscripts, and of young Norwegian men as a whole. Based on the considerations of chapter 4.1.1., it seems reasonable to suggest that the subjects of the present study are representative of the healthy majority, but that young men

with considerably less or considerably more resources than average are underrepresented.

6.1.2. Quality of information.

The merit of the present thesis obviously depends on the quality of the data used in the five Papers. As stated by Kleinbaum, Kupper & Morgenstern, information quality is more vulnerable to lack of validity than to lack of precision (reliability)[3]. Low validity may entail misclassification of entire subgroups within the study population and lead to false conclusions based on misrepresentations of reality. Low precision, on the other hand, will lead to blurring of the phenomena observed, and attenuation of statistical associations, but will not, when validity is reasonably high, distort the *nature* of the phenomenon studied.

In the present thesis, the basis for judging the validity and precision of the dependent variables varies considerably between the five Papers. The questions on smoking have been widely used over a long time period and found to be trustworthy. In addition, separate biochemical validation procedures were carried out (cf. chapter 4.2.2.). The questions on smokeless tobacco used strictly parallel wording to those on smoking, and can probably be relied upon for that reason. They have not been separately validated, however. The salience of the behaviours in question and the simplicity of the categories leave little room for inadvertent misclassification: hardly anyone would be in doubt whether to classify oneself as daily user, occasional user or abstainer. The widespread use of tobacco among conscripts and officers[4] gives no occasion to suspect that such behaviour may have been considered socially undesirable, and therefore underreported. Self-reports of smoking among adolescents have been found to be quite reliable[5]. From previous Norwegian studies it has been concluded that underreporting amounts to 15% of the consumption, but that this is caused mainly by smokers underreporting the number of cigarettes smoked and not by misclassification between the groups of daily smokers, occasional smokers and non-smokers[6].

The measure of mental distress, GHQ12, has been widely used internationally, and its validity as a measure of mental distress has been assessed in a variety of settings[7]. The present context and study group have a number of distinctive characteristics, however, and application of results from other countries can only be done with many reservations. Difficulties also arise in connection with the conceptual interpretation of the phenomenon measured. A relatively thorough discussion of the conceptual approach and study methods used is given in Paper III.

The questions measuring consumption of junk-food and alcohol were constructed for use in the present study, and have not been validated. Estimates of the absolute frequencies of these behaviours may be tainted by validity problems. Estimates of change, however, depend only on the questions' ability to classify increase and decrease correctly, not on its accuracy in measuring the actual pre- and post-levels of the behaviour in question[8]. For this purpose a reasonable precision is more important than a high validity. In the present

case, precision was probably enhanced by the simplicity of the items and the proximity in time of the behaviours concerned. As shown in Paper V, however, the recall of premilitary drinking frequency changed between 3 and 10 months of service for an appreciable number of subjects.

If subjects during the survey sessions had been allowed to communicate and thus possibly co-ordinate their answers, this would have been a potential source of systematic error. No such communication was allowed, however, during any of the survey sessions.

6.1.3. Confounding and interaction

Confounding is said to exist if meaningfully different interpretations of the relationship of interest result when an extraneous variable is ignored or included in the data analysis[9]. According to Rothman[10], a confounding variable must have the following three characteristics: 1) it must be a risk factor for the "disease", 2) it must be associated with the exposure under study, and 3) it must not be an intermediate step in the causal path between the exposure and the "disease".

A potential source of confounding common to all five studies is the influence of the particular military unit to which a conscript is assigned. Infantry, artillery, cavalry etc. take pride in being somewhat different in style and traditions, differences which might also find expression in health related behaviour, such as special consumption patterns of tobacco and alcohol. Such variation between units might also be caused by a number of other factors, including differences in the nature and strenuousness of the daily tasks, the quality of leadership, the quality of food and lodging, or the geographical location of the camp. The different sources of systematic variation may combine in various ways, cancelling each other out or reinforcing each other, thus rendering the detailed study of these phenomena very complex.

Simple cross tabulations of the variable "military unit" with changes in cigarette smoking, snuff use, snacking and alcohol drinking have been carried out, however, and give no indication that military unit is a "risk factor". For tobacco use and snacking the variation was relatively moderate, and no meaningful patterns were identified. When studying changes in alcohol consumption, it was found that most companies were fairly close to the mean. A few units clearly differed in rate of decrease and/or increase in alcohol consumption, but even in these units the main pattern (i.e. strong decrease and moderate increase) was conserved, and the differences observed seemed to be variations in degree rather than in principle.

Thus military unit does not seem to be a confounder in the present study. A slight degree of interaction may possibly be present, however. Interaction is the condition where the relationship of interest is different at different levels (i.e., values) of the extraneous variables[9]. The influence of best friend's smoking habits on subjects' attitudes to smoking restrictions (Paper I) is an example of interaction.

If the effect of military service on behaviour varies systematically between military units, the question arises whether the unit of observation in the present studies ought to be "military unit", not individual conscripts. The main argument in favour of such a strategy is the possibility that individual answers from conscripts within one military unit may not be independent, but coloured by the common atmosphere of the unit. If so, one of the assumptions underlying the normal statistical inferences from individual data would be broken. A number of arguments contradict the proposal of using military unit instead of conscript as study object:

- The differences found between military units are considerably smaller than differences between individuals within the units.
- The variation between units is not easily interpretable.
- Using aggregated data would entail a huge loss of information; differences in education and other background variables, lifestyle, perception of the military milieu etc., would become blurred.
- Given that differences between military units might be caused by a nearly unlimited number of hypothetical factors, little understanding of the phenomena studied would be obtained.
- The knowledge gained, based on the study of groups, would not be directly applicable to individuals (ecological fallacy).

Judging from the above arguments, it seems reasonable to conclude that the individual soldier is a better study unit than the company.

6.2. Supplementary discussions of the 5 Papers.

The format of the scientific article precludes lengthy discussions. This chapter contains supplements to the discussions of the 5 Papers, sometimes including material not available when the original articles were printed (this especially applies to Paper III).

6.2.1. Paper I.

The gap between the prevalences of daily smoking among army conscripts (47.9%, Paper I) and among civilian males ages 19-21 (37.2%) reported by the CBS (unpublished data) cannot be explained by the 3.1% who reported having started to smoke in the military minus the 1.4% who had stopped. Three different mechanisms may have caused this discrepancy: a) inaccurate assessment of the national rate of smoking in this age group, b) selection mechanisms leading to a relative accumulation of daily smokers in Brigade North, and c) underestimation of conscripts' rate of starting to smoke.

a) The quality and representativity of the CBS data need to be discussed. Smoking data were collected either by personal interview or telephone interview of 2000 randomly chosen subjects in the Norwegian population between 16 and 74, with less than 100 subjects in each age and sex cohort. The prevalence of 37.2% daily smokers among Norwegian men ages 19-21 in 1986/87 referred in Paper I was based on a sample of only 188 persons. Averaging over the years 1977 to 1987, during which only minor changes in smoking prevalence were seen

in the relevant age and sex group, the percentages of daily smokers were 37.4 (N=873) in age group 19-21, and 39.6 (N=802) among men ages 22-24.

Conscripts were usually not available for interview, unless they were home on leave of absence (Arne Faye, CBS, personal communication). The number of conscripts at any time corresponds approximately to 70% of one birth cohort, and 90% of the conscripts belong to age group 19-21. This means that 20-25% of all men ages 19-21 are conscripts at any given time, and thus not represented in the CBS surveys. Military data (cf. Paper I) show smoking rates which are higher than the civilian rates. If conscripts were included in the CBS surveys, the national estimates for age group 19-21 would probably be somewhat higher than they are today. (If the CBS rate (37.4%) is correct for those 75% of 19-21 year-olds who are non-conscripts, and 42.6% (the average of the military surveys, cf. table 4[11]) is correct for the conscripted 25%, then the point estimate for the mean rate of daily smoking is 38.7%.)

b) Selection of smokers to the army and to Brigade North may have occurred as a result of the various sorting procedures of recruits. Results from the annual surveys of use of stimulants carried out by the Defence Headquarters since 1985 among army (mostly Brigade North), navy and air force conscripts[11] are presented in table 4.

The results from the first years of the surveys series are somewhat less reliable than the results from later years. As the units surveyed have varied from one year to the next, the results are not strictly comparable. The mean smoking prevalence is 42.6%. This is considerably higher than the civilian level, but still 5.3% below the prevalence found in 1986 in Brigade North. A plausible interpretation is that smokers are over represented in the conscripted segment of each birth cohort, and that quite a few start to smoke during the service. One or both mechanisms seems to be operating more strongly among conscripts in Brigade North than in the other military units surveyed.

Table 4. Prevalence of daily smoking among Norwegian conscripts in various army, navy and air force units[11].

Year	1985-86	1986-87	1988-89	1989-90	1990-91	1992	1993
N	?	336	772	706	1449	1401	1369
%	47.7	36.6	49.2	43.2	43.2	41.0	42.2

c) An underestimation of the number having started to smoke daily may have occurred, through misclassification. Subjects who smoked occasionally before the service and had started to smoke daily in the military may have answered "increased" and not "started" to the question concerning changes in smoking status. From the present data it is not possible to know to what extent this mechanism has been operating. The rate of "increased smoking" was, however, very high (62.1%) among daily smokers.

Whether conscription lastingly influences the prevalence of daily smoking among Norwegian men is impossible to decide from the data available. Even though a real increase in prevalence of daily smoking seems

to occur among army conscripts, this is too small to be detected as an influence on the smoking prevalence of males as measured by the small-sample CBS national surveys.

It is possible that the increase in smoking during the Norwegian military service is transitory, or compensated by a similar rate of stopping during or shortly after the service. If so, this would be in line with the intentions to stop reported by a majority of the smoking conscripts. In general, the rate of stopping smoking is relatively high among male Norwegian smokers[12]. It is tempting to speculate that without the negative influence of military service, the smoking rate among slightly older young men, most of whom have completed military service, would be lower than it is today.

A recent study of smoking behaviour among former military service personnel in USA showed convincingly that military service raises both the prevalence of smoking and the rate of heavy smokers, and that former military personnel continued to smoke more than their same-aged civilian counterparts, after military service[13]. The pattern was identical in all categories of education and in high as well as low prestige occupations. As stated in the article, heavy smoking among soldiers is not simply a problem confined to the military. "The smoking veteran is likely to be a prosmoking force for their spouses, other relatives, and friends, as well as for their own children....If efforts aimed at reducing the nation's cigarette consumption are to succeed, they will need to deal with an important prosmoking force - the military establishment"[13].

Concerning smoking restrictions, which where implemented in the Norwegian Armed Forces in 1987[1], a result from the 1989 survey is of interest (not previously published): 7.3% reported that smoking regulations were strictly enforced, 46.7% that they were enforced to some extent, and 46.1% that they were hardly enforced at all. Among officers in Brigade North in 1989 (N=845), only 14% reported that restrictions were strictly enforced[4].

6.2.2. Paper II.

It is said in the Paper that "being subjected to the Army subculture strongly promotes snuff use". Further evidence for this stems from a 1989 study of officers in Brigade North[4], where I found that among commanding personnel ages 19-24 (53.5% of all commanding personnel), 18% used snuff daily, whereas only 15% were daily smokers. Hardly any officers age 35 or older used snuff, whereas 34% were daily smokers in this group. A generation gap has developed, where young officers, with whom recruits are likely to be in daily contact, exhibit more snuff use than cigarette smoking. The comparably low level of snuff use in most civilian milieus probably adds extra salience to the military snuff phenomenon.

Data from the Defence Headquarter's yearly surveys[11] (questions on snuff use included since 1989) indicate that the rate of daily snuff use among conscripts is rising, from 8.9% in 1989/90 to 13.6% in 1992 and 12.8% in 1993. My finding that 10.2% were daily snuff users in Brigade North in 1986 agrees well with these data.

In Paper II it is said that the cohort studied may have been close to the crest of a new wave of young snuff users. The development in subsequent years confirm this tendency. Data from the Norwegian Council on Tobacco and Health[14] show that snuff use in age group 16-24 has increased slowly between 1985 and 1992, from 10% (daily and occasional users) to 12%. Among 25- to 34-year-olds the prevalence has increased from 4% to 10% during the same period, as a result of younger cohorts moving into this age group.

6.2.3. Paper III.

Using the 12-item General Health Questionnaire (GHQ12), an unexpectedly high prevalence of "cases" (48.2%) was found among conscripts in Brigade North, despite their having been screened for mental disease on several occasions. The findings of Paper III are of fundamental importance in the present thesis. For this reason, the present chapter contains both a widening of the discussion of the findings of Paper III, a short reference of the main results of a study of mental health among civilian Norwegian adolescents, and a relatively thorough review of previous studies of mental health among Norwegian, Swedish and Danish conscripts.

An explanatory factor not mentioned in the article is the potential influence of climate and season of the year. The study was carried out during November and December, when the sun does not rise above the horizon, days are short, the temperature low, and spring is still many months away. Young men, the majority from the southern parts of Norway, who experience the polar night for the first time and who may have to carry out much unfamiliar and uncomfortable outdoor activity in these conditions may be expected to react negatively. Mental distress has been shown to increase slightly during the winter months in the general population of northern Norway[15].

An additional clarification concerns the positive predictive value (PPV) used as an example in the paper. The PPV is derived from the average specificity and sensitivity of the GHQ12 given in Goldberg's "User's guide to the General Health Questionnaire"[7], based on several validation studies using interviews with trained psychiatrists as "golden standard".

Mental health among civilian Norwegian youth.

In an interview study of 483 Norwegian 9th grade students in 1972, Lavik[16] found "considerable" or "severe" symptoms in 23.1% of the urban male students (15.9% among girls) and in 7.7% of the rural boys (8.2% among the girls). Students with "considerable" or "severe" symptoms were considered roughly to be representative of adolescents in need of psychiatric or psychological treatment. The group with "moderate" symptoms comprised 29.6% of the urban boys, 28.8% of the rural ones.

53% of the conscripts in Brigade North reported coming from an urban area in 1986. Mathematically applying Lavik's 1972 results to the conscript population gives an estimate of 16% with "considerable" or "severe" symptoms

as 9th graders, and a further 29.3% with "moderate" symptoms.

A number of important aspects distinguish Lavik's population from the conscript population, however. Most recruits with low intellectual capacity or with manifest psychiatric disease are transferred or discharged before reaching Brigade North. Lavik's urban youth were all from Oslo, which notoriously is more "urban" in this sense, and probably causes more symptoms of mental distress, than the average Norwegian city. In addition, the years that separate 15-16-year-olds from 20-year-olds may be expected to increase maturity and emotional stability. All these considerations suggest that the prevalence of mental distress before military service, using Lavik's criteria, was lower in the present study population than the above calculations indicate (i.e. 16% with "considerable" or "severe" symptoms and 29.3% with "moderate" symptoms).

Previous studies of mental distress among conscripts.

Among the several studies of mental problems that have been carried out among conscripts in the Nordic countries[17-21], the one that most closely parallels the present study is Åke Bliding's doctoral thesis on the adaptation of 1682 Swedish conscripts to military service in 1969/70 and 1970/71[22]. Conscripts were interviewed one month before enrolment and twice during the service. As in Norway, 5-8% of the recruits were, on a psychiatric diagnosis, exempted from duty at the drafting. After two months of service a three-fold increase in psychological symptoms, as compared with the month before induction, was revealed: tension/restlessness increased from 17% to 44%, sleeping disturbances from 10% to 32%, anxiety from 6.2% to 28% and deeper depression from 2.3% to 12%. Among conscripts regarded as free from actual or previous psychiatric symptomatology at induction, as many as 13% developed mental disabilities resulting in exemption from service or replacement to fatigue or routine clerical duties. In the remaining group, as it was revealed in Bliding's second interview towards the end of the training year, symptoms of mental distress of at least a few weeks' duration were quite common: 15% had suffered from insomnia, 25% from anxiety, 35% from tension/restlessness, and 40% from deeper depression.

Bliding studied adjustment problems to specifically military circumstances among those who eventually completed the whole basic training as fully fit. One month after induction severe problems in adjustment to various circumstances were reported to the following extent: limitations of personal freedom 24%, time pressure and insecurity in the service 21%, bad food and feeding conditions 12%, blind obedience without understanding the aims of the order 10%, or having the chance to discuss them 9%. Towards the end of the service negative reactions to living conditions were reduced, whereas problems with regard to authority, time pressure and insecurity in the service had increased.

Interviews with platoon commanders showed that these were aware of soldiers'

somatic problems, whereas mental and social psychiatric problems were mostly ignored.

In Denmark, Fredfeldt et al.[21] studied the adaptation of 187 conscripts in 1979, applying Bliding's[22] questions. The results were similar to Bliding's, with 43% reporting having had periods of deep depression.

Roness[19] studied prevalence and correlates of psychiatric disease among Norwegian conscripts in 1976. At the time approximately 10% of Norwegian conscripts were exempted from service annually (before and during service) because of psychiatric disease. Roness compared 215 conscripts who had been given a psychiatric diagnosis after enrolment with 215 matched and 215 unmatched controls (all conscripts). Mental problems were common in both control groups: 8% were given a psychiatric diagnosis, and a further 9% were classified as having considerable problems in adapting to military service, in each of the two groups.

Roness discusses the relative importance of personal and situational factors in the development of psychiatric symptoms, and concludes that in 65% of the cases, situational factors were decisive, whereas in 35% of the cases the personality of the soldiers in question was such that mental problems would be expected to occur regardless of military service. After further analysing the situational determinants, Roness concludes that civilian aspects (absence of family and friends etc.), are far less important, quantitatively, than the military milieu. Most important were problems of a social psychological nature, i.e. limitations on individual freedom, military discipline, and interaction with officers and fellow conscripts, whereas military living conditions and education/tasks were less important. Among the controls, 27% were generally dissatisfied with military service, 28% were satisfied and 45% were "somewhat" satisfied. Among the "cases", 93.5% were dissatisfied.

Hanoa[20], in 1977, studied conscripts in military training school shortly after induction (N=243), and 6 months later, when 69 of the original subjects had been dismissed. At both surveys, approximately 35% reported having had experiences which "made them nervous" ("gikk utover nervene"). Unnecessary discipline, blind authority, time pressure and insecurity were the most frequently reported reasons for mental problems. Familial obligations were twice as common among those dismissed before 6 months as in the remaining group.

Both Bliding's, Roness' and Hanoa's findings are in line with the results presented in Paper III. The time span of 10-20 years that separates the studies have seen considerable changes both in the civilian and the military worlds. Yet the transition from civilian to soldier is *in principle* the same, and still fits Eitinger's description, from his 1953 study "The impact of military life on the mental life of young Norwegian men"[17]: "The actual transition from civilian life, where one decides as a matter of course how to handle the particulars of one's everyday life, to the military

where one has to comply with the will of others to the least detail, is quite shocking"[1].

6.2.4. Paper IV.

Surprisingly little has been published on the subject of adolescents' and young adults' eating behaviour in Norway[23]. Existing studies of eating behaviour among 13-16 year-olds indicate that consumption of snacks with high contents of fat and sugar are common, and that the average intake of for instance iron and vitamin D are too low[23].

Given the large cultural differences that exist in this field, comparisons with USA and other European countries are of limited value. Until we know how the eating behaviour of young people develop in other arenas of Norwegian society, it is difficult to say precisely to what extent the military and conscription as such are responsible for the present findings.

Though food and eating have great symbolic value and convey meaning wherever people are together[24-28], it is far from clear what the nature is of the "messages" transmitted and/or perceived in connection with the food behaviour described in this Paper. Both alcohol and tobacco consumption are behaviours which are more easily "read", because non-users of these stimuli exist and throw the group of users in relief. Non-users of food are short-lived and of little epidemiological value.

Among conscripts, it is possible that increased snacking is more a result of the enforced situation and the easy availability than an expression of patterns of social psychological signals between soldiers. On the other hand, the correlations between increased junk-food consumption and variables such as dissatisfaction with military life, mental distress, and problematic relationships with fellow conscripts, point towards psychosocial origins of the observed behaviour.

6.2.5. Paper V.

Alcohol consumption is the only behaviour, of those studied, which diminishes during military service. This suggests that changes in structural aspects, such as availability, surveillance and finances, may heavily influence this behaviour - a finding in line with the arguments traditionally used in defence of a restrictive alcohol policy.

The change observed also underline a major difference between alcohol and tobacco use. Whereas moderate use of tobacco usually leads to nicotine addiction and daily use[29,30], most people have no trouble controlling alcohol consumption on a non-addictive level.

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[1] Author's translation

7. ASSEMBLING THE PUZZLE: WHAT DO THE FINDINGS MEAN?

It is one thing to observe and describe human phenomena, quite another to find out what these phenomena mean. The word meaning points both backwards and forwards; when we ask what something means we are often interested both in how it came to happen and what it may itself cause to happen.

So it is with the behavioural phenomena described in the present thesis. When it is ascertained beyond reasonable doubt that a considerable number of conscripts increase cigarette smoking, start to use snuff, increase snacking and/or reduce their alcohol consumption during military service, and that these changes are more likely to occur among subjects with certain characteristics than among others, then two questions arise: Why? and So what?

Before attempting to answer the question Why?, it is necessary to give the reader an idea of what military service is like, and how it may be perceived by those who go through it. The account that follows draws mostly on external sources of data and insight, and may perhaps seem unnecessarily long and detailed at first sight. It is the author's conviction, however, that this background is necessary in order to understand the origins of the phenomena described in the thesis, and discuss the conclusions and recommendations that follow. To readers trained in social science, I apologize for the relative sketchyness of the following presentation.

The main points addressed in this chapter concern a) the implications of leaving home, b) conscripts' reports on their first encounters with the military world, and c) general aspects of "total institutions" and how such institutions may change people's self-perception.

7.1. Becoming a conscript

When a young man becomes a conscript, his whole life changes radically. He leaves the realm that has been his, and enters an alien world which is definitely not his, and in which he will have to spend the major part of a year on a 24-hour basis. The following is an attempt to summarise some of the more salient aspects of this change. It should be kept in mind that although the experiences may be quite similar from one man to the next when described in neutral terms, the subjective impact on the individuals will indeed vary. What is a threat to one man is a stimulating adventure for another and a source of security for a third.

Quantitative illustrations to the main points of the following chapters stem from 3 sources: Two military surveys of conscripts will occasionally be referred to. One was carried out in 1979/80 by the Office of Military Psychology, in a sample of 1200 Brigade North conscripts[31]. The second was carried out by opinion pollsters in 1983, on behalf of the Ministry of Defence, in a sample of 2260 army, navy and air force conscripts[32]. In addition, the second 1989 survey of the present work contained a number of questions concerning experiences from military training school and life in Brigade North. The distribution of responses to these questions are presented in Appendix 1, tables A and B.

7.1.1. Leaving the familiar behind

Whether the conscript to be lives in his original family with parents and siblings or has established a new home, he has to leave it. Whether he is a student, has a job or is unemployed, he abruptly stands alone, most often without his friends and colleagues, and always without the routines and more or less well-defined tasks of his familiar, every-day life. Most recruits have to leave their home region, often for the first time in their lives, and travel to some unknown place where geography, climate, dialect and customs are - at least to some extent - different.

Without attempting to list all the features that characterise civilian life as contrasted to life as a conscript, I shall mention a few aspects which seem especially relevant:

- In civilian society a young man will socialise with persons of both sexes and many ages.
- In civilian society most people feel that they choose where and with whom to sleep, where to work and what to do, where, when and what to eat, etc.
- In civilian society one will have many roles or "statuses" (in the social anthropological meaning of the term[2]). A man may in the course of a normal day be both son, older brother, lover, friend, employed, colleague, customer etc. His "rank" and authority will vary between these statuses, and he is relatively free to switch between them.
- Daily life in civilian society is largely governed by implicit, non-formal rules of conduct, the ability to comply with which distinguishes persons from different cultures[3] or sub-cultures. Breaking the civilian rules of conduct does not normally entail open punishment.

The psychological effects of "losing" one's familiar social world are influenced - probably greatly softened - by one important factor. This is the fact that every 18-year-old boy in a country with conscription has known for many years that he eventually would have to do military service[33]. Thus he has had the opportunity to seek information, both via official channels and folklore, and to prepare himself mentally. When Norwegian conscripts in 1983 were asked about their premilitary expectations[32], 32% reported that they had expected having a good time in the military, whereas 47% had had low expectations. A majority (66%) reported having had little beforehand knowledge about military service.

The tales told by those who have finished military service are obviously based on idiosyncratic experiences and spiced with exaggerations and dramatic twists, rendering a picture of the service which may be far from objective truth, and often negatively coloured.

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[2]A social status is a "recognizable, socially defined trait giving a person certain duties and rights"[63].

[3]A widely used definition of **culture** is "the system of common modes of perception and behaviour that persons have acquired as members of a society" [63].

In the above mentioned study, 44% had been worried because of what others had told them about the military, and 43% reported that what they had heard was very different from what they later experienced themselves[32]. My impression is that in many instances the explicit negativity of the accounts is countered by the narrators' obvious pride in having proven themselves able to cope with the alleged hardships of military service. In the minds of most younger boys I believe that military service is perceived both as anxiety provoking by virtue of the "hardships", and attractive by virtue of the prestige, the adult status and the masculinity[34] it conveys. In this respect military service may be viewed as a *rite of passage*[35-37].

Attitudes, opinions and motivation among recruits are described in Grøgaard & Ugland's study of military selection procedures[2]. They cite a 1989 opinion poll, in which more than 80% were in favour of a military defence in society at large[2]. Among 15 to 19 year-olds, 72% were in favour of a military defence. In a survey at enrolment, 51% of the recruits reported a positive motivation for military service (17% negative, 32% indifferent), but only 26% reported a positive attitude to the military system itself (21% negative, 53% indifferent). Grøgaard & Ugland interpret this discordance between attitudes and motivation as an expression of powerlessness; a large proportion of the recruits feel that they are in a position where they have to make the best out of a situation which cannot be avoided. An additional interpretation of the discordance which I find plausible is that it expresses the above mentioned general ambivalence of young men towards the approaching service: they both dread and look forward to what is coming.

7.1.2. Encountering the military world

Rothacher[38] distinguishes between (1) the initiation period - the transition from civilian to military consciousness and behaviour; and (2) the subsequent period of routinized military service. The impact of many of the salient characteristics of a military environment, to be specified in the following, will be maximal during the first hours and days after enrolment, and will diminish rapidly as the recruits get used to being in a new world. In the 1983 survey, 57% agreed to the proposition that "what happened the first 2-3 days in the military made me expect the worst for what was to follow" (also cf. Appendix 1, table A, item 3), and 62% agreed that "even after one week I was not certain what military service consisted in"[32].

Transfer to the recruits' regular service position (for example Brigade North), after approximately three months at a training school, is an upheaval which quite regularly leads to new stress reactions - the so-called "transfer reaction". In 1980, 70% of the conscripts in Brigade North agreed that the first three months after transfer was the hardest time[31].

7.1.3. Adaptation.

When asked about their general satisfaction with military life, 42% of the conscripts in the 1983 survey[32] (navy, air force and army) were

positive, 40% negative, 17% neutral. Satisfaction was strongly associated with whether the service was perceived as interesting, and with the initial reaction during the first 2-3 days of military training school. Factor analysis of the 1983 items revealed that the behaviour of officers was extremely important for adaptation and satisfaction during military service. Only a minority would seek advice in personal matters from the nearest officers, and most soldiers had experienced unfair treatment from officers. Negative attitudes to officers increased with length of service, with age and with level of education among the conscripts. It is concluded that use of authority and lack of communication between conscripts and officers are main problem areas[32]. (Cf. Appendix 1, table B, items 1-6.)

Among soldiers in Brigade North in 1979/80, 36% reported having profited from the service, 28% had not profited, 35% gave a neutral answer[31].

7.1.4. The military as a "total institution".

Survey data and other quantitative descriptions of the life of large groups of people yield interesting results, but do not penetrate into those details of everyday life that may be causative of the overall changes observed. To compensate for the lack of qualitative data from Brigade North, I shall present in some detail what I perceive to be relevant results from in-depth studies of the psychosocial transactions of people in large institutions. This chapter is based on sociologist Erving Goffman's treatise "Asylums"[39] from 1961, a qualitative analysis of the social functions of establishments where people live on a 24-hour basis for long periods of time ("total institutions").

Goffman's highly recognised study is based on field work in mental hospitals in USA in the 1950's, institutions which obviously differ strongly from Norwegian military barracks in the 1980's. However, Goffman refers extensively to literature on other institutions, including military establishments, and seeks to establish a description of the general features of such institutions. I believe that many of Goffman's observations, concepts and generalizations will be useful as heuristics for the reader - familiar or not with military life - who wants to understand what may go on in the minds of young men who spend one year in the strange yet boringly "well-known" world of military service.

Characteristics of total institutions.

A total institution is defined by Goffman as "a place of residence and work where a large number of like-situated individuals, cut off from the wider society for an appreciable period of time, together lead an enclosed, formally administered round of life" (p. 11).

"The handling of many human needs by the bureaucratic organisation of whole blocks of people is the key fact of social institutions. From this follow certain important implications." The implications pointed out by Goffman are the following (p.18-22):

- Persons moved in block can be supervised by a small staff whose chief activity is surveillance - a seeing to it that everyone does what he has been told is required of him, under conditions where one person's infraction is likely to stand out in relief against the visible, constantly examined compliance of the others.

- In total institutions there is a basic split between a large managed group and a small supervisory staff. Staff tends to feel superior and righteous; inmates tend, in some ways at least, to feel inferior, weak, blameworthy, and guilty.

- Characteristically, the inmate is excluded from knowledge of the decisions taken regarding his fate.

- The contact between inmates and staff is restricted. "Two different social and cultural worlds develop, jogging alongside each other with points of official contact but little mutual penetration."

- All essential needs are planned for by the institution. "Whether there is too much work or too little, the individual who was work-oriented on the outside tends to become demoralised by the work system of the total institution."

- "Family life is sometimes contrasted with solitary living, but in fact the more pertinent contrast is with batch living, for those who eat and sleep at work, with a group of fellow workers, can hardly sustain a meaningful domestic existence."

"Total institutions ... are the forcing houses for changing persons; each is a natural experiment on what can be done to the self."

New roles. "Assaults upon the self".

Goffman uses the normal procedures of military establishments to illustrate the explicit goal that many total institutions have of ensuring a deep initial break with past roles. In military training, recruits are not allowed to leave the military base during the initiation period (p.24). For Norwegian conscripts this period lasts one week.

The new roles will entail lasting changes in a person's life. Although some roles can be re-established by the inmate when he returns to the world, it is plain that spending time in the institution entails other losses that are irrevocable. It may not be possible to make up, at a later phase of the life cycle, the time not now spent in educational or job advancement, in courting, or in rearing one's children (p.25).

In the following a series of instances of what Goffman calls "assaults upon the self" is cited. "The recruit comes into the establishment with a conception of himself made possible by certain stable social arrangements in his home world. Upon entrance, he is immediately stripped of the support provided by these arrangements." Often unintentionally, assaults are staged "through which the symbolic meaning of events in the inmate's immediate presence dramatically fails to corroborate his prior conception of self." (p.40):

- Most total institutions employ admission procedures. Among the procedures mentioned by Goffman, most apply to Norwegian conscripts: taking a life history, photographing, weighing,

fingerprinting, assigning numbers, listing personal possessions for storage, undressing, haircutting, issuing institutional clothing (for an analysis of the social functions of uniforms, see[40].), instructing as to rules, and assigning to quarters (p.26).

- Because total institutions deal with so many aspects of its inmates' lives, there is a special need to obtain cooperativeness from the recruit. "...These initial moments of socialisation may involve an "obedience test" or even a will-breaking contest: an inmate who shows defiance receives immediate visible punishment, which increases until he openly "cries uncle" or humbles himself" (p.26).

- Perhaps the most significant of the dispossessions entailed by the admission procedure is the loss of one's full name. "..Whatever one is thereafter called, loss of one's name can be a great curtailment of the self" (p.28). Norwegian conscripts are called by their surname preceded by a number.

- Staff or inmates, or both, may give newcomers some form of initiation which tells them that they have a special low status even in this low group. Among Norwegian conscripts such initiation rites are normally relatively benign, consisting in calling recruits by terms such as "blodgutt" or "syltapp", which clearly denotes that their lack of experience makes them inferior to the "veterans" (conscripts with less than three months remaining service). As stated in the Norwegian Defence Headquarters' textbook in military leadership[41], this "veteran activity" in many cases evolves to include a number of symbols and rituals which may become sources of considerable conflict between soldiers, and even lead to suicidal behaviour[42].

- One set of the individual's possessions - one's physical appearance - has a special relation to self. The individual ordinarily expects to exert some control over the guise in which he appears before others. "On admission to a total institution., however, the individual is likely to be stripped of his usual appearance and of the equipment and services by which he maintains it, thus suffering a personal defacement" (p.29). For a broadening of the issue of the uniform, see Joseph & Alex[40].

- The self of an inmate may be mortified in other ways: "Just as the inmate can be required to hold his body in a humiliating pose [standing at attention etc.], so he may have to provide humiliating verbal responses. An important instance of this is the forced deference pattern of total institutions; inmates are often required to punctuate their social interaction with staff by verbal acts of deference, such as saying "sir". Another instance is the necessity to beg, importune or humbly ask for little things such as a light for a cigarette, a drink of water or permission to use the telephone" (p.31). Verbal acts of deference (saying "sir", "mister" etc.) have nearly disappeared from the civilian language in Norway, and will probably have greater salience here than in many other cultures.

- Another form of mortification in total institutions is the violation of the boundaries that an individual places between himself and his surroundings. "On the outside, the

individual can hold objects of self-feeling - such as his body, his immediate actions, his thoughts, and some of his possessions - clear of contact with alien and contaminating things....During admission, facts about the inmate's social statuses and past behaviour - especially discreditable facts - are collected and recorded in a dossier available to staff....Medical and security examinations often expose the inmate physically, sometimes to persons of both sexes; a similar exposure follows from collective sleeping arrangements...." (p.32).

After citing these instances of what he calls direct assaults upon the self, Goffman turns to an interesting category of influences that work indirectly, the importance of which for the individual is less easy to assess:

- In civil society, one needs not constantly look over one's shoulder to see if criticisms or other sanctions are coming. Many actions are defined as matters of personal taste, and a large degree of flexibility as to the exact use of one's time or the carrying out of practical tasks exists. In total institutions, however, the process of social control is in effect continuously, and often becomes very detailed and restrictive. Goffman cites a description of military routine in the R.A.F. during the second world war:

> Now the tunic, so folded that the belt made it a straight edge. Covering it, the breeches, squared to the exact area of the tunic, with four concertina-folds facing forward. Towels were doubled once, twice, thrice, and flanked the blue tower. In front of the blue sat a rectangular cardigan. To each side a rolled puttee. Shirts were packed and laid in pairs like flannel bricks[4].

Though less extreme, detailed orderliness correspondingly different from civilian standards is still required in Norwegian military training schools. In the 1983 survey[32], 40% of the conscripts interviewed had witnessed officers empty clothes etc. onto the floor as a reaction to disorder in soldiers' cupboards, 18% had seen the content of waste baskets and/or ashtrays emptied onto the floor for similar reasons.

- "In civil society, when an individual must accept circumstances and commands that affront his conception of self, he is allowed a margin of face-saving reactive expression, ...fugitive expressions of contempt, irony, and derision....In total institutions, the staff may directly penalize inmates for such activity" (p.41). When this happens, the individual finds that his protective response to an assault upon self is collapsed into the situation and may worsen his predicament.

- "Total institutions disrupt or defile precisely those actions that in civil society have the role of attesting to the actor and those in his presence that he has some command over his world - that he is a person with "adult" self-determination, autonomy, and freedom of action. A failure to retain this kind of adult executive competency, or at least the symbols of it, can produce in the inmate the terror of

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[4]Lawrence TE. The Mint. Jonathan Cape, London, 1955.

feeling radically demoted in the age-grading system" (p. 47).

Adjustments.

A number of secondary adjustments regularly appear among inmates, in response to the conditions that have been mentioned. These conditions allow for different individualistic ways of meeting them. "The same inmate will employ different personal lines of adaptation at different phases in his moral career and may even alternate among different tacks at the same time" (p. 61). "Each tack represents a way of managing the tension between the home world and the institutional world"(p. 65). "In most total institutions, most inmates take the tack of what some of them call "playing it cool". This involves a somewhat opportunistic combination of secondary adjustments, conversion, colonization, and loyalty to the inmate group... Typically, the inmate when with fellow inmates support the counter-mores and conceal from them how tractably he acts when alone with the staff" (p. 64).

A very important reorganising influence is the fraternalisation process, "through which socially distant persons find themselves developing mutual support and common counter-mores in opposition to a system that has forced them into intimacy and into a single, equalitarian community of fate. The new recruit ... comes to find that most of his fellows have all the properties of ordinary, occasionally decent human beings worthy of sympathy and support."(p. 57). Special solidarities often extend throughout a physically closed region, such as a platoon or a company. "And of course still smaller units are found, too: cliques, more or less stable sexual ties; and, most importantly perhaps, "buddy formation", whereby a pair of inmates come to be recognized by other inmates as "buddies" or "mates" and come to rely on each other for a wide range of assistance and emotional support" (p. 58). In military organisations, the formation of primary groups with 2-10 soldiers and with similar emotional functions as the above mentioned buddy relationships are considered of prime importance for military efficiency[33,41,43]. Teams of this size are the core units within any Norwegian military unit.

"Doing time" and "removal activities".

In this section the characteristics of total institutions are connected directly to the development of behaviours of the kind studied in Papers I, II, IV and V.

- "Among inmates in many total institutions there is a strong feeling that time spent in the establishment is time wasted or destroyed or taken from one's life;... it is something that must be "done" or "marked" or "put in" or "pulled"....This time is something its doers have bracketed off for constant conscious considerations in a way not quite found on the outside." (p. 66-7). The well-known count-down of Norwegian conscripts during the last months of military service, usually done by carrying a chain from which a link is torn off every day, confirms Goffman's observations.

- "This sense of dead and heavy-hanging time probably explains the premium placed on what might be called removal activities,

namely, voluntary unserious pursuits which are sufficiently engrossing and exciting to lift the participant out of himself, making him oblivious for the time being to his actual situation. If the ordinary activities in total institutions can be said to torture time, these activities mercifully kill it" (p. 67) .

Goffman proceeds to mention a number of collective (dances, lectures, card playing etc.) and individual (reading, TV watching, private fantasies) "removal activities", which he likens to "islands of vivid, encapturing activity" in a dead sea. In a recent Norwegian radio program an army conscript in Brigade North summed up this aspect of military life as follows: "When you have finished a long day of tedious activity, there is nothing you want more than to stretch on your bed with the 3 C's: Coke, Chips and Cats[5]"[6] .

Goffman proceeds, on the issue of solacing behaviour: "In civil society, an individual when pushed to the wall in one of his social roles usually has an opportunity to crawl into some protected place where he can indulge in commercialized fantasy - movies, TV, radio, reading - or employ "relievers" like cigarettes and drink" (p. 68). Goffman's point is that these resting points usually are restricted in total institutions, "at a time when they are most needed". In the Norwegian military, however, the only restricted activity among the ones mentioned is alcohol drinking. It is also the only activity found to decrease during the service. The increase in consumption of cigarettes, smokeless tobacco and junk-food found in my studies is exactly what would be expected from Goffman's considerations. It applies here as elsewhere that although many of Goffman's observations may be confirmed when studying the life of Norwegian army conscripts, this of course is no proof that the explanations he puts forward are the most relevant ones.

After discussing the variation and differences between total institutions, Goffman concludes that the similarities are so obtrusive that "we have a right to expect that there are good functional reasons for these features being present". If and when these reasons are more fully understood, Goffman believes that "we will give less praise and blame to particular superintendents, commandants, wardens, and abbots, and tend more to understand the social problems and issues in total institutions by appealing to the underlying structural design common to them all" (p. 115).

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[5]"Cats" is a "girly" magazine.

[6]NRK P1. "Sånn er livet", Dec. 1, 1992.

7.2. Interpretations on two levels.

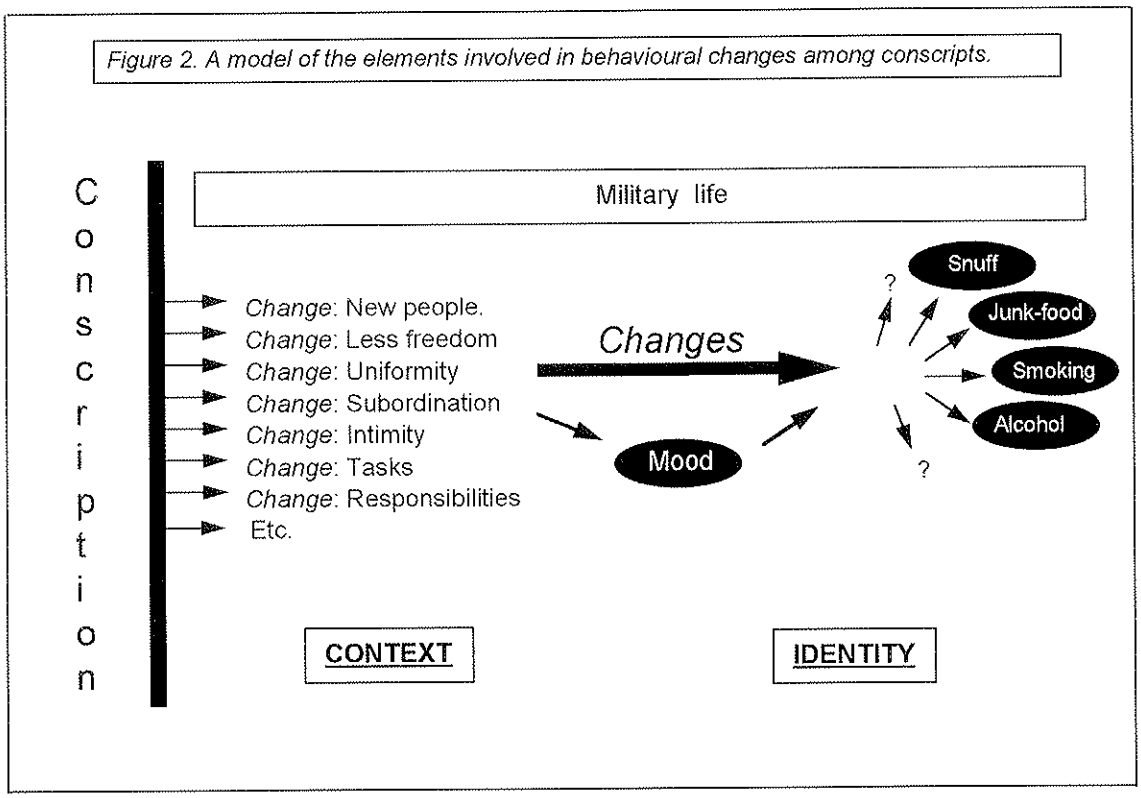
The findings of the present thesis shed light on the existence of young Norwegian men during military service - on two different levels: On the lower level interest is centred on the behaviours themselves, while on a higher level the behavioural changes may be viewed as mere instances of a larger pattern of psychological, social and cultural change that young men go through during military service.

7.2.1. Level 1: Tobacco, alcohol, food, mood.

The most immediate knowledge to be gained from the study concerns the prevalences and characteristics of important, health-related behaviours among healthy young males, at a stage of life when adult behavioural patterns are being established. Smoking, snuff use, food habits, alcohol consumption, mental distress and the inter-relations between these phenomena are are of considerable interest in themselves - medically, socially, and culturally.

An attempt to place the findings of the five Papers in a larger picture is presented in Figure 2. I employ the term "Mood" to indicate the phenomena measured by the General Health Questionnaire. The figure makes no claim as to being the only or the best way of depicting the processes described - it is simply one way of arranging the elements and relating them to the larger pattern of "life events" constituted by conscription.

Figure 2. A model of the elements involved in behavioural changes among conscripts.



My general ideas concerning the social psychological mechanisms underlying the changes depicted in figure 2 are - sketchily expressed - the following:

1. The radical contextual changes in connection with enrolment in the army set off a number of coping strategies in each and every conscript, strategies ultimately aimed at maintaining a stable sense of identity and minimising suffering[38]. The more "different" and challenging the new environment, the more an individual may be expected to exhibit behaviour which differs radically from his civilian conduct. The exact nature of the coping strategies in any given situation depends on the personality and former experiences of the conscript in question, and will also be considerably influenced by the behaviour of others who are perceived as being in approximately the same situation[44,45]. In addition to the four behavioural changes studied in the present thesis, a large number of other changes occur (indicated by the question marks in the figure). Examples of other behaviours that change can be found among the unpublished results from the second 1989 survey (table 5). It should be noted that in some companies the reduction in open-air activities may be just the natural consequence of more than enough of such activities during service hours.

Table 5. Reported frequency of leisure time activities among conscripts in Brigade North, 1989. N varies between 1993 and 2024. *

Activity performed 3 days a week or more	Before military service (%)	At the time of the survey (%)
Watching TV	61	70
Watching video	16	22
Reading comics/magazines	45	71
Reading newspapers	90	68
Open air activities	12	3

* All p-values for the differences reported in the table are <0.001.

2. The results of Paper III indicate that young men in the military generally are somewhat more depressive and suffering than they would be in a civilian context, and that this is attributable to characteristics of the military environment itself, to the way conscripts are prepared for and treated during military service, and to the contrasts between the military surroundings and each man's civilian world. Other studies of conscripts' mental health strongly support this conclusion (see chapter 6.2.3.).

Mental distress is, I believe, one of the most important links between environmental changes and individual behavioural changes. Conscripts who are frustrated, depressive, anxious etc., are vulnerable and considerably more in need of comforting and/or distracting stimuli than they would be in their civilian context. Thus in my model (figure 2), I place

the findings of Paper III logically and chronologically between the changes in context which occurs at enrolment, and the ensuing changes in behaviour.

3. The behaviours studied may serve as sources of solace in several ways. The cigarette, for example, is both a social symbol with effects on the relations between people and on a person's self-perception, a symbol of leisure, pleasure and (relative) luxury[46], and a chemical agent whose neurophysiological effect may be either stimulating or calming, depending on the dosage, i.e. the frequency and intensity of inhaling[30,47]. Consumption of snuff has similar chemical effects, but transmits other social signals than cigarette smoking (cf. chapter 5.5.).

Though very different from tobacco use and from each other, consumption of junk-food and consumption of alcohol share the characteristic of being socially salient behaviours, the practise of which allows combining physiological and social effects. The differences in physiological and cultural/symbolic functions of behaviours like these imply that they may appeal differently to persons of different background and personality, and that they may be exhibited in particular settings only, or combined in various ways, to obtain a flexible repertoire of solacing behaviour.

4. In Figure 2, the broad arrow symbolises the multiple links between contextual change and behavioural change, beside needs for comfort and distraction, that occur in real life. The actual living conditions, the impact of new people, the absence of family members and other agents of social control, the new roles, new challenges etc. pave the road more or less directly for changes in individual behaviour.

7.2.2. Level 2: The fact that they change.

Sometimes it may be worthwhile to state the obvious, and then stop and think about it. In this case: the specific changes observed and analysed in the five Papers are instances of the more general phenomenon that during military service, many young men undergo considerable changes as human beings.

When reading the literature on the effects of military service on the development of young men, an apparent dichotomy appears. On the one hand I find advocates of the traditional view that military service offers an excellent opportunity to really grow up, become responsible and self-confident men, get to know the world, develop democratic values and social instincts, and so on[36,41,48-50]. On the other hand appears a long list of studies which have concentrated on and documented a number of serious problems and negative consequences of military service upon the development of young men[13,17,19,22,34,38,51-54].

The contradiction between these two world views is only apparent. My impression is that both the optimist and the pessimist interpretation are valid and well-founded. Military service is a world in itself, and obviously contains a bewildering multitude of different people, different experiences, and innumerable opportunities to grow and develop one's human potentials. Positive and negative developments probably occur simultaneously - one may easily visualise examples where cynicism and daily smoking may be the price to

pay for independence and masculinity at this stage, etc.

Changes in peoples' socially discernible behaviour are modifications of their identity. *Identity* may be defined as "those parts of a person's self image which he/she seeks to have confirmed by others"[55, 7], or as "people's concepts of who they are, of what sort of people they are, and how they relate to others..."[56]. From this it follows that a person's *values*, that is, his set of opinions about what is good and what is not good[57], are closely connected with, or part of, a person's identity. Social anthropologist Marianne Gullestad writes, in an analysis of contemporary Norway[55]: "The individual human being creates integration and identity inter alia by communicating it to others via lifestyle"[7].

My main reason for touching upon this intricate issue is the lack of debate and public concern about the way military service influences men's identity and value system. This influence is exercised unwillingly, without any conscious purpose and largely without awareness, neither among those who exercise it nor among those who are subjected to it[34]. Varying in nature and degree between different military units etc., it happens, I believe, simply through the transmission, diffusion, and situation-dependent development of behaviours or lifestyles characteristic of conscripts.

Only future research can - possibly - reveal whether and to what extent young men change their value systems during military service. Though it may in effect be true that man is morally refined through overcoming the hardships of life, I fear that some of the defensive strategies which evolve in response to collective boredom, subordination and frustration may entail a negative identity development in many of the persons affected. The ideal, both from military and civilian points of view, would be that a large majority of the young men finishing military service were more inspired, self-confident and able than before enrolment.

7.3. Change - civilian parallels.

The need to cope with sudden changes in one's social surroundings is not confined to the population of military recruits. Modern man must expect to enter new "worlds" time and again. Education, jobs, leisure activities, divorce, old age, infirmity etc. may entail dramatic changes in people's lives and the need for total or partial resocialisation[58,59]. Millions of refugees all over the world live through dramatic, all-encompassing changes[60,61]. Through comparison with life events of the kinds mentioned above, a better understanding of the peculiarities of military service might be gained, and vice versa.

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[7] Author's translation.

8. RECOMMENDATIONS.

The socialising impact of military training is maximal during the first weeks of basic training, as indicated by the present findings and shown in detail by other authors[17,22,33,51,62]. Novaco et al. demonstrated, in a study of adaptation during the extremely demanding basic training of the US Marine Corps[33], that the attrition patterns varied enormously between platoons, and that this was related to the way recruits were treated by officers during the first few weeks. Even more interesting was Novaco's observation that the initial differences in attrition rates were upheld during later stages of the military career, so that soldiers from platoons with little initial attrition were less likely to be discharged even at later stages of the first two years in the Marine Corps. This was in opposition to the generally held belief that "weak" recruits would unavoidably be discharged at some stage, and that rough initial treatment was a good way to shorten the agony for these "inefficient" subjects. Novaco's explanation, based on informed observations of the training process, was "that the variability in attrition rate is associated with the manner in which the drill instructor team operationalizes the training regimen". This influenced the social climate created in the platoons and the development of individual coping capability in the recruits.

Despite obvious differences between the US Marine Corps and the Norwegian army, the contrasts between civilian and military existence are in principle similar. What Novaco's observations reveal is that, within a given set of regulations, it is possible to develop widely varying social climates, and thereby promote efficient or inefficient individual adaptation to a challenging situation.

8.1. Recommendations to military authorities.

Former students of mental health among Norwegian conscripts, Eitinger[17] (1954), and Roness[19] (1976), have given recommendations for improving recruits' adaptation which are in line with recent (1992) recommendations concerning suicide prevention in the Norwegian Armed Forces[42]. In accordance with the views expressed in these studies, I would make the following recommendations to the military authorities:

- What happens at the training school, during the first days of military service, is crucial.
- Training schools ought to be manned by experienced officers, aware of the psychological challenges involved in recruit training, available for daily, direct contact with recruits. Special attention should be given to the task of informing the recruits about the hows and whys of military organisation and the forthcoming training, preparing them for the social and emotional challenges of being a conscript, and describing constructive ways of coping with these challenges. To be prepared for stress is essential for mastering it. "The best way to regulate fear in battle is to expect to be afraid, to prepare for it in advance, and to counteract fear in battle by concentrating on the tasks at hand"[33].
- Written information about these issues ought to be distributed to all potential conscripts before enrolment.
- Special attention should be given to the tension between the liberal, democratic

practices of civilian society and the authoritarian principles of military leadership. Explanations, open discussions, and delegation of responsibility, where possible, to conscripts, may prove increasingly necessary as civilian society changes towards continually higher levels of education.

- During officer's training, increased attention should be given to the above mentioned aspects of military leadership.

In addition, military service is a golden opportunity to give young men up to date information concerning health and health-sustaining behaviour. Raising the level of awareness on topics such as mental health and human relationships, sexually transmitted disease, nutrition and physical exercise, and reducing the prevalence of nicotine addiction among young men, would be fully consistent both with the objectives of civilian society, and with the Armed Forces' need for fit and healthy soldiers. The ongoing campaigns concerning traffic security and suicide prevention among conscripts may serve as models for more diversified health information campaigns.

The study of alcohol consumption shows that restrictive measures may have great impact on certain behaviours. A precondition is, of course, that regulations are enforced. The 1989 surveys of conscripts and officers showed quite consistently that smoking regulations were sloppily practised. In accordance with the development in civilian society, it is highly recommended that military smoking restrictions be observed. In addition, the availability of cigarettes and smokeless tobacco in military camps ought to be reduced.

8.2. Further research.

Military populations are clearly delimited, easily accessible, and well documented and organised, which makes them ideal for various kinds of research.

Future research on the influence of military service on young men's values, behaviours and health should concentrate on three fields of study:

1) To what extent are changes that occur during military service carried into civilian life?
2) In-depth observational studies of recruits during the first hours, days and weeks of military service, combined with longitudinal surveys before, during and after military service. The Armed Forces are presently becoming reorganised, and future conscripts will spend their whole service in only one location. The impact of this structural change ought to be evaluated.
3) Intervention studies. The existence of military units with similar structure and function, and with randomly assigned personnel, should be taken advantage of for controlled studies of various health interventions. The rapid turnover of all personnel groups makes it possible to repeat or vary the strategies at relatively short time intervals.

Based on my personal experience, I recommend that qualitative elements be included in future research on military service.

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APPENDIX 1. TABLES A AND B. RESPONSE DISTRIBUTIONS ON QUESTIONS CONCERNING LIFE IN MILITARY TRAINING SCHOOL AND BRIGADE NORTH.

Table A. Frequency distribution of responses to 10 propositions concerning military training school (retrospectively judged). The number of respondents to individual items varies between 1986 and 2023 conscripts.

	Totally agree	Partly agree	Partly disagree	Totally disagree
1.Generally, officers were nice.	25	43	19	13
2.It was no problem to get used to obeying the officers, no matter what the order was.	9	35	31	25
3.What happened the first 2-3 days made me expect the worst for what was to to follow.	33	26	23	18
4.I felt like an outsider when with other conscripts.	4	10	23	63
5.I slept well from the first night.	50	24	12	14
6.It was a shock for me to get into the military.	14	17	30	39
7.I was often homesick during the first few weeks.	34	26	20	21
8.I was bored most of the time.	16	24	35	25
9.I never tried to get a sick call except when I really felt bad.	70	11	7	13
10.It was easy to get new friends.	74	22	2	3

Table B. Frequency distribution of responses to 31 propositions concerning life in Brigade North. The number of respondents to individual items varied between 1967 and 2013 conscripts*.

	Totally agree	Partly agree	Partly disagree	Totally disagree
1.Officers often underestimate conscripts and treat us like idiots. (O)	46	29	19	7
2.I have a good relationship with the officers I see regularly. (O)	19	45	22	14
3.Officers in my unit are more sympathetic than most officers. (O)	11	41	31	17
4.Officers are generally less intelligent than other professionals. (O)	25	22	32	21
5.It's generally worse to be in my unit than in most others. (O)	13	17	33	37
6.I'm certain that some officers try to pester me as often as they can. (O)	11	13	29	47

(Continued)

Table 3, continued.

7.It's up to me to have a good time while I'm in the Army. (M)	39	39	14	9
8.Being in the Brigade is more meaningful than being in training school. (M)	37	32	14	17
9.During the service I have learned to use my leisure time better. (M)	7	14	32	47
10.You get no useful experiences during military service. (M)	11	19	34	35
11.The army ought to be dismantled and the money used for better purposes. (M)	29	14	28	30
12.I have grown more independent and adult during the service. (M)	22	37	19	23
13.Military service is a duty which nobody should try to avoid. (M)	40	24	15	22
14.I'm often homesick. (M*)	49	29	15	8
15.My willpower has grown stronger during military service. (M*)	16	31	28	25
16.I sometimes feel lonely though there are many others here. (P)	29	30	25	16
17.Sometimes I don't have the energy to do the things I really want to do. (P)	22	33	23	21
18.I let myself be influenced by the slackness of the other soldiers. (P)	21	33	26	19
19.Sometimes I complain because everybody complains, even though conditions aren't too bad. (P)	6	23	33	38
20.It's hard to be yourself, you have to behave like everybody else. (P)	8	16	31	45
21.Sometimes I try to assert myself by boasting about driving fast, drinking a lot, sleeping with women or spending a lot of money. (P)	4	17	40	40
22.I'm not popular among the others in my unit. (P)	3	7	34	57
23.I was mobbed by the other conscripts when I arrived. (P)	3	3	12	82
24.There's a good atmosphere in my dormitory	62	30	5	3
25.Old and new soldiers in my company get along well	35	43	14	8
26.I have more friends now than I had before military service	27	27	23	24
27.I feel there's too much swearing among soldiers	13	22	30	36
28.Many soldiers try to assert themselves by boasting about driving fast, drinking a lot, sleeping with women or spending a lot of money.	31	36	22	11
29.The leisure activities offered are highly insufficient	49	28	17	6
30.Having a good time does not depend on the leisure activities offered by the military	23	26	26	26
31.There is not enough work to do during service hours	18	18	22	42

*3 factor based indexes based on the above items were used in Papers III, IV and V:

(O) = Items used in factor based index called "Officers".

(M) = Items used in factor based index called "Attitude to military service" or "Total experience". (Items marked M* were not used in Paper III).

(P) = Items used in factor based index called "Peers".

APPENDIX 2. QUESTIONNAIRES.

Questionnaire 1986 I

SPØRRESKJEMAUNDERSØKELSE OM VERNEPLIKTIGE MANNSKAPER VED BRIGADEN I NORD-NORGE

I samarbeid med Statens Tobakkskaderåd og Kreftregisteret vil Brigaden i Nord-Norge søke å kartlegge vernepliktiges mannskapers bruk av tobakk. Formålet er å bringe på det rene om militærtjenesten fører til større eller mindre tobakksbruk, og om dette har sammenheng med spesielle forhold ved arbeid eller miljø.

Undersøkelsen er godkjent av Datatilsynet og Sosialdepartementet, og utfylte skjemaer vil bare bli behandlet av medisinsk personell. Databehandlingen vil foregå ved Kreftregisteret, Det Norske Radiumhospital.

Dataregisteret vil bli lagret ved Kreftregisteret for senere å kunne sammenholdes med nye spørreundersøkelser og/eller sykdomsstatistikk. Personopplysninger vil bli strengt beskyttet. Deltakelse i undersøkelsen er frivillig. Ved å fylle ut skjemaet gir du imidlertid et vesentlig bidrag til norsk medisinsk forskning.

Avdelingslegen skal være tilstede under utfyllingen og straks ta med seg skjemaene. Hvis du ikke husker personnummeret vil legen påføre dette før skjemaene sendes Kreftregisteret i forseglet pakke. Legen vil også påføre høyde, vekt, blodtrykk og puls fra helsekortet.

Det er meget viktig at det gis ærlige svar på alle spørsmål.

Navn:

Fødselsdato: Personnummer:

Avdeling (kompani + evt bataljon):

<u>For avdelingslegen</u> Høyde: Puls :

Vekt : Blodtrykk:

Bruk innrykksmålinger. Innrykksmåned _____

UTFYLLING: Sett en ring rundt tallet foran det svaret som passer best. Bare ett svar på hvert spørsmål.

1. Har du forsøkt å røyke?

   1 ja

   2 nei

2. Røyker du nå?

   1 ja, daglig

   2 ja, av og til

   3 nei, aldri

3. Hvor mange sigaretter røyker du vanligvis på en dag?

   1 1 - 9

   2 10 - 19

   3 20 eller mer

4. Har du i løpet av din tid i forsvaret blitt informert om tobakksbruk og helseskader?

   1 ja

   2 nei

5. Har dine røykevaner endret seg i løpet av tjenestetiden i forsvaret?

   1 nei

   2 røyker mindre enn før

   3 røyker mer enn før

   4 har sluttet å røyke i løpet av tjenesten

   5 har begynt å røyke i løpet av tjenesten

6. Tror du daglig sigarettrøyking i flere år vil medføre helseskade?

   1 ja

   2 nei

7. Tror du dine røykevaner kommer til å endre seg når du er ferdig med verneplikten?

   1 nei

   2 kommer til å røyke mindre

   3 kommer til å røyke mer

   4 kommer til å slutte å røyke

   5 kommer til å begynne å røyke

8. Kan du forsøke å forutsi dine røykevaner omkring fem år fra nå. Hvilket av svarene passer best?

1 kommer helt sikkert til å røyke daglig

2 kommer antagelig til å røyke daglig

3 kommer antagelig ikke til å røyke daglig

4 kommer helt sikkert ikke til å røyke daglig

9. Røykes det på det rommet du vanligvis sover på?

1 ja

2 nei

10. Plager det deg hvis noen røyker på soverommet ditt?

1 ja

2 nei

11. Ønsker du røykeforbud på det rom du selv bor?

1 ja

2 nei

12. Ønsker du røykeforbud i TV-rommet?

1 ja

2 nei

13. Røyker din beste kamerat i kompaniet?

1 ja

2 nei

14. Har du forsøkt å bruke snus?

1 ja

2 nei

15. Bruker du snus nå?

1 ja, daglig

2 ja, av og til

3 nei, aldri

16. Har dine snusvaner endret seg i løpet av din tjenestetid i forsvaret?

1 nei

2 snuser mindre enn før

3 snuser mer enn før

4 har sluttet å snuse

5 har begynt å snuse

17. Tror du dine snus-vaner kommer til å endre seg når du blir ferdig med verneplikten?

1 nei

2 vil snuse mindre

3 vil snuse mer

4 vil slutte med snus

5 vil begynne med snus

18. Tror du daglig snusbruk i flere år vil medføre helseskade?

1 ja
2 nei

19. Snuser din beste kamerat i kompaniet?

1 ja

2 nei

20. Hvor mange måneder av førstegangstjenesten er du ferdig med?

21. Hvor bodde du før du påbegynte militærtjenesten?

1 by eller lignende område

2 landlig område

22. Hva slags utdannelse har du?

1 Ungdomsskole

2 1 - 2 år etter avsluttet ungdomsskole

3 3 år eller mer etter avsluttet ungdomsskole

23. Fast forhold til kvinne?

1 nei

2 kone

3 samboer

4 "kjæreste"

24. Har du barn?

1 ja

2 nei

25. Hvor ofte driver du fysisk trening på fritiden?

1 sjeldnere enn 1 gang pr uke

2 1 eller 2 ganger pr uke

3 3 ganger pr uke eller oftere

26. Hvor ofte drikker du alkohol?

1 aldri

2 sjeldnere enn 1 gang i uken

3 1 eller 2 kvelder i uken

4 oftere enn 2 kvelder i uken

Hvordan trives du i Forsvaret?

27. I tjenesten:

1 så godt som ventet

2 bedre enn ventet

3 dårligere enn ventet

28. I fritiden:

1 så godt som ventet

2 bedre enn ventet

3 dårligere enn ventet

Edvin Schei
Kaptein
Brigadelege

Questionnaire 1986 II

Questionnaire 1986 II

ETTERUNDERSØKELSE AV TOBAKKSVANER

I forbindelse med den store undersøkelsen om tobakksvaner i Brigaden i Nord-Norge sommeren 1986, er noen soldater valgt ut til en etterundersøkelse. Deltakelse er frivillig. Alle som deltar kan ved senere henvendelse til brigadelegen få vite resultatet av analysen.

Undersøkelsen gjøres for å finne ut hvor mye av et spesielt stoff, - t h i o c y a n a t, - som utvikles i blodet hos røykere, passive røykere og snusere. Blodprøven vil bli analysert ved Ullevål sykehus i Oslo.

Alle bes fylle ut skjemaet, også de som svarte forrige gang.

Utfylling: Sett en ring rundt tallet foran det svaret som passer best.

Navn (tydelig):
Fødselsdato :

Fra helsekortet: Høyde:
Vekt :

1. Fylte du ut det forrige spørreskjemaet om tobakksvaner i forsvaret?

   1 ja

   2 nei

2. Røyker du nå?

   1 ja, daglig

   2 ja, av og til

   3 nei, aldri

3. Hvor mange sigaretter røyker du vanligvis på en dag?

   Antall (omtrent):_____

4. Tror du dine røykevaner kommer til å endre seg når du er ferdig med verneplikten?

   1 nei

   2 kommer til å røyke mindre

   3 kommer til å røyke mer

   4 kommer til å slutte å røyke

   5 kommer til å begynne å røyke

5. Bruker du snus nå?

1 ja, daglig

2 ja, av og til

3 nei, aldri

RØYKEVANER I FAMILIEN:

6. Røyker mor?

1 ja

2 nei

3 kjenner ikke mors røykevaner

7. Røyker far?

1 ja

2 nei

3 kjenner ikke fars røykevaner

8. Søskens røykevaner

1 minst en søster eller bror røyker

2 ingen søsken røyker

3 kjenner ikke søskens røykevaner

9. Hvis du røyker, hvor gammel var du da du begynte å røyke?

Alder :_____

10. Hvor mange er det som røyker på rommet ditt?

Antall :_____

11. Hva synes du om middagen i forsvaret?

1 liker de fleste middager

2 liker ikke kjøttmiddagene

3 liker ikke fiskemiddagene

4 liker sjelden middagen

12. Hvor mange ganger i uken spiser du <u>ikke</u> forsvarets middag?

1 0

2 1

3 2 - 3 ganger

4 4 ganger eller oftere

13. Hvor ofte drikker du Coca-Cola, Pepsi-Cola, Cola Light eller Tab?

1 aldri

2 1 gang i uken eller sjeldnere

3 2 - 3 ganger i uken

4 4 - 5 ganger i uken

5 stort sett hver dag

14. Hvis du ikke ønsker å avgi blodprøve, kan du angi en grunn?

1 fare for at prøven kan bli misbrukt

2 fare for smitte

3 ubehag ved blodprøvetakning

4 røykeundersøkelsen er unødvendig

5 annen årsak

Edvin Schei
Kaptein
Brigadelege

Questionnaire 1989 I (Q2)

Questionnaire 1989 I (Q2)

TOBAKKBRUK BLANT VERNEPLIKTIGE MANNSKAPER VED BRIGADEN I NORD-NORGE 1989.

En spørreskjemaundersøkelse

Universitetet i Tromsø gjennomfører i 1989 en undersøkelse av røyking og snusbruk blant soldater i Brigaden i Nord-Norge. Utgiftene ved undersøkelsen dekkes av Den Norske Kreftforening. Vi håper du vil hjelpe oss ved å svare på spørsmålene i dette skjemaet så ærlig du kan. Også de som ikke bruker tobakk bes svare på alle spørsmålene.

Du skal ikke skrive navnet ditt på skjemaet, og det er dermed ingen fare for misbruk av de opplysningene du gir. Til høsten skal vi gjøre en ny undersøkelse med et større skjema. For å kunne se hvordan vaner, trivsel osv. utvikler seg i løpet av vernepliktstiden har vi merket skjemaene. Nedenfor vil du finne en klistrelapp med et tall. Dette er din kode, som du skal bruke igjen til høsten. Fest kodelappen på innsiden av plastomslaget til vernepliktsboken din før du begynner å svare på spørsmålene.

Takk for hjelpen!

Edvin Schei, lege
Institutt for samfunnsmedisin
Universitetet i Tromsø

UNIVERSITETET I TROMSØ

Nr. 0495

Riv av og fest
Nr. 0495
i vernepliktsboken

1. Alder:_____år.

2. Avdeling (Kompani, bataljon): .....

3. Tobakkbruk. Kryss av flere steder om nødvendig.
   Bruker ikke tobakk ..... ☐

Bruker:	Daglig	Av og til
[1] Sigaretter	☐	☐
[2] Snus	☐	☐
[3] Pipe	☐	☐
[4] Sigar/sigarillos	☐	☐
[5] Skrå el.lign.	☐	☐

På spørsmålene som nå følger svarer pipe- og sigarrøykere under Røyk, skråbrukere under Snus. Svar selv om du ikke bruker tobakk nå.

4. Hvis du bruker tobakk nå: Omtrent hvor mye bruker du pr. dag?

   Antall sigaretter/piper _____
   Antall priser snus/skrå _____
   Bruker ikke tobakk ☐

5. Brukte du tobakk før du begynte på rekruttskolen?

	1 Nei	2 Av og til	3 Daglig
Røyk	☐	☐	☐
Snus	☐	☐	☐

6. Omtrent hvor mye tobakk brukte du pr.dag før du begynte på rekruttskolen?

   Antall sigaretter/piper _____
   Antall priser snus/skrå _____

7. Har du endret tobakksvaner i løpet av tiden i forsvaret? (Les alle svarene først, kryss deretter av både under Røyk og Snus).

	Røyk	Snus
[1] Ingen endring	☐	☐
[2] Har begynt, men sluttet igjen	☐	☐
[3] Har begynt	☐	☐
[4] Bruker mer enn før	☐	☐
[5] Bruker mindre enn før	☐	☐
[6] Har sluttet, men begynt igjen	☐	☐
[7] Har sluttet	☐	☐

8. Tror du dine tobakksvaner kommer til å endre seg når du er ferdig med verneplikten? (Svar både for røyk og snus)

	Røyk	Snus
[1] Nei	☐	☐
[2] Kommer til å slutte	☐	☐
[3] Kommer til å bruke mindre	☐	☐
[4] Kommer til å bruke mer	☐	☐
[5] Kommer til å begynne	☐	☐

9. Forsøk å forutsi dine tobakksvaner omkring fem år fra nå. Hvilket av svarene passer best? (Svar både for røyk og snus).

	Røyk	Snus
[1] Kommer helt sikkert til daglig å bruke	☐	☐
[2] Kommer antagelig til daglig å bruke	☐	☐
[3] Kommer antagelig ikke til daglig å bruke	☐	☐
[4] Kommer helt sikkert ikke til daglig å bruke ...	☐	☐

10. Bruker din beste kamerat i kompaniet tobakk?

1	2	3	4
Nei ☐	Røyk ☐	Snus ☐	Både røyk og snus ☐

11. Hvor mange år har du gått på skole?

Antall år:_____

12. **Fysisk trening.**

	Sjeldnere enn 1 gang pr. uke	1 eller 2 ganger pr. uke	3 ganger pr.uke eller oftere
	1	2	3
a) Hvor ofte drev du fysisk trening på fritiden før du begynte på rekruttskolen?	☐	☐	☐
b) Hvor ofte driver du fysisk trening på fritiden nå?	☐	☐	☐

13. **Alkohol.**

	Aldri	Sjeldnere enn 1 gang pr. uke	1 eller 2 ganger pr. uke	3 ganger pr.uke eller oftere
	1	2	3	4
a) Hvor ofte drakk du alkohol før du begynte på rekruttskolen? ...	☐	☐	☐	☐
b) Hvor ofte drikker du alkohol nå? ...	☐	☐	☐	☐

14. Har ditt forbruk av snacks, søtsaker og brus forandret seg etter at du kom inn i militæret?

[1] Økt sterkt	☐
[2] Økt noe	☐
[3] Ikke forandret seg	☐
[4] Minket noe	☐
[5] Minket sterkt	☐

15. **Trivsel på rekruttskolen.**

	Svært godt 1	Nokså godt 2	Nokså dårlig 3	Svært dårlig 4
a) Hvordan trivdes du i tjenesten på rekruttskolen?	☐	☐	☐	☐
b)Hvordan trivdes du i fritiden på rekruttskolen?	☐	☐	☐	☐

16. a) Har du et fast forhold (gift/samboer/kjæreste)?

Ja ☐ Nei ☐

Hvis ja:
b) Hvor lenge har forholdet vart?

Antall måneder: _____ år:_____

17. Har du eller har du hatt noen tobakkbrukere i din oppvekstfamilie?

	Røyk	Snus
[1] Nei	☐	☐
[2] Ja, yngre søsken	☐	☐
[3] Ja, eldre søsken	☐	☐
[4] Ja, mor	☐	☐
[5] Ja, far	☐	☐

18. Hvor stor prosent av befalet på rekruttskolen vil du tro brukte tobakk?

Røykte: _____ %
Brukte snus: _____ %

19. Følte du deg noen ganger plaget av tobakkrøyk mens du var på rekruttskolen?

[1] Ofte	☐
[2] Iblant	☐
[3] Sjelden	☐
[4] Aldri	☐

20. Synes du militærtjenesten er en nyttig erfaring å ta med seg?

[1] Svært nyttig	☐
[2] Nokså nyttig	☐
[3] Nokså unyttig	☐
[4] Svært unyttig	☐

Til slutt:
Husket du å feste kodelappen i vernepliktsboken?

Questionnaire 1989 II (Q2)

Questionnaire 1989 II (Q2)

TOBAKKBRUK
BLANT VERNEPLIKTIGE MANNSKAPER
VED BRIGADEN I NORD-NORGE
1989

Universitetet i Tromsø gjennomfører i 1989 en undersøkelse av røyking og snusbruk i Brigaden i Nord-Norge. For å få vite mer om hvordan tobakkbruk henger sammen med andre forhold, f.eks. familie, personlighet og opplevelsen av militærlivet, har vi tatt med mange spørsmål som ikke handler om tobakk. Enkelte spørsmål dreier seg om personlige forhold. Hvis du synes det er ubehagelig å svare på noen spørsmål kan du hoppe over dem.

Skjemaet er anonymt, det vil ikke være mulig å finne ut hvem som har svart hva. Opplysningene skal bare brukes til forskning og statistikk. Undersøkelsen er godkjent av Forsvarets Overkommando og støttes av Den Norske Kreftforening.

Hvis du ikke bruker tobakk ber vi deg allikevel svare på alle spørsmål, unntatt der det står anført i skjemaet at du kan hoppe over.

Les spørsmålene nøye før du svarer. Noen spørsmål gjelder for både røyk og snus, slik at du skal svare to steder. Hvis du røyker pipe skal du svare under «røyk», hvis du bruker skrå svarer du under «snus».

Takk for hjelpen!

Edvin Schei, lege
Institutt for samfunnsmedisin
Universitetet i Tromsø

2347

1. Hvis du tilhører januarkontingenten og fylte ut et spørreskjema om tobakksvaner i april: finn frem kodenummeret som du klistret i vernepliktsboken, og skriv nummeret her: Nr. _____

(Du behøver ikke være redd for å bli gjenkjent. Ingen opplysninger om identitet er knyttet til kodenummeret.)

2. Hvilken avdeling tilhører du?

Kompani/ batteri/ eskadron: _____ Bataljon: _____

3. Alder: _____ år.

4. Når ble du overført til Brigaden i Nord-Norge? Måned _____

5. Hva heter hjemkommunen din?
(Kommunen der du nå er registrert som hjemmehørende:) _____

6. Hvor høy er du? _____ cm.

7. Hvor mye veier du? _____ kg.

8. Har du forsøkt å bruke tobakk?.
(Svar både for snus og røyk.)

Røyk	a	1 ☐ Ja 2 ☐ Nei
Snus	b	1 ☐ Ja 2 ☐ Nei

9. Plages du av sigarettrøyk på følgende steder? *Gi ett svar for hver av de fem mulighetene:*

På soverommet	a	1 ☐ Ofte 2 ☐ Av og til 3 ☐ Aldri
I TV-rommet	b	1 ☐ Ofte 2 ☐ Av og til 3 ☐ Aldri
I vanlig tjenestetid	c	1 ☐ Ofte 2 ☐ Av og til 3 ☐ Aldri
I militære kjøretøyer	d	1 ☐ Ofte 2 ☐ Av og til 3 ☐ Aldri
Under feltøvelser	e	1 ☐ Ofte 2 ☐ Av og til 3 ☐ Aldri

10. Finnes det tilstrekkelig mange røykerom på ditt tjenestested?
1 ☐ Ja
2 ☐ Nei

11. Hva synes du om røykereglene i forsvaret?
1 ☐ Reglene er for strenge
2 ☐ Reglene er passe strenge
3 ☐ Reglene ville vært passe strenge hvis man hadde hatt flere røykerom
4 ☐ Reglene er ikke strenge nok

12. Har du inntrykk av at dagens røykeregler i forsvaret blir overholdt?
1 ☐ I høy grad
2 ☐ I noen grad
3 ☐ I liten grad

Dersom du aldri har brukt tobakk regelmessig kan du hoppe direkte til spørsmål 26

Hvis du tidligere har brukt tobakk regelmessig, men ikke gjør det nå, hopp til spørsmål 19

13. Tobakkbruk nå.
Kryss av flere steder om nødvendig.

Bruker ikke tobakk	a	1 ☐
Sigaretter	b	1 ☐ Daglig 2 ☐ Av og til
Snus	c	1 ☐ Daglig 2 ☐ Av og til
Pipe	d	1 ☐ Daglig 2 ☐ Av og til
Sigar/sigarillos	e	1 ☐ Daglig 2 ☐ Av og til
Skrå el.lign.	f	1 ☐ Daglig 2 ☐ Av og til

14. Hvor mye tobakk bruker du?

Antall sigaretter/piper pr. dag: _____
Antall pakker rulletobakk pr. måned: _____
Antall priser snus/skrå pr. dag: _____

15. Bruker du mest tobakk i tjenestetiden eller i fritiden?

Røyk	a	1 ☐ Mer i fritiden 2 ☐ Like mye 3 ☐ Mer i tjenestetiden
Snus	b	1 ☐ Mer i fritiden 2 ☐ Like mye 3 ☐ Mer i tjenestetiden

16. Hvis du bruker snus nå:
Kunne du tenke deg å gå over til bare å røyke sigaretter?

1 ☐ Ja
2 ☐ Nei
3 ☐ Vet ikke

17. Hvis du røyker nå:
Kunne du tenke deg å gå over til bare å snuse?

1 ☐ Ja
2 ☐ Nei
3 ☐ Vet ikke

18. Hvordan ville vennene dine reagere hvis du plutselig sluttet å bruke tobakk? *Sett et kryss i den ruten som du synes passer best.*

1 ☐ De fleste ville bli glade og prøve å støtte meg
2 ☐ De fleste ville ikke bry seg med at jeg sluttet
3 ☐ De fleste ville erte meg eller plage meg for å få meg til å begynne igjen.

19. Hvor gammel var du da du begynte å bruke tobakk?

Røyk Alder _____ år
Snus Alder _____ år

20. Brukte du tobakk da du begynte på rekruttskolen?
(Svar både under røyk og snus.)

Røyk	a	1 ☐ Daglig 2 ☐ Av og til 3 ☐ Ikke
Snus	b	1 ☐ Daglig 2 ☐ Av og til 3 ☐ Ikke

21. Omtrent hvor mye tobakk brukte du da du begynte på rekruttskolen?

Brukte ikke tobakk 1 ☐
Antall sigaretter/piper pr dag: _____
Antall pakker rulletobakk pr. måned: _____
Antall priser snus/skrå pr. dag: _____

22. Varighet av tobakkbruk.
Angi hvor lenge du har brukt de typene tobakk du bruker nå eller har brukt før. Kryss også av for de typene du aldri har brukt.

Sigaretter	a	1 ☐ Aldri brukt 2 ☐ Har brukt eller bruker nå Varighet: ____ år ____ mnd.
Snus	b	1 ☐ Aldri brukt 2 ☐ Har brukt eller bruker nå Varighet: ____ år ____ mnd.
Pipe	c	1 ☐ Aldri brukt 2 ☐ Har brukt eller bruker nå Varighet: ____ år ____ mnd.
Sigar/sigarillos	d	1 ☐ Aldri brukt 2 ☐ Har brukt eller bruker nå Varighet: ____ år ____ mnd.
Skrå el.lign.	e	1 ☐ Aldri brukt 2 ☐ Har brukt eller bruker nå Varighet: ____ år ____ mnd.

23. Hvorfor begynte du å bruke tobakk?
Nedenfor har vi listet opp en del vanlige årsaker til at man begynner å bruke tobakk. Angi for hver årsak hvor stor betydning den hadde for deg. Kryss av for både røyk og snus hvis du bruker begge deler.

		Ingen	Liten	Svært liten	Noe	Stor	Svært stor
Familiemedlemmer brukte tobakk	Røyk	☐	☐	☐	☐	☐	☐
	Snus	☐	☐	☐	☐	☐	☐
For å føle meg tøffere	Røyk	☐	☐	☐	☐	☐	☐
	Snus	☐	☐	☐	☐	☐	☐
For å gjøre opprør mot foreldre/skole	Røyk	☐	☐	☐	☐	☐	☐
	Snus	☐	☐	☐	☐	☐	☐
Fordi venner brukte tobakk	Røyk	☐	☐	☐	☐	☐	☐
	Snus	☐	☐	☐	☐	☐	☐
Pga. felleskapsfølelsen blant de som bruker tobakk	Røyk	☐	☐	☐	☐	☐	☐
	Snus	☐	☐	☐	☐	☐	☐
Fordi det virket voksent å bruke tobakk	Røyk	☐	☐	☐	☐	☐	☐
	Snus	☐	☐	☐	☐	☐	☐
Fordi det virket oppkvikkende	Røyk	☐	☐	☐	☐	☐	☐
	Snus	☐	☐	☐	☐	☐	☐
For å få mer selvtillit	Røyk	☐	☐	☐	☐	☐	☐
	Snus	☐	☐	☐	☐	☐	☐

Annet, skriv hva: _____

_____

24. Hvor mange ganger har du prøvd å slutte å bruke tobakk?

Røyk: ____ ganger
Snus: ____ ganger

25. Hvis du har sluttet å røyke eller snuse vil vi gjerne vite hvor mye du mener de tingene vi har nevnt nedenfor betydde for at du skulle klare å slutte:
(Kryss av for alle 5 spørsmålene)

Helsefare	1 ☐ Svært lite 2 ☐ Nokså lite 3 ☐ Nokså mye 4 ☐ Svært mye
Dårlig kondisjon	1 ☐ Svært lite 2 ☐ Nokså lite 3 ☐ Nokså mye 4 ☐ Svært mye
Høy pris	1 ☐ Svært lite 2 ☐ Nokså lite 3 ☐ Nokså mye 4 ☐ Svært mye
Press fra familie/venner/kolleger	1 ☐ Svært lite 2 ☐ Nokså lite 3 ☐ Nokså mye 4 ☐ Svært mye
Sykdom i familien	1 ☐ Svært lite 2 ☐ Nokså lite 3 ☐ Nokså mye 4 ☐ Svært mye

Annet, skriv hva: _____

_____

Spørsmalene som kommer nå besvares av *alle*

26. Hvor lang utdannelse har du?

1 ☐ Ungdomsskole
2 ☐ 1-2 år etter ungdomsskolen
3 ☐ 3 år eller mer etter ungdomsskolen

27. Planlegger du å ta mer utdannelse etter militærtjenesten?

1 ☐ Nei
2 ☐ 1-2 år
3 ☐ 3-4 år
4 ☐ 5 år eller mer

28. Hvilken del av arbeidslivet tror du at du vil tilhøre i fremtiden?

1 ☐ Primærnæring (jordbruk, fiske, skogbruk)
2 ☐ Handel, næringsliv, kontorarbeid
3 ☐ Industri, bygg og anlegg
4 ☐ Transport
5 ☐ Tjenesteytende (helsevesen, skole, politi o.l.)
6 ☐ Forsvaret
7 ☐ Annet

29. Hva slags arbeid har faren din?
Vi er interessert i hvilket yrke han har, om han f.eks. er sjåfør, lærer eller fabrikkarbeider og hva han gjør.)

1 ☐ Yrke: _____
Si kort hva han arbeider med _____
_____
2 ☐ Hjemmeværende
3 ☐ Arbeidsløs
4 ☐ Pensjonist, trygdet
5 ☐ Død

30. Hva slags arbeid har moren din?
(Skriv også her hvilket yrke hun har og hva hun gjør.)

1 ☐ Yrke: _____
Si kort hva hun arbeider med _____
_____
2 ☐ Hjemmeværende
3 ☐ Arbeidsløs
4 ☐ Pensjonist, trygdet
5 ☐ Død

31. Hva slags utdanning har faren din?
(Sett så mange kryss som passer.)

1 ☐ Folkeskole (7-årig grunnskole)
2 ☐ Real- eller ungdomsskole
3 ☐ Gymnas
4 ☐ Universitet eller høgskole
5 ☐ Handelsskole
6 ☐ Fagutdanning eller yrkesskole
7 ☐ Annen utdanning nemlig _____
8 ☐ Vet ikke

32. Hva slags utdanning har moren din? *(Sett så mange kryss som passer.)*

1 ☐ Folkeskole (7-årig grunnskole)
2 ☐ Real- eller ungdomsskole
3 ☐ Gymnas
4 ☐ Universitet eller høgskole
5 ☐ Handelsskole
6 ☐ Fagutdanning eller yrkesskole
7 ☐ Annen utdanning nemlig _____
8 ☐ Vet ikke

33. Er foreldrene dine skilte eller separerte?

1 ☐ Ja
2 ☐ Nei

34. Røyker din far?

1 ☐ En sjelden gang
2 ☐ Under 10 sigaretter daglig
3 ☐ 10-20 sigaretter daglig
4 ☐ Over 20 sigaretter daglig
5 ☐ Har aldri røykt
6 ☐ Har sluttet å røyke

35. Røyker din mor?

1 ☐ En sjelden gang
2 ☐ Under 10 sigaretter daglig
3 ☐ 10-20 sigaretter daglig
4 ☐ Over 20 sigaretter daglig
5 ☐ Har aldri røykt
6 ☐ Har sluttet å røyke

36. a Hvor mange søsken har du?

Yngre _____ Eldre _____

36. b Har du noen søsken som røyker eller har røykt fast?

1 ☐ Nei
2 ☐ Yngre søsken
3 ☐ Eldre søsken

37. Er det noen i din oppvekstfamilie som bruker eller har brukt snus fast?

1 ☐ Nei
2 ☐ Yngre søsken
3 ☐ Eldre søsken
4 ☐ Mor
5 ☐ Far

38. Har du minst en venn som du stoler fullstendig på og kan betro deg til om alt mulig?

I forsvaret — a
1 ☐ Ja
2 ☐ Nei

Sivilt — b
1 ☐ Ja
2 ☐ Nei

39. Bruker din beste kamerat i avdelingen tobakk?
Hvis du har flere like gode kamerater skal du angi tobakksvanene til den som har etternavn nærmest A i alfabetet.

1 ☐ Nei
2 ☐ Røyk
3 ☐ Snus
4 ☐ Både røyk og snus

40. Hvor lenge har du vært venner med den vennen du har hatt lengst?

Antall år: _____

41. Hvor mange gode venner har du?

1 ☐ Ingen
2 ☐ 1-4
3 ☐ 5-10
4 ☐ 11 eller flere

42. Opplever du like mye godt vennskap i militæret som før militæret?

1 ☐ Mer før militæret
2 ☐ Omtrent like mye
3 ☐ Mer nå

43. Regner du med at vennene dine også vil være venner med deg om to år?

1 ☐ Helt sikkert
2 ☐ Antakelig
3 ☐ Neppe

44. *Hvis du ikke bruker tobakk nå:*

A) Får du noen ganger lyst til å ta en røyk eller en pris snus?

Har aldri lyst på tobakk. 1 ☐

Tenker av og til på å
2 ☐ - ta meg en røyk
3 ☐ - ta en pris snus

Tenker ofte på å
4 ☐ - ta meg en røyk
5 ☐ - ta en pris snus

B) Hvordan ville vennene dine reagere hvis du plutselig begynte å røyke eller snuse?

1 ☐ De fleste ville synes det var ok.
2 ☐ De fleste ville ikke bry seg med at jeg begynte.
3 ☐ De fleste ville synes jeg var dum og prøve å få meg til å slutte igjen.

45. a. Hvor mange sigaretter tror du man kan røyke daglig uten helsefare?

Antall: _____

b. Hvor mange priser snus tror du man kan bruke daglig uten helsefare

Antall: _____

46. Merk av de problemer og sykdommer du mener kan forårsakes av langvarig røyking og snusing:

Dårlig kondisjon a 1 ☐ Røyk 2 ☐ Snus

Tannkjøttbetennelse b 1 ☐ Røyk 2 ☐ Snus

Kreft c 1 ☐ Røyk 2 ☐ Snus

Nyreskade d 1 ☐ Røyk 2 ☐ Snus

Høyt blodtrykk e 1 ☐ Røyk 2 ☐ Snus

47. Hvor mange prosent av soldater i hæren vil du tro røyker eller bruker snus?

Røyker:	[1] Befal	_____ %
	[2] Menige	_____ %
Bruker snus:	[1] Befal	_____ %
	[2] Menige	_____ %

48. Tror du Forsvaret kan bidra til at tobakk blir mindre populært under militærtjenesten? *Angi for hvert av følgende tiltak hvor stor innflytelse du tror det ville ha:*

	Ingen	Liten	Noe	Stor
Mer informasjon om helsefare	☐	☐	☐	☐
Strengere restriksjoner	☐	☐	☐	☐
Bedring av trivsel i fritiden	☐	☐	☐	☐
Større ansvar til soldatene	☐	☐	☐	☐
At befal unnlater å bruke tobakk når vernepliktige er tilstede	☐	☐	☐	☐
Flere lange permisjoner	☐	☐	☐	☐

Forslag til andre tiltak: _____

49. Har du i løpet av din tid i forsvaret blitt informert om tobakkbruk og helseskader?

[1] ☐ Ja
[2] ☐ Nei

50. Tror du dine vaner når det gjelder tobakk kommer til å endre seg når du er ferdig med verneplikten?
Gi ett svar under røyk og ett under snus.
Kryss av for nei hvis du ikke bruker tobakk nå og ikke har tenkt å begynne.

		Røyk	Snus
Nei	a	[1] ☐	[1] ☐
Kommer til å bruke mindre	b	[2] ☐	[2] ☐
Kommer til å bruke mer	c	[3] ☐	[3] ☐
Kommer til å slutte	d	[4] ☐	[4] ☐
Kommer til å begynne	e	[5] ☐	[5] ☐

51. Forsøk å forutsi om du vil bruke tobakk omkring fem år fra nå. Hvilket av svarene passer best?
Gi ett svar under røyk og ett under snus, enten du bruker det eller ikke.

		Røyk	*Snus*
Kommer helt sikkert til daglig å bruke	a	[1] ☐	[1] ☐
Kommer antakelig til daglig å bruke	b	[2] ☐	[2] ☐
Kommer antakelig ikke til daglig å bruke	c	[3] ☐	[3] ☐
Kommer helt sikkert ikke til daglig å bruke	d	[4] ☐	[4] ☐

52. Hvilket av følgende utsagn er du mest enig i?

1 ☐ Jeg vet at Gud eksisterer
2 ☐ Jeg er litt i tvil, men føler at jeg tror på Gud
3 ☐ Jeg tror ikke på Gud, men tror på en høyere makt
4 ☐ Jeg tror ikke på Gud

53. Hvis det var stortingsvalg i dag, hvilket parti ville du stemt på?

1 ☐ Fremskrittspartiet
2 ☐ Høyre
3 ☐ Kristelig Folkeparti
4 ☐ Senterpartiet
5 ☐ Venstre
6 ☐ Arbeiderpartiet
7 ☐ Sosialistisk Venstreparti
8 ☐ Rød Valgallianse
9 ☐ Vet ikke
10 ☐ Ville ikke stemt

54. På spørsmålene som følger skal du merke av det ene svaret som passer best for deg.

	Svært godt	Nokså godt	Nokså dårlig	Svært dårlig
Hvordan trivdes du i tjenesten på rekruttskolen?	1 ☐	2 ☐	3 ☐	4 ☐
Hvordan trivdes du i fritiden på rekruttskolen?	1 ☐	2 ☐	3 ☐	4 ☐

55. Trives du alt i alt bedre i Brigaden i Nord-Norge enn du gjorde på rekruttskolen?

1 ☐ Bedre
2 ☐ Omtrent like godt
3 ☐ Dårligere

56. Er du enig eller uenig i de påstandene som nå kommer om rekruttskolen?

		Helt enig	Nokså enig	Nokså uenig	Helt uenig
Befalet var stort sett hyggelige.	a	1 ☐	2 ☐	3 ☐	4 ☐
Jeg syntes ikke det var noe problem å venne seg til å lystre befalet uten å mukke, uansett hva ordren gikk ut på.	b	1 ☐	2 ☐	3 ☐	4 ☐
Det som skjedde de første 2-3 dagene i militæret fikk meg til å tenke på det som ville komme med skrekk og gru.	c	1 ☐	2 ☐	3 ☐	4 ☐
Jeg følte meg utenfor i forhold til de andre rekruttene.	d	1 ☐	2 ☐	3 ☐	4 ☐
Det var lettere å gli inn i miljøet hvis man røykte.	e	1 ☐	2 ☐	3 ☐	4 ☐
Jeg sov godt fra første natt.	f	1 ☐	2 ☐	3 ☐	4 ☐
Det var et sjokk for meg å komme i militæret.	g	1 ☐	2 ☐	3 ☐	4 ☐
Jeg lengtet ofte hjem den første tiden.	h	1 ☐	2 ☐	3 ☐	4 ☐
Jeg kjedet meg nesten hele tiden.	i	1 ☐	2 ☐	3 ☐	4 ☐
Jeg prøvde aldri å bli sykemeldt av militærlegen uten at jeg følte meg virkelig dårlig.	j	1 ☐	2 ☐	3 ☐	4 ☐
Det var lettere å gli inn i miljøet hvis man brukte snus.	k	1 ☐	2 ☐	3 ☐	4 ☐
Det gikk fort å få nye kamerater.	l	1 ☐	2 ☐	3 ☐	4 ☐

Hvilken rekruttskole gikk du på? (Navnet på moen): _____

57. Nå følger noen spørsmål om fritiden din og spise- og drikkevaner før og under militærtjenesten.

		Sjeldnere enn 1 dag i uken	1-2 dager i uken	3-4 dager i uken	5 dager i uken eller oftere
Hvor ofte ser du på TV?	a	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte så du på TV før militærtjenesten?	b	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte ser du på video?	c	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte så du på video før militærtjenesten?	d	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte trener du i fritiden?	e	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte trente du før militærtjenesten?	f	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte leser du ukeblad eller tegneserie?	g	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte leste du slike blader før militærtjenesten?	h	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte leser du bok?	i	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte leste du bok før militærtjenesten?	j	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte leser du avis?	k	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte leste du avis før militærtjenesten?	l	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte går du på kino?	m	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte gikk du på kino før militærtjenesten?	n	1 ☐	2 ☐	3 ☐	4 ☐
Fotturer, skiturer, padling, fisking eller andre former for friluftsliv i fritiden. I militæret:	o	1 ☐	2 ☐	3 ☐	4 ☐
Før militærtjenesten:	p	1 ☐	2 ☐	3 ☐	4 ☐
Hvor mange ganger i uken spiser du ikke forsvarets middag?	q	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte spiser du hamburger, pølse, chips eller lignende?	r	1 ☐	2 ☐	3 ☐	4 ☐
Hvor mange dager i uken spiser du sjokolade eller andre søtsaker?	s	1 ☐	2 ☐	3 ☐	4 ☐
Hvor ofte drikker du brus eller leskedrikk?	t	1 ☐	2 ☐	3 ☐	4 ☐

58. Har ditt forbruk av snacks, søtsaker og brus forandret seg etter at du kom inn i militæret?

1 ☐ Økt sterkt
2 ☐ Økt noe
3 ☐ Ikke foandret seg
4 ☐ Minket noe
5 ☐ Minket sterkt

59. Her står det en del setninger hvor du skal velge mellom to alternativer. Kryss av for enten 1 eller 2 på alle eksemplene.
Velg den setningen som passer best for deg, selv om du ikke er helt enig.

a 1 ☐ Jeg liker fester med fullt kjør.
2 ☐ Jeg foretrekker rolige fester hvor folk kan prate sammen.

b 1 ☐ Noen filmer liker jeg å se både to og tre ganger.
2 ☐ Jeg gidder ikke se samme film flere ganger.

c [1] ☐ Jeg ønsker ofte at jeg kunne være fjellklatrer.
[2] ☐ Jeg kan ikke forstå folk som riskerer livet med fjellklatring.

d [1] ☐ Jeg kjeder meg ved stadig å se de samme menneskene.
[2] ☐ Jeg liker den tryggheten som knytter seg til faste venner.

e [1] ☐ Jeg liker å utforske en fremmed by på egen hånd selv om jeg skulle komme til å rote meg bort.
[2] ☐ Jeg foretrekker en reiseguide når jeg er på et sted jeg ikke kjenner.

f [1] ☐ Jeg misliker folk som gjør ting for å sjokkere andre.
[2] ☐ De menneskene som du nesten alltid vet hva vil si og gjøre, er kjedelige.

g [1] ☐ Jeg misliker feste-mennesker.
[2] ☐ Jeg liker å være sammen med skikkelige feste-mennesker.

h [1] ☐ Når jeg er på resturant, liker jeg å bestille mat som jeg ikke har smakt før.
[2] ☐ På resturant spiser jeg helst mat jeg har smakt før.

i [1] ☐ Jeg kunne tenke meg å begynne å stå på vannski.
[2] ☐ Jeg kunne ikke tenke meg å stå på vannski.

j [1] ☐ Jeg kunne tenke meg å reise på ferie uten noen fast plan.
[2] ☐ Når jeg skal ha ferie, liker jeg å planlegge godt på forhånd.

k [1] ☐ Jeg liker at vennene mine er vanlige ungdommer som har beina på jorda.
[2] ☐ Jeg kunne godt tenke meg å få venner blant ungdommer som er litt spesielle, som f.eks. pønkere.

l [1] ☐ Når jeg bader, foretrekker jeg å være på den sikre siden og holde meg i vannoverflaten.
[2] ☐ Jeg kunne tenke meg å prøve dykking.

m [1] ☐ Jeg kunne godt tenke meg å møte mennesker (av begge kjønn) som er homoseksuelle.
[2] ☐ Jeg holder meg unna alle jeg tror er annerledes.

n [1] ☐ Jeg foretrekker venner som er spennende og plutselig kan gjøre uventede ting.
[2] ☐ Jeg foretrekker venner som er pålitelige og som en vet hvor en har.

o [1] ☐ Jeg liker godt å holde meg hjemme hos meg selv.
[2] ☐ Jeg blir lett rastløs om jeg må holde meg hjemme i lengre tid.

p [1] ☐ Jeg liker å stupe fra litt høyde.
[2] ☐ Jeg liker ikke følelsen jeg får oppe i et stupetårn.

q [1] ☐ En bør ha en god del seksuell erfaring før en gifter seg.
[2] ☐ En bør vente med å ligge med noen til en gifter seg.

r
1 ☐ Jeg liker andre mennesker som er morsomme, selv om de noen ganger skulle fornærme andre.
2 ☐ Jeg misliker folk som har det moro hvis de sårer andre.

s
1 ☐ Det er for mye sex i filmer på kino.
2 ☐ Jeg liker å se sex-scener på filmer.

t
1 ☐ Å kjøre raskt på ski nedover en bratt fjellside er en sikker vei til å ende opp på krykker.
2 ☐ Jeg tror jeg ville like følelsen av å kjøre i stor fart på ski nedover en bratt fjellside.

60. Er du enig eller uenig i følgende påstander hvis du tenker på hvordan du har det i din avdeling?

I min avdeling har vi det stort sett dårligere enn i andre avdelinger — a
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Befalet i min avdeling er mer sympatiske enn befal flest — b
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Vi har for lite å gjøre i tjenestetiden — c
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg syns befalet ofte undervurderer de menige og behandler oss som idioter — d
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg har et godt personlig forhold til det befalet jeg har med å gjøre i tjenesten. — e
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg er sikker på at enkelte befal går inn for å plage meg så ofte de har sjanse til det — f
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Vi har det vanligvis hyggelig på rommet der jeg bor — g
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg følte at jeg ble mobbet da jeg kom til avdelingen — h
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Nye og gamle soldater i avdelingen går godt sammen

i
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg er lite populær blant de andre vernepliktige i avdelingen

j
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Det er vanskelig å være seg selv i militæret, man må være mest mulig lik de andre for å bli likt

k
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg føler av og til at jeg klager fordi alle andre klager, selv om vi ikke har det så ille

l
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg blir lett smittet av de andre soldatenes slapphet

m
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Ofte orker jeg ikke gjøre ting jeg egentlig har lyst til

n
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Viljestyrken min er blitt sterkere i militæret

o
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg lengter ofte hjem

p
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg føler meg av og til ensom selv om det er mange andre her

q
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg har flere venner nå enn jeg hadde før militærtjenesten

r
1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Mange soldater prøver å hevde seg ved å skryte av at de kjører s
fort, drikker mye, ligger med jenter eller bruker mye penger

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Det hender at jeg også hevder meg ved å skryte av slike ting t

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg syns det er for mye rått snakk blant soldater u

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Jeg føler at jeg er blitt mer selvstendig og voksen
i løpet av militærtjenesten v

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Forsvaret burde vært nedlagt og pengene brukt til noe mer nyttig w

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Man får ingen nyttige erfaringer under militærtjenesten x

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Offiserer er stort sett mindre intelligente enn andre yrkesgrupper y

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Det er mer meningsfullt å være i brigaden enn på rekruttskolen z

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Militærtjenesten er en plikt som ingen bør prøve å slippe unna æ

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

I løpet av militærtjenesten er jeg blitt flinkere
til å utnytte fritiden positivt ø

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Det er ikke tilbudene fra forsvaret
som avgjør om man skal trives i fritiden å

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Fritidstilbudene fra forsvaret er altfor dårlige — 1

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

Det er opp til meg selv om jeg skal trives i militæret — 2

1 ☐ Helt enig
2 ☐ Nokså enig
3 ☐ Nokså uenig
4 ☐ Helt uenig

61. Nedenfor står noen eksempler på hvordan mennesker kan oppleve seg selv. *Hvis du synes det som står der stort sett passer for deg, skal du krysse av for riktig. Hvis det ikke passer for deg skal du krysse av for galt. Prøv å fylle ut alle eksemplene, selv om du skulle være litt i tvil noen steder.*

Jeg føler meg gjerne avslappet og rolig når jeg er sammen med andre, også folk jeg ikke kjenner. — a

1 ☐ Riktig
2 ☐ Galt

Jeg føler ofte at jeg dummer meg ut overfor andre mennesker. — b

1 ☐ Riktig
2 ☐ Galt

Jeg rakker ikke ned på meg selv. — c

1 ☐ Riktig
2 ☐ Galt

Min mangel på selvtillit kan av og til være en plage for meg. — d

1 ☐ Riktig
2 ☐ Galt

Ofte virker det som om andre gjør allting mye bedre enn jeg gjør. — e

1 ☐ Riktig
2 ☐ Galt

Jeg mangler heldigvis ikke tiltro til meg selv. — f

1 ☐ Riktig
2 ☐ Galt

Jeg har av og til en intens, ubehagelig følelse av at jeg er annerledes enn andre. — g

1 ☐ Riktig
2 ☐ Galt

Av og til synes jeg ikke jeg er noe tess i det hele tatt. — h

1 ☐ Riktig
2 ☐ Galt

62. Nå følger noen spørsmål om livet ditt og hvordan du tenker og føler. *Hvert spørsmål har 7 forskjellige svar. Hvis ordene til 1 passer for deg, setter du en kryss i rute 1. Passer ordene til rute 7, setter du kryss der. Føler du at et annet svar passer bedre setter du kryss ved det nummeret du synes er nærmest din følelse.*

Har du noen gang følelsen av at du ikke bryr deg om hva som skjer rundt deg? — a

1 ☐ Svært sjelden eller aldri
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært ofte

Har det hendt at du er blitt overrasket over handlingene til folk du trodde du kjente godt?

b

1 ☐ Aldri hendt
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Hender alltid

Har du noengang blitt skuffet over folk du har stolt på?

c

1 ☐ Aldri blitt skuffet
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Alltid blitt skuffet

Så langt har livet ditt hatt:

d

1 ☐ Ingen klare mål eller hensikter i det hele tatt
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært klare mål og hensikter

Hvor ofte har du følelsen av å bli urettferdig behandlet?

e

1 ☐ Svært ofte
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært sjelden eller aldri

Hvor ofte føler du at du er i en ukjent situasjon hvor du ikke vet ut eller inn?

f

1 ☐ Svært ofte
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært sjelden eller aldri

Hverdagens oppgaver er en kilde til:

g

1 ☐ Dyp glede og tilfredsstillelse
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Lidelse og kjedsomhet

Har du noengang rotete og motstridende tanker og følelser?

h

1 ☐ Svært ofte
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært sjelden eller aldri

Hender det at du har følelser i deg som du helst ville slippe å ha?

i

1 ☐ Svært ofte
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært sjelden eller aldri

Mange mennesker – også de med en sterk personlighet – føler seg av og til som tapere i spesielle situasjoner. Hvor ofte har du følt det slik?

j

1 ☐ Aldri
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært ofte

Når noe har skjedd, pleier du vanligvis å oppdage at:

k

1 ☐ Du overdrev eller undervurderte betydningen av det som skjedde
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Du vurderte betydningen helt riktig

Hvor ofte har du følelsen av at det er lite mening i det du gjør til daglig?

l

1 ☐ Svært ofte
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært sjelden eller aldri

Hvor ofte har du følelser som du ikke er sikker på at du kan kontrollere?

m

1 ☐ Svært ofte
2 ☐
3 ☐
4 ☐
5 ☐
6 ☐
7 ☐ Svært sjelden eller aldri

63. Har du et fast forhold (gift/samboer/kjæreste)?

1 ☐ Ja
2 ☐ Nei

Hvis ja, hvor lenge har forholdet vart? _____ År _____ mnd.

64. Har du hatt samleie med noen i løpet av siste måned?

1 ☐ Ja
2 ☐ Nei

65. Sist du hadde samleie, brukte dere prevensjon?

1 ☐ Nei
2 ☐ Kondom
3 ☐ P-pille
4 ☐ Annen prevensjon
5 ☐ Vet ikke

66. Hvor ofte drakk du alkohol før du begynte på rekruttskolen?

1 ☐ Aldri
2 ☐ Sjeldnere enn 1 gang pr. uke
3 ☐ 1 eller 2 ganger pr. uke
4 ☐ 3 ganger pr. uke eller mer

67. Hvor ofte drikker du alkohol nå?

1 ☐ Aldri
2 ☐ Sjeldnere enn 1 gang pr. uke
3 ☐ 1 eller 2 ganger pr. uke
4 ☐ 3 ganger pr. uke eller mer

68. Har du fått tilbud om narkotiske stoffer eller rusende tabletter etter at du kom inn i militæret?

1 ☐ Ja, av andre soldater
2 ☐ Ja, av sivile
3 ☐ Nei

69. Har du prøvd hasj, marihuana eller andre narkotiske stoffer?

Før militærtjenesten a
1 ☐ Ja
2 ☐ Nei

Under militærtjenesten b
1 ☐ Ja
2 ☐ Nei

70. Har du brukt tabletter eller andre legemidler for å oppnå rus?

Før militærtjenesten a
1 ☐ Ja
2 ☐ Nei

Under militærtjenesten b
1 ☐ Ja
2 ☐ Nei

71. Hvordan klarer du deg med daglønna?

1 ☐ Jeg bruker mer penger enn jeg får utbetalt
2 ☐ Jeg bruker omtrent det jeg får utbetalt
3 ☐ Jeg bruker mindre enn jeg får utbetalt

72. Føler du deg bekymret eller stresset på grunn av økonomien?

1 ☐ Ofte
2 ☐ Av og til
3 ☐ Aldri
4 ☐ Vet ikke

73. Omtrent hvor ofte har du muligheten til å reise til hjemstedet ditt?

1 ☐ Hver helg eller oftere
2 ☐ 1-3 helger i måneden
3 ☐ Sjeldnere enn 1 helg i måneden

74. Hvor mange dager har du vært sykemeldt i løpet av siste 2 ukene?

1 Helt _____ dager
2 Delvis _____ dager

75. Vi vil gjerne vite hvordan du har hatt det de siste to ukene.
Kryss av på ett sted for hvert spørsmål.

Hvordan trives du i fritiden? a
1 ☐ Svært godt
2 ☐ Nokså godt
3 ☐ Nokså dårlig
4 ☐ Svært dårlig

Hvordan trives du i tjenestetiden? b
1 ☐ Svært godt
2 ☐ Nokså godt
3 ☐ Nokså dårlig
4 ☐ Svært dårlig

Har du klart å konsentrere deg fullt ut om alt du har gjort? c
1 ☐ Bedre enn vanlig
2 ☐ Samme som vanlig
3 ☐ Mindre enn vanlig
4 ☐ Mye mindre enn vanlig

Har du ligget våken på grunn av bekymringer? d
1 ☐ Ikke i det hele tatt
2 ☐ Ikke mer enn vanlig
3 ☐ Heller mer enn vanlig
4 ☐ Mye mer enn vanlig

Har du følt at du tar del i ting på en nyttig måte?

e
1 ☐ Mer enn vanlig
2 ☐ Som vanlig
3 ☐ Mindre enn vanlig
4 ☐ Mye mindre enn vanlig

Har du følt at du er i stand til å ta bestemmelser?

f
1 ☐ Mer enn vanlig
2 ☐ Som vanlig
3 ☐ Mindre enn vanlig
4 ☐ Mye mindre enn vanlig

Har du følt deg stadig utsatt for press?

g
1 ☐ Ikke i det hele tatt
2 ☐ Ikke mer enn vanlig
3 ☐ Heller mer enn vanlig
4 ☐ Mye mer enn vanlig

Har du følt deg ute av stand til å mestre dine vanskeligheter?

h
1 ☐ Ikke i det hele tatt
2 ☐ Ikke mer enn vanlig
3 ☐ Heller mer enn vanlig
4 ☐ Mye mer enn vanlig

Har du vært i stand til å glede deg over dine daglige gjøremål?

i
1 ☐ Mer enn vanlig
2 ☐ Samme som vanlig
3 ☐ Mindre enn vanlig
4 ☐ Mye mindre enn vanlig

Har du vært i stand til å møte dine problemer?

j
1 ☐ Mer enn vanlig
2 ☐ Samme som vanlig
3 ☐ Mindre enn vanlig
4 ☐ Mye mindre enn vanlig

Har du følt deg ulykkelig og nedtrykt (deprimert)?

k
1 ☐ Ikke i det hele tatt
2 ☐ Ikke mer enn vanlig
3 ☐ Heller mer enn vanlig
4 ☐ Mye mer enn vanlig

Har du mistet selvtilliten?

l
1 ☐ Ikke i det hele tatt
2 ☐ Ikke mer enn vanlig
3 ☐ Heller mer enn vanlig
4 ☐ Mye mer enn vanlig

Har du tenkt på deg selv som en verdiløs person?

m
1 ☐ Ikke i det hele tatt
2 ☐ Ikke mer enn vanlig
3 ☐ Heller mer enn vanlig
4 ☐ Mye mer enn vanlig

Har du stort sett følt deg tilfreds, når alt tas i betraktning?

n
1 ☐ Mer enn vanlig
2 ☐ Samme som vanlig
3 ☐ Mindre enn vanlig
4 ☐ Mye mindre enn vanlig

PAPER I

PREVENTIVE MEDICINE 23, 242–248 (1994)

The Impact of Military Service on Young Men's Smoking Behavior[1]

EDVIN SCHEI, M.D.[2] AND ANNE JOHANNE SØGAARD, PH.D.

Institute of Community Medicine, Medical and Health Science Building (MH), University of Tromsø, N-9037 Tromsø, Norway

In a cross-sectional study of 2,112 Norwegian army conscripts ages 18 to 25, the prevalence of daily smoking was 50.9%. Among the smokers, 55.7% had increased smoking during military service, and 7.8% of the nonsmokers had started to smoke. These changes in smoking behavior were correlated with having a best friend who smoked, with dissatisfaction with the military service, with physical inactivity, and with frequent alcohol consumption. Ninety percent lived in dormitories where cigarette smoking occurred regularly. Attitudes toward smoking restrictions were determined mainly by the subjects' smoking behavior and subjective discomfort caused by cigarette smoke. Smokers as well as nonsmokers having a best friend who smoked were significantly less bothered by cigarette smoke than others. The findings support the conclusion that military service has a negative influence on the smoking behavior of young Norwegian men. Intervention strategies are recommended. © 1994 Academic Press, Inc.

INTRODUCTION

In many Western countries, including the United States and the United Kingdom, cigarette smoking has historically been linked with the military. Cigarettes have been part of the rations provided to soldiers, and cigarette advertisements on radio and in printed media during World War II commonly featured military themes (1).

Studies from several European countries (2–6) and the United States (7–9) have demonstrated a higher prevalence of smoking among military personnel than among civilian males. These studies were mostly cross-sectional surveys carried out among enlisted soldiers, i.e., men who voluntarily chose the military as an occupation. Based on these findings we cannot determine whether this higher prevalence of smoking is caused by a self-selection of smokers to the military or whether the military as an institution promotes cigarette smoking.

Seventy percent of all 20-year-old Norwegian males are conscripted for 12 months of military service. When conscripted, a young man must leave his family and friends and spend 1 year in the military. At this age, an individual's social identity is pliant and can easily be swayed by external pressure. Behaviors and values adopted in the military will, to some extent, remain upon return to civilian life. If the influence of the conscription period on health-related behavior is negative, this may have undesirable consequences both for the efficiency of the military system (unfit soldiers) and for longterm morbidity in society at large.

The present study of Norwegian army conscripts focuses on changes in smoking behavior during military service and was aimed at finding answers to the following questions: (a) To what extent do young male adults change smoking behavior during the 12-month military service? (b) Are changes in smoking behavior associated with the sociodemographic characteristics of the recruits or with factors connected with military life? (c) How strong are the associations between changes in smoking behavior and other health-related behaviors? (d) Which factors are associated with attitudes toward smoking restrictions among the conscripts?

MATERIALS AND METHODS

The conscription period starts with 3 months at a military training school in the southern, relatively urban part of Norway, usually followed by 9 months of service in Brigade North, situated in the peripheral, northern areas, close to the Russian border. The soldiers are normally lodged in dormitories with six beds. Every 3 months, as the new recruits arrive, the oldest contingent is dismissed, so that three contingents are present in the brigade at the same time. The mean educational level in the contingents varies, with summer and autumn contingents containing relatively more well-educated recruits.

The present survey, carried out in August 1986, included all soldiers present in Brigade North. Over a period of 2 weeks, soldiers were assembled in platoons or companies (groups of 30 to 200) and asked to voluntarily complete a questionnaire. The items concerned current smoking habits (categorized as daily, occasional, or nonuser), changes in smoking behavior during the military service, intended smoking habits after the service, and attitudes toward smoking restrictions,

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[2] To whom reprint requests should be addressed.

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as well as age, education, living area, having a wife/girlfriend, snuff use, alcohol consumption, physical exercise during leisure time, tobacco habits of best friend in the military, degree of satisfaction with military life, and whether the respondent was bothered by smoking in dormitories. Names and national identification numbers were recorded (with the permission of the Norwegian Data Inspectorate), allowing data on height, weight, pulse rate, and blood pressure to be filled in subsequently from the soldiers' health records. These data had been recorded during routine health checks at enrollment, using standard scales and sphygmomanometers.

Data were gathered only once in every company. Thus, due to ongoing activities and leaves of absence, many soldiers were never given the opportunity to participate. The questionnaire was presented to 2,336 conscripts, and 2,238 questionnaires were completed, a response rate of 95.8%; 126 anonymous or illegible questionnaires were discarded, leaving 2,112 (90.4%) to be analyzed.

Dependent variables used in the analyses were smoking status (daily smoker or not), increasing smoking (smoked more during the service or not), and started to smoke (started/not started).

As a validation procedure of the self-reported smoking status, we measured levels of serum thiocyanate on a randomly selected subsample of 264 conscripts. Serum thiocyanate levels were measured at the Central Laboratory of Ullevål Hospital, Oslo. Following Foss *et al.* (10), the cutoff level was chosen at 50 μmol/liter, a value normally exceeded by 81% of smokers and 11% of nonsmokers (10).

For accurate comparisons with smoking prevalence and educational level among civilians in the same age group as the conscripts, we obtained data from the annual population surveys carried out by the Norwegian Central Bureau of Statistics (11).

Cross-tabulations with χ^2 tests (ordinary and Cochran–Mantel–Haenszel) were carried out using the SAS package of statistical programs (12).

RESULTS

The soldiers were 18 to 25 years old with a mean age of 20.6 years.

Smoking

On average, 50.9% were daily smokers in the three contingents surveyed (Table 1, column A). An additional 11.2% smoked occasionally. Among daily smokers, 31.6% smoked less than 10 cigarettes per day, 51.8% smoked 10–19, and 16.6% smoked 20 or more. The self-reported smoking habits were confirmed by serum thiocyanate analyses in the randomly selected subpopulation, with 79.6% of all smokers and 9.2% of the nonsmokers above the cutoff level.

Of the recruits who were nonsmokers at the beginning of the service, 7.8% had started to smoke during the conscription period (Table 1, column B), and 55.7% of those who smoked at the beginning reported increased smoking (Table 1, column C); 2.4% said they had quit smoking and 10.1% reported a decrease during the military service.

Table 1 shows the percentages of soldiers who smoked daily, those having started to smoke, and those having increased divided into subgroups of independent variables. Among the sociodemographic variables, having a best friend who smoked and dissatisfaction with military life were associated with both starting to smoke and increasing. Increased and started smoking were associated with little physical exercise during leisure time, high consumption of alcohol, and occasional use of snuff ($P < 0.001$). Daily use of snuff seemed to have a "protective" effect against increased smoking.

The bivariate associations with daily smoking were analyzed separately, using Cochran–Mantel–Haenszel's method to control for length of education as a possible confounder. This did not alter the significance levels.

When asked to estimate their hypothetical smoking habits immediately after military service, 14.6% of the daily smokers said they intended to stop and 49.4% said they intended to smoke less. Five years into the future, 40.4% of the daily smokers projected that they would definitely or most probably not be smoking (data not shown).

Passive Smoking

Passive smoking was widespread: 90.8% of the soldiers reported living in dormitories where smoking was practiced daily. Discomfort due to cigarette smoke in living quarters was reported by 6.6% of the smokers and 61.2% of the nonsmokers. Nonsmokers' perceptions of cigarette smoke were to some extent dependent on whether their best friend was a smoker or not: 54.3% were bothered by smoke in the sleeping room if best friend smoked, 68.6% if best friend did not smoke ($P < 0.01$).

Table 2 shows smokers' and nonsmokers' attitudes toward smoking restrictions in sleeping and/or living rooms by several independent variables. Restrictions were generally favored by 8.1% of the smokers and 67.1% of the nonsmokers. Among smokers, no significant differences between subgroups were found, except for the relatively few who were bothered by cigarette smoke, among whom 38.2% were in favor of restrictions. Among nonsmokers, on the other hand, the likelihood of a positive attitude toward smoking regulations increased with length of education, length of time served, having a nonsmoking best friend, and being bothered by smoke. Statistical adjustment for the vari-

TABLE 1

Percentage of Army Conscripts Reporting Daily Smoking (column A), Percentage of the Initial Nonsmokers Reporting To Have Started To Smoke (column B), and Percentage of the Initial Smokers (Daily and Occasional) Reporting To Smoke More during Military Service (column C) by Selected Independent Variables

	(A) All conscripts (n = 2105)		(B) Premilitary nonsmokers (n = 833)		(C) Premilitary smokers (n = 1272)	
	Daily smoking		Started to smoke during military service		Smoke more during military service	
	%	n	%	n	%	n
Total	50.9		7.8		55.7	
Length of education						
1–9 years	68.0	334***	4.8	84	54.8	250
10–11 years	57.4	875	9.0	301	57.5	574
12 years or more	38.1	883	7.7	444	53.5	439
Best friend smokes						
Yes	61.2	1441***	11.1	450***	59.5	991***
No	23.2	596	3.4	381	39.1	215
Stable relationship with female						
No	46.0	1096***	8.2	477	53.6	619
Yes	56.5	989	7.2	346	58.0	643
Living area						
Urban	53.1	961**	9.3	366	56.3	595
Rural	49.2	1131	6.5	460	55.3	671
Time served in the military						
10 months	46.1	646	9.6	280	52.5	366
7 months	53.4	1006	7.0	373	57.7	633
4 months	51.9	451	6.7	180	56.1	271
Satisfaction with military service						
Satisfied	44.0	884***	5.2	401	48.7	483***
Dissatisfied	56.2	1204	10.4	423	60.3	781
Physical exercise, leisure time						
Less than once a week	60.3	1076***	8.7	345	59.9	731***
Once or twice a week	45.2	673	8.0	302	52.8	371
Three times or more	32.6	344	6.1	181	42.9	163
Alcohol consumption						
Less than once a week	41.0	1151***	6.8	562**	50.4	589***
Once or twice a week	61.3	777	8.0	224	59.1	553
Three times or more	71.3	167	22.0	41	66.4	126
Snuff use						
Daily	19.4	216***	11.5	87**	31.0	129***
Occasionally	84.6	479	25.0	52	60.4	427
Never	44.7	1393	6.2	679	57.3	714

Note. The P values refer to bivariate associations, adjusted for length of education (where applicable); n varies due to missing values.
* $P < 0.05$.
** $P < 0.01$.
*** $P < 0.001$.

able "bothered by smoke" did not significantly change the bivariate associations in the smokers' group. Among nonsmokers, however, length of education lost significance upon controlling for "bothered by smoke," whereas being married or having a girlfriend was a statistically significant predictor of negative attitudes toward restrictions ($P < 0.05$).

Table 3 demonstrates the interaction effect of three variables on subjects' attitudes toward smoking restrictions. Whether a conscript's attitude toward restrictions was positive or negative was determined mainly by his smoking habits and his reaction to passive smoking. Smokers not bothered by smoke were almost unanimously negative to restrictions, whereas nonsmokers discomforted by smoke favored restrictions (Table 3, cells A and D). Whether best friend smoked or not did not influence the attitude toward restrictions in these groups. When, however, the subject's smoking habit was "dissonant" with his reaction to passive smoking, i.e., among smokers disliking smoke and nonsmokers not bothered (Table 3, cells B and C), the attitudes toward smoking restrictions diverged and were influenced by best friend's smoking habit.

DISCUSSION

We find a net increase in smokers' tobacco consumption and number of smokers during the military ser-

TABLE 2

Percentage of Smoking and Nonsmoking Army Conscripts Supportive of Smoking Restrictions (1 = Positive to Ban Smoking in Living Rooms and/or Dormitories; 0 = Negative) by Selected Independent Variables

	Supportive of smoking restrictions			
	Smokers		Nonsmokers	
	%	*n*	%	*n*
Total	8.1	1059	67.1	1008
Length of education				
1–9 years	7.2	223	61.2	103
10–11 years	7.0	497	62.3	361
12 years or more	10.5	333	70.7	539
Best friend smokes				
Yes	7.3	873	60.3	552***
No	11.7	137	76.2	442
Stable relationship with female				
No	8.8	449	68.2	579*
Yes	7.4	532	65.2	420
Time served in the military				
10 months	9.2	294	73.3	341**
7 months	8.5	532	66.5	454
4 months	6.0	231	58.2	213
Satisfaction with military service				
Satisfied	10.1	385	69.1	482
Dissatisfied	7.0	669	65.6	517
Bothered by smoking in dormitories				
Yes	38.2	68***	93.2	546***
No	6.0	998	35.5	454

* $P < .05$.
** $P < .01$.
*** $P < .001$.

Note. The P values refer to bivariate associations, adjusted for "bothered by smoking" (where applicable).

TABLE 3

The Combined Influence of Three Variables on Soldiers' Attitudes toward Smoking Restrictions: Subject's Smoking Habit, Reaction to Passive Smoking, and Best Friend's Smoking Habit

	Positive to restrictions			
	Nonsmokers		Smokers	
	%	*n*	%	*n*
	Cell A ($P = 0.42$)		Cell B ($P = 0.08$)	
Bothered by smoke				
Best friend doesn't smoke	94%	283	56%	16
Best friend smokes	93%	258	31%	48
	Cell C ($P = 0.02$)		Cell D ($P = 0.98$)	
Not bothered by smoke				
Best friend doesn't smoke	43%	158	6%	121
Best friend smokes	31%	289	6%	823

Note. *n* is the number of respondents and corresponds to 100% in each cell row.

vice. Whether the soldiers had served 3, 7, or 10 months was of no importance, however, indicating that the major changes take place within the first 3 months of service. A previous study of the same population showed a sharp increase in the prevalence of smokeless tobacco use (13). Studies of cigarette smoking in the U.S. Navy (8) and among Israeli infantry recruits (14) have similarly shown that many recruits start to smoke or to increase smoking after entering the military. The Israeli study concluded that most of the increase in tobacco consumption occurred during the first 14 weeks of training (14).

A ban on smoking in dormitories was favored by 8.1% of daily smokers and 67.1% of nonsmokers. In both groups the attitude toward smoking restrictions was influenced by the subjects' reaction to passive smoking and whether best friend smoked or not.

The response rate in this study was close to 100% in most companies. Soldiers who did not participate in the study were on routine duties or summer holiday leaves, based on alphabetical lists with no obvious selection bias. We therefore consider our sample to be representative of the three contingents present at the time of the survey.

In order to establish the overall prevalence of daily smoking in 1 year's cohort of conscripts, we obtained smoking data on the fourth contingent, which normally comprises a relatively higher proportion of well-educated recruits. A study carried out 10 months later (15) found that 39% of a random sample of 856 soldiers from the fourth contingent were daily smokers. The average percentage of daily smoking among army conscripts — all four contingents considered — could thus be estimated at 47.9%.

In Norway, healthy individuals (i.e., persons having no chronic disease) ages 19–29 have been found to smoke less than those with poor health (16). As recruits with obvious medical or social problems are exempted from service in the northern regions before or during the service (17), one would expect a lower proportion of smokers in our study population than among civilian men of the same age. What we found was the opposite. In a nationwide sample form 1986/1987 the prevalences of daily smoking among men ages 19–21 and 22–24 years were 37.2 and 35.4%, respectively (Central Bureau of Statistics, unpublished results).

A possible explanation for this discrepancy could be selection of men with a lower than average educational level to the army (an inverse relationship exists between length of education and smoking (18)). Data from the Central Bureau of Statistics from 1986 showed, however, no significant difference in length of education ($P > 0.10$) between the conscripts in our study and all males ages 19–21 (11).

The higher prevalence of daily smokers found in the army cannot be explained by the 7.8% who reported to

have started to smoke during the military service minus the 2.4% who had quit. An underestimation of the number of starters may, however, have been caused by subjects who converted from occasional to daily smoking and reported this as "increased" instead of "started." The thiocyanate measurements indicated a high validity of the self-reported smoking data.

Best friend's smoking behavior and dissatisfaction with the military service were the most important factors predicting both starting to smoke and increasing during the military service. These are factors directly connected with the military — in contrast to the sociodemographic factors which predicted daily smoking but not changes in smoking (Table 1).

The importance of peers' tobacco habits for the development and maintenance of smoking has been demonstrated in several studies of smoking behavior (19–21) and was found to be the single most important predictor of smoking in a study of Finnish conscripts (22). Our finding that the perceived unpleasantness of passive smoking in dormitories was linked with best friend's smoking habits reveals that friendship with a smoker may alter the perception and evaluation of sensory stimuli. This partly explains the rather moderate support of restrictions on smoking in living rooms and dormitories, even among nonsmokers. We see this as a consequence of strong social ties and loyalty between roommates — sharing a common fate is more important than the nuisance caused by cigarette smoke.

In accordance with many studies both of military personnel (23) and of civilian populations (24–27), we found that unhealthful behaviors clustered. Castro *et al.* (28) demonstrated that cigarette smokers exhibit less healthy lifestyles along several dimensions — and suggested that in general addictive behaviors seldom occur in isolation but are embedded within complex behavioral chains or lifestyles. Frequent alcohol drinking was a strong predictor of increased smoking among the conscripts, as was physical inactivity during leisure time. As our data do not allow adjustment for physical activity during service hours, the latter result must be interpreted with caution. (The relationship may theoretically be spurious; hard physical training during service hours will necessarily lead to inactivity during leisure time and may for other reasons be associated with increased smoking).

Use of smokeless tobacco is an interesting independent variable. In a previous article from the present study (13) it was shown that 33.3% of the conscripts used snuff daily or occasionally. There was little overlap between daily snuff use and daily smoking, probably to avoid uncomfortably high serum levels of nicotine. Occasional use of one kind of tobacco was, however, very frequently combined with daily use of the other. Altogether, 59.6% of the conscripts used tobacco daily, 9.0% occasionally, and only 31.4% never. Many conscripts had started to use snuff during the military service, and the relative risk of having started was 2.5 among subjects whose best friend also used snuff.

Entering a New World

Though entering the military service is a unique experience, it is also an example of the abrupt life changes that many individuals experience (new homes, new schools, new jobs, etc.). This particular transition is easily observable and occurs to large cohorts in a similar manner. Thus, if handled with caution, observations from the military service may shed light on the more general effects of radical change in the lives of young people.

In the following we identify some aspects of the conscription experience which we believe to be of importance in explaining the changes we observed. The relative importance of these factors will obviously vary among individuals.

In general, a military camp is an example of what Goffman terms a "total institution" (29) and has certain negative aspects in common with prisons and psychiatric institutions (29). These aspects include involuntary presence and uniformity, anonymity, subordination, and passivity which lead men to look for means of self-assertion and ways of fighting boredom (30). The increased smoking among dissatisfied conscripts may be a reflection of this mechanism. Total institutions, according to Goffman, are "the forcing houses for changing persons; each is a natural experiment on what can be done to the self" (29).

The uniform may serve as an example of the many contextual symbols that influence the social identity of military recruits. As stated by Nathan and Alex (31), any uniform (also those worn by policemen, priests, nurses, etc.) tends to suppress all other statuses of an individual, suppress individual idiosyncrasies in behavior and appearance, and facilitate a person's adherence to group norms and standardized roles.This may facilitate deviation from civilian individual norms.

The military service is often the first lasting detachment from familiar surroundings and occurs at an age when adult identity is vaguely defined and minimally experienced. Many fresh conscripts are lonely, insecure, and in search of identity (32), most markedly so during the initial period of training while the context is still new and "the rules of the game" are not yet mastered. Cigarette smoking is a clearly visible behavior which may easily serve to delineate "in-groups" from "out-groups" and ensure a minimum of social distinction. Smoking has traditionally been associated with independence, adultness, and masculinity, values that permeate the male world of the army (30, 33).

In 1986, the lack of restrictions on smoking was almost total, so that smoking was practiced everywhere at any time, except at meals. This lent an aura of offi-

cial acceptance to this particular behavior, as contrasted with the restrictions on many other activities.

In addition to the above-mentioned institutional characteristics, the military camps of Brigade North are situated in a rural area where soldiers have little opportunity to return to civilian roles during leisure time. Recruits not interested in outdoor life often resort to weekend beer-drinking and dancing at the local discotheques, activities strongly associated with smoking.

CONCLUSION

Only one in three soldiers said they definitely or most probably would be smoking 5 years into the future. This may mean that a moderate amount of external influence could be sufficient to effect a measurable change of behavior in this population — or at least prevent health-damaging changes during the military service. The government ought to take advantage of the presence of individuals for 1 year to teach them improved health habits, including smoking cessation.

It may be difficult to change the conscripts' tobacco culture by pure motivational measures, however, due to the special circumstances in the military and the negative psychological climate associated with involuntarily having to spend 1 year as a soldier. Because of this, and the obvious health hazards connected with smoking, structural limitations on cigarette smoking ought to be implemented. Many countries have used a combination of regulatory and legislative means to create environments that discourage tobacco use. In combination with health education campaigns, such means have been effective in reducing smoking in the U.S. Army (34, 35). Measures to prevent increased smoking should primarily be implemented during the initial phase of military service and subsequently followed up.

Engaging the soldiers in more physical activities might also prove beneficial, given the important association of nonsmoking and physical activity. Tucker (36) proposes that regular exercise, for reducing obesity or poor physical fitness, may prove valuable as a smoking prevention technique.

We propose that further research address the following questions: Which are the detailed mechanisms that lead to increased smoking and use of smokeless tobacco during the first weeks of military service? What characterizes the young men most vulnerable to these mechanisms? To what extent is tobacco behavior acquired during the military service retained in civilian life?

Post scriptum. A report from the present study was delivered to the Ministry of Defence in December 1986. In May 1987, smoking was banned from all dormitories, vehicles, and work areas in the Norwegian army.

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PAPER II

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Use of Smokeless Tobacco among Conscripts: A Cross-sectional Study of Norwegian Army Conscripts

EDVIN SCHEI, M.D.,*,[1] VINJAR FØNNEBØ, M.D.,* AND LEIF EDVARD AARØ, PH.D.†

*Institute of Community Medicine, University of Tromsø, N-9000 Tromsø, Norway; and †Research Center for Health Promotion, University of Bergen, Øisteins gt. 3, N-5007 Bergen, Norway

In a cross-sectional study of 2,112 Norwegian army conscripts ages 18 to 25 years, 10% reported daily use of wet snuff, while 23% were occasional users. Nearly half of the snuff users had started or increased their consumption during the military service. Cigarette smoking, alcohol consumption, and having a best friend using snuff were positively correlated with starting to use snuff. Daily use was associated with high physical activity. Use of snuff did not vary significantly with length of education when adjusting for other variables. Nearly all subjects believed prolonged snuff use to be a hazard to health. Forty percent of the snuff users believed they would give up snuff after the military service. Giving up during the service was statistically associated with having a steady relationship with a girlfriend and with length of time served. The relatively high percentage of occasional users and the high rate of stopping and starting reflect the novelty of snuff use among Norwegian youth. The widespread intention to give up seems to indicate that a large proportion of snuff users have ambivalent attitudes toward their own behavior. Therefore, future intervention measures in the armed forces could have a substantial impact on young males' use of smokeless tobacco.

Snuff use in Norway has declined steadily since World War II. During the early 1980s, however, snuff sales increased rapidly (1). Since 1985, the annual population investigation carried out by the Central Bureau of Statistics (CBS) of Norway has included questions on snuff use (2). On average, 7.1% of Norwegian males and 0.2% of females report using snuff, about half of them reporting daily use. CBS investigations for the years 1985–1987 showed a prevalence rate of 13.6% (6.1% daily users, 7.5% occasional users) among civilian males ages 16 to 24 years, and of 4.3% in the age group 25–34 (1). A 1985 study of secondary school students showed a gradient from 10% snuff use among seventh-grade (age 13) boys to 25.2% among those in the ninth grade (1). A study from 1986 reported that nearly 50% of male undergraduate students at the Norwegian College of Physical Education and Sport used snuff regularly (3).

Snuff use is at least as addictive as smoking. Health consequences include increased oral cancer risk and increased blood pressure (2). The long-term cardiovascular effects are as yet largely unknown.

More than 70% of Norwegian males are conscripted into the army for a 12-month military service, normally at the age of 20. It is widely believed that the conscript period has a powerful influence on young men's lifestyle—notably that many increase their tobacco consumption—and that attitudes and behaviors ac-

[1] To whom reprint requests should be addressed.

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quired in the military are brought back to civilian life after the service. On this background we decided to investigate the snuff-taking habits of Norwegian army conscripts. In addition to documenting prevalence and correlates of snuff use and starting and stopping use during the conscript period, the study sought answers to the following questions: (a) To what extent do young male adults change tobacco habits during the 12-month conscript period? (b) Is snuff use a substitute for cigarette smoking or an additional habit? The results concerning cigarette smoking have been published elsewhere (4).

MATERIALS AND METHODS

The study included all soldiers in Brigade North, where army recruits from all parts of the country are transferred after 3 months at a military training school in southern Norway. The soldiers are normally lodged in dormitories with six beds. Their daily allowance is equivalent to U.S. $8–10. In August 1986 the 2,336 soldiers who were not otherwise occupied (of the total 3,150) were assembled in groups and asked to complete a voluntary questionnaire.

Questions concerning current smoking and snuff habits (categorized as daily, occasional, or nonuser), changes in tobacco consumption during the military service, and predicted tobacco habits after the service were copied from the questionnaire used in the annual CBS investigations (2). Stopping attempts were not registered. Other variables included age, education, urban or rural background, marital status, alcohol consumption, physical exercise, tobacco habits of best friend in the military, and degree of satisfaction with military life. Names and national identification numbers were recorded, allowing data on height, weight, pulse rate, and blood pressure to be filled in subsequently from the soldiers' health records. A total of 2,238 questionnaires were completed, a response rate of 95.8. Anonymous or illegible questionnaires were discarded (126), leaving a total of 2,112, or 90.4%.

Data analysis consisted in cross-tabulations with ordinary χ^2 tests and Cochran–Mantel–Haenszel χ^2 tests for multiway cross-tabulation, using the frequency procedure of the SAS package of statistical programs (5).

RESULTS

The respondents were ages 18 to 25 with a mean age of 20.6 years. Mean time served was 7.6 months. Table 1 shows tobacco habits and Table 2 shows opinions concerning tobacco-related health risk. Snuff was used by a total of 32.9%, whereas 60.6% smoked. Snuff use and smoking was considered a health hazard by the great majority. Table 3 summarizes reported changes in snuff habits during the military service and reported intentions to use snuff after the conscript period. Nearly 7% had started using snuff and 2.2% had stopped. Of those who had started during the military service, 72% intended to stop and 15% intended to reduce after the service. Only 21.3% of the newly started, 31% of all snuff users, and 48% of the most physically active used snuff daily (data not shown).

Table 4 presents correlates of snuff use. Individual snuff use was strongly correlated with best friend's habits. Total snuff use did not vary much with education, and the relationship lost statistical significance upon adjustment for the

TABLE 3
CHANGES IN SNUFF USE DURING THE MILITARY SERVICE (ALL SOLDIERS) AND PREDICTED CHANGES AFTER THE CONSCRIPT PERIOD (ALL SNUFF USERS AND SNUFF USERS HAVING STARTED IN THE ARMY)

	Percentage
Changes during military service (N = 2,112)	
Started using snuff	6.7
Stopped using snuff	2.2
Use more snuff	8.1
Use less snuff	4.0
No change	79.0
Predicted changes after military service among all snuff users (N = 697)	
Intend to stop using snuff	39.7
Intend to use more snuff	3.6
Intend to use less snuff	17.6
No change	39.1
Predicted changes after military service among snuff users having started in the army (N = 141)	
Intend to stop using snuff	72.3
Intend to use more snuff	0.7
Intend to use less snuff	15.6
No change	11.4

prevalence among younger boys (25.2% among 15- to 16-year-olds in 1985) both indicate that age group 16–24 is skewed, with snuff use being more prevalent in the younger strata. The cohort present in the army at the time of investigation seems to have been close to the crest of a first major wave of young adult snuff users in Norway. A very low prevalence among slightly older adults ought to contribute to a fairly low social pressure toward starting to use snuff at this relatively mature age. We therefore believe that the observed initiation rate of 9.5% in this population is higher than would be expected in a civilian context. It seems likely that being subjected to the army subculture strongly promotes snuff use.

Soldiers who did not participate in the study were on routine duties or summer holiday leaves of absence. Duty assignment and summer holidays were based on alphabetical lists with no obvious selection bias.

The high proportion of occasional snuff users may be a reflection of the short time that has elapsed since snuff was introduced to Norwegian youth. This view is supported by the observation that in Sweden, where snuff-dipping is an established custom, there are three times as many daily as occasional snuff users (6). In the present study we find an increase in the percentage of daily users from 21% among those who have started in the military, versus 31% among all snuff users together, to 48% among the most physically active (snuff use has the longest tradition of use among the sports milieux (3)). This observation may predict a future pattern of snuff use where daily use is the rule.

Studies among U.S. children and high school students, where few (less than 30%) smoked cigarettes, find little overlap between cigarette smoking and other

TABLE 1
SNUFF USE AND CIGARETTE SMOKING AMONG 2,112 ARMY CONSCRIPTS

	Percentage
Snuff use	
Daily	10.2
Occasionally	22.7
Never	67.1
Cigarette smoking	
Daily	50.5
Occasionally	11.1
Never	38.4

other variables in the table. Snuff use increased with alcohol consumption. Daily snuff-dipping was positively correlated with physical exercise. There was a strong association between snuff use and cigarette smoking, occasional smoking being linked with daily snuff-dipping, and vice versa; 81.6% of the snuff users smoked, but only 2% of all subjects used both kinds of tobacco daily (data not shown).

Age, time since enlistment, region of residence, relationship with a female, degree of satisfaction with military life, body mass index, and mean blood pressure showed no significant association with snuff use (data not shown).

Table 5 shows how starting and stopping varied with cigarette smoking, alcohol use, best friend's snuff habits, time since enlistment, stable female relationship, and length of education. The first three variables were strongly correlated with starting to use snuff. Giving up, on the other hand, was positively related to length of time served in the army and having a stable relationship with a woman.

DISCUSSION

A prevalence of 32.9% snuff users is one of the highest ever recorded in a Norwegian population. No strictly comparable civilian groups are available because of conscription. The prevalence among civilian males ages 16–24 was 13.6%. The low prevalence of use among 25- to 34-year-olds (4.3%) and the high

TABLE 2
PERCENTAGE OF SNUFF USERS BELIEVING THAT CONTINUED SNUFF USE IS A HEALTH HAZARD AND PERCENTAGE OF CIGARETTE SMOKERS BELIEVING THAT CONTINUED SMOKING IS A HEALTH HAZARD

	N	Percentage
Snuff use is a hazard to health		
Daily snuff users	216	86.1
Occasional users	473	90.9
Nonusers	1,338	95.7
Smoking is a hazard to health		
Daily smokers	1,061	94.3
Occasional smokers	234	98.3
Nonsmokers	787	98.2

TABLE 4

DAILY AND OCCASIONAL SNUFF USE BY EXERCISE, ALCOHOL CONSUMPTION, SNUFF HABITS OF BEST FRIEND, CIGARETTE SMOKING, AND LENGTH OF EDUCATION

	Daily (%)	Occasionally (%)	Never (%)	Total (*N*)
Total	10.4	22.9	66.7	2,092
Exercise				
Less than once a week	8.0	24.7	67.2	1,068
Once or twice a week	11.5	23.4	65.1	668
Three times a week or more	15.7	17.1	67.2	345
	$P_u^a < 0.0001$		$P_a^b = 0.001$	
Alcohol consumption				
Less than once a week	9.6	17.1	73.3	1,143
Once or twice a week	11.0	29.3	59.7	774
Three times a week or more	13.3	34.9	51.8	166
	$P_u < 0.001$		$P_a < 0.001$	
Best friend uses snuff				
Yes	15.7	28.7	55.6	586
No	8.2	20.7	71.2	1,349
	$P_u < 0.001$		$P_a < 0.001$	
Cigarette smoking				
Daily	3.9	37.9	58.2	1,070
Occasionally	39.9	11.6	48.5	233
Never	10.3	6.0	83.7	785
	$P_u < 0.001$		$P_a < 0.001$	
Education				
9 years	7.8	25.5	66.7	333
10–11 years	10.2	27.2	62.6	872
12 years or more	11.5	17.8	70.6	875
	$P_u < 0.001$		$P_a = 0.423$	

[a] *P* value for χ^2 test with no adjustments.
[b] *P* value for χ^2 test adjusted for all the other variables in the table.

forms of tobacco use (12–16). Among Norwegian snuff users in grades 7 to 9, two-thirds smoked cigarettes (1). In the present study more than 80% of the snuff-dipping soldiers also smoked cigarettes. Again the novelty of snuff seems to be a reasonable explanation. Most Norwegians are introduced to tobacco via cigarettes, and smoking is usually an established custom before experimentation with snuff starts.

According to the "diffusion of innovations" theory (7) an innovation is appraised by most individuals through the subjective evaluations of near-peers who have already adopted it. Health behaviors like smoking habits and physical exercise have been shown to spread in the same way as other innovations (8). The importance of best friend's habits for own snuff use and for starting in the military (Tables 4 and 5) may be the result of such mechanisms. The effects of group influence may be further enhanced by the unnoticed workings of the many characteristics of "total institutions" (9) (e.g., prisons, asylums) that in milder forms apply to army camps: A large number of young men of the same age are involuntarily cut off from the civilian society for 12 months, are uniformly dressed,

TABLE 5
STARTING AND STOPPING SNUFF USE WITH CIGARETTE SMOKING, ALCOHOL USE, BEST FRIEND'S SNUFF HABITS, TIME SINCE ENLISTMENT, STABLE FEMALE RELATIONSHIP, AND LENGTH OF EDUCATION AS VARIABLES

	A. Pre-nonusers		B. Preusers	
	N	% started	*N*	% stopped
Total	1,490	9.5	602	7.6
Best friend uses snuff				
Yes	377	16.5	209	5.3
No	992	6.5	357	9.2
	$P_u^a < 0.001$	$P_a^b < 0.001$	$P_u = 0.008$	$P_a < 0.001$
Cigarette smoking				
Daily	689	15.1	381	10.0
Occasionally	131	15.3	102	2.0
Never	668	2.5	117	5.1
	$P_u = 0.001$	$P_a < 0.001$	$P_u = 0.013$	$P_a = 0.062$
Alcohol use				
Once a week or less	877	6.5	266	6.8
Twice a week or more	604	13.9	336	8.3
	$P_u < 0.001$	$P_a = 0.004$	$P_u = 0.472$	$P_a = 0.938$
Time served				
10 months	442	8.6	197	11.2
7 months	722	9.7	281	7.1
4 months	325	10.1	123	3.3
	$P_u = 0.736$	$P_a = 0.784$	$P_u = 0.031$	$P_a = 0.005$
Relationship with woman				
Yes	618	9.9	268	10.7
No	789	8.9	284	4.7
	$P_u = 0.441$	$P_a = 0.800$	$P_u = 0.041$	$P_a = 0.005$
Education				
9 years	234	11.1	99	14.1
10–11 years	602	12.3	270	6.7
12 years or more	644	6.2	231	6.1
	$P_u = 0.001$	$P_a = 0.235$	$P_u = 0.029$	$P_a = 0.076$

Note. Column A shows percentages of subjects having *started* to use snuff in the army, by best friend's snuff habits, own cigarette smoking, alcohol use, length of time served, relationship with woman, and education. A total of 1,490 soldiers were nonusers when entering the military service. Column B shows percentages of snuff users having *stopped* in the army, by the same variables. A total of 602 soldiers used snuff before the military service.

[a] *P* value for χ^2 test with no adjustments.

[b] *P* value for χ^2 test adjusted for all the other variables in the table.

ruled by unquestionable authority, and lead a life with low levels of stimulation that leave few opportunities for individual self-expression. Total institutions have a demonstrably remarkable influence on behavior (9).

Whereas higher levels of education are strongly related to positive health behavior in other fields (8, 10, 11), it hardly influences snuff use in the present study. Snuff use is not yet perceived as a serious health-threatening behavior even among the most educated, an attitude that mirrors the dominant attitude toward cigarette smoking 30 years ago. Many snuff users are active athletes. Subjects'

general opinion that snuff use is a health risk (Table 2) probably hides rather vague ideas about the constituents of this risk.

Having a stable relationship with a female increases the probability of giving up snuff. This points to the cosmetic aspect of snuff use and indicates that vanity may play on the side of prevention. The percentage having stopped increased with length of time served. This could be caused both by the approaching return to the norms of the civilian social system and by senior conscripts feeling more secure and being less prone to peer pressure than newcomers.

CONCLUSION

A major function of the Norwegian army is that of a school, the objective of which is to teach young men the attitudes and abilities required of soldiers. We have shown that the conscript period leads to increased tobacco consumption, probably with negative consequences for the soldiers' physical fitness as well as for their future health. It seems possible, however, that the strong molding influence of the military could be used to *improve* young males' attitudes toward a more healthful lifestyle. Nearly half of the snuff users believe that they will give up after the service, revealing both a negative underlying attitude toward their own behavior and a naïve ignorance of the power of addiction. Snuff use is also frequent among athletes and the highly educated, groups where many would probably abstain were the consequences fully realized.

Thus the soldiers seem to lack factual information about both nicotine addiction and the health hazards of smokeless tobacco use. We believe that improved health information in officers' as well as conscripts' training schools is necessary. This should be combined with exposure to the anticosmetic aspects of snuff use and attempts to modify the image of a "tough guy" as someone who smokes or chews tobacco. In addition, we believe that dramatic price increases on tobacco products in the society at large could be especially effective in this low-income group.

Follow-up studies of tobacco use among conscripts are planned.

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PAPER III

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ORIGINAL PAPER

E. Schei

A strengthening experience? Mental distress during military service

A study of Norwegian army conscripts

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Abstract Conscription compels 70% of male Norwegians to invest 1 year of their lives in military training. For 19-to 20-year-old men, the military service is an important arena of secondary socialization. In a cross-sectional study of mental health in army conscripts using the 12-item General Health Questionnaire (GHQ), the case prevalence was 48% (cut-off 2/3). This was remarkably high, given that the study population had been screened for mental disease on several occasions, and a large number of recruits with symptoms of mental disease had been excluded before the survey began. Statistical analyses indicated that the high case prevalence was mainly due to situational factors. Four dimensions were identified: (1) social relations with officers, peers and family, (2) structural factors inherent in the system of obligatory military service, (3) the meaningfulness of daily tasks and (4) financial problems. GHQ caseness was statistically associated with physical inactivity and consumption of junk-food, tobacco, alcohol and cannabis. It is concluded that military service in its present form may have undesirable consequences both for civilian society and for military efficiency. Recruits need help to cope with the complex psychosocial and transactional challenges of military service.

Introduction

Seventy per cent of Norwegian males undertake military service. For 19-to 20-year-old men, whose adult identity is vaguely defined and minimally experienced, the military service is an important arena of secondary socialization [1]. Individual sociopsychological change caused by the military experience, be it beneficial or undesirable, will ultimately be part of the mental make-up of the majority of grown males in society. During times of peace, the utmost care should be taken to ensure that conscripts have a reasonably meaningful year in uniform, and that their life careers and personal development are not impaired by negative experiences during the military service.

Norwegian army data show a high rate of discharges for psychiatric reasons during the 12-month service [2] despite medical screening both 1 year before the service starts and at enrolment. The primary aim of the present study was to investigate the mental health of conscripts who had passed the initial medical screenings and had served 4 months or more in the army without being dismissed, and to search for correlates of mental distress that might suggest preventive strategies. A second aim was to study to what extent health-related behaviour (physical activity, consumption of junk-food, tobacco, alcohol and cannabis) was associated with the measured level of mental health.

E. Schei
Institute of Community Medicine, University of Tromsø,
N-9037 Tromsø,
Norway

Material and methods

Data were collected among soldiers in Brigade North in the autumn of 1989. This brigade is the army's main training unit and is situated north of the Arctic Circle, close to the Russian border. Four times a year, army recruits from all parts of the country are transferred to this unit after 3 months of military training in southern Norway. As new recruits arrive the oldest contingent leaves, so that three contingents are present at the same time. The soldiers are normally lodged in dormitories with six beds. Their daily allowance is equivalent to U.S. $ 8–10 (average wage for unskilled Norwegian industrial workers: U.S. $ 10 per hour).

The present survey comprised all companies in the brigade. The questionnaire, containing 250 items, was distributed to 2130 soldiers in groups of 30–200 and completed under supervision of officers and the author. In all, 2098 questionnaires were returned, 32 of which were judged to be inconsistent or too incomplete to be used, leaving a total sample of 2066 questionnaires, which represented a response rate of 97%.

As our measure of mental health, we chose the 12-item version of the General Health Questionnaire (GHQ 12). The GHQ is a carefully constructed measure that assesses the presence of non-specific symptoms of dysphoria and psychophysiological discomfort [3]. The GHQ measures breaks in normal psychological functioning of short duration, not lifelong traits. It is sensitive to ephemeral disorders that may remit without treatment. Consequently, the

Table 1 GHQ 12 items, with percentage of Norwegian army conscripts answering more (less) than usual (score 1 on binary scale) on each item[a] (*n* The number of answers to each item)

	Score = 1	
	[%]	*n*
Enjoyed normal day-to-day activities	46	1949
Felt unhappy and depressed	43	1951
Been able to concentrate on whatever you're doing	38	1972
Been playing a useful part in things	35	1952
Felt reasonably happy, all things considered	27	1949
Felt constantly under strain	22	1959
Lost sleep over worry	22	1978
Felt capable of making decisions	19	1959
Been able to face up to your problems	18	1946
Couldn't overcome difficulties	16	1950
Been losing confidence in yourself	15	1944
Thinking of yourself as a worthless person	14	1954

[a] A subject scoring 1 on three or more items was classified as a case

Table 2 Distribution of GHQ cases on selected independent variables (*n* The number of respondents in each category of the independent variables)

	Percentage cases	*n*	*p*
Time served			
4 months	43	684	
7 months	50	534	
10 months	50	750	< 0.01
Education			
9 years	58	122	
10–11 years	51	609	
12 years or more	45	1256	< 0.01
Stable relationship with women			
Yes	52	756	
No	45	1189	< 0.01
Weekly expenses			
More than allowance	54	1126	
Allowance or less	40	857	< 0.001
Financially stressed			
Often	67	546	
Rarely or never	40	1435	< 0.001
Close friend in camp			
Yes	43	721	
No	51	1137	0.01
Occasion to return home			
Every week	40	99	
1–3 weekends per month	45	307	
Less than once every month	49	1566	0.17

GHQ scores of a given population have been found to be relatively transient [3]. Singh et al. [4] have found that changes in GHQ scores among casualty patients over a 6-month follow-up period parallel changes in life events. Wall and Clegg [5] have shown that the prevalence of high scores measured by the GHQ 12 is higher in work organizations with manifest problems of cooperation than in organizations without such problems, and that the prevalence falls when strategies to improve organizational functioning are implemented. A person's GHQ score at any given time can, thus, be considered partly to reflect the subjectively experienced life situation at that time.

The independent background variables included in the analyses were level of education, fathers' socio-economic status, religious conviction, expenditures in relation to daily allowance, financial stress, occasion to return home, relationships with women and the perceived meaningfulness of daily tasks [scored on an interval scale from 1 (always meaningful) to 7 (never meaningful)]. A number of items concerned attitudes to the military, relationships with peers and officers and personal development during the service. Factor analysis of these items yielded three factors, based on which three scales were constructed by simple addition of items with a factor loading of 0.30 or more [6] (Table 3).

In addition, the questionnaire recorded cigarette smoking, use of smokeless tobacco, alcohol consumption, use of cannabis, physical activity during leisure time and changes in consumption of snacks, sweets and soft drinks during the military service.

The 12 GHQ items have four response categories: not at all; no more (less) than usual; rather more (less) than usual; much more (less) than usual. To allow comparison with other studies, both Likert (0, 1, 2, 3) and binary (0, 0, 1, 1) scores were used in the analyses, the former to provide an interval-scale score and the latter to define "caseness". A subject scoring 1 on three or more items was classified as a case. Data analyses were carried out using the SAS package of statistical programs [7].

Results

In all, 1852 respondents completed all GHQ items. Of these, 47.5 % were cases. A further 109 soldiers, 60.6 % of whom were cases, completed from seven to eleven GHQ items and were included in the analysis. In the total study sample of 1961 subjects, 48.2 % (947) had a sum score of 3 or more and were classified as cases. The mean (Likert score) was 13.4, the median was 12 and the standard deviation was 6.0 (theoretical range = 0–36).

Table 1 lists the 12 items of the GHQ instrument and the response distribution on each of them on the binary scale. The items most frequently scored 1 dealt mainly with healthy functioning. It has been shown [8] that these items signal less severe and more transient disruptions than those dealing with abnormal functioning.

Table 2 shows the bivariate associations between GHQ caseness and selected independent variables. The case prevalence increased with length of time served, and was positively associated with having a stable relationship with a woman and with financial problems. Increasing length of education, having at least one close friend in the camp and being able to return home relatively often were associated with lower case prevalence.

Table 3 details the wording and response distribution of 21 items used in the construction of the three factor-based indices. The first index, labelled "total experience", contained items concerning opinions about personal development during military service and about the military system in general. The second index, called "officers", contained items pertaining to the relationship with officers and the third, "peers', was constituted by items concerning the direct and indirect relationships with other conscripts.

Multiple regression analysis (Table 4) showed that being classified as a case was associated with the three military life indices, with lack of meaning in daily tasks and activities, with financial problems, with having a rela-

Table 3 Items used in three factor-based index variables[a]. Possible answers to each proposition were "agree – partly agree – partly disagree – disagree". The table gives the factor loading and the percentage agreeing or partly agreeing for each item. *n* varied between items from 1904 to 1946

	[%]	Loading
Index 1: total experience		
It's up to me to have a good time while I'm in the army.	79	0.44
Being in the brigade is more meaningful than being in training school.	69	0.35
The military service is a duty that nobody should try to avoid.	64	0.49
I have grown more independent and adult during the service.	59	0.53
The army ought to be dismantled and the money used for better purposes. (R)	43	0.44
You get no useful experiences during the military service. (R)	30	0.47
During the service I have learned to use my leisure time better.	22	0.45
Index 2: officers		
Officers often underestimate conscripts and treat us like idiots. (R)	74	0.54
I have a good relationship with the officers I see regularly.	64	0.54
Officers in my unit are more sympathetic than most officers.	52	0.49
Officers are generally less intelligent than other professionals. (R)	46	0.47
It's generally worse to be in my unit than in most others. (R)	30	0.37
I'm certain that some officers try to pester me as often as they can. (R)	24	0.61
Index 3: peers		
I sometimes feel lonely though there are many others here. (R)	59	0.42
Sometimes I don't have the energy to do the things I really want to do. (R)	56	0.48
I let myself be influenced by the slackness of the other soldiers. (R)	55	0.44
Sometimes I complain because everybody complains, even though conditions aren't too bad. (R)	29	0.46
It's hard to be yourself, you have to behave like everybody else. (R)	24	0.52
Sometimes I try to assert myself by boasting about driving fast, drinking a lot, sleeping with women or spending a lot of money. (R)	22	0.39
I'm not popular among the others in my unit. (R)	10	0.31
I was mobbed by the other conscripts when I arrived. (R)	6	0.32

[a] Items marked (R) were reversed in the index

tionship with a woman and with relative difficulty in returning home. The model explained 23 % of the variance. Level of education, length of time served, fathers' socioeconomic status, religious conviction and expenditures in relation to daily allowance did not contribute statistically significantly to the model.

Table 5 details the bivariate associations between GHQ caseness and health-related behaviour. The case prevalence rose with increasing consumption of cigarettes, alcohol, cannabis and junk-food, and with decreasing frequency of physical exercise. The occasional use of snuff was associated with a case prevalence above average, whereas daily snuff users had a prevalence somewhat lower than the mean.

Table 4 Multiple regression with GHQ caseness (non-case = 0, case = 1) as dependent variable[a]

	Coefficient	SEM	*P*
"Total experience" (scaled 7–28)	0.03	0.003	< 0.001
"Peers" (scaled 6–24)	0.02	0.003	< 0.001
Daily activities meaningful (scored 1–7)	0.04	0.005	< 0.001
Financial stress (rarely-sometimes-often)	0.11	0.024	0.001
„Officers" (scaled 8–32)	0.01	0.003	0.001
Relationship with women (no – yes)	0.06	0.021	0.005
Occasion to return home (weekly – monthly – < monthly)	0.05	0.019	0.014

[a] Adjusted $R^2 = 0.23$

Discussion

The prevalence of GHQ cases found in the present study is among the highest reported in the literature (Table 6). Yet, the study population had been screened for mental disease on several occasions, and the conscripts had been in the military long enough for ineffective individuals to have been identified and discharged or transferred to other units. One would, therefore, expect the prevalence of psychiatric illness to be considerably lower than in the general young male population.

This raises the question of the *validity* of the GHQ. What does "caseness" mean? The cut-off point has been established in a trade-off between sensitivity and specificity, as estimated by comparing GHQ responses with the results of independent and standardized psychiatric assessments. The probability that someone scored as a case will be found to have a mental disorder at a subsequent clinical examination is termed the *positive predictive value* (PPV) of the test. Unlike sensitivity and specificity, the PPV depends upon the prevalence of the disorder. Given that the prevalence of psychiatric disease was fairly low in the study population, a high proportion of "false-positive" results (i. e. scoring high on the GHQ without having a men-

Table 5 Associations between GHQ caseness (i.e. sum score of 3 or more on the GHQ 12) of Norwegian army conscripts and self-reported health-related behaviour (*n*, The number of respondents in each category of the independent variables)

	Percentage of cases	*n*	*P*
Smoking			
Daily	51	815	
Occasionally	50	262	
Never	44	904	0.01
Smokeless tobacco		226	
Daily	45	415	
Occasionally	52	1294	
Never	47		0.17
Alcohol consumption during military service			
Once a week or more, unchanged	54	480	
Increased to once a week or more	55	161	
Reduced to less than once a week	46	286	
Less than once a week, unchanged	43	698	0.001
Used cannabis during military service			
Yes	71	141	
No	46	1811	< 0.001
Changes in consumption of snacks, sweets and soft drinks during military service			
Strong increase	58	730	
Moderate increase	44	708	
No change, or decrease	38	545	< 0.001
Physical exercise during military service			
Once a week or more, unchanged	42	650	
Increased to once a week or more	46	249	
Reduced to less than once a week	55	387	
Less than once a week, unchanged	49	655	0.001

tal disorder) was to be expected (if the true prevalence was 15%, 80% of the "cases" would be false-positives).

In the present context, however, the GHQ was not used with the aim of estimating the prevalence of mental disease, but to get a gross picture of the mental state of presumably healthy young men in a stressful situation. For this purpose, the results were compared with those of other community surveys without making any assumptions about the "true morbidity" in the sample. The relatively high scores on the GHQ in the present study were considered to reflect aspects of the soldiers' *situation* and their subjective perception and interpretation of this situation rather than psychological traits.

From a recent study of the methods and results of military selection procedures [2], a description of the recruit emerges: "He is a common Norwegian boy in all dimensions, except for his health, which is better than average." This is true not least true in the matter of *mental* health. In the 1989 cohort of 31 000 eligible Norwegian males, 4.8% were dismissed with a psychiatric diagnosis before, or at, enrolment. In addition, most conscripts with low intellectual capacity were transferred to the civil defence [2]. Among the 18000 eventually enrolled in the army, a further 3.8% were discharged with psychiatric diagnoses

Table 6 GHQ results from studies of Norwegian army conscripts in 1989, young Australian men in 1984 [9], young British men in 1983 [10] and private soldiers in the British Army on the Rhine in 1985 [11]. GHQ version in parenthesis[a]

	Percentage of cases	Mean	SD	*n*
Norwegian army conscripts (GHQ 12)[b]	48.2	13.3	6.0	1961
Australian men aged 19–20 years (GHQ 12)[b]	28.7	10.7	4.8	485
British men aged 18–24 years (GHQ 30)	30			365
Unemployed British men aged 18–29 years (GHQ 30)	47			95
British private soldiers (GHQ 60)	15.2			157

[a] GHQ exists in versions with 60, 30, 28, 20 and 12 items
[b] Both case prevalence and means differ significantly between the two populations ($P < 0.01$)

during their period of service and 1.6% were given a psychiatric diagnosis without being dismissed. Psychiatric diagnoses accounted for 56% of all medical dismissals during the service. (R. Schwebs, The Joint Norwegian Armed Forces Medical Services, personal communication). Thus, a large number of recruits with symptoms of mental disease had been excluded from the study population before the present survey began. Even without a strictly comparable study of young Norwegian males before or after military service, the findings of the present study, together with the generally high incidence of psychiatric diagnoses, indicated that military service in the army puts a considerable strain of many young men.

In most international studies of general populations or patients, the case prevalence varies from 20% to 40% [3, 4, 9, 10, 12]. Table 6 allows a comparison with findings from studies that have used the GHQ in other populations of young male adults. Although these other populations had not been screened to exclude persons with mental problems, the case prevalences were lower than in the present study. In a study of professional soldiers in the British Army on the Rhine, the case prevalence among ordinary soldiers was only 15% [11].

One may ask to what extent the soldiers really suffered, or whether the GHQ results merely reflected a widespread complaining attitude. As shown in Table 3, 29% agreed fully or partially with the proposition "Sometimes I complain because everybody complains, even though conditions aren't too bad." There was no statistically significant difference between answers given by cases and by non-cases. This result indicates that a complaining attitude exists. It does not, however, connect complaining with GHQ caseness.

Dimensions of mental distress in army conscripts

Analysis of statistical associations points toward four dimensions associated with mental distress. One is *social.* Relations with officers and other conscripts constitute the matrix of everyday life in the camp, and are fundamental to well-being. Most of the time, conscripts interact with commanding personnel only slightly older than themselves who have little experience and maturity as leaders. Such commanders generally have little competence in mitigating the complex relational and existential problems that inevitably arise when large groups of young men are assembled in an alien context and are confronted with authority, control and intimacy in hitherto unknown doses. Sociologist Erving Goffman, who coined the term "total institution", called these institutions – military camps, hospitals, prisons and the like – "the forcing houses for changing persons" [13].

Problems also arise because of difficulties in adapting to the close presence of fellow conscripts. Experienced conscripts tormenting newcomers is an example of such a problem that has received some attention lately. The importance of relations with colleagues is indicated by the "peers" factor. Frustration over the absence of close personal friends, family and colleagues is another factor in the social dimension, as indicated by the positive association between GHQ caseness and having a girlfriend and/or being unable to return home relatively often.

The second dimension is *structural.* The military service is compulsory and entails submission to relatively inflexible authority exerted by an agency, the military system, which is held in low esteem by many from the outset. A 1990 survey has shown (retrospectively) that, although 54 % of soldiers feel highly motivated for the military service before starting, only 26 % have an unambiguously positive attitude towards the military system as such [2]. A negative initial attitude may lead to apathy, mental regression and complaining passivity if daily life experiences add disappointment and disillusionment to the apprehension. Conversely, high expectations that are frustrated may lead to similar reactions. The "total experience" index, which was the strongest single variable in the regression model, contained items signalling general hostility towards the military establishment, as well as feelings of negative personal development and passivity.

The third dimension concerns *meaning.* If daily tasks and activities seem useless and irrelevant, then these activities will cease to be sources of pleasure and self-esteem. To experience that one's labour has a useful aim, a meaning, is, as Frankl has observed, of fundamental importance to all human beings. "[..] If a person has found the meaning sought for, he is prepared to suffer, to offer sacrifices, even, if need be, to give his life for it. Contrariwise, if there is no meaning he is inclined to take his life, and he is prepared to do so even if all his needs, to all appearances, have been satisfied" [14]. As one of three dimensions in Antonovsky's sense of coherence concept [15], "meaningfulness" is what provides motivation and allows people to view their tasks as challenges rather than punishments. The present study shows that many conscripts are unconvinced of the importance of what they do. One conscript in two reported that he enjoyed normal daily activities less than usual, and one in three felt that he was not playing a useful part. Independently of the three dimensions noted above, *financial problems,* not unexpectedly, were an important source of mental distress.

The role of psychiatric diagnoses in the military

The connection between situational factors and psychiatric labels is well known in military psychiatry. In 1971, Atkinson [16] criticized the United States military system for expelling ineffective men whose problems were "largely determined by immediate transactional, psychosocial phenomena" by diagnosing them as having a personality disorder, thus fixing blame upon the enlistee in order to vindicate the military organization. On the other hand, a psychiatric diagnosis has long been a well-known way of obtaining premature discharge in most military systems. This may explain some of the high prevalence of psychiatric diagnoses among conscripts. During recent years, however, rising unemployment and insecurity in civilian society has made military service more attractive than it used to be, and military health personnel report that soldiers with psychic or social problems generally resist premature discharge.

Consequences

From a civilian point of view, it would be highly preferable if young men returned from the military service inspired and strengthened by a positive experience. There is no contradiction between our findings and the possibility that military service *is* a strengthening experience, promoting maturity, independence etc. in a large proportion of the conscripts. Yet we found that a large minority go through parts of the service in a state of frustration and meaninglessness that can hardly be conceived of as having anything but negative consequences.

Attitudes, ideals and coping strategies left by a myriad of idiosyncratic experiences during the service may be carried into civilian life after the service, with negative effects on each man's future development. Several studies have shown that the conscription period in Norway is a period of considerable change in health-related behaviour. Consumption of cigarettes [17], smokeless tobacco [18], junkfood and soft drinks (E. Schei, unpublished results) increases sharply. Alcohol consumption and drunkenness have been shown to increase during the first part of the service [19]. Behavioural changes such as these have been hypothesized to be strategies that conscripts use to cope with the situation. The present study supports this hypothesis, as indicated by the associations between GHQ caseness and physical inactivity and consumption of junk food, tobacco, alcohol and cannabis.

From a professional military viewpoint, our findings must be of considerable interest. Psychological discontent will probably have a negative influence on any soldier's motivation for learning the intended skills and attitudes. If nearly 50% of the conscripts are mentally distressed during parts of the training, the army's ability to operate efficiently in a critical situation may be influenced.

Conclusion

If mental distress among conscripts is a problem of such magnitude as indicated by this study, it seems appropriate to ask why it has received so little attention. The stability of the situation, the lack of dramatic changes, the slow repetition of events over the years as new contingents arrive and new soldiers repeat the old complaints may be part of the explanation. One may also speculate that the problem has been growing during recent years as a consequence of changes in society at large. Today's conscripts were raised during the 1970s, with a high standard of living, in a time when a liberal child-rearing philosophy largely replaced the more authoritarian methods. This could cause today's young men to react more negatively towards the frugality and the authoritarian style that dominate the military system.

Hopefully, the findings of this study will inspire military leaders to seek out and change the weaker parts of the present military service. Cognitive behavioural and so-called "buddy" strategies aimed at supporting the recruits during the difficult initial period have been developed and applied with considerable success in the United States [20]. Similar strategies and other measures addressing many different aspects of the structure of the military service and the soldiers' daily life could undoubtedly be developed and implemented in the Norwegian armed forces.

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PAPER IV

Sweet comfort: Changes in food habits during military service.

Edvin Schei, MD

Institute of Community Medicine
University of Tromsø
N-9037 Tromsø
Norway

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Abstract

Study problem: 70% of all Norwegian men spend one year in the military, at an age when adult identity and behaviour is taking shape. Studies have shown increased tobacco consumption during the military service. We wanted to study the development of snacking during the military service, and whether increased consumption of fast food, sweets and soft drinks (junk-food) could be related to social or environmental factors.

Method: A two-stage survey procedure allowed a combined longitudinal and cross-sectional study of 2066 army conscripts.

Results: Increased consumption of snacks, sweets and soft drinks was reported by 57% after 3 months' military service and by 80% after 10 months. Snacking increased with length of service and was more common among conscripts who had negative attitudes to and experiences with the military system and with colleagues, who rarely had occasion to return home and who scored high on a standard instrument measuring mental distress. Soldiers reporting strongly increased snacking were more likely to be daily smokers, to have increased their alcohol consumption and/or reduced their physical activity during the military service.

Conclusion: The study indicates that perceived stress and dissatisfaction during the conscription period leads to negative health-related behavioural changes, which may later be carried back to civilian life. The author suggests that more attention be paid to the nutritional quality of snacks and to the mental preparedness of recruits during the initial phase of the service.

"The discovery of a new dish does more for the happiness of mankind than the discovery of a star."

Anthelme Brillat-Savarin, *Physiologie du goût (1825).*

Food, and what we do to and with it, has been proclaimed to lie at the very core of sociality[1,2]. We learn eating and food preferences the way we learn language, by imitating those around us. And like language, food preferences are central to our sense of identity. The way any human group eats helps it assert both its oneness and the otherness of whoever eats differently[3]. Food is both nutrition and symbol, a point of convergence for the physiological and cultural dimensions of **homo sapiens**[4].

Eating in total institutions - military camps, hospitals, prisons and the like - has been relatively little studied[1]. The military is a social arena whose characteristics contrast sharply with those of the civilian world. 70% of every birth cohort of Norwegian males spend one year in this setting, at an age which marks the transition from adolescence to adulthood, when personal habits and attitudes are still very malleable. Recent studies have shown that the 12-month military service in the Norwegian army is a period of considerable mental strain[5]. Cigarette smoking[6] and snuff dipping[7] has been shown to increase among conscripts.

On this background we have studied changes in young men's consumption of "junk-food" during the military service. The term junk-food includes fast food (sausages, hamburgers, potato chips etc.), sweets and chocolate, and sweet soft drinks. The three central study questions were: 1) Does eating behaviour change in the military, 2) in whom does it most change, and 3) what are possible social or environmental causes of changes in food habits in the military?

MATERIALS AND PROCEDURES

Data were collected among soldiers in Brigade North. This brigade is the army's main training unit, situated north of the Arctic circle, close to the Russian border. Four times a year army recruits from all parts of the country are transferred to this unit, after 3 months at a military training school in southern Norway. As new recruits arrive, the oldest contingent is dismissed, so that 3 contingents (in this paper labelled A, B and C) are present at the same time.

The soldiers are normally lodged in dormitories with 6 beds. Their daily allowance is equivalent to US$ 9-12. All camps have outlets for fast food, sweets, cigarettes etc.. The mean educational level in the contingents varies, due to the seasonality of the educational system, with summer and autumn

contingents comprising relatively more well-educated recruits. (Contingents A and B were winter contingents, C was a summer contingent.)

The present study combines a longitudinal and a cross-sectional survey design. Figure 1 gives the outline of the study. Data were collected on 2 occasions (Time 1 and Time 2). A short questionnaire (Q1) was distributed to all soldiers of contingent A at Time 1, after 3 months' service, as part of the transfer routine from training school to Brigade North. 1169 questionnaires were completed, with a 97% response rate. Q1 was designed to collect a first wave of data about smoking, alcohol consumption, physical activity, change in food habits, and overall satisfaction with military life so far. The questions were repeated in the follow-up questionnaire (Q2). The question concerning food habits was: Has your consumption of snacks, sweets and soft drinks changed during the military service? - with answers ranging from "strong increase" to "strong decrease" in 5 steps. This item was the main dependent variable of the study, and is henceforth referred to as "the change variable" or as "overall change".

Soldiers who completed Q1 were given a code number, pasted in the paybook, to be transferred to the follow-up questionnaire (Q2) towards the end of this contingent's military service. By using the code number, it was possible to match the 2 questionnaires of an individual soldier from contingent A without threatening his anonymity.

The second survey, carried out at Time 2, 7 months after Time 1 (Fig. 1), comprised all brigade soldiers who were not on leave of absence and could be freed from their randomly assigned duties on the day of the survey. Approximately two thirds of all conscripts were thus available and were ordered to attend the survey session. Completing the questionnaire was voluntary. The questionnaire (Q2) was distributed, by the author, to 2130 soldiers in groups of 30 to 200. 2066 questionnaires (97%) were returned and judged sufficiently complete to be used in the analyses. A few missing answers in all questionnaires entailed varying number of responses to the different questions.

In addition to the change variable from Q1, the follow-up questionnaire asked subjects to report how many days a week they 1) dropped the main meal in the camp, 2) consumed fast food (hamburgers etc.), 3) ate sweets and 4) consumed sweet soft drinks. These were the only food items in the questionnaire.

The longitudinal part of the study used the change variable to describe the overall change in junk-food consumption within one cohort at different stages of the military service. Conscripts with individually matchable questionnaires (418 (54%) of 781) were found to be representative of all conscripts in contingent A. The attrition of the follow-up group was largely due to practical problems with the transferable code labels. No statistically

significant differences were found between these 418 subjects and the whole of contingent A when comparing eating behaviour, smoking, alcohol use, physical activity or satisfaction with military life.

Analyses of associations between the 5 outcome variables and the different independent variables are based on cross-sectional data from the follow-up survey, Q2 (N=2066). The independent background variables included in the analyses were level of education, religious conviction, expenditures in relation to daily allowance, level of satisfaction, occasions to return home, and trust in current friendships. A number of items concerned attitudes to the military, relationships with peers and officers, and personal development during the service. Factor analysis of these items yielded 3 factors, based on which 3 indexes were constructed by addition of items with a factor loading of 0.30 or more[8] (the items of the 3 indexes are listed in Appendix 1).

It is well established that eating behaviour may reflect a person's emotional state, as in anorexia/bulimia[9,10]. As a measure of the mental status of the conscripts, sensitive to situational factors, we used a 12-item version of Goldberg's General Health Questionnaire (GHQ12)[11,5]. The sum score of GHQ12 was used as predictor variable in the regression analysis, whereas a GHQ item addressing feelings of uselessness (correlating 0.87 with the sum score) was used in the crosstabulations.

Smoking, use of smokeless tobacco, alcohol consumption and physical activity during leisure time were conceived of and analyzed as coexistent behaviours, not as causal variables.

Statistical analyses of the relationships between the 4 food habits and the predictor variables consisted of bivariate crosstabulations with chi square statistics and Cochran Mantel Haenszel statistics (adjusting for education and length of service). Analyses of the change variable included both crosstabulations and multiple regression with stepwise selection of predictor variables. All analyses were carried out using the SAS package of statistical programs[12].

RESULTS

Table 1 shows the frequencies of overall change in consumpton of junk-food at different stages of the military service. In contingent A, surveyed twice, the percentage reporting "strong increase" after enrolment increased from 22% at 3 months to 44% at 10 months. Soldiers with intermediate length of service reported intermediate increase in consumption of junk-food.

Figure 2 shows the relationships between change reported at Time 1 and change reported 7 months later. There was a high degree of switching between categories. A majority of the soldiers reporting decrease or no change at Time 1 increased

their snacking during the interval between the surveys. Near half the "moderate" group at Time 1 reported strong increase at Time 2.

Table 2 gives frequency distributions for the 4 eating habits at Time 2. Frequencies of skipping dinner and eating fast food were quite similar, as were those of eating sweets and drinking soft drinks. 14% reported skipping dinner or eating fast food 3 days a week or more, whereas corresponding frequencies were 60% and 71% for consumption of sweets and soft drinks, respectively. High frequencies of the 4 food habits were highly correlated with overall increase in junk-food consumption during the military service (data not shown).

Table 3 shows the bivariate associations between the 5 outcome variables and a number of predictor variables. Except for sweets, the prevalences of junk-food eating increased with length of service. Education was not associated with eating behaviour, when controlling for time served. Dissatisfaction with military life and feelings of uselessness were clearly associated with high levels of junk-food consumption and strong overall increase during the service. So was the soldiers' financial situation, with those spending more than their weekly allowance reporting higher junk-food consumption. Conscripts with little occasion to return home consumed markedly more fast food and sweets than colleagues having their homes in the relative vicinity of the military camps. Those who could get home every weekend naturally scored high on skipping military dinner. Religious conviction did not significantly influence the soldiers' food habits when adjusting for education and time served. Trust in current friendships was not significantly associated with frequency of any of the eating behaviours, but those who doubted the stability of their friendships had a higher overall increase than the others.

Table 4 shows the bivariate associations between eating and other health-related behaviours. The data show, grossly, that high consumption of junk-food was associated with little physical activity, frequent alcohol consumption and daily smoking. The associations between alcohol and sweets, and between smoking and fast food and sweets, were non-significant. Increased overall snacking was clearly associated with having stopped exercising or increased alcohol drinking during the military service, and with smoking. Users of smokeless tobacco consumed soft drinks somewhat more often than non-users. Otherwise, no statistically significant associations were found between use of smokeless tobacco and the outcome variables.

The predictor variables in table 3 were considered to be potential causal factors of the observed increase in overall consumption of junk-food, and were thus included in the regression analysis together with the three factor based indexes and the GHQ sum score. Table 5 shows the final regression model. The index "Attitude to military service" was

the strongest predictor, followed by occasion to return home, the "Relationship with peers" index, length of time served and GHQ12.

DISCUSSION

The study clearly demonstrates a time dependent increase in conscripts' self-reported consumption of snacks, sweets and soft drinks during the military service. 3 months into the service 57% had increased, 20% decreased their junk-food consumption. After 10 months, 80% had increased and only 8% reduced, as compared with premilitary behaviour.

Increased snacking occurred in all groups, across categories of premilitary characteristics like education and religious conviction.

What distinguished soldiers who increased their snacking from those who did not were unequal opportunities to return home, the relationship with other conscripts, mental distress, subjective opinions about the military service in general and about personal development during the conscription period, i.e. variables pertaining to social and environmental aspects of life in the military. Interestingly, the relationship with officers did not contribute when controlling for other variables. It is possible that environmental elements and persons present the clock round are more influential than factors affecting service hours only.

No comparable studies of food habits in Norwegian populations have been published. Military conscripts are highly representative of young Norwegian men, as summarized in a recent study of the methods and results of military selection procedures[13]: "He is a common Norwegian boy on all dimensions, except for his health, which is better than average." Thus it is possible, theoretically, that the sharp increase in consumption of junk-food found in the present study is parallelled by behavioural changes among young adults living through major changes of context in civilian life (leaving home for studies or jobs, etc.). However, the connection with military factors and the rapidity of change with time weaken the likelihood that the observed increase in junk-food consumption be a general phenomenon of young adulthood. Nevertheless, this is an area for future research.

The method used - registering frequency of certain eating behaviours - does not allow estimation of the amounts of the different foods ingested. The purpose of the study was not, however, to describe in detail the conscripts' diet, but to investigate whether the military service leads to significant changes in eating behaviour normally considered "unhealthy".

Whether snacks and fast-food constitute an unhealthy diet is debatable, the dangers of such food are probably often overestimated. It is certain, however, that the average saturated fat and cholesterol contents of American fast-food products "remain far too high"[14]. 10-20% of American

adolescents are obese, which may be related to a high intake of sweets and fat. Snacks have been found to be too low in content of vitamins A and C, calcium and iron[15].

Yet this kind of food has a strong appeal to the young. Prättälä[16] has shown that adolescents in Finland, well aware of nutritional advice on low fat and sugar consumption, find junk-food far more appealing than their parents' "real" food. Scottish fifteen year olds consumed an average of 2.8 snacks per day in 1987[17] and US adolescents have been shown to eat between 1 and 3 snacks per day[15], with 80% having at least 1 snack every day[18,19].

Explaining increased snacking.

The present study shows that snacking increases most in subjects who report some degree of suffering during their involuntary military intermezzo. Based on these data it may be hypothesized that snacking is a coping mechanism used, to different extents, by soldiers who feel dissatisfied and find themselves unable to change or flee from the military system. If so, it remains to explain why soldiers in search of consolation choose food and eating. The following paragraphs provide some ideas concerning this problem, - supported as much by literature as by data from the present study.

The close connection between oral incorporation on the one hand and pleasure and safety on the other constitutes a fundamental experience in the individual biography of all human beings[20,21]. The connection between food and pleasure endures among adults and is displayed in all social life[2]. Thus when life evokes unpleasurable emotions, as it often does for the average army conscript[5], eating offers a well-known, seemingly innocuous and easily obtained pleasure. Sweets and soft drinks are relatively inexpensive, easily available in all military camps and subject to very few restrictions on use.

According to anthropologist Roland Barthes "all nutrition is used as a signal between members of a community"[22]. Any signal to others is also a signal to oneself. Eating of particular foods, in specific settings, with certain people, may be used to establish social contact[23], to delineate one's belonging to a certain social group[24], or it may serve as a demonstration of independence, of mastering one's own life. The latter aspect may gain increased psychological importance in circumstances like the military, where freedom of choice is otherwise severely restricted.

The high prevalence of snacking may itself contribute to the further propagation of this behaviour: The data indicate that all soldiers are more or less continually exposed to a high number of colleagues indulging in the ingestion of sweets, hamburgers etc. Newcomers will find an established milieu where "everyone" consumes junk-food. A more efficient marketing can hardly be thought of.

Given the soldiers' food preferences, military

authorities ought to focus on the nutritional quality of the snacks sold in military camps. Attention should also be paid to the rhythm of the daily military meals, to avoid large gaps of time where hungry soldiers have nothing to eat but junk-food.

Conclusion.

Only future research can show to what extent the changes that occur during the military service are brought back to civilian life. But a picture is emerging in which we see several aspects of young males' lifestyle (eating, physical exercise, smoking[6] and use of smokeless tobacco[7] strongly changed - in the wrong direction - during the military service. Sociologist Erving Goffman, who coined the term "total institution", called these institutions - monasteries, military camps, hospitals, and the like - "the forcing houses for changing persons"[25].

The challenge for the military system is to find ways by which this moulding force can be used not to damage but to improve the health related behaviour of the young men who spend one year of their lives in its care. The present data suggest that more attention should be paid during early stages of the service to the recruits' motivation for the military service and to their mental preparation for the living conditions and the various temptations they will meet during the last part of the service. Strategies ought to be developed which could help conscripts adapt to the new environment, new expectations, the absence of family and the challenging presence of large numbers of other young men, in more constructive ways than many do now.

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Table 1. Self-reported overall change in consumption of snacks, sweets and soft drinks during military service by length of time served. N is the number of non-missing responses.*

	N	Strong increase %	Moderate increase %	No change %	Moderate decrease %	Strong decrease %
Time served						
3 months	1169	22	35	24	15	5
4 months	695	31	37	19	9	4
7 months	552	35	35	18	7	5
10 months	768	44	36	13	6	2

* The 3-month and 10-month observations stem from samples from the same cohort, contingent A, measured at Time 1 and Time 2, respectively. The 7-month and 4-month observations stem from contingents B and C at Time 2.

Table 2. Percent of conscripts reporting various weekly frequencies of four food habits. N varies due to missing values.

	N	<1 day %	1-2 days %	3-4 days %	5-7 days %
Skip military dinner	2021	45	41	11	3
Eat fast food	2021	53	34	11	3
Eat chocolate or sweets	2021	12	29	36	24
Drink sweet soft drinks	2029	8	21	35	36

Table 3. Weekly frequency of four food habits among army conscripts, and percentage reporting strong overall increase in consumption of junk-food during the military service at Time 2, by length of service, education, general satisfaction, feelings of uselessness, financial situation, home journeys, religious conviction, and friendship. Varying total reflects missing values.

	N	Skipped dinner 3 days or more %	Fast food 3 days or more %	Sweets 5 days or more %	Soft drinks 5 days or more %	Strong increase junk-food %
Total	2021	14	14	24	36	37
Time served						
4 months	692	11	10	25	28	31
7 months	549	15	14	23	39	35
10 months	760	17	17	24	41	44
		p=0.01	p<0.001	p=0.7	p<0.001	p<0.001
		p1<0.01	p1<.001	p1=0.4	p1<.001	p1<.001
Education						
9 years	127	20	18	18	37	36
10-11 years	622	16	13	24	41	39
12 years or more	1267	13	13	25	33	36
		p=0.05	p=0.3	p=0.2	p=0.01	p=0.3
		p2=0.09	p2=0.08	p2=0.1	p2=0.3	p2=0.9
Level of satisfaction						
Very high	378	13	10	18	33	27
Quite high	1146	13	12	24	33	34
Quite low	329	17	18	28	44	51
Very low	109	24	26	33	49	57
		p=0.01	p<0.001	p=0.001	p<0.001	p<0.001
		p3<0.001	p3<0.001	p3<0.001	p3<0.001	p3<0.001

(continued)

Playing a useful part in everyday life						
As usual or more	1262	12	11	23	33	22
Less than usual	665	19	18	27	40	46
		p<0.001	p<0.001	p=0.03	p<0.001	p<0.001
		p3<0.001	p3<0.001	p3=0.03	p3<0.003	p3<0.001
Weekly expenses						
More than allowance	1115	18	18	28	42	42
Allowance or less	855	9	8	20	27	31
		p<0.001	p<0.001	p<0.001	p<0.001	p<0.001
		p3<0.001	p3<0.001	p3<0.001	p3<0.001	p3<0.001
Occasion to return home						
Every weekend	100	32	2	16	28	19
1-3 weekends per month	300	11	9	19	33	30
< 1 weekend per month	1557	13	15	26	37	39
		p<0.001	p<0.001	p=0.01	p=0.1	p<0.001
		p3<0.001	p3<0.001	p3=0.02	p3=0.1	p3<0.001
Religious conviction						
Believe in God	175	12	9	21	29	34
Doubt or non-belief	1722	14	14	24	37	37
		p<0.4	p<0.06	p=0.3	p<0.03	p<0.4
		p3<0.5	p3<0.09	p3=0.5	p3<0.1	p3<0.7
Trust in current friendships						
Will last 2 years	968	14	13	24	36	36
Probably last 2 years	893	14	13	24	36	36
Prob. not last 2 years	110	17	24	28	36	52
		p=0.6	p=0.01	p=0.7	p=0.9	p=0.002
		p3=0.3	p3=0.1	p3=0.5	p3=0.9	p3=0.03

p1 = p value, adjusted for education
p2 = p value, adjusted for time served
p3 = p value, adjusted for both education and time served
(All p-values based on Cochran-Mantel-Haenszel's chi square test.)

Table 4. Weekly frequency of four food habits among army conscripts, and percentage reporting strong overall increase in consumption of junk-food during the military service at Time 2, by physical exercise, alcohol consumption, smoking and use of smokeless tobacco. Varying total reflects missing values.

	N	Skipped dinner 3 days or more %	Fast food 3 days or more %	Sweets 5 days or more %	Soft drinks 5 days or more %	Strong increase junk-food %
Total	2021	14	14	24	36	37
Physical activity once a week or more						
Yes - as before mil. serv.	662	11	10	20	28	31
Yes - started in mil.	251	14	11	21	29	34
No - as before mil. serv.	671	17	17	28	45	40
No - stopped in mil.	393	16	15	27	39	46
		p=0.01	p=0.001	p=0.001	p<0.001	p<0.001
		p3=0.003	p3=0.001	p3=0.001	p3<0.001	p3=0.001
Alcohol consumption once a week or more						
Yes - started in mil.	160	18	14	28	38	47
Yes - as before mil. serv.	476	20	18	25	42	40
No - stopped in mil.	611	12	14	26	40	40
No - as before mil. serv.	694	11	9	21	28	30
		p=0.01	p<0.001	p=0.1	p<0.001	p<0.001
		p3=0.001	p3<0.001	p3=0.08	p3<0.001	p3=0.001

(continued)

Smoking						
Daily	809	16	15	26	43	42
Occasionally	228	16	15	22	32	36
Never	898	12	12	23	30	32
		p=0.06	p=0.06	p=0.3	p<0.001	p<0.001
		p3=0.01	p3=0.1	p3=0.2	p3<0.001	p3=0.001
Use of smokeless tobacco						
Daily	215	12	12	24	38	30
Occasionally	285	14	15	24	39	39
Never	1478	14	13	24	35	37
		p=0.06	p=0.4	p=0.9	p=0.01	p=0.04
		p3=0.8	p3=0.7	p3=0.9	p3=0.05	p3=0.2

p1 = p value, adjusted for education
p2 = p value, adjusted for time served
p3 = p value, adjusted for both education and time served
(All p-values based on Cochran-Mantel-Haenszel's chi square test.)

Table 5. Predictors of overall change (From 1=strong increase to 5=strong decrease), reported at Time 2, in consumption of snacks, sweets and soft drinks during military service: results of multiple regression analysis.

Predictor variable	Regression coefficient	Std. error	P value
"Attitude to military service" (9=max. positive, 36=max. negative)	-0.02	0.01	<0.001
Occasion to return home (1=often,3=rarely)	-0.29	0.05	<0.001
"Relationship with peers"(8=max. positive, 32=max. negative)	-0.02	0.01	<0.001
Time served (1=3 months, 2=7 months,3=10 months)	-0.10	0.03	0.001
GHQ12 (0=max. positive, 36=max. negative)	-0.01	0.01	0.03

R^2=0.06

Appendix 1. Items used in 3 factor based index variables. Possible answers to each proposition were "agree - partly agree - partly disagree - disagree"*. The table gives the factor loading after Varimax rotation, and the percentage agreeing or partly agreeing for each item. N varied between items from 1904 to 1946.

	%	**Factor loading**
Index 1: Attitude to military service.		
It's up to me to have a good time while I'm in the Army.	79	0.44
Being in the Brigade is more meaningful than being in training school.	69	0.35
The military service is a duty which nobody should try to avoid.	64	0.49
I have grown more independent and adult during the service.	59	0.53
The army ought to be dismantled and the money used for better purposes. (R)	43	0.44
You get no useful experiences during the military service. (R)	30	0.47
During the service I have learned to use my leisure time better.	22	0.45
Index 2: Relationship with officers.		
Officers often underestimate conscripts and treat us like idiots. (R)	74	0.54
I have a good relationship with the officers I see regularly.	64	0.54
Officers in my unit are more sympathetic than most officers.	52	0.49
Officers are generally less intelligent than other professionals. (R)	46	0.47
It's generally worse to be in my unit than in most others. (R)	30	0.37
I'm certain that some officers try to pester me as often as they can. (R)	24	0.61
Index 3: Relationship with peers.		
I sometimes feel lonely though there are many others here. (R)	59	0.42
Sometimes I don't have the energy to do the things I really want to do. (R)	56	0.48
I let myself be influenced by the slackness of the other soldiers. (R)	55	0.44
Sometimes I complain because everybody complains, even though conditions aren't too bad. (R)	29	0.46
It's hard to be yourself, you have to behave like everybody else. (R)	24	0.52
Sometimes I try to assert myself by boasting about driving fast, drinking a lot, sleeping with women or spending a lot of money. (R)	22	0.39
I'm not popular among the others in my unit. (R)	10	0.31
I was mobbed by the other conscripts when I arrived. (R)	6	0.32

* Items marked (R) were reversed in the index.

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Figure 1. Study design. Questionnaire Q1 was completed at Time 1 by conscripts in contingent A, who had just been transferred from training school to Brigade North. Questionnaire Q2 was distributed to soldiers from all 3 contingents at Time 2, 7 months later.

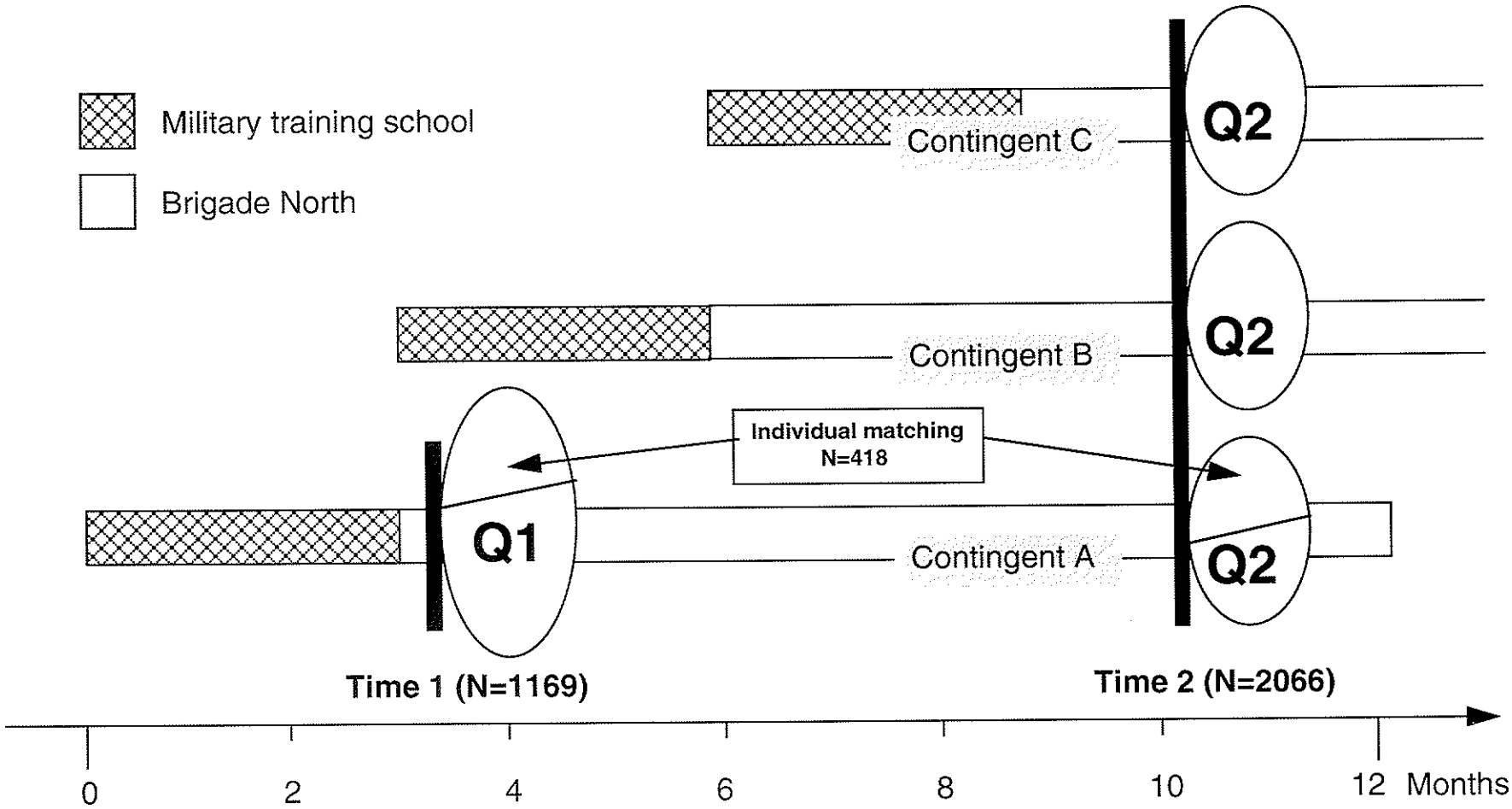
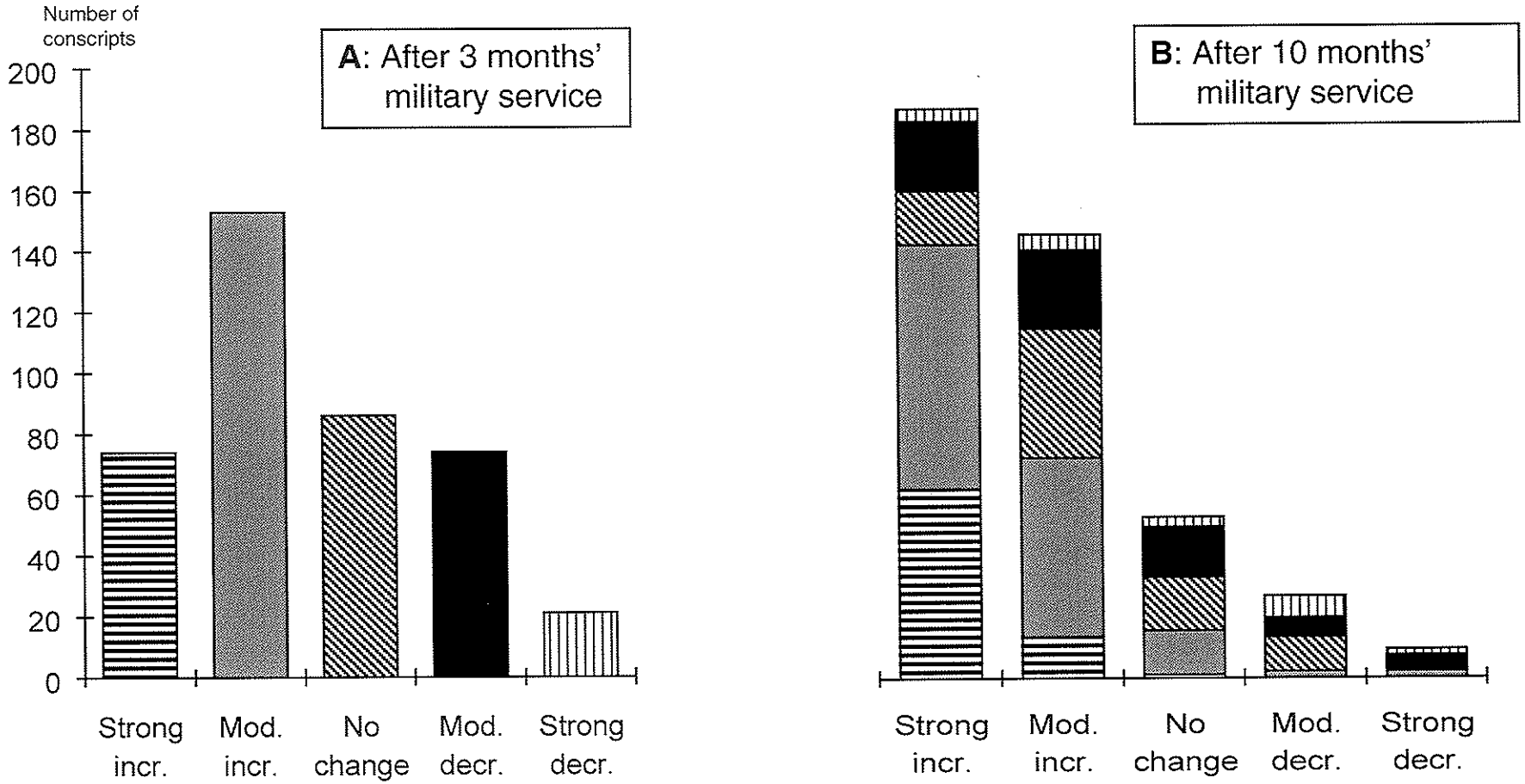


Figure 2. Self-reported change in consumption of snacks, sweets and soft drinks at Time 1 and Time 2 among conscripts whose responses could be individually matched (N=418). The cross-hatching in figure B shows which category the respondents belonged to in figure A.



PAPER V

Changes in alcohol consumption during the military service.

Edvin Schei, MD

Institute of Community Medicine
University of Tromsø
N-9037 Tromsø
Norway

Abstract

In a combined longitudinal and cross-sectional study of frequency of alcohol consumption among 2066 Norwegian army conscripts, 39.4% reported drinking more rarely than before the military service, whereas 12.4% consumed alcohol more often. The percentage having reduced their alcohol consumption varied little across different categories of demographic, personal and behavioural variables, indicating that the reduction was mainly the result of low availability, restrictions on use, social control and financial limitations, which are factors common to the majority of conscripts.

Increased frequency of alcohol consumption, on the other hand, was associated with general dissatisfaction concerning the military service, with negative opinions about the military system and strained relations to fellow conscripts.

It is concluded that the military service is a period which may have a beneficial influence on the drinking patterns of many young men. Special attention should be paid, however, to those who show signs of general maladaptation, as increased alcohol consumption seems to be a relatively common way of compensating.

"Wine is only sweet to happy men"

John Keats

(1819)

Previous studies of alcohol consumption among conscripts in Norway, where 70% of all males do military service, have mostly shown reduced frequency of drinking, compared with premilitary alcohol behaviour[1,2]. Yearly surveys carried out by the military in the period 1986-1993 (N between 700 and 1500) confirm this, by finding that on average 34.7% of the conscripts reported drinking less than before military service, whereas 15.6% reported increased alcohol consumption (Personal communication, Maj. Unger, Headquarters Defence Command, Oslo). An exception to this pattern was found by Bovim et al. in a study of air force recruits during the first three months of service in a training school close to a major town. In this study 35% reported drinking more frequently, 16% less frequently than before the military service[3].

A longitudinal national survey of 2000 young Norwegian adults showed that alcohol consumption among civilian males increases gradually from early adolescence and reaches a maximum around the age of 20[4], which is the age of the average conscript. In a comparison of US military personnel and civilians, Bray et al. conclude that military personnel are significantly more likely than civilians to use alcohol[5]. On this background reduced alcohol consumption among males in this age group and in a military setting is somewhat surprising. This is even more so when considering that use of other stimulants, such as cigarettes[6], smokeless tobacco[7] and junk-food[8] have been shown to increase during military service.

Research into the factors that influence alcohol behaviour is warranted by the many problems connected with alcohol abuse in society at large[9]. Studying conscripts is of interest in two respects: For one, society needs to monitor the direct effect that

conscription has on the health related behaviour of young males. Secondly, the military service is a natural laboratory, offering unique conditions for studying social, psychological and behavioural aspects connected with change and adaptation.

Relatively little is known about the characteristics of those who change their drinking habits in the military and the factors that facilitate such change. The present study sought to establish whether reported premilitary drinking behaviour and changes during the military service were associated 1) with demographic characteristics of the recruits, 2) with subjectively perceived aspects of the military system and/or social life inside the camps, 3) with standardised measures of mental health and coping capability and 4) with other behaviors (physical exercise, food habits, tobacco and drug use, reading, watching video and TV).

MATERIALS AND PROCEDURES

The present study combines a longitudinal and a cross-sectional survey design. Data were collected among soldiers in Brigade North, the army's main training unit, situated north of the Arctic circle, close to the Russian border. Four times a year army recruits from all parts of the country are transferred to this unit, after 3 months at a military training school in southern Norway. As new recruits arrive, the oldest contingent is dismissed, so that 3 contingents (in this paper labelled A, B and C) are present at the same time.

Living conditions are similar in the 4 garrisons of the brigade. The soldiers are normally lodged in dormitories with 6 beds. Their daily allowance is equivalent to US$ 9-12 (average wage for unskilled Norwegian industrial workers: US$ 10 per hour). All camps have outlets for fast food, sweets, cigarettes etc., but not for alcohol. Conscripts are not allowed to drink alcohol on military ground. The mean educational level in

the contingents varies, due to the seasonality of the educational system, with summer and autumn contingents comprising relatively more well-educated recruits. (Contingents A and B were winter contingents, C was a summer contingent.)

Figure 1 gives the outline of the study. Data were collected on 2 occasions (Time 1 and Time 2). A short questionnaire (Q1) was distributed to all soldiers of contingent A at Time 1, as part of the transfer routine from training school to Brigade North. Soldiers in contingent A had served 3 months at this time. 1169 questionnaires were completed, with a 97% response rate. Q1 was designed to record baseline data about alcohol consumption, smoking, physical activity, change in food habits, and overall satisfaction with military life so far. The questions concerning alcohol were: "How often do you drink alcohol presently" and "how often did you drink alcohol before the military service", each with four response categories: never, less than once a week, once or twice a week, 3 times a week or more.

Soldiers who completed Q1 were given a code number, pasted in the paybook, to be transferred to a follow-up questionnaire (Q2). By using the code number, it was possible to match the 2 questionnaires of an individual soldier from contingent A without threatening his anonymity.

The second survey comprised all soldiers in the brigade who were not on leave of absence and could be freed from their daily tasks. It was carried out at Time 2, 7 months after Time 1. Soldiers in contingent A had by then served 10 months altogether, and the 2 succeeding contingents (B and C) had served 7 and 4 months, respectively (Figure 1). The questionnaire (Q2), containing 250 items, was distributed to 2130 soldiers in groups of 30 to 200, supervised by officers and the author. 2098 questionnaires were returned, 32 of which were judged to be inconsistent or too incomplete to be used, leaving a total sample of 2066 questionnaires

(97%).

The use of code numbers allowed detailed analysis of individual movements across categories of alcohol consumption in a large subgroup (418, 54%) of the 718 soldiers who were surveyed twice (contingent A, cf. Figure 1). The attrition of the follow-up group was mainly due to practical problems with the transferable code labels. Conscripts with individually matchable questionnaires were found to be representative of all conscripts in contingent A. No statistically significant differences were found between these 418 subjects and the whole of contingent A at either Time 1 or Time 2 when comparing alcohol use, eating behaviour, smoking, physical activity or satisfaction with military life.

All statistical analyses of associations between alcohol behaviour and the independent variables are based on cross-sectional data from the follow-up survey. The items recording alcohol behaviour were identical in Q1 and Q2. Three dependent variables were used in analyses of alcohol related behaviour during the military service. These were increase and reduction in frequency of alcohol drinking, calculated as the difference between present and premilitary drinking (at Time 2) and including only subjects who, given their reported premilitary drinking frequency, could theoretically rise to a higher category of drinking (n=1919) or reduce to a lower category (n=1853), respectively. In order to contrast changes during the service with premilitary drinking behaviour, the reported (at Time 2) premilitary frequency of alcohol consumption was used as the third dependent variable, with answers dichotomized to "less than once a week" and "once a week or more".

To estimate the influence of the subjectively perceived characteristics of the military surroundings, Q2 contained 31 items addressing the conscripts' general impressions of and attitudes towards the military, their relationships with peers and officers, and their personal development and well-being during the service, each with

4 response categories. Factor analysis of these 31 items, using the maximum likelihood method of initial factor extraction, yielded 3 factors, based on which 3 scales were constructed by simple addition[10] of items with a factor loading of 0.30 or more, after Varimax rotation[11]. The 3 variables were labelled "Attitude to military service" (9 items, mean 22.1, st.dev. 5.4, range 27, Cronbach's alpha 0.75), "Relationship with officers" (6 items, mean 15.6, st.dev. 3.8, range 18, Cronbach's alpha 0.70), and "Relationship with peers" (8 items, mean 23.6, st.dev. 3.9, range 24, Cronbach's alpha 0.63). Appendix 1 lists the items used in the scales.

As a measure of the mental status of the conscripts, sensitive to situational factors, we used a 12-item version of Goldberg's General Health Questionnaire (GHQ12)[12]. With Likert score (0, 1, 2, 3) the mean GHQ score was 13.3, the standard deviation 6.0, the range 36 and Cronbach's alpha 0.98.

To estimate the soldiers' ability to cope with demanding life situations a 13-item version of Antonovsky's Sense of Coherence Questionnaire[13] was included (13 items, mean 47.7, st.dev. 8.3, range 52, Cronbach's alpha 0.56). A high sense of coherence (SOC) is thought to enable the individual to consider which coping strategy is the best overall way to address any specific problem[13].

Information concerning the subjects' demographic characteristics, life style, social relations, economy, mental and somatic health, and health related behavior before and during the military service was recorded in the follow-up survey. All independent variables used in the bivariate analyses are listed in table 3.

Statistical analyses of the relationships between the 3 dependent variables (premilitary drinking frequency, increased and reduced frequency during the service, respectively) consisted of bivariate cross tabulations with chi square statistics followed by logistic regression analyses. All analyses were carried

out using the SAS package of statistical programs[11].

RESULTS

Changes in frequency of alcohol consumption.

Table 1 shows the response distribution of the total study population to the 2 alcohol items at Time 2. A considerable decrease in the overall reported frequency of alcohol intake was found. Whereas 56.3% of the subjects consumed alcohol at least once a week before the military service, only 32.9% reported doing so at the time of the survey. A detailed depiction of individual movements across categories, based on the 418 subjects whose responses at Time 1 and 2 could be individually compered, is given in figure 2. Most of the change occurred as a shift between the middle categories, i.e. from once or twice a week to less than weekly. The results in table 1 might give the impression that there was little change in the group with maximal premilitary alcohol consumption, but figure 2 shows that the majority of the heavy premilitary drinkers had reduced their drinking in the military, only to be replaced by colleagues drinking more than before.

Table 2 shows the rates of reduction and increase in alcohol consumption within the 3 contingents. The overall percentage having reduced drinking at Time 2 was 39.2%, whereas 13.1% had increased. Among soldiers in contingent A, surveyed twice, the rate of increase was significantly higher ($p<0.05$) after 10 months (Time 2) than it was at Time 1. Soldiers in contingent C reported significantly less drinking both before and during the service than conscripts in contingents A and B (data not shown). Nevertheless, they had a higher rate of reduction (not statistically significant) and a lower rate of increase ($p<0.001$) than soldiers having served longer, also when adjusting for length of education. Thus differences in drinking prevalences between contingents

can not be attributed solely to differences in length of time served.

Although the percentage reporting alcohol consumption at least once a week was consistently lower during military service than before conscription, it increased from Time 1 (33.4%) to Time 2 (38.8%) among soldiers in contingent A ($p<0.05$). This increase was also found in the subgroup of 418 with individually matchable questionnaires ($p<0.05$). However, the reported premilitary drinking frequency of soldiers in contingent A also changed from Time 1 to Time 2, as shown in Figure 3. The percentage reporting premilitary alcohol consumption at least once a week was 55.7 at Time 1 and 61.7 at Time 2 ($p<0.001$). The same result was found among the 418 whose questionnaires at Times 1 and 2 could be individually matched. Analysis within this group showed that 29.5% gave non-identical reports on premilitary drinking at the two occasions. Changes in reported premilitary drinking were correlated 0.26 ($p<0.001$) with changes in reported drinking between Times 1 and 2.

Independent variables associated with alcohol consumption.

Table 3 lists the independent variables which were considered to be of potential interest, and gives the level of statistical significance for the bivariate associations with the three dependent variables, with no adjustments. Three quite distinct patterns emerged. Premilitary drinking was associated with a relatively large number of demographic, social and behavioural variables, as well as with variables concerning financial problems and reactions to the military system. Increased drinking during the service was primarily associated with variables measuring adaptation to the military, lifestyle variables and financial problems. A substantial degree of reduction was the rule across the different categories of the majority of variables, and very few statistically significant differences were found. Reduction was more

common in soldiers from the regions with the highest premilitary drinking levels (the East, the West coast and Trøndelag).

Using variables listed in table 3 and a stepwise selection procedure, logistic regression models were developed for each of the 3 independent variables. Variables concerning military life were excluded from the modelling of premilitary drinking. Concerning substance use and other lifestyle variables, only variables describing premilitary behaviour were used in the analyses, as behaviour during the service might be concurrent with or a result of changes in alcohol consumption. The results are given in table 4, and show that premilitary drinking was more frequent among subjects who did not believe in God, who were planning a relatively short education, who watched much video, smoked daily or occasionally, used snuff daily or had ever tried cannabis or legal drugs.

Increased drinking during the military service, on the other hand, was associated with negative attitudes to the military service and with dissatisfaction concerning the relationship with other conscripts. A low sense of coherence also predicted increased drinking. Finally, increased drinking was predicted by having watched TV less than three times a week before the service.

Reduced frequency of alcohol consumption was associated with having tried cannabis or legal drugs before the military service, and with having read books three times a week or more. Soldiers who could return home every weekend reported less reduction than those who had to spend more of their leisure time in military surroundings.

DISCUSSION

Methodological comments

Self-reports of drinking behaviour are threatened by response bias. Poor recall and the social desirability of a moderate alcohol consumption weaken the validity of the measures and lead to underestimation of the actual drinking level[14]. As pointed out by Embree & Whitehead, however, the reliability of a measure is more critical than its validity when the focus of the study is towards isolating change over time, as it is in the present study[14]. About 70% of those surveyed twice reported the same premilitary drinking frequency on the 2 occasions, which may be interpreted as a reliability of 0.7. The reliability of the estimates of increase and decrease during the service was probably higher than this, given that these estimates were derived, not from two different surveys, but from two neighbouring items in the second survey, allowing subjects to check the consistency of their answers.

The findings depicted in figure 3 may be interpreted in several ways. Either premilitary drinking was underreported at Time 1, or it was overreported at Time 2, or both. We know that both prevalences cannot be correct. The proximity in time of the behaviour reported in the question concerning present alcohol consumption should make this item more reliable[14], and it seems likely that an increase in prevalence of alcohol consumption from Time 1 to Time 2 did in fact take place. A number of cognitive psychological experiments have shown that people may be unaware of their own behavioural changes, and that reports on attitudes and behaviour in the past may be heavily influenced by present behaviour[15]. People tend to underestimate change, and to construct representations of past behavior that do not contrast the present[16]. Increase in reported paramilitary drinking was positively correlated with increase in reported drinking at the time of the survey. This line of

reasoning and the results of figure 3 suggest that the method used in the present study may have underestimated the real change that occurred during the military service, as a result of subjects' tendency to "adjust" recall of premilitary drinking in the direction of present behaviour.

The measures of change in the present study did not distinguish subjects having changed only slightly from those who had changed greatly. Likewise, subjects with very different alcohol behaviours were grouped together as "non-changers". The theoretical effect of this loss of information on the regression analysis would be an attenuation of the statistical associations. Excluding premilitary abstainers from the "reduction" variable and maximum drinkers from the "increase" variable implied a reduction of the denominator and slightly exaggerated estimates of reduction and increase, respectively.

General discussion

The present study confirms the conclusion that the military service entails a reduction in frequency of alcohol consumption for a large proportion of young Norwegian men, in contrast to findings from professional military milieus[5]. To understand this, it is important to notice some of the differences between a professional military system and a system based on conscription. The professional soldier has chosen a military career, gets paid a normal salary, spends many years in the system, and probably identifies with what is perceived as the normal military lifestyle, including its traditional masculine values[17]. Alcohol is easily available and relatively inexpensive. Norwegian conscripts, on the other hand, are involuntary, short-term visitors in the military world, and the social atmosphere is inevitably coloured by the relatively heterogeneous norms from their respective civilian backgrounds. Conscripts live in a transparent social world with little access to alcohol and no tolerance for inebriety during service hours, and

their daily income is too low to support a high level of alcohol consumption. (One day's earnings for a conscript is barely enough to buy 1 litre of beer or 0,05 litres of liquor at a restaurant). Income is a strong predictor of alcohol consumption, as has been shown in studies of civilian youth[4]. Furthermore, the military service separates an individual from his accustomed social arena, and offers an occasion to change behaviour without risk of being socially stigmatized. In the present study, most subjects reporting heavy premilitary drinking had reduced during the service. Soldiers who were able to return home every weekend reported less reduction than the others. It should be noted that recruits with manifest alcohol problems are discharged at an early stage[1].

Besides documenting a large net reduction in frequency of alcohol drinking in the group of conscripts as a whole, the study also showed that 12% of the conscripts, including the majority of those presently drinking 3 times a week or more, had increased their alcohol consumption. Increase during the military service was associated with negative opinions about the military service and the relationships with other conscripts, and with a low Sense of Coherence. There was no overlap between predictors of increase and predictors of premilitary consumption level.

There seems to be a pattern where dissatisfied army conscripts compensate by indulging in the incorporation of stimulants. Other studies have shown that increased cigarette smoking[6] and consumption of smokeless tobacco[7] and junk-food[8] during the military service also occur more frequently in soldiers who report strong dissatisfaction with their situation. An important function of these behaviours may be social; both smoking, eating and drinking may increase social interaction and enhance group cohesiveness[18-20]. In his classical book "The Rites of Passage"[14], social anthropologist Arnold van Gennep wrote: "The rite of eating and drinking together ... is clearly a rite of incorporation, of physical union ...."

The association between low frequency of TV-watching and increased alcohol consumption may be a reflection of the subjects' premilitary value system. Frequency of TV-watching in youth may indicate closeness to family and adult values, usually implying moderate alcohol consumption[21]. Watching video, on the other hand, may occur in groups of adolescents as part of a lifestyle which also includes high alcohol consumption and experimentation with drugs[22].

The present findings (32.9% drinking weekly or more often, 39.4% decrease, 12.4% increase) confirm the results of the military surveys 1986-1993 mentioned in the introduction, where on average 34.3% were found to drink weekly or more often, 34.7% had decreased and 15.6% increased. The accordance was surprisingly good when considering that the military surveys included navy and air force units in addition to army soldiers.

Conclusion

For most soldiers the military experience has a favourable influence on drinking behaviour. Limited availability, modest financial means and surveillance by superiors may be major causes of this reduction.

On the other hand, a sub-group of considerable magnitude increases alcohol consumption during military service. This may to some extent be a reaction to the stress and frustration inherent in the situation. More attention should be paid, during the early stages of the service, to factors that influence the recruits' motivation for the military service and their mental preparation for the living conditions that they will meet during the last part of the service. Strategies ought to be developed which could help conscripts adapt, in more constructive ways than many do now, to the absence of friends and family, the new environment, and the challenges of unfamiliar tasks and social roles.

Acknowledgement.

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Table 1. Conscripts' premilitary and present frequency of alcohol consumption, reported at Time 2. N is the number of respondents to each item.

	"How often did you drink alcohol before the military service"	"How often doyou drink alcohol presently"
	N=1973	N=1995
	%	%
Never	6.1	8.3
Less than weekly	37.7	58.8
Once or twice a week	48.8	26.7
Three times or more per week	7.5	6.2

Table 2. Prevalences of increase and reduction in frequency of alcohol consumption during the military service, by time served (cross-sectional data).

N1 is the number of conscripts who reported drinking alcohol before the service (who could thus theoretically reduce drinking frequency). Correspondingly, N2 is the number of conscripts who reported less than maximal premilitary drinking frequency (who could thus theoretically increase drinking frequency).

			Reduction		Increase	
Contin-gent	Survey no.	Time served	%	N1	%	N2
A	1	3 months	36.5	1094	13.8	1084
C	2	4 months	42.4	621	8.1	663
B	2	7 months	38.5	509	12.8	508
A	2	10 months	37.8	781	15.6	723

Table 3. List of independent variables and bivariate associations with premilitary drinking frequency, increase and reduction in drinking frequency during the military service.

	Pre-military drinking	Increase	Reduc-tion
Independent variables:			
Contingent (A, B, C)	---	---	NS
DEMOGRAPHY			
Education (low, high)	---	--	NS
Education plans (little, more)	-	NS	NS
Religious conviction (non-believer, believer)	---	NS	NS
Part of the country (cf. text)	NS	**	NS
Father's socioecon. status (low, high)	NS	NS	NS
Parents divorced (no, yes)	NS	NS	NS
SOCIAL/FINANCIAL VARIABLES			
Girlfriend/wife (no, yes)	NS	NS	NS
Sex during last month (no, yes)	+++	NS	NS
Friend in mil (no, yes)	++	NS	NS
Civilian friend (no, yes)	++	NS	NS
Daily spending (less/more than allowance)	+++	+++	NS
Economically stressed (no, yes)	+++	+++	+
REACTIONS TO THE MILITARY SERVICE			
Satisfaction with mil. service (high, low)	+++	+++	NS
"Attitude to mil. service" (pos., neg.)	++	+++	NS
"Relationship with officers" (pos., neg.)	+++	+++	NS
"Relationship with peers" (pos., neg.)	NS	+++	NS
MENTAL VARIABLES			
GHQ (case/non-case)	NS	---	NS
Sense of coherence (min, max)	--	--	NS
SOMATIC VARIABLES			
Height	NS	NS	NS
Weight	NS	NS	NS
Body mass index (low, high)	NS	NS	NS
Sick call last two weeks (no, yes)	NS	NS	NS
Partial sick call last two weeks (no, yes)	NS	NS	NS
BEHAVIOUR			
Tried cannabis before mil. (no, yes)	+++	NS	++
Used tablets for intox. before mil. (no, yes)	+++	NS	++
Tried cannabis in mil. (no, yes)	+++	+++	NS
Used tablets for intox. in mil. (no, yes)	+++	+++	NS
Smoking (no, yes)	+++	+	+
Snuff use (no, yes)	+++	NS	NS
Physical exercise before mil. (times per week)	-	NS	NS
Increased consumption of snacks (no, yes)	+	++	NS
Video before mil.(times per week)	+++	+	+
TV before mil.(times per week)	NS	-	NS
Read newspapers before mil.(times per week)	NS	+	NS
Read magazines before mil.(times per week))	NS	NS	NS
Read books before mil.(times per week)	NS	NS	+

+: positive association, $p<0.05$ (++: $p<0.01$ +++: $p<0.001$)
-: negative association $p<0.05$ (--: $p<0.01$ ---: $p<0.001$)
**: nominal variable, $p<0.01$
NS: $p>0.05$

Table 4. Three logistic regression models. Dependent variables: A) Frequency of alcohol consumption before the military service. B) Increased frequency of alcohol consumption during the military service. C) Reduced frequency of alcohol consumption during the military service.*

	A: Premilitary drinking		**B: Increase in mil.**		**C: Reduction in mil.**	
	Odds ratios	p	Odds ratios	p	Odds ratios	p
"Attitude to military service" (Quartiles, 1=positive, 4=negative)			1.29	<.001		
"Relationship with peers" (Quartiles, 1=positive, 4=negative)			1.19	.03		
Sense of coherence (Quartiles, 1=low SOC, 4=high SOC)			0.81	.01		
TV before mil. (<3 times/week, 3+)			0.73	.04		
Religious conviction (0=none, 1=believes in God)	0.63	<.001				
Plans for future education (0=<3 years, 1=3 or more)	0.87	.004				
Video before mil (0=<3 times/week, 1=3 times or more)	1.39	.01				
Daily smoking before mil. (0=no, 1=yes)	2.42	<.001				
Occasional smoking before mil. (0=no, 1=yes)	1.81	.001				
Daily use of snuff before mil. (0=no, 1=yes)	2.13	<.001				
Ever tried cannabis before mil. (0=no, 1=yes)	2.12	<.001			1.34	.01
Ever tried tablets for intox. before mil. (0=no, 1=yes)	3.16	<.001			1.50	.02
Occasion to return home					1.36	<.001
Read books before mil (<3 times/week, 3 times or more)					1.37	.03
Chi-square for model	**258.9 (p<0.001)**		**47.9 (p<0.001)**		**23.8 (p<0.001)**	

Categories of dependent variables. A: 0=less than once a week, 1=once a week or more.
B: 0=no increase, 1=increase
C: 0=no reduction, 1=reduction

Appendix 1. Items used in 3 factor based index variables. Possible answers to each proposition were "agree - partly agree - partly disagree - disagree"*. The table gives the percentage agreeing or partly agreeing, and the factor loading after Varimax rotation, for each item. N varied between items from 1904 to 1946.

	Agree/ partly agree (%)	Factor loading
Index 1: Attitude to military service.		
It's up to me to have a good time while I'm in the Army.	79	0.44
Being in the Brigade is more meaningful than being in training school.	69	0.35
The military service is a duty which nobody should try to avoid.	64	0.49
I have grown more independent and adult during the service.	59	0.53
The army ought to be dismantled and the money used for better purposes. (R)	43	0.44
You get no useful experiences during the military service. (R)	30	0.47
During the service I have learned to use my leisure time better.	22	0.45
Index 2: Relationship with officers.		
Officers often underestimate conscripts and treat us like idiots. (R)	74	0.54
I have a good relationship with the officers I see regularly.	64	0.54
Officers in my unit are more sympathetic than most officers.	52	0.49
Officers are generally less intelligent than other professionals. (R)	46	0.47
It's generally worse to be in my unit than in most others. (R)	30	0.37
I'm certain that some officers try to pester me as often as they can. (R)	24	0.61
Index 3: Relationship with peers.		
I sometimes feel lonely though there are many others here. (R)	59	0.42
Sometimes I don't have the energy to do the things I really want to do. (R)	56	0.48
I let myself be influenced by the slackness of the other soldiers. (R)	55	0.44
Sometimes I complain because everybody complains, even though conditions aren't too bad. (R)	29	0.46
It's hard to be yourself, you have to behave like everybody else. (R)	24	0.52
Sometimes I try to assert myself by boasting about driving fast, drinking a lot, sleeping with women or spending a lot of money. (R)	22	0.39
I'm not popular among the others in my unit. (R)	10	0.31
I was mobbed by the other conscripts when I arrived. (R)	6	0.32

*Items marked (R) were reversed in the index.

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Figure 1. Study design. Questionnaire Q1 was completed at Time 1 by conscripts in contingent A. Questionnaire Q2 was distributed to soldiers from all 3 contingents at Time 2, 7 months later.

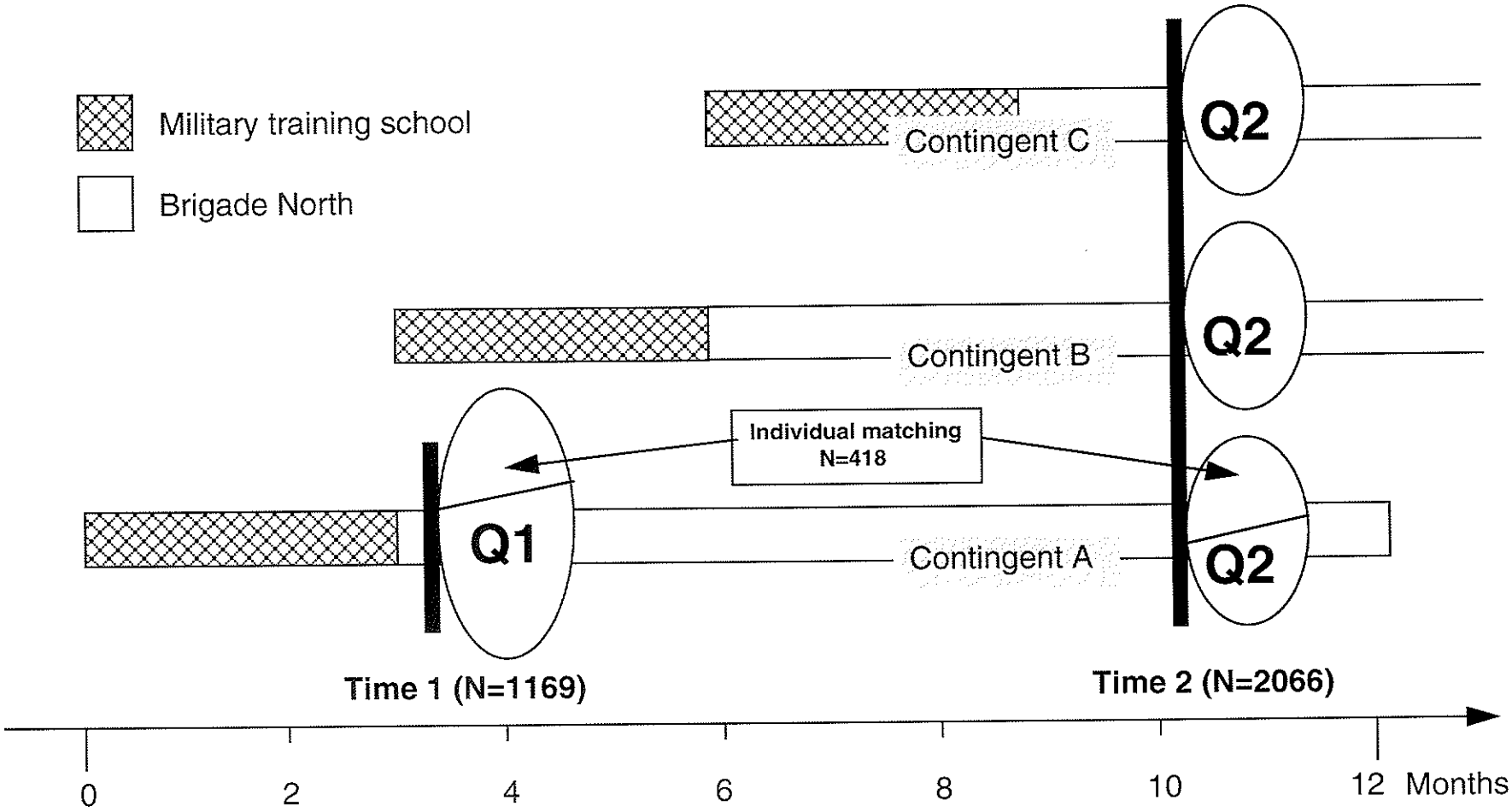
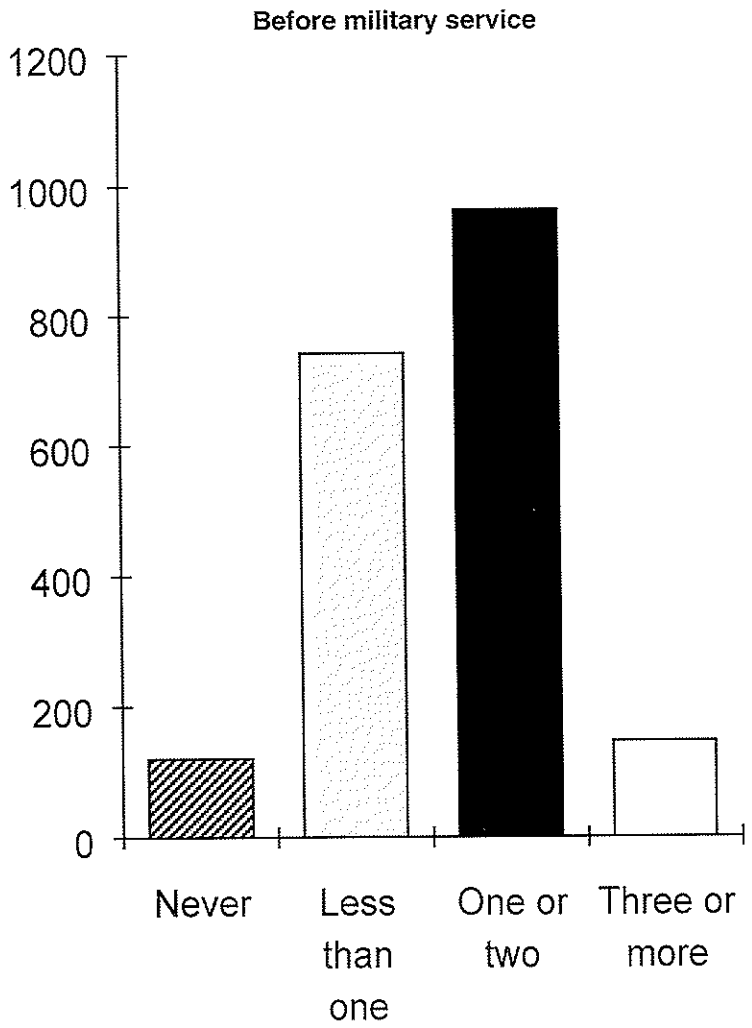


Figure 2. Weekly frequency of alcohol consumption among conscripts before the military service and presently, reported at Time 2.



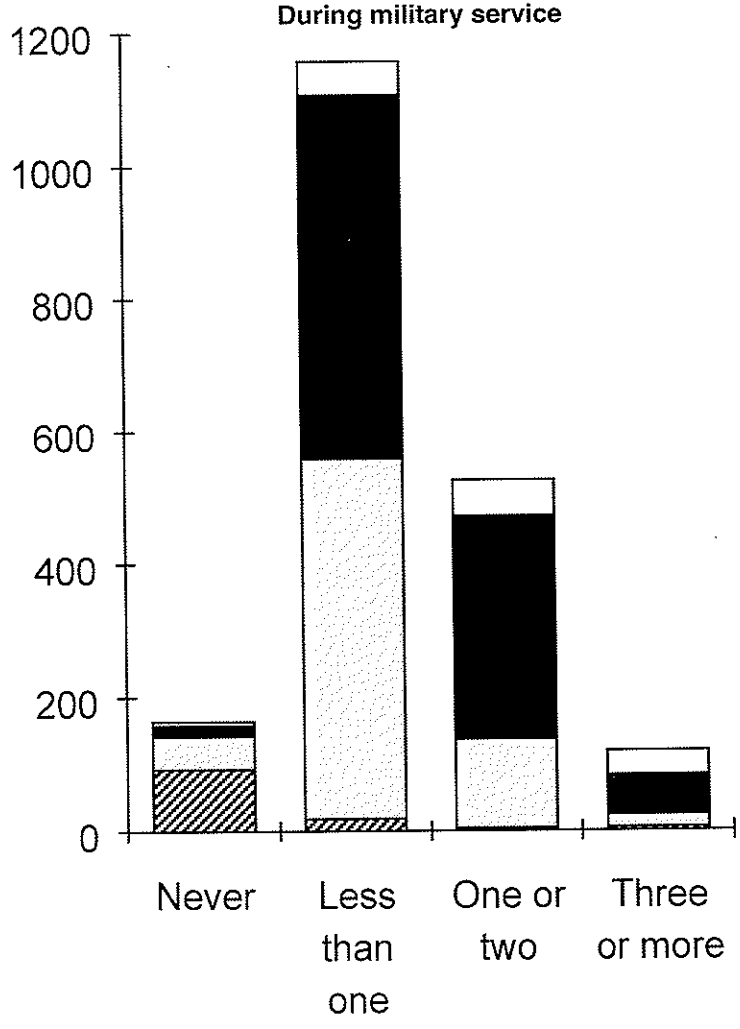
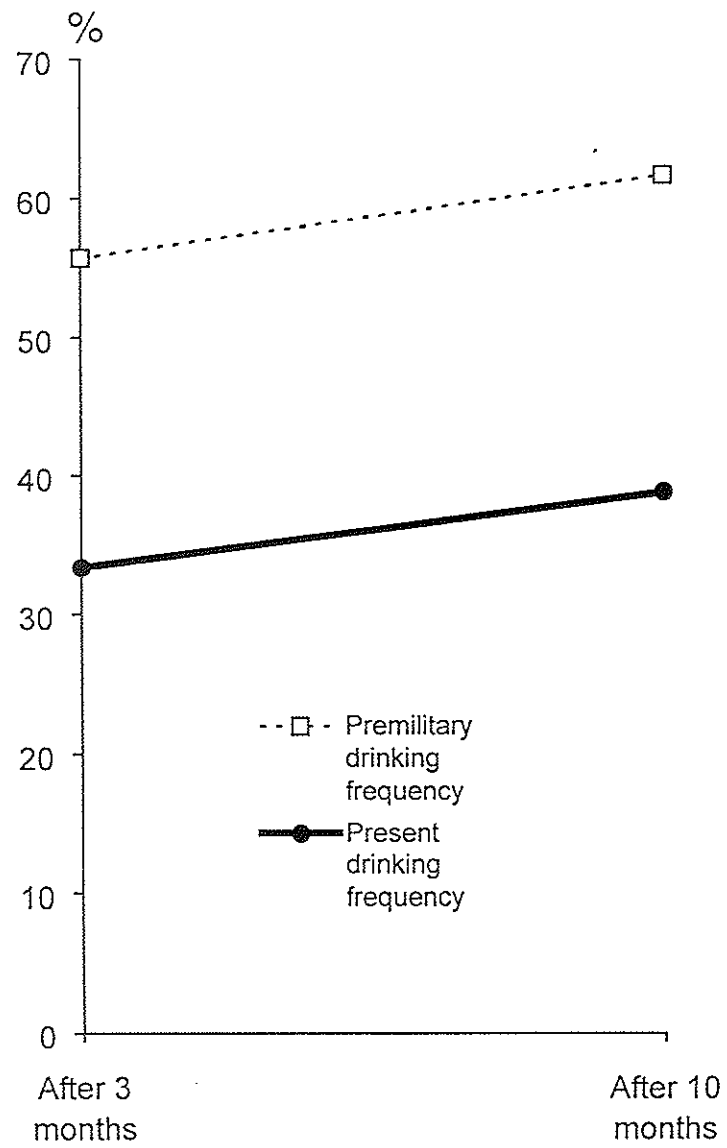


Figure 3. Premilitary and present frequency of alcohol drinking, reported at Time 1 (after 3 months' service) and Time 2 (after 10 months' service) in a group of 418 conscripts whose questionnaires could be individually matched.
Percentage who reported drinking at least once a week.



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