Men’s health behaviour, health beliefs and need for health counselling

A study amongst 40-year-old males from one Helsinki City region

Anita Näslindh-Ylispangar

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ACADEMIC DISSERTATION

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Tulokset osoittivat miehillä olleen useita sydän- ja verisuonitautiriskejä. Kaksi kolmesta kaikista osallistuneista (n=341) oli ylipainoisia tai lihavia, yli kolmanneksella vyötärönpymäpx yli 100 cm, ja yli 40%:llä oli diastolinen verenpaine yli 90 mmHg. Yli puolet tupakoivat päivittäin ja 40% käytti alkoholia runsaasti. Ristiriitaisuuta ilmensi se, että huolimatta riskitekijöistä noin puolet miehistä (n=273) koki terveydentilaansa hyväksi (I). Sama tulos toistui myös alun perin ei-vastanneiden (n=68) keskuudessa (V). Sairauden tai vanman puute, hyvä suun terveydentila ja normaali vyötärönpymäpx olivat voimakkaimmin yhteydessä hyväksi koettuun terveydentilaan (I). Miehet, jotka harrastivat liikuntaa 4-7 kertaa viikossa tai jotka käyttivät alkoholia kohtuudella tai ei lainkaan, olivat kaksi kertaa motivoituneimpia terveyskäyttäytymiseen kuin liikunnallisesti passiiviset tai alkoholia käyttävät miehet. Suora yhteys voitiin havaita omaisten tarjoaman neuvonnan ja vähäisen alkoholin käytön välillä. Masennus ja unettomuus olivat voimakkaasti yhteydessä loppuun palamiseen (n=273) (II).
pienempi määrä sekä matala- (n=145) että korkeariskisistä (n=128) miehistä koki
saaneensa terveysneuvontaa hoitohenkilökunnalta verrattuna perheenjäseniltä saatuun
tukeen ja ohjantaan (III). Korkeariskisten miesten (n=46) terveyttä seurattaessa
parantuivat riskitekijöiden mitatut arvot merkitsevästi lyhyellä aikavälillä (2001-2002).
Kolesteroliarvoja lukunottamatta ne kuitenkin alkoivat kolmen vuoden kuluttua (2004)
palautua alkumittausarvokohti (IV).

Laadullisen tutkimuksen tulokset osoittivat, että “ei-vastanneet” (n=28) käyttivät melko
harvoin terveyspalveluita. Vaikka oireettomuus kerrottiin yhdeksi syyksi siihen, että
miehet eivät vastanneet projektituestaan, heillä todettiin olevan samoa terveysriskejä
(vyötärönympäryksen ja painoindeksin mukaan) kuin projektiin alun pitäen
osallistuneilla. Syvähaastattelussa miehet toivat esille kokemuksiaan omista huolista,
vihan tunteista, peloista ja yksinäisyystä (V).

Hoidonantajien on tärkeää ymmärtää ristiriidat miesten subjektiivisen ja objektiivisen
terveydentilan välillä, mikä auttanee havaitsemaan mahdollisia esteitä
terveyskäyttäytymiselle. Myös perheenjäsenten ja läheisten rooli on keskeinen.
Terveydentilan parantamisessa ja ylläpitämisessä tulee entistä enemmän korostaa
säännöllistä liikuntaa ja terveellisiä elämäntapoja. Yhä enemmän tarvitaan myös
yhteistyötä yksityisen ja julkinen terveydenhuollon välillä varmistamaan
terveystottomusten jatkuminen keski-ikäisten miesten keskuudessa.
ABSTRACT

The aim of the study was to examine the self-rated health, risk factors for cardiovascular diseases, health behaviours, health beliefs, and health counselling and to analyse how these factors are associated with underlying health covariates.

A total sample consisted of 690 men, who were born in 1961, and who lived in the northeastern health care region of the Helsinki area. Participants were sent a questionnaire of health behaviour and a study invitation to a request to make an appointment with a public health nurse for clinical measurements at the Helsinki Heart Association during autumn, 2001. After two reminders, 39.6% of the net population (n=273) answered the questionnaire and participated in health examinations. Based on the results of health situation, males were assessed to be at low (n=145) or high risk (n=128). With Chi-square tests were assembled to identify differences between health indicators and the groups of self-rated health (good, average/poor) (I) and between the groups of low- and high-risk men (III). A step-wise logistic regression model was used to estimate the adjusted odds of each outcome by socio-demographic factors, health-behaviour factors, health belief factors, and clinical factors (II), and to analyse symptoms and complaints associated with the likelihood of perceived good health (III). Males at high risks and their health situation was followed during 2001-2004 to analyze the impact of brief-intervention to health risks and life styles by variance analyze (ANOVA) (n=46) (IV). Due to a low response rate, more data from non-respondents were collected using in-depth interview (n=28) (V). Additionally, 40 males were interviewed by telephone. The final data set comprised 341 males.

The findings of the study indicated that males had risk factors for cardiovascular diseases. Of all the males (n=341), two-thirds were overweight or obese, over one-third had a waist circumference ≥100 cm, and over 40% had diastolic blood pressure ≥90 mm Hg. Over one-half smoked daily and 40 % of the males used alcohol excessively. Despite risk factors males (n=273) rated their health as good, which showed a great contradiction (I). Similar trends were also found among ‘non-respondents’, who did not participate in the survey in 2001 (n=68).

Lack of illness or injury, good dental health, and normal waist circumference had the strongest associations with perceived good health (n=273). Men, who exercised 4-7 times a week or who used alcohol infrequently or not at all were more than twice as likely to be motivated than physically inactive males and males who used alcohol excessively. A positive association was also found between alcohol advise by family members and lower use of alcohol. Depression and insomnia were the most significant predictors for burnout (n=273) (II).
Low-risk men (n=145) had plenty of health problems. Of these males, who were depressed, had more than six-fold odds of average/poor health compared to those who were not depressed. Additionally, they had various symptoms that were highly correlated with depression. Only a small percentage of low-risk and high risk men (n=128) had received counselling from professionals, they were supported and advised by family members (III). In the follow-up study of high-risk men (n=46) the measured values of risk factors improved significantly from baseline during a short time period. However, the final measurements obtained after three years (2004) showed that the values, except cholesterol readings, tended to revert back to baseline (IV).

Qualitative research showed that “non-respondents“(n=28) seldom used health care services. Although a reason for not participating in the metabolic syndrome project was reported to be ‘symptomless’, males had same risk factors as participated males had according to waist circumference and body mass index In-depth interview revealed sensitive information that included major causes of concern, anxiety, fears and loneliness (V).

The results underscore the importance of understanding by health professionals that there exist a contradiction between objective and subjective health, which might help to perceive the attitudes and obstacles towards health behaviour. The role of family members is essential as “health keepers”. To maintain health situation, more attention are needed to emphasize regular physical activity and healthy life styles. Greater collaboration is also needed between private health care agencies and official primary health care to ensure continuity in the improvement of health habits among middle-aged males.
ACKNOWLEDGEMENTS

This study was carried out in the Department of General Practice and Primary Health Care at the University of Helsinki, in cooperation with the Helsinki Heart District and Helsinki City Health Centre.

I am deeply indebted to my supervisors, Marja Sihvonen, PhD, and Professor Pertti Kekki, for offering me this interesting study and giving me so much valuable advice and time. I am grateful that I could always turn to Marja Sihvonen with all my questions; I appreciate her friendly demeanour and support during these years.

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I owe my sincere thanks to Docent Hannu Vanhanen of the Helsinki Heart District. It gives me pleasure to thank the public health nurses who helped me gather the data at the Helsinki Heart District and subsequently at the Helsinki City Health Centre. My very special thanks go to Professor Seppo Sarna, Tapani Alkula, M.Sc., and Antti Nevanlinna, M.Sc for helping me with statistical and methodological questions. I wish to thank Professor Harry Schulman, Helsinki City. I thank Seppo Ylispangar, for helping me with the tables and figures.

I also acknowledge the Heart Association, Helsinki City, and “Avohoidon tutkimussäätiö ” (Foundation of outpatient care), which supported me financially.

My doctoral thesis revealed new perspectives during personal interviews of men during the qualitative research. To these men I owe my very grateful appreciation for their dialogues; this information was a valuable benefit.

During the last few years, so many friends and colleagues have shared experiences with me. I would like to express my sincere thanks to my dear friends in Finland and to my close friend, Daniel, in the U.S.

Working for years with this study project has no doubt influenced my family’s future. I am deeply thankful to my parents, Anelma and Pertti, my husband, Seppo, and my children, Hannu, Tapio, and Mikael. As a mother, I am often absent-minded. However, I am sure that everyday life has influenced me in a most favourable way during my study, thus keeping my feet on the ground. Thank you, my dear young men.

Helsinki, August 2008

Anita Näslindh-Ylispangar
To Seppo, Hannu, Tapio and Mikael


## ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>BMI</td>
<td>body mass index</td>
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<tr>
<td>BP</td>
<td>blood pressure</td>
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<td>CHD</td>
<td>coronary health disease</td>
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<tr>
<td>CI</td>
<td>Confidence Interval</td>
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<tr>
<td>CVD</td>
<td>cardiovascular disease</td>
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<tr>
<td>DBP</td>
<td>diastolic blood pressure</td>
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<tr>
<td>DEHKO</td>
<td>Diabeteksen ehkäisyohjelma</td>
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<tr>
<td>DM 2</td>
<td>type 2 diabetes mellitus</td>
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<tr>
<td>EGIS</td>
<td>European Group of the Study of Insulin Resistance</td>
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<tr>
<td>FINDRISC</td>
<td>the Finnish Diabetes Risk Score</td>
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<td>HDL</td>
<td>high-density lipoprotein</td>
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<tr>
<td>HBQ</td>
<td>Health Behaviour Questionnaire</td>
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<td>HHD</td>
<td>Helsinki Heart District</td>
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<td>IDF</td>
<td>International Diabetes Federation</td>
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<tr>
<td>LDL</td>
<td>low-density lipoprotein</td>
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<td>MetSyn</td>
<td>metabolic syndrome</td>
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<tr>
<td>MONICA</td>
<td>Multinational Monitoring of trends and terms in Cardiovascular diseases</td>
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<tr>
<td>NCEP</td>
<td>National Cholesterol Education Program</td>
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<tr>
<td>NIH</td>
<td>National Institutes of Health</td>
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<tr>
<td>OECD</td>
<td>Organisation for Economic Cooperation and Development</td>
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<tr>
<td>OR</td>
<td>Odds Ratio</td>
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<tr>
<td>TPB</td>
<td>Theory of Planned Behaviour</td>
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<td>TRA</td>
<td>Theory of Reasoned Action</td>
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<tr>
<td>SBP</td>
<td>systolic blood pressure</td>
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<tr>
<td>SRH</td>
<td>self-rated health</td>
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<tr>
<td>SD</td>
<td>standard deviations</td>
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<tr>
<td>WC</td>
<td>waist circumference</td>
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<td>WHA</td>
<td>World Health Assembly</td>
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<td>WHO</td>
<td>World Health Organization</td>
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1. INTRODUCTION

Men’s health is urgent need of attention in an increasing number of countries around the world, notably the United Kingdom, Austria, Switzerland, Australia, and the United States (Baker 2001). There is also increasing interest in working with men on various health issues in Finland (Finriski 2002-2007). The idea that men have specific health needs, experiences, and concerns related to their gender as well as their biological sex is relatively new - certainly much newer than the concept of “women's health” (Courtenay 2000). The psychosocial aspects of male’s health was not accepted, or even understood, by many health practitioners and policymakers (Schofield et al. 2000). Gender-based health care by health professionals is as important a factor as biological, psychological, social and health behavioural factors (Lash et al. 1990; Moynihan 1998; Lahelma 1999; Courtenay 2000, 2003). In spite of comprehensive health studies (Helakorpi et al. 2002, 2005; Koskinen et al. 2006; Finriski 2002-2007; World Health Organization (WHO) 2006), however little is known about gender-specific health and health care planning for males.

Males have unfavourable life style factors and they are at high risk for cardiovascular diseases (Alberti & Zimmet 1998; Haffner et al. 1998; Lakka et al. 2005; Peltonen et al. 2006). They consistently ignore health symptoms and avoid seeking help from the health professionals (Barton 2000; Griffiths 1996; Robertson 1995). Principally, the role of masculine beliefs and the similarities and differences between men of differing backgrounds require further attention, particularly given the health inequalities that exist between men of differing socio-economic or health behavioural status and the rate of use of health care (Barton 2000; Connell 2000; Courtenay 2000; Sobralske 2006). Sobralske (2006) pointed out the link between the “macho role” and health experience, where men have to be aware of their health because they have to be healthy to be good fathers, husbands, brothers, sons, workers and community members.

Increased obesity is a serious public health problem in Finland. Increase in type 2 diabetes can be to great extent explained by obesity. Approximately a third of males in Finland are in normal weight (under 25 kg/m²). Obesity is also the main reason of metabolic syndrome (Met Syn), which is related to unfavourable blood lipid profile, and increased risk to get diabetes, coronary heart disease or stroke. It is estimated that 35-40% of population in Finland have metabolic syndrome, and approximately 10% (500 000) have diabetes (National Health Institute 2008, p. 8, 16, 25).

This study was a part of a major project, “Metabolic syndrome of middle-aged men in Helsinki”, which started as a pilot study in region of Helsinki in 2001 and was supported by Helsinki city and Helsinki Heart District (HHD). Helsinki Heart District is an independent member of The Finnish Heart Association and a local actor in the city of Helsinki. It aimed to find 40-55 year old men, who were at high risk for cardiovascular diseases and had risk factors for metabolic syndrome. The project is still ongoing in other cities in Finland. As the research progressed, I decided to concentrate on men who were born in 1961 because they had a number of health and lifestyle issues. Also, the contradiction between self-rated health and risk factors aroused my suspicions and interests to concentrate further on these men.
First over half of the men avoided this health project. A low response rate in a health survey leaves many questions unanswered about the non-respondents: Do they differ from the respondents? What do they think and feel? Why did they decide not to respond?

In this study the interest is the self-rated health of 40-year-old men, the risk factors for metabolic syndrome and cardiovascular diseases. The aim of this study is to analyze men’s health behaviours and health beliefs and find out how they are associated with underlying health covariates. The ultimate goal is to understand men’s health behaviour and reasons for non participation.
2. LITERATURE REVIEW

This literature review includes descriptions and previous results on metabolic syndrome and cardiovascular risk factors, health behaviours and health counselling integrated with male’s studies in suitable parts. Firstly, clinical and lifestyle risk factors for cardiovascular diseases will be described by introducing the prevalence and criteria of obesity and metabolic syndrome according to European Group for the Study of Insulin Resistance EGIR, World Health Organisation WHO, National Cholesterol Education Program NCEP, International Diabetes Federation (IDF) and European standards. Secondly, the trends in health preventive actions for cardiovascular diseases will be presented beginning with the 1950s and introducing the Framingham Study, the Seven Countries Study, the WHO project Multinational MONItoring of trends and terms in CArdiovascular disease (MONICA) (1979-2002), the North Karelia project and the National Public Health Institute in Finland (in the 1970s). Similarly, Finnish health care and its preventative role will be introduced shortly. Thirdly, historical and theoretical views of health behaviour and beliefs will be introduced, from the Health Belief Model (HBM) in the 1950s to the Theory of Reasoned Action (TRA) in 1975, the Transtheoretical Model (TTM) in 1983 to the Theory of Planned Behaviour (TPB) in 1985. Key determinants of health behaviour and beliefs for males (proposed by Courtenay in 2003) will be described. Finally, the main results from the literature survey will be summarised.

The literature searches for the systematic review were based on the CINAHL, MEDLINE, Pub Med and the library databases covered the period 1966-2008 using the keywords men’s health, health behaviour, health beliefs, life styles, cardiovascular diseases, risk factors, metabolic syndrome, sociodemographic factors, health counselling, non participants, non respondents, gender-specific view, core information, quantitative, qualitative and triangulation study. The search was limited to empirical research articles, which were published in Finnish or English of middle-aged men (limited age was 40-50 years).

2.1. Cardiovascular diseases and health promotion over the last two decades

2.1.1. Clinical risk factors

In 2002, World Health Organization (WHO) started to campaign against non-communicable diseases such as cardiovascular disease, obesity and other ailments of the richer nations. On May 13, Dr. Gro Harlem Brundtland, Director-General of WHO, addressed the World Health Assembly (WHA) and stressed the need to "reinvigorate" work on diet, food safety and human nutrition by the WHO (Kapp 2002 a, b). Also urbanisation is associated with diabetes and obesity, blood pressure in western and third world countries as demonstrated in migration studies from, e.g., India, Africa, Australia and Greenland. Studies from Chennai in India showed similar or even higher BP levels in slum areas as in middle and high income areas, demonstrating that increasing blood pressure was not just a consequence of increasing wealth but rather a consequence of components associated with urbanization (Mohan et al. 2001; Borch-Johnsen 2007).

The prevalence of obesity and overweight was increasing worldwide to a level where WHO was using the term "obesity epidemic". Obesity and overweight were relatively
uncommon conditions in major parts of third world countries previously, and body mass index (BMI) and morbidity or cardiovascular risk factors varied considerably by region and ethnicity. In the USA 64% of people were obese or overweight in 2005 (Ogden et al. 2006). Amongst Organisation for Economic Cooperation and Development (OECD) countries half of the adults were obese or overweight in 2005 (http://www.who.int/dietphysicalactivity/publications/facts/obesity/en/). The risk of developing diabetes really started to increase at BMI levels in the range 25-27, and abdominal obesity in adults was associated with insulin resistance. Abdominal obesity is particularly common in men because obese men usually accumulate excess fat in the visceral fat area. Epidemiological studies clearly showed that upper-body obesity and visceral obesity cause metabolic risks associated with type 2 diabetes and cardiovascular diseases (CVD) (WHO 2000; Kastarinen et al. 2000; Kaukua 2004; Public Health Institute 2005; Wannamethee et al. 2005; IDF 2006).

According to the new IDF recommendations, central obesity was most easily measured by waist circumference (WC) using the criteria of gender and ethnic group (IDF 2006, p. 12). Measurement of waist circumference was a valid method for predicting insulin resistance (Wahrenberg et al. 2005; Tähtinen 2006, p. 38), and it was found to be better than measuring the body mass index (BMI) (Janssen et al. 2002, 2004). Central obesity in a male person may be defined as having ethnicity specific values: waist circumference in American and European males ≥94 cm, in South Asian males ≥ 90 cm. For males in China and in Japan and among ethnic South and Central Americans, sub-Saharan Africans, Eastern Mediterranean and Middle East populations, the European criterion is used until more specific data are available (≥94 cm) (IDF 2006).

Based on the European standards, overweight was defined by a BMI of 25.0-30.0 kg/m² and obesity was defined by a BMI of over 30 kg/m². WHO used the criteria: pre-obese is equivalent to BMI ≥25.0-29.9 kg/m²; and the three obesity classes correspond to BMI values of 30.0-34.9 kg/m²(I), 35.0-39.9 kg/m² (II), ≥40.0 kg/m² (III). (Mustajoki & Rissanen 2000; Salo et al. 2005; Tähtinen 2006, p. 37). When the BMI is 30 kg/m² or higher, the risk of type 2 diabetes increases ten-fold (Dekko 2006).

According to MONICA in the 1990s, obesity among Finnish males was slightly higher compared to males in Europe, and in two decades obesity doubled among Finnish men and was almost twice as common among persons with lower education levels than in higher education levels. In Scandinavia, males in Sweden, Norway and Denmark were on average slimmer than males in Finland (Lahti-Koski 2006, p. 38). Research by the National Health Institute during 2002-2007 showed that average cholesterol levels fell approximately 5% (from 5,51 mmol/l to 5,24 mmol/l); however, Finnish people were gaining weight. During the last five years (2002-2007), men gained an average of 500 g and women an average of 900 g (Finnriski 2007). A large study (n=4500) amongst males and women (aged 45-74) in Finland showed that 24% of women and 29% of males had BMI ≥30 kg/m². Most of these persons were viscerally obese, 69% of males and 76% of women (Peltonen et al. 2006).

Metabolic syndrome is the name for a group of risk factors linked to overweight and obesity that increase a person’s chance for heart disease and other health problems. It refers to the clustering of a number of cardiovascular and heart attack risk factors (abdominal obesity, hypertension, dyslipidemia and hyperglycaemia) believed to be related to insulin resistance and for type 2 diabetes (De Becker et al. 2003; Laakso 2005;
Kurl et al. 2006; IDF 2006). The mechanism that links insulin resistance and cardiovascular diseases is unclear (Grundy 2004, Wang 2004), but studies have shown that high blood pressure readings are associated with obesity and insulin resistance (Laakso 2005; Tähtinen 2006, p. 29).

Table 1 summarise the criteria of metabolic syndrome according to European Group for the Study of Insulin Resistance EGIR (1999), World Health Organisation WHO (2000), National Cholesterol Education Program NCEP (2001) and International Diabetes Federation IDF (2006). According to WHO, metabolic syndrome is defined as hyperinsulinemia or elevated fasting glycemia (fB Gluc) and the presence of at least two of the following risk factors: abdominal obesity as measured by waist circumference (WC) and BMI (Henriksson 2001; Siani et al. 2002), dyslipidemia, or hypertension (Collins et al. 1990; Cook et al. 1995; Alberti & Zimmet 1998; Siani et al. 2002; Laakso 2005). Using three of the five clinically evident diagnostic criteria (abdominal adiposity, hypertriglycyrideremia (TG), low high-density lipoprotein (HDL), hypertension and fasting hyperglycemia) set forth by the NCEP (2001) (Laakso 2005). According to IDF criteria on metabolic syndrome, obesity for males exists if the waist circumference is 94 cm plus any two of the following four factors are demonstrated: raised TG, reduced HDL, raised BP or raised fBGluc (IDF 2006). If the BMI is ≥ 30kg/ m², central obesity is assumed, and the waist circumference need not be measured (IDF 2006, p. 10).

Table 1. Criteria of Metabolic Syndrome for men.

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<tr>
<td>WC (cm)</td>
<td>≥94.0</td>
<td>≥94.0</td>
<td>≥102.0</td>
<td>≥94.0</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>≥30.0</td>
<td></td>
<td>≥30.0</td>
<td></td>
</tr>
<tr>
<td>DBP (mmHg)</td>
<td>&gt;90</td>
<td>≥90</td>
<td>≥85</td>
<td>≥85</td>
</tr>
<tr>
<td>SBP (mmHg)</td>
<td>≥140</td>
<td>≥140</td>
<td>≥135</td>
<td>≥135</td>
</tr>
<tr>
<td>HDL (mmol/l)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>LDL (mmol/l)</td>
<td>≥3.0</td>
<td>≥3.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TG (mmol/l)</td>
<td>≥2.0</td>
<td>≥1.7</td>
<td>≥1.7</td>
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<tr>
<td>fBGluc (mmol/l)</td>
<td>≥6.1</td>
<td>≥5.3</td>
<td>≥5.6</td>
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Metabolic syndrome is no longer a risk, occurring only among wealthy persons in the Western world. Several studies showed that it is a real health problem; indeed, 20-25% of the world’s population have metabolic syndrome Alberti & Zimmet 1998; Henriksson 2001; Siani et al. 2002). Metabolic syndrome reduces an individual’s quality of life (Fontaine 1996) and prognosis for longevity (Wadden et al. 1990; Goldstein 1992; Blair et al. 1996; Roderick et al. 1997; Hu et al. 2002) if left untreated or if interventions were ineffective (Tones et al. 1990; Alberti & Zimmet 1998; Vanhala 1998, 1999; Redberg et al. 2000; Franklin et al. 2001; Renders et al. 2001; Ford et al. 2002). Individuals may be unaware that they have metabolic syndrome for many years prior to being afflicted with cardiovascular diseases (Isomaa 2001; Lakka 2002; Nauck et al. 2003; Malik 2004; Tähtinen 2006).

The prevalence of metabolic syndrome among Finnish males was studied during military service in 1997, and ten years ago it was present in 10% of the servicemen who had a body mass index > 27 kg/m² and in 1% of all servicemen. None of the servicemen of
normal weight had metabolic syndrome, and it was found that smoking increased the prevalence of metabolic syndrome six-fold (Tähtinen 2007 p. 83). In Finland, two cross-sectional population surveys were performed in 1992-2002 with participants (n=3495), aged 45–64 (Helakorpi et al. 2005). The study showed that the prevalence of metabolic syndrome, based on the IDF definitions, increased 51.4–55.6% between 1992 and 2002. In both sexes the prevalence of high blood pressure decreased, but abnormalities in glucose metabolism increased between 1992 and 2002 (Hu et al. 2007). In 2005 approximately 25% of Finnish adults had metabolic syndrome (Ilanne-Parikka 2006), in 2007 the prevalence according to IDF was 35-40% amongst population (National Institutes of Health 2008 p. 26). A population with metabolic syndrome have 2-4 fold greater risk for developing cardiovascular disease compared with persons without metabolic syndrome (Dehko 2008).

Already 230 million people worldwide have diabetes, either type 1 or 2 (Zimmet et al. 2001; IDF 2006, p. 4; The metabolic syndrome 2006, p. 51; Diabetes Atlas 2006), which means that by 2025, three out of four people with diabetes will be living in third world countries, and similar trends are likely for the other components of the syndrome (Friedrich 2002). This increase in the total number of cases is primarily due to demographic factors (general population growth and increasing mean age and survival time) and decreasing mortality in patients with diabetes, but is also due to a true increase in incidence, induced by obesity and physical inactivity (Son le Kunii 2005). In Finland, approximately 500 000 have diabetes (of which 30 000 have type I diabetes). (National Health Institute 2008, p.8.) Additionally, it is estimated that even 200 000 people in Finland are not aware that they have diabetes. (Peltonen et al. 2006.)

2.1.2. Comprehensive prevention programs for cardiovascular diseases

Health problems are common worldwide and, even in 1950, attention was paid to health behavioural factors in the Framingham Study. The concept of classic risk factors for cardiovascular diseases (CVD), such as cigarette smoking, blood pressure and total cholesterol, diabetes, obesity and exercise, diet, alcohol and psychosocial factors, was developed (Kannel et al. 1987). It was noticed that lifestyle change is the most effective way by far of preventing increased risk of cardiovascular diseases and diabetes.

In addition, the Seven Countries Study, investigating the large variations in death rates from CHD in different countries (Finland, USA, Netherlands, Italy, Yugoslavia, Greece and Japan), was implemented. This study found the classic Framingham risk factors determine the variations in coronary risk between whole populations in different countries (Kannel et al. 1987; Tunstall-Pedoe 2003, p. 1).

In Finland, the North Karelia project was started in 1970 to study lifestyles and risk factors, aimed at prevention of CVD. Since 1978 the National Public Health Institute has carried out an annual postal health survey among the Finnish adult population, in which the Health Behaviour Questionnaire (HBQ) was used as the main instrument. In addition to the North Karelia project in 1970 the importance of research of health behaviour was noticed in lifestyle studies. The goal was to get deeper information on everyday living and work situations, which included individual and society problems (Karisto et al. 1994; Salminen 1989).
The WHO’s MONICA served global CVD prevention in important ways by monitoring trends in CVD rates and risk factors, covering 38 populations in 21 countries and on four continents during 1979-2002. MONICA standardised collection of disease, lifestyle and risk factor data (Busquon 2003). The results showed that CHD was the main killers in the world (Puska 2003, pp. 28-29).

Health care in Finland has an important role in prevention of diseases as well as in health promotion, especially when the population is ageing in Finland more rapidly than in many other European countries (Nieminen & Koskinen 2006, p. 20). Finnish health policy had two main objectives: 1) to offer the best possible health for the population; and 2) to minimise the risks to health among different population groups. In Finland, appointments for health examinations for adults were provided by primary health care organisations, usually by health care centres (Ministry of Social Affairs and Health 1987). According to National Health Institute (2008, p. 8) “co-operation between primary health care, occupational health care and specialised health care should be develop to ensure adequate treatment on all levels. The role of public health nurses in the prevention and treatment can largely be increased”.

2.2. Health beliefs and health behaviour

2.2.1. Theories and models

There is a wide variation in health beliefs with practises and lifestyles determined by people’s values (Marks et al.1999) and gender (Lash et al. 1990; Courtenay 2000 a, b, 2003). It is notable that health beliefs are not things in themselves; beliefs are strongly related to the immediate social experiences of adults, which means that higher- and middle-class adults might prefer a definition of health in terms of a hedonistic lifestyle and in terms of their body and vitality (Marks et al. 1999).

Health Belief Model

Even in the 1950s social psychologists were interested in health beliefs. The first model, called the Health Belief Model (HBM) was developed by Hochbaum, Rosenstock and Kegels in response to the failure of a free tuberculosis screening program (Hochbaum 1956; Rosenstock 1966, 1974). The model that is still in use attempts to explain and predict health behaviors by focusing on the attitudes and beliefs of individuals. Since then, the HBM has been adapted to explore a variety of long- and short-term health behaviors (Glanz et al. 1997; 2002, p. 52).

The HBM argues that what people believe about a health condition or behaviour determines what they will do about it. The original model has been reworked and expanded from four to six factors predicting the likelihood that a person adopts a specific preventive health strategy (Becker 1974; Glanz et al. 1997). The HBM, according to Becker (1974), explained why some people did not use health services. Becker included six concepts in the model, which are: 1) perceived susceptibility, which is a person’s belief of the chances of getting a condition; 2) perceived severity, which includes the person’s belief of how serious his/her condition and its consequences are; 3) perceived benefits, which refers to a person’s belief in the efficacy of the advised action to reduce risk or the seriousness of impact; 4) perceived barriers, which maintain the idea of one’s belief in the tangible and psychological costs of the advised behaviour; 5) “cues to action”, which emphasise the strategies to activate "readiness"; and, finally, 6) self-
efficacy, which points to confidence in one’s ability to take action (Becker 1974; Becker et al. 1978).

**Theory of Planned Behaviour**

Attitudes and beliefs are major determinants of health, causing both healthy and risky behaviour (Fishbein & Ajzen 1975, pp. 12-14, 405-406). Beliefs are associated with behaviour, which is weighted by evaluations of the essential beliefs, and these determine attitudes towards behaviour. Thus, a person may also hold prejudicial beliefs, attitude and intentions. Unrealistic optimism, for instance, has a negative influence on health perception and health beliefs, in that people tend to rate their health risks lower than those of their peers (Weinstein 1982; van der Plight 1994; Vollrath et al. 1999).

**Theory of Planned Behaviour (TPB)** was developed by Icek Ajzen in 1985 from the Theory of Reasoned Action (TRA), which was proposed by Martin Fishbein together with Icek Ajzen in 1975. Key variables of TRA were grounded in various theories of attitude such as Learning Theories, Expectancy-Value Theories, Consistency Theories and Attribution Theory (Fishbein & Ajzen 1975). According to the Theory of Reasoned Action, if people evaluated the suggested behaviour as positive, and if they thought their significant others wanted them to perform the behaviour (subjective norm), they had a higher intention and motivation to effect health behavioural actions. Since behavioural intention cannot be the exclusive determinant of behaviour, where an individual’s control over the behaviour is incomplete, Ajzen introduced the TPB by adding a new component, “perceived behavioural control”. In this way, he extended the TRA to predict behavioural intention and actual behaviour. TPB includes three conceptually independent constructs: 1) attitudes toward behavior, 2) subjective norms, and 3) perceived control (Fishbein & Ajzen 1975; Ajzen & Fishbein 1980; Ajzen 1985). TPB was found to work well when studying attitudes to CHD (Gabbhainn et al. 1999), drinking habits (Norman & Conner 2005), exercise and dieting (Hagger & Chatzisarantis 2005) and smoking (Droomers et al. 2004).

**The Transtheoretical Model**

This model of behaviour change (originally developed by Prochaska in 1983) has been beneficial to those interested in enhancing motivation for self-care. In this model, five distinct motivational stages are identified (Vallis et al. 2003): 1) precontemplation, when the individual is not intending to change in the foreseeable future, usually measured as the next 6 months; 2) contemplation, when the individual is not prepared to take action at present, but is intending to within the next 6 months; 3) preparation, when the individual is actively considering changing his or her behaviour in the immediate future (e.g., within the next month); 4) action, when the individual has actually made an overt behaviour change in the recent past, but the changes are not well established (i.e., for 6 months or less); 5) maintenance, when the individual has changed his or her behaviour for >6 months and is working to sustain the overt change.

The stages are specific to different behaviours and change is often cyclical; that is, behaviours may slip from one stage back to a previous stage. In other words, change implies progress over a period of time. The time aspect was largely ignored in alternative theories, where behaviour change was often construed as a one-off event, such as quitting smoking, drinking, moving or over-eating (Prochaska & DiClemente 1983; Prochaska et al. 1994; Velicer et al. 1998; Droomers et al. 2004). According to Prochaska (1983, 1994), a gender-specific view examining people’s readiness to change health behaviour
showed that women were more likely to contemplate changing unhealthy habits and also maintain healthy behaviour than men. Traditionally, health care providers have focused on action-oriented interventions (education, skills acquisition and problem-solving (Glasgow 1995). These interventions work well with individuals in a motivational state of readiness to change. However, those who were not motivated to follow through have benefited less from these interventions (Vallis et al. 2003).

Adams and White (2003), who conducted research on long-term behaviour change, presented three main reasons why the stages of change may not be applicable to physical activity: the complexity of physical activity, the lack of validated staging algorithms and the possibility that the real determinants of activity change are not included in the TTM. However, they do agree that stage-targeted interventions appear to be more likely to induce short-term behaviour change, and to induce changes in motivation and other potential mediators of change. This model posits that decisional balance, self-efficacy and processes of change are the most important stage transition determinants (Brug et al. 2005). In addition, Lechner and colleagues (1998) have argued that it might be useful to distinguish between aware precontemplators (people who know they are too inactive and do not intend to change) and unaware precontemplators (people who do not know that they are too inactive and therefore experience no need to change). Previous research has generated a rule of thumb for at-risk populations which indicates that 40% are in precontemplation, 40% in contemplation, and 20% in preparation (Prochaska et al. 1994, Prochaska & Velicer 1997).

**Key determinants of health behaviour and beliefs**

Courtenay (2003) identified 30 key determinants or underlying factors that influence the health behaviours and beliefs and health care of men and boys in the USA. He grouped the determinants into the main categories: health behaviours, health-related beliefs, expression of emotions and physical distress. Health behaviour included determinants such as risk-taking behaviour, behavioural responses to stress and health care use. Health beliefs included self-rated health and readiness to change unhealthy behaviour. Courtenay (2003) pointed out in his gender-specific view that men are different from women; they do not believe as strongly as women that they have personal control over health behaviour and are responsible for their own health. Men and boys have less healthy lifestyles than women and girls, and men do not accept health promotional behaviour as women do. They adopt more risk-taking behaviour: they use more alcohol and smoke more compared to women and they avoid health services and use less medication. Additionally, Courtenay (1998, 1999) found that they visit doctors or nurses only when they have clear symptoms.

**Self-rated health** is used as a determinant of health behaviour. Evaluation of one’s own health has also been found to be correlated with such factors as social integration (Pender et al. 1990; Helakorpi et al. 2000, 2005), educational level, physical activity and mental stress at work (Aromaa et al. 1999; Leiter et al. 1999). A large number of empirical studies have demonstrated that a person’s own appraisal of her/his general health is a powerful predictor of future morbidity and mortality, after controlling for a variety of physical, socio-demographic and psycho-social health status indices (Mossey & Shapiro 1982; Kaplan & Camacho 1983; Idler & Angel 1990; Appels et al. 1996; Martikainen et al. 1999; Heistaro et al. 2001; Laaksonen et al. 2006).
Optimism and taking responsibility for one’s health are aspects to pay attention to when analyzing health behaviour. Weinstein (1982) noticed that optimism, good self-rated health and high esteem are associated with good health behaviour and positive attitudes. Negative disposition such as depression is associated with poor health, and persons with depression are more likely than those with optimism to report illness and health behaviours such as smoking and alcohol consumption (Marks et al. 1999). The health psychological ideology that individuals are responsible for their own health behaviour, and are experts on their own health, emphasises the responsibility and the possibility of choosing how to behave healthwise (Marks et al. 1999, pp. 12-14; Courtenay 2003).

2.2.2. Risk taking behaviour

Behavioural risk factors such as smoking, poor diet, alcohol consumption and stress are causing a large number of deaths. Physical inactivity also is a major risk factor for heart disease and stroke and is linked to cardiovascular mortality. These could be prevented with earlier detection. (Kristenson 1987; Krauter 1997; Marks et al. 1999, Galuska et al. 1999; Lawlor et al. 1999; Karner 2005). In 2005, 26% of Finnish men of working age smoked daily. Smoking among males has sharply decreased among men with the highest level of education; however, smoking among those with the lowest level of education increased 70% in 1978-2005 (Variainen et al. 2006, pp. 40-41).

Nutrition plays an important role in the aetiology of coronary heart disease and hypertension and apparently also in the development of diabetes. The Finnish diet has become healthier over the past decades; however male’s diet is poorer than women’s. Males, who are single, and who live alone have more often one-sided diet than married males (Pietinen 2006, pp. 30-31).

In Finland, alcohol consumption was the main cause of morbidity among working age men (Helakorpi et al. 2005; Mustonen & Simpura 2006, pp. 42-43). Alcohol-related mortality clearly increased in 2004 for both men and women and continued to increase somewhat during 2005. The leading cause of alcohol-related death was alcohol poisoning, which resulted in the deaths of 1,300 men and 354 women (Statistic in Finland 2006). Alcohol consumption and stress are nearly related with each other although mental symptoms also are part of the normal human response to stress. In 2005 17% of Finnish working age males, reported to be more stressed than other people, and 20% reported to have insomnia during the last month. (Lönnqvist 2006, p. 67.)

Many health problems could be prevented or at least minimized by being physically active. Regular aerobic physical activity increases one’s fitness level and capacity for exercise. It also plays a role in both primary and secondary prevention of cardiovascular disease. (Kukkonen-Harjula et al. 2005.) In this issue, promotion has however happened. In 2005, approximately 30-50% of adults were physically active enough, and almost a third of Finnish males had physical exercise at least four times a week (Vuori 2006, p. 32).

2.3. Health counselling

Health counselling includes the influence of health behaviour on the state of health and health behaviour is transmitted by relational persons within everyday social groups. Health counselling encompasses the scale of values and norms of behaviour within a group and is modified by individual needs. Vital social contacts with significant others
such as family members and relational persons have great value in motivating a health-promoting lifestyle by health counselling (Fishbein & Ajzen 1975; Ajzen & Fishbein 1980; Breunung & Breunung 1990; Arbolius et al. 1992; Poskiparta et al. 1998; O’Connor et al. 2001; Michie & Abraham 2004).

Health counselling means partnership and reciprocal conversation between health professionals and patients, with the nurse using social and emotional skills that contribute to a professional understanding of patient-centred empowering practice. It is essential that patients are free to discuss their ideas, concerns, experiences and knowledge with health providers while they are counselled (Kettunen et al. 2003). The challenge of health counselling is how to identify the people most at risk and to determine which health education strategies can most effectively change health behaviours and, in this way, pre-empt the onset of disease. Health counselling should harmoniously fit into the overall concept of health information and surveillance (Roter & Hall 1997; Liimatainen et al. 2001). The most common methods in use today are various kinds of educational interventions in individual and group settings such as brief intervention where unfavourable life styles are identified and support is given in relation to risk-taking behaviour (Tones et al. 1990; Gami et al. 2007) amongst persons with alcohol (Suokas 1992; Anderson & Scott 1992; Edwards & Rollnick 1997; Vasiliki et al. 2006) and smoking problems (Russell et al. 1979; Koivula & Paunonen 1998).

Previous research results indicated that the role of physicians and other health care professionals is to help patients adopt healthy lifestyle habits with regard to smoking, alcohol consumption and physical exercise (Kristenson 1987; Wright et al. 1992; Neumark-Sztainer et al. 1995; Galuska et al. 1999; Wee et al. 1999; Cavelaars 2000; O’Connor 2001; Stevens et al. 2001; Thomas et al. 2002; Fleming et al. 2002; Carroll et al. 2004; Karner et al. 2005; Bertholet et al. 2005). However, a Finnish study showed that counselling among physically inactive employees did not effectively reach the target group. More individually based approaches such as brief conversations during client contacts were needed to raise an interest in lifestyle issues (Aittasalo et al. 2006). This was in line with previous studies where more appropriate training was needed among health professionals to improve lifestyle counselling in general practise (Abrolius et al. 1994). According to Gaytand et al. (1998) almost all general practitioners in the Netherlands knew about the concept of counselling, however over half of them reported they had a lack of sufficient knowledge to give advice and health counselling.

Whether lifestyle counselling was effective in the non-pharmacological treatment of hypertension in primary health care during a two-year follow-up study among 750 clients aged 25-74 with hypertension was investigated in ten health care centres in Finland. During the study, clients were counselled by public health nurses. The study showed that modest but systematic counselling in primary health care can, at least among untreated hypertensive subjects, produce reductions in blood pressure levels (Kastarinen et al. 2002).

Of the Finnish Diabetes Prevention Study, Lindström et al. (2006) assessed the extent to which the originally-achieved lifestyle changes and risk reduction remain after discontinuation of active counselling. This follow-up study of 7 years was achieved amongst overweight, middle-aged men and women. Diabetes incidence, bodyweight, physical activity, and dietary intakes of fat, saturated fat, and fibre were measured. The study showed that about a third of participants in the intervention group met none or only
one of the predefined goals 1 year after the intervention. In the first post-follow-up visit, participants in the intervention and control groups gained weight compared to the last intervention visit despite the lifestyle changes were favourable. Authors emphasize that adherence to the intervention is a specific challenge for future diabetes prevention programmes. This was in line with previous Finnish study in 2001, where reduction in the incidence of diabetes was directly associated with changes in lifestyle and type 2 diabetes was prevented by changes in the lifestyles of high-risk subjects (Tuomilehto et al. 2001).

2.4. Femininity and masculinity

Different cultures and periods of history construct gender differently, and more than one kind of masculinity or femininity can be found often relations of hierarchy and exclusion, even within a single institution or workplace (Connell 2000, p. 216). Research on questions of gender has increased incredibly in volume over last generation; however research is only one dimension of new discussion of men and masculinities (Kimmel et al.2005, p. 6). Gender research offers a critique of previous and existing fields of social science (Connell 2000, pp. 17-18). For example, Holter’s social forms analysis concentrate on social life and femininity (Holter 1995, p.102), in the rich countries including Japan, Germany, United States, and in less wealthy countries such as Mexico and Brazil.

The gender-specific view was mostly focused on social problems such as unemployment, educational failure, domestic violence, and family breakdown, and also discussing men’s changing identities. (Kimmel et al. 2005, p. 6.) From social constructionist perspective, men and boys are not only passive victims of a social role, nor are they active persons constructing a new masculinity (Courtenay 1999, 2000). The construction of health and gender differs not from men depending on social class. (Courtenay 2000.) The social signs of masculinity are also associated with the time and context: a man does not express his experiences of physical or mental pain to other men, but he does express the pain to his spouse (Courtenay 2000).

In recent years, however, more attention has focused on gender stereotypes that are among the meanings used by society in the characterization of gender traits which are generally believed to be typical either of females or of males (Crawford, 1995 pp. 9-13, 15; Courtenay 1998, 1999, 2001, 2003). For example, males who perceive masculinity as being a risk-taker attribute may engage in high-risk behaviours, such as smoking or excessive drinking. The males who perceive masculinity as putting work ahead of all other responsibilities may not make time for self-care. Similarly, the males who perceive masculinity as being self-reliant may never seek help from health professionals (Mahalik et al. 2007). Connell (1993) arguments that “if we spoke only of men as a bloc and women as a bloc, we would not need the terms ‘masculine’ and ‘feminine’ at all. The terms ‘masculine’ and ‘feminine’ point beyond categorical sex difference to the ways men differ among themselves, in matters of gender”. Both males and women have feminine and masculine features and Connell (1993) pointed out the individual aspects, not stereotypes. Despite enormous health effects, few researchers or theorists have offered explanation for gender differences in behaviour or the implications on the health of males (Courtenay 2000).
2.5. Critical appraisal to the literature

Main issues were revealed by using the international and historical literature. In conclusion, the review of the literature on obesity, metabolic syndrome, and cardiovascular diseases showed that these were recognized widely (Katzel et al. 1995; Vanhala 1996, 1998; Alberti & Zimmet 1998; Haffner et al. 1998; Mustajoki & Rissanen 2000 p. 686-696; Friedrich 2002; Lakka et. al. 2002; Janssen 2002, 2004; Kaukua 2004; Gu et al. 2006; Lindström et al. 2006; Peltonen et al. 2006; Hu et al. 2008). However, there are very few studies amongst 40-year-old males, which was a limitation during the review. Most of the studies were large population studies amongst males and females, 40-74 years of age. The criteria of metabolic syndrome and risk factors for cardiovascular diseases amongst males are presented as a conclusion according to EGIR, WHO, NCEP, and IDF in Table 1. Several studies showed that metabolic syndrome is a real health problem; indeed, 20-25% of the world’s population have metabolic syndrome. (Henriksson 2001; Siani et al. 2002).

Risky behaviour, such as excessive alcohol consumption, has been emphasized according to Finnish research. It is the main cause of morbidity among working age males in Finland (Helakorpi et al. 2005; Mustonen & Simpura 2006, p. 42-43). Alcohol-related mortality clearly increased in 2004 for both males and females and continued to increase somewhat during 2005. Besides alcohol consumption, smoking habits have been widely studied among males and females (Koivula & Paunonen 1998; Kapp 2002; Droomers et al. 2004; Helakorpi et al. 2005; Kentala 2007), also in a preventive way. Physical exercise has been well-studied (Halbert et al. 1997; Kreuter et al. 1997; Mc Gavock et al. 2004; Kukkonen-Harjula et al. 2005; Vuori 2006). However, more research should be done with respect to lifestyle activities among males and females who are working at offices instead of engaging in physical work. Because of the lack of time, many prefer to use cars and not walk or use bicycles.

Review of the literature showed that health counselling and health interventions have been studied extensively with respect to cardiovascular diseases, obesity, and lifestyles (Wood et al. 1994; Arbolius et al. 1994; Woollard et al. 1995; Poskiparta et al. 1998; Pyörälä & Wood 1998; Tee et al. 1999; Steptoe et al. 1999; Seidell et al. 2000; Tuomilehto et al. 2001; Laakso 2005; Uusitupa et al. 2006; Vasilaki 2006; Renders et al. 2007; Lindström et al. 2008). However, there is a need for research amongst male patients and risk-taking behaviour (Tones et al. 1990; Gami et al. 2007). It is very important to analyze the methods for health promotion and health counselling during the client contacts. According to Gaytand et al. (1998), almost all general practitioners know about the concept of counselling, however, over one-half of them reported they had a lack of sufficient knowledge to give advice and health counselling.

Few studies among males showed that they were not counselled, because males avoided services and interventions, according to Tudiver & Talbot (1999) and Courtenay (2003).
Research regarding counselling indicated conflicting results in two Finnish studies. On the one hand, systematic counselling in primary health care led to reductions in blood pressure in untreated hypertensive (Kastarin et al. 2002). On the other hand, counselling among physically inactive employees did not effectively reach the target group (Aittasalo et al. 2006). Also, it might be useful to analyze health services and reasons for non-participation, according to the Health Behaviour Model (Becker 1974). Lack of confidence and systematic barriers were supported by psychological theories, i.e., confidence towards health professionals was one of six concepts (Becker 1974; Becker et al. 1978). More qualitative studies are needed to analyze the confidence between health professionals and patients.

From the theoretical point of view, the most interesting ideas for this study were obtained from the Theory of Planned Behaviour by Fishbein and Ajzen (1975), in which family members, as significant others, have an influence on their relatives attitudes and motivation for improving health. There is an obvious need for research of family members and significant others in everyday life to promote health and lifestyles. Additionally, there is a lack of qualitative research of attitudes and motivation.

The Transtheoretical Model (TTM) of behaviour change, especially the stage of precontemplation, needs empirical analyses (Prochaska 1983, 1994; Salton 2000; Friedrich, 2002; Adams & White 2003; Brug et al. 2005). The time aspect would be important to study according to TTM, in which behavioural change was often construed as a one-off event, such as quitting smoking, drinking, moving, or overeating (Prochaska & DiClemente, 1983 Prochaska et al. 1994; Velicer et al. 1998; Droomers et al. 2004).

The review of the literature on gender-specific views yielded studies and articles by Verbugge (1985), Pleck et al. (1994), Robertson (1995), Moynihan (1998), White & Johnson (1998), Lahelma (1999), Barton (2000), Baker (2001), and Renders et al. (2007). Courtney’s (2000 a, b) on determinants of health behaviours and health-related beliefs for men and boys indicated that the more traditional masculine health beliefs males have, the more health risks they exhibit. These beliefs were linked with smoking, excessive alcohol consumption, drug use, insomnia, depression, cardiovascular diseases, stress, and unhealthy dietary habits (Fishbein & Ajzen, 1975 pp. 12-14, 405-406; Ajzen 1985 pp. 11-40; Connell, 1993; 2000 pp. 17-18, 216, 223, 224; Courtenay 2000 a, b). Courtenay’s idea of determinants amongst boys and men pointed out stereotypes of femininity and masculinity. Connell (1993) noticed the idea that both males and females have masculine and feminine features. In the future, both aspects (Courtenay and Connell) need critical evaluation and deep analysis to develop models of health behaviour and beliefs.

Self-rated health serves a central role according to the literature in health studies (Mossey & Shapiro 1982; Idler et al. 1990; Manderbacka et al. 1998; Manor et al. 2000, Månsson
Self-rated health was one of the main concepts to describe because it is a powerful predictor of health behaviour and beliefs, morbidity, and mortality (Heistaro et al. 2001). Work control and work demands were associated with poor general and mental health (Laaksonen et al. 2006). Males rated their health as good, despite symptoms and illnesses (Connell 1993; Marks et al. 1999; Barton 2000; Courtenay 2003).

Unrealistic optimism by Weinstein (1982) was found among males, who overestimated their health status (Marks et al. 1999; Barton 2000; Courtenay 2003). There were very few studies concerning optimism and also hedonism amongst persons with clinical risk factors and unfavourable lifestyles (Weinstein 1982; Marks et al. 1999). According to Courtenay (2002, 2003), males who reported their health situation or complained were feminine, while Connell (1993) found it good to be open-minded and talk about the real health status. There is a need for qualitative research to analyze more subjective experiences.

On the whole, there is an obvious need for research of non-respondents or non-participants for health care services. Few studies have been done with respect to non-respondents or non-participants (Steen 1981; Korkeila et al. 2001; Lahaut et al. 2002; Thoning 2003; Johnson et al. 2004). It is important to get conduct more in-depth research on this topic when planning health services.
3. AIMS OF THE STUDY

The aim of the study was to examine the self-rated health of 40-year-old men, the risk factors for metabolic syndrome and cardiovascular diseases, health behaviours and health beliefs and to analyse how they are associated with underlying health covariates.

The specific objectives were:

1. To examine clinical risk factors for cardiovascular diseases and compare their significance across groups of self-rated health among middle-aged men using baseline data (I).

2. To identify key determinants of health behaviour and beliefs in middle-aged men, and to analyse how they are associated with underlying health covariates (II).

3. To assess lifestyles, health counselling and levels of health indicators among low-risk men and compare them with those of the high-risk group (III).

4. To analyse the impact of brief counselling on cardiovascular risk factors among 40-year-old men at risk according to marital status, occupation and self-rated health during 2001-2004 (IV).

5. To explore male-specific health and utilisation of health services and reasons for non-participation amongst non-participants (V).
4. PATIENTS AND METHODS

In Helsinki, there were 560,000 inhabitants in 2001, of which 40,438 were aged 40-45 years. In 25 health centres there were 1.3 doctor visits per inhabitant during a year in 2001. The northeastern health care region had 83,800-90,000 inhabitants during 2001-2007, of these 6.8% visited doctors in five health centres. When the study project started in 2001, there were 715 males aged 40 years.

4.1. Data sampling

Participants
A sample of 690 men (all of the men who were born in 1961 in the northeastern health care region of the Helsinki area) was drawn from the population register filed by the Statistics Finland Bureau. Participants received a study invitation by mail that included a questionnaire and a request that they make an appointment with two public health nurses for clinical measurements at the Helsinki Heart District (HHD) during autumn, 2001. After two reminders, 39.6% of the net population (n=273) had answered the questionnaire and participated in health examinations, where trained public health nurses took measurements of blood pressure, body mass index, waist circumference, and blood tests. The sample of 273 males was used in studies I-III. Of 273 males, 128 had risk factors for metabolic syndrome, and 145 males were not at risk. Men were at risk for metabolic syndrome in this study when waist circumference was over 100 cm, the BMI was \( \geq 25.0 \) kg/m², and when their blood pressure raised over recommended level (\( \geq 140/90 \) mmHg). Helsinki Heart District used same criteria of clinical risk factors. When males had unfavourable life styles, and WC, BMI, and BP were at risk level, public health nurses at HHD took glucose and cholesterol tests. Of men at risk (n=128), a sample of 46 males was followed in 2001, 2002 and 2004 by follow-up study. Clinical measurements and blood tests were carried out in 2002 after 6-9 months after first follow-up by same public health nurses at the Helsinki Heart District. The final measurements and blood tests were taken by public health nurses at Helsinki City Health Centres in 2004. All the blood tests were analyzed at same laboratory.

Non-participants
During the years 2002-2004 approximately 90 men (born in 1961) moved away from the region (Helsinki city population/statistics) (men not eligible). Phone numbers of 160 men were obtained from Heart District for the 327 non-respondents, who represented the five housing departments of this region of Helsinki. All of the numbers (n=160) were phoned, and 60 men could not be reached while the remaining 100 males were reached. Of the 100, 32 refused to take part in the study; initially, 28 men were chosen for the qualitative study (2004), according to socio-demographic and saturation criteria and the remaining 40 were interviewed by telephone survey later (2006). Thus, in total 68 non-participants were reached.

The interviews and health checks (n=28) were carried out and participants were made aware of the researcher’s identity as both a nurse and a researcher (A.N-Y). Audio-recorded interviews and health check-ups were performed on males at the participant’s own community hospital during weekends and evenings and at times other than work hours during a two-month period as long as the subjects met various sociodemographic factors (housing departments [4-6 subjects from each area]. Thus, 28 males were invited
to participate. The length of the sessions varied from 60-90 minutes. An interview guide provided a flexible framework for questioning, and the areas covered included the male’s perceptions and experiences of the following: health status, health behaviours, utilization of health services, reasons for non-participation, and ‘core’ information (V).

Figure 1 presents the formation of the groups of participants and non-participants. The final data set thus consisted of 341 males.

4.2. Instruments and variables

Instrument and lifestyle variables

The Health Behaviour Questionnaire (HBQ), designed by the National Public Health Institute (Helakorpi et al. 2000), was constructed to measure health in a broad sense. It includes questions regarding socio-demographic factors, subjective health status, chronic diseases, health care visits and lifestyle factors. The HBQ contains 96 items, of which 21 were used in this study in all five articles, but the variables used varied depending on the study objectives and the methods used (Appendix 1). Some of these variables were grouped into the following categories: socio-demographic factors (age, gender, education, occupation, employment), lifestyle factors (alcohol use, current smoking status, physical exercise, weight control), perceived health and oral health status (I, V).

The 96-item HBQ, of which 16 single-item variables were used in this study, was originally developed for the measurement of health in a broad sense. If two variables, for example education and occupation, were highly correlated, only one was selected. Similarly, if the distributions of the variables were skewed, the variables were excluded from the analysis. Measurements such as body mass index (BMI), waist circumference and self-reported information from the HBQ (Helakorpi et al. 2000) were used to ascertain associations between dependent variables and their underlying factors (II). As for the determinants of health-related beliefs, the outcome variables were self-rated health status as well as oral health, body image, readiness to change unhealthy behaviours and expression of emotions and physical distress (II). The questions on the use of medicines, alcohol consumption, burnout, motivation, joint ache, illness or injury, insomnia, depression and alcohol counselling by family members originally were
dichotomies (yes or no) (II, III). The question of self rated health was dichotomized into two groups: good health (excellent good) and average was combined with poor health on the basis of the literature (Manderbacka et al. 1998; Manor et al. 2000; Kivimäki 2003, 2005, 2006).

In article III (n=273), familial heredity (hypertension, type 2 diabetes, heart attack), symptoms and complaints during the last month as well as a question on health counselling (smoking, weight control and physical exercise) by physicians, public health nurses and advices by family members during the last twelve months were analysed.

The outcomes used for cardiovascular diseases in article IV (n=46) were waist circumference (WC), body mass index (BMI), systolic (SBP) and diastolic blood pressure (DBP), high-density lipoprotein (HDL), low-density lipoprotein (LDL), triglycerides (TG) and fasting blood glucose (fB Gluc) (Wood 1998; Wood et al. 1998; Pyörälä et al. 1998; WHO 2000; Zimmet et al. 2001; Lakka et al. 2002; Ford et al. 2002).

In the study (V) amongst non-respondents (n=28) marital status, occupation, and lifestyle (i.e., alcohol consumption, cigarette smoking, and physical exercise) were obtained from the Health Behaviour Questionnaire developed by the National Public Health Institute (Helakorpi et al., 2000, p. 1-12). The 5-point questionnaire regarding motivation (1-2=motivated; 3=average; 4-5=not motivated) was self-administered. Measurements of diastolic (normal < 90 mmHg) and systolic (normal <140 mmHg) blood pressures and BMI (normal<25kg/m²; overweight 25.0-29.9 kg/m²; obese ≥30.0 kg/m²) were made at the end of the session.

In the telephone surveys, socio-demographic factors, lifestyles, risk factors, self-rated and oral health and questions about work situation were proposed by used questionnaire (Appendix 2). Public health nurses by Helsinki Heart District interviewed non participants (n=40) by phone in 2005.

### 4.3. Statistics and data analysis

Frequency and percentage distributions were used to describe the socio-demographic, self-rated health, lifestyle and risk factors. The statistical differences between the groups of self-rated health and socio-demographic and risk factors, and comparisons between groups were analysed by Chi-square tests. A p-value of 0.05 was considered to be statistically significant (Munro 2001) (I).

A stepwise logistic regression analysis was used to estimate the adjusted odds of each outcome by socio-demographic, health behaviour, health belief and clinical factors. Five models were developed to test the effects of outcomes. Marital status and occupation were analysed by using force-entered procedures while the rest of the predictors were analysed by using each step conditional method (II).

In article III, comparisons between the groups of low- and high-risk men were made using cross-tabulations. For controlling the results for BMI, which appeared to be high among all men, both low- and high-risk groups were stratified according to a BMI dichotomy (< 25.0 kg/m² = normal weight; ≥ 25.0 kg/m²= overweight). Chi-square tests were used to calculate a p-value for 2x2 frequency tables. Fisher’s exact test was used if
there were fewer expected frequencies so that the Chi-square test was not appropriate. The adjusted odds of perceived symptoms and complaints on self-rated health (good, poor) were estimated by using a stepwise logistic regression model (Manderbacka 1998; Manor et al. 2000).

In the follow-up study (IV) the dependent variables used were WC, BMI, DBP, SBP, HDL, LDL, TG and fBGluc. Percentages and paired t-tests were used to compare baseline and final measurements. Repeated measures analysis of variance (ANOVA) was conducted using a general linear model (Munro 2001; Vickers & Altman 2001; Vickers 2003). Normality of variables was verified using the Wilk-Shapiro test. Variances were tested by Mauchly’s test. Depending on whether the outcomes were statistically significant (p ≤ .05), we used the Huynh-Feldt Epsilon correction. We analysed interactions between time and groups with repeated measures, using F tests. A p-value of 0.05 was considered statistically significant. All analyses were done using SPSS for Windows, version 11.0 (SPSS Inc., Chicago, IL, USA) (IV).

Amongst non-participants triangulation, combined research methods were used (Murphy 1989; Morse 1991; Buchanan 1992) with four methods of data collection: 1) structured interviews including five socio-demographic and five health behaviour questions; 2) in-depth audio-recorded interviews; 3) health measurements (blood pressure, height and weight (BMI); and 4) observations with diary memos and notes (V).

Frequency and percentage distributions were used to describe the socio-demographic, self-rated health, lifestyle and risk factors. The statistical differences between the groups of self-rated health and socio-demographic and risk factors, and comparisons between groups were analysed by Chi-square tests. A p-value of 0.05 was considered to be statistically significant (Munro 2001) (V).

**4.4. Qualitative study and content analysis**

The audiotapes of the qualitative interview were listened to several times, both before and after transcription, to get an overall sense of the data and to make sure the transcriptions were accurate. Interviews were interpreted by content analysis, which was continued until further observations yielded redundant, minimal, or no new information (Sandelowski 2000). The transcribed in-depth interviews and notes constituted the text that served as the basis for interpretative analysis involving multiple readings of the text, coding at the most basic level, and progressing through the ATLAS/ti program (Muhr 1996, pp. 245-259). The units of analysis in this inductive content analysis were the respondent’s sentences, utterances, thoughts, ideas, and opinions (Bowling 1997, pp. 336-351). Diary entries, such as atmosphere, duration, and non-verbal communication, were integrated with the interviews. The study aims, samples, and used methods and analysis are shown (Table 2).
Table 2. Description of study aims, samples, and used methods and analysis.

<table>
<thead>
<tr>
<th>Article</th>
<th>Aims</th>
<th>Sample</th>
<th>Methods and Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>To examine clinical risk factors for cardiovascular diseases</td>
<td>n=273</td>
<td>Descriptive statistics chi-square test</td>
</tr>
<tr>
<td>II</td>
<td>To identify key determinants of health behaviour and beliefs</td>
<td>n=273</td>
<td>Logistic regression analyze</td>
</tr>
<tr>
<td>III</td>
<td>To assess lifestyles, health counselling and beliefs among low-risk men and compare them with those of the high-risk group</td>
<td>n=145 (low) n=128 (high)</td>
<td>Logistic regression analyze</td>
</tr>
<tr>
<td>IV</td>
<td>To analyse the impact of brief counselling on cardiovascular risk factors among men at risk according to marital status, occupation and self-rated health</td>
<td>n=46</td>
<td>Follow-up study 2001, 2002 2004. Repeated measurements analysis of variance (ANOVA) F-test</td>
</tr>
<tr>
<td>V</td>
<td>To explore male-specific health and utilisation of health services and reasons for non-participation</td>
<td>n=28</td>
<td>Qualitative interviewing Qualitative content analyze Interpretation Descriptive statistics</td>
</tr>
<tr>
<td></td>
<td>To analyze male’s health and work situation, reasons for non participation, and needs for health services</td>
<td>n=40</td>
<td>Telephone survey Chi-square test</td>
</tr>
</tbody>
</table>

4.5. Ethical considerations

This study was a part of a larger study project supported by Helsinki Heart District and City of Helsinki Health Centre, which had the ethical approval from the Coordinating Ethics Committee of Hospital District of Helsinki in 2001. Corresponding author has also a personal approval from the Ethics Committee for her doctoral study (HUS 359/05).

Informed consent was obtained from all participants and they were aware of the possibility to withdraw their participation at any time. They were informed both in writing and orally about the aims and content of the metabolic syndrome project. The results were attached to the participants’ medical records in their own health centres with their consent. In qualitative research, participants were told that the sessions were not intended to be therapeutic or to be an adjunct to their medical care. The professional background of the study was made clear to the informants to minimise the risk of exploitation. Participants had the right to interrupt the study whenever they wanted; additionally, they were encouraged to contact the researcher after the interview concerning any questions. Because males expressed most of their fears and anxieties at the end of the session, it was prolonged to ensure that those being interviewed did not leave vulnerable and distressed.
5. RESULTS

5.1. Description of results

The results describe the main health determinants and their covariates amongst 40-year-old males who initially participated (n=273) in the metabolic syndrome project (*participants*) (I-IV) and amongst males who responded later either by face-to-face (V) or telephone interview (n=68) (*non-participants*). The participants consisted of 273 men, 47% of whom (n=128) were judged to be at high risk for the metabolic syndrome in clinical measurements in 2001. Males had elevated fasting glycemia and abdominal obesity as measured by waist circumference or hypertension. The remainder of the men (n=145) were those who were designated as the group at low risk for the metabolic syndrome. From the high risk men 117 attended at first follow-up in 2002. After that 71 males interrupted the study and are called here as *interrupted males*. The men with high risk, who continued until the final measurement in 2004 (n=46) are called as *continued males* (Table 3).

Most of all the males (n=341) were employed (over 90%). Participating males at low risk (n=145) were more often married and were better educated than non-participating males (n=68). Amongst low-risk and in 2002 interrupted males (n=71), 39% had triglyceride levels 1,7 mmol/l or over. The highest number of males (69%), who had glucose readings $\geq$ 5,3 mmol/l. were among low-risk males and interrupters. Non-participating males rated their health as good in 76% of cases, while interrupters reported it as good in 20% of cases. Continued males with high risk (n=46) rated their dental health as poor (14%) and used alcohol more (64%) than others. Of the men at high risk and interrupters, 61-71% were smokers. Generally, males reported to be physically active, except males at low risk, who reported to have physical exercise once a week or less often in 21% of cases (Table 3).
Table 3. Description of male’s characteristics, risk and lifestyle factors at baseline (%).

<table>
<thead>
<tr>
<th></th>
<th>PARTICIPANTS</th>
<th>NON-PARTICIPANTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>At low risk</td>
<td>(n=145¹)</td>
</tr>
<tr>
<td></td>
<td>At high risk</td>
<td>(n=128¹)</td>
</tr>
<tr>
<td></td>
<td>Interrupted¹</td>
<td>(n=71)</td>
</tr>
<tr>
<td></td>
<td>Continued¹¹</td>
<td>(n=46)</td>
</tr>
<tr>
<td></td>
<td>Interviewed</td>
<td>(n=68¹)</td>
</tr>
<tr>
<td><strong>Sociodemographic characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
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<td></td>
</tr>
<tr>
<td>Married</td>
<td>81.9</td>
<td>78.0</td>
</tr>
<tr>
<td>Not married</td>
<td>18.1</td>
<td>22.0</td>
</tr>
<tr>
<td><strong>Education</strong></td>
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<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>4.9</td>
<td>10.4</td>
</tr>
<tr>
<td>Comprehensive school</td>
<td>52.4</td>
<td>56.8</td>
</tr>
<tr>
<td>High school</td>
<td>42.7</td>
<td>32.8</td>
</tr>
<tr>
<td><strong>Vocational education</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not vocational training</td>
<td>9.7</td>
<td>17.7</td>
</tr>
<tr>
<td>College/academic</td>
<td>90.3</td>
<td>82.3</td>
</tr>
<tr>
<td><strong>Occupation</strong></td>
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<td></td>
</tr>
<tr>
<td>Industrial</td>
<td>27.9</td>
<td>35.0</td>
</tr>
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<td>Clerical</td>
<td>72.1</td>
<td>65.0</td>
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<td>93.7</td>
<td>89.8</td>
</tr>
<tr>
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<td>10.2</td>
</tr>
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<tr>
<td>Body mass index (kg/m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 25.0</td>
<td>48.9</td>
<td>17.9</td>
</tr>
<tr>
<td>25.0-29.9</td>
<td>42.8</td>
<td>56.3</td>
</tr>
<tr>
<td>≥ 30.0</td>
<td>8.3</td>
<td>25.8</td>
</tr>
<tr>
<td>Waist circumference (cm)</td>
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<td></td>
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<tr>
<td>&lt; 100.0</td>
<td>80.7</td>
<td>46.1</td>
</tr>
<tr>
<td>≥ 100.0</td>
<td>19.3</td>
<td>53.9</td>
</tr>
<tr>
<td>Diastolic blood pressure (mm Hg)</td>
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<td></td>
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<tr>
<td>&lt; 90.0</td>
<td>73.6</td>
<td>38.9</td>
</tr>
<tr>
<td>≥ 90.0</td>
<td>26.4</td>
<td>61.1</td>
</tr>
<tr>
<td>Systolic blood pressure (mm Hg)</td>
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<td></td>
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<tr>
<td>&lt; 140.0</td>
<td>84.0</td>
<td>51.6</td>
</tr>
<tr>
<td>≥ 140.0</td>
<td>16.0</td>
<td>48.4</td>
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<tr>
<td>HDL (mmol/l)</td>
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<td>12.7</td>
<td>11.0</td>
</tr>
<tr>
<td>≥ 1.0</td>
<td>87.3</td>
<td>89.0</td>
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<tr>
<td>LDL (mmol/l)</td>
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<td>&lt; 3.0</td>
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<td>37.8</td>
</tr>
<tr>
<td>≥ 3.0</td>
<td>77.1</td>
<td>62.2</td>
</tr>
<tr>
<td>Trigly (mmol/l)</td>
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<td></td>
</tr>
<tr>
<td>&lt; 1.7</td>
<td>60.6</td>
<td>82.6</td>
</tr>
<tr>
<td>≥ 1.7</td>
<td>39.4</td>
<td>17.4</td>
</tr>
<tr>
<td>fBGluc (mmol/l)</td>
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<td></td>
</tr>
<tr>
<td>&lt; 5.3</td>
<td>30.9</td>
<td>47.8</td>
</tr>
<tr>
<td>≥ 5.3</td>
<td>69.1</td>
<td>52.2</td>
</tr>
<tr>
<td><strong>Self-rated lifestyle factors</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-rated overall health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good</td>
<td>61.1</td>
<td>50.0</td>
</tr>
<tr>
<td>Average</td>
<td>31.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Poor</td>
<td>7.9</td>
<td>10.0</td>
</tr>
<tr>
<td>Dental and oral health</td>
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<td></td>
</tr>
<tr>
<td>Good</td>
<td>54.2</td>
<td>54.7</td>
</tr>
<tr>
<td>Average</td>
<td>36.1</td>
<td>35.9</td>
</tr>
<tr>
<td>Poor</td>
<td>9.7</td>
<td>9.4</td>
</tr>
<tr>
<td>Excessive alcohol consumption</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seldom or never</td>
<td>79.1</td>
<td>63.8</td>
</tr>
<tr>
<td>At least once a week</td>
<td>20.9</td>
<td>36.2</td>
</tr>
<tr>
<td>Smoking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not a at all</td>
<td>60.0</td>
<td>38.5</td>
</tr>
<tr>
<td>Yes</td>
<td>40.0</td>
<td>61.5</td>
</tr>
<tr>
<td>Physical exercise</td>
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<td></td>
</tr>
<tr>
<td>More than once a week</td>
<td>79.1</td>
<td>58.7</td>
</tr>
<tr>
<td>Once a week or less often</td>
<td>20.9</td>
<td>41.3</td>
</tr>
<tr>
<td>Weight control in the past year</td>
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<td></td>
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<tr>
<td>Losing weight</td>
<td>13.9</td>
<td>15.7</td>
</tr>
<tr>
<td>Unchanged</td>
<td>57.6</td>
<td>57.5</td>
</tr>
<tr>
<td>Gaining weight</td>
<td>28.5</td>
<td>26.8</td>
</tr>
</tbody>
</table>

¹ The number of the whole data = 341 males; ¹¹ Interrupted in 2002; ¹¹¹ Continued until 2004; ² 6 units at one time. A unit included a glass of beer (1/3 l), a glass of wine (12cl) or 4 cl of spirits; ³ Lasting at least half an hour, getting winded and sweaty.
5.2. Clinical risk factors and self-rated health

The first objective was to examine clinical risk factors for cardiovascular diseases and compare their significance across groups of self-rated health among middle-aged men at baseline (I).

The results indicated that the clinical measurements of health, such as diastolic blood pressure and BMI were high: over 40% of the males (n=341) had their diastolic blood pressure above the recommended level (90 mmHg) and almost two-thirds of them were overweight or obese. During the last twelve months, 28% of the males had reported gaining weight. Over half of the participants smoked.

Married men and those who were divorced or widowed rated their health as better than single respondents did. Although BMI and waist circumference were significantly associated with self-rated health (i.e. participants with lower measurements of BMI and waist circumference reported better health), there also was a contradiction between subjective wellbeing and the anthropometric measurements that demonstrated positive relationships between high values of BMI/waist circumference and wellbeing (n=341) (Table 3).

According to telephone survey males (n=40), who did not participate in the original project, rated their health as good when they were employed (p=0.041), when they didn’t have illness that hampered the ability to work (p=0.002), and the attitude of their superior was supportive (p=0.036), whether their life situation was good (p=0.002) and when they were motivated to change lifestyles (p=0.019) (Table 4).
<table>
<thead>
<tr>
<th>Indicator</th>
<th>Good health n=30</th>
<th>Average health n=10</th>
<th>( \chi^2 )</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
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<tr>
<td>Married</td>
<td>83</td>
<td>60</td>
<td>2.63</td>
<td>2</td>
<td>.287</td>
</tr>
<tr>
<td>Single, divorced</td>
<td>17</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elementary school</td>
<td>33</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comprehensive school</td>
<td>67</td>
<td>30</td>
<td>5.13</td>
<td>2</td>
<td>.162</td>
</tr>
<tr>
<td>High school</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial</td>
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<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office work</td>
<td>80</td>
<td>75</td>
<td>1.60</td>
<td>3</td>
<td>.659</td>
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<td>30</td>
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</tr>
<tr>
<td>Employed</td>
<td>97</td>
<td>70</td>
<td>6.37</td>
<td>2</td>
<td>.041</td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
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<td>70</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( \geq 30.0 )</td>
<td>14</td>
<td>10</td>
<td>.155</td>
<td>2</td>
<td>.925</td>
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<td>Excessive alcohol consumption¹</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Seldom or never 6 units or more</td>
<td>70</td>
<td>50</td>
<td></td>
<td></td>
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<tr>
<td>At least once a week</td>
<td>30</td>
<td>50</td>
<td>5.40</td>
<td>3</td>
<td>.140</td>
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<tr>
<td>Smoking daily</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>60</td>
<td>70</td>
<td></td>
<td></td>
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<td>Yes</td>
<td>40</td>
<td>30</td>
<td>3.14</td>
<td>3</td>
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<td>More than once a week</td>
<td>96</td>
<td>70</td>
<td></td>
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<tr>
<td>Once a week or less</td>
<td>4</td>
<td>30</td>
<td>9.01</td>
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<td>.061</td>
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<td>Yes</td>
<td>55</td>
<td>60</td>
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<td>No</td>
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<tr>
<td>At work</td>
<td>90</td>
<td>89</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At home or elsewhere</td>
<td>10</td>
<td>11</td>
<td>.787</td>
<td>2</td>
<td>.675</td>
</tr>
<tr>
<td>Illness that hampers ability to work</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>7</td>
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<td>93</td>
<td>50</td>
<td>9.70</td>
<td>1</td>
<td>.002</td>
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<tr>
<td>Attitude of superior</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Supportive</td>
<td>66</td>
<td>25</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Non supportive</td>
<td>34</td>
<td>75</td>
<td>6.65</td>
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<td>.036</td>
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<tr>
<td>Work strain</td>
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<td></td>
</tr>
<tr>
<td>Yes</td>
<td>48</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>52</td>
<td>25</td>
<td>1.80</td>
<td>1</td>
<td>.179</td>
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<tr>
<td>Life situation</td>
<td></td>
<td></td>
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<td>Good</td>
<td>86</td>
<td>30</td>
<td></td>
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<td></td>
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<tr>
<td>Poor</td>
<td>14</td>
<td>70</td>
<td>13.9</td>
<td>2</td>
<td>.001</td>
</tr>
<tr>
<td>Motivation</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Good</td>
<td>72</td>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>28</td>
<td>80</td>
<td>9.97</td>
<td>3</td>
<td>.019</td>
</tr>
<tr>
<td>Social support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse or family members</td>
<td>89</td>
<td>90</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional</td>
<td>11</td>
<td>10</td>
<td>.807</td>
<td>2</td>
<td>.668</td>
</tr>
<tr>
<td>Expression of feelings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>17</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>83</td>
<td>60</td>
<td>2.34</td>
<td>1</td>
<td>126</td>
</tr>
</tbody>
</table>

¹ At least 6 units at one time. A ‘unit’ included a glass of beer (1/3 l), a glass of wine (12 cl) or 4 cl strong alcohol. ² Lasting at least half an hour, getting winded and sweaty.
5.3. Key determinants of health behaviour and beliefs

The second objective was to identify key determinants of health behaviour and beliefs in middle-aged men, and to analyse how they are associated with underlying health covariates (II).

Five models were developed: 1) use of medications, 2) alcohol consumption, 3) self-rated health status, 4) burnout and 5) motivation to change unhealthy behaviours. Many relevant predictors that were significantly associated with the selected key determinants of health behaviour and health beliefs of middle-aged men were found in this study. The general characteristics of the study sample are shown in Table 5, which shows the distribution of outcome factors of logistic models and the predictors of each model (n=273).

Table 5. Covariates of the participated males (n=273) from HBQ for a logistic model.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married (0)</td>
<td></td>
<td>215</td>
</tr>
<tr>
<td>Single, divorced, widowed (1)</td>
<td></td>
<td>54</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office worker (0)</td>
<td></td>
<td>140</td>
</tr>
<tr>
<td>Industrial worker (1)</td>
<td></td>
<td>128</td>
</tr>
<tr>
<td>Use of medications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (0)</td>
<td></td>
<td>77</td>
</tr>
<tr>
<td>Yes (1)</td>
<td></td>
<td>193</td>
</tr>
<tr>
<td>Alcohol consumption (6 units at a time)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never, seldom (0)</td>
<td></td>
<td>132</td>
</tr>
<tr>
<td>Once a month (1)</td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>Once a week or daily (2)</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>Physical exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-3 times a month or less (0)</td>
<td></td>
<td>82</td>
</tr>
<tr>
<td>1-3 times a week (1)</td>
<td></td>
<td>142</td>
</tr>
<tr>
<td>4-7 times a week (2)</td>
<td></td>
<td>45</td>
</tr>
<tr>
<td>Self-rated health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average/poor (0)</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td>Good (1)</td>
<td></td>
<td>121</td>
</tr>
<tr>
<td>Motivation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (0)</td>
<td></td>
<td>83</td>
</tr>
<tr>
<td>Yes (1)</td>
<td></td>
<td>185</td>
</tr>
<tr>
<td>Waist circumference (cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 94.0 (0)</td>
<td></td>
<td>121</td>
</tr>
<tr>
<td>≥ 94.0 (1)</td>
<td></td>
<td>152</td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 25.0 (0)</td>
<td></td>
<td>94</td>
</tr>
<tr>
<td>≥ 25.0 (1)</td>
<td></td>
<td>179</td>
</tr>
<tr>
<td>Burnout</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (0)</td>
<td></td>
<td>183</td>
</tr>
<tr>
<td>Yes (1)</td>
<td></td>
<td>88</td>
</tr>
<tr>
<td>Illness or injury</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (0)</td>
<td></td>
<td>48</td>
</tr>
<tr>
<td>Yes (1)</td>
<td></td>
<td>221</td>
</tr>
<tr>
<td>Insomnia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (0)</td>
<td></td>
<td>202</td>
</tr>
<tr>
<td>Yes (1)</td>
<td></td>
<td>71</td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (0)</td>
<td></td>
<td>231</td>
</tr>
<tr>
<td>Yes (1)</td>
<td></td>
<td>42</td>
</tr>
<tr>
<td>Joint ache</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (0)</td>
<td></td>
<td>224</td>
</tr>
<tr>
<td>Yes (1)</td>
<td></td>
<td>49</td>
</tr>
<tr>
<td>Dental health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average/poor (0)</td>
<td></td>
<td>124</td>
</tr>
<tr>
<td>Good (1)</td>
<td></td>
<td>148</td>
</tr>
<tr>
<td>Alcohol advising by family members</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No (0)</td>
<td></td>
<td>222</td>
</tr>
<tr>
<td>Yes (1)</td>
<td></td>
<td>42</td>
</tr>
</tbody>
</table>
Models 1-5 present how the use of medications, alcohol consumption, self-rated health status, burnout, and motivation are associated with underlying health covariates (n=273) (Table 6).

**Use of medications and alcohol consumption**

In Model 1, marital status (p=0.050), occupation (p=0.004), illness (p≤0.001), and joint ache (p=0.043) were significantly associated with medication use. Married men were slightly more likely to use medications than single or divorced men. Industrial workers were more likely to use medications than office workers (OR= 2.75; 95% CI, 1.38-5.46). Men who had an illness or injury were eight times more likely to use medications (OR=8.02; 95% CI, 3.71-17.30).

Alcohol counselling or advising by family members was the most significant predictor of alcohol consumption in Model 2. Men who were counselled or advised by family members regarding alcohol use were 4.5-fold more likely not to use alcohol 6 units at a time than their peers (OR=4.47; 95% CI, 2.21-9.03). The other statistically significant predictor for alcohol consumption was body mass index. Obese men, who had BMI ≥ 25.0 kg/m², were two times more likely to use alcohol than men who had a normal BMI.

**Self-rated health, burnout and motivation**

In Model 3, marital status (p=0.040), waist circumference (p≤0.001), perceived dental health status (p≤0.001), and illness or injury, that hampers ability to work (p≤0.001) were significant predictors for self-rated health. Men who were married (OR=2.02; 95% CI, 1.03-3.96), men who had a normal waist circumference, (OR=2.58; 95% CI, 1.48-4.47), men who rated their dental health as good (OR=0.36; 95% CI, 0.21-0.62) or men who did not suffer from illness or injury were more likely to regard their overall health as good (OR=0.28; 95% CI, 0.13-0.59).

In Model 4, burnout was highly predicted by insomnia (p = 0.006) and depression (p ≤ 0.001). Men who suffered from insomnia (OR=2.49; 95% CI, 1.30-4.74) or who were depressed (OR=4.87; 95% CI, 2.18-10.87) had a strong association with a history of burnout.

In Model 5, motivation was significantly predicted by marital status (p=0.034) and occupation (p=0.014). Married men (OR=0.48; 95% CI, 0.24-0.95) and office workers men (OR=0.49; 95% CI, 0.28-0.86) were more likely to be motivated than their peers. Additionally, physical exercise and alcohol consumption served statistically significant predictors for motivation to change life styles. Men who were physically active and exercised 4-7 times a week were over two times more likely to get motivated than
inactive men (OR=2.36; 95% CI, 1.26-4.42). Similarly, no or infrequent use of alcohol was associated with readiness to change unhealthy behaviours (OR=0.28; 95% CI, 0.13-0.59).

Table 6. Determinants on health behaviour and health beliefs amongst males (n=273).

<table>
<thead>
<tr>
<th>Determinants of health behaviour</th>
<th>Use of medications</th>
<th>p-value</th>
<th>Alcohol consumption</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td>0.49 (0.24-0.99)</td>
<td>0.050</td>
<td>1.73 (0.87-3.44)</td>
<td>0.121</td>
</tr>
<tr>
<td>Occupation</td>
<td>2.75 (1.38-5.46)</td>
<td>0.004</td>
<td>1.33 (0.75-2.38)</td>
<td>0.333</td>
</tr>
<tr>
<td>Illness or injury</td>
<td>8.02 (3.71-17.30)</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Joint ache</td>
<td>0.45 (0.21-0.97)</td>
<td>0.043</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>2.05 (1.06-3.94)</td>
<td>0.032</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol advising by family members</td>
<td>4.47 (2.21-9.03)</td>
<td>0.001</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Determinants on health-related beliefs and expression of emotions</th>
<th>Model 3</th>
<th>Model 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-rated health</td>
<td>OR (95% CI)</td>
<td>p-value</td>
</tr>
<tr>
<td>Marital status</td>
<td>2.02 (1.03-3.96)</td>
<td>0.040</td>
</tr>
<tr>
<td>Occupation</td>
<td>0.96 (0.55-1.68)</td>
<td>0.891</td>
</tr>
<tr>
<td>Waist (cm)</td>
<td>2.58 (1.48-4.47)</td>
<td>0.001</td>
</tr>
<tr>
<td>Dental health</td>
<td>0.36 (0.21-0.62)</td>
<td>0.001</td>
</tr>
<tr>
<td>Illness or injury</td>
<td>0.28 (0.13-0.59)</td>
<td>0.001</td>
</tr>
<tr>
<td>Insomnia</td>
<td>2.49 (1.30-4.74)</td>
<td>0.006</td>
</tr>
<tr>
<td>Depression</td>
<td>4.87 (2.18-10.87)</td>
<td>0.001</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Determinants on readiness to change unhealthy behaviours</th>
<th>Model 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>OR (95% CI)</td>
</tr>
<tr>
<td>Marital status</td>
<td>0.48 (0.24-0.95)</td>
</tr>
<tr>
<td>Occupation</td>
<td>0.49 (0.28-0.86)</td>
</tr>
<tr>
<td>Physical exercise</td>
<td>1.00</td>
</tr>
<tr>
<td>2-3 times a month or less</td>
<td>1.72 (0.74-3.99)</td>
</tr>
<tr>
<td>4-7 times a week</td>
<td>2.36 (1.26-4.42)</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>1.00</td>
</tr>
<tr>
<td>Never, seldom</td>
<td>1.96 (0.91-4.24)</td>
</tr>
<tr>
<td>Once a month</td>
<td>2.45 (1.28-4.69)</td>
</tr>
</tbody>
</table>
5.4. Low-and high-risk males

The third objective was to assess lifestyles, health counselling and levels of health indicators among low-risk men and compare them with those of the high-risk group (III).

No statistically significant differences existed between the low-risk (n=145) and high-risk (n=128) males with regard to socio-demographic characteristics. Most of the men in both groups were married, had a college or academic education, and only a few of the men were unemployed (Table 3). One-half of the low-risk men were overweight, of which 8% were obese (≥ 30.0 kg/m²). Besides obesity, low-risk men had unfavourable lifestyles, in that almost one-half smoked cigarettes and nearly 80% were physically inactive (Table 3).

The results of health counselling indicated that low- and high-risk men did not differ with respect to receiving smoking cessation counselling if the provider was a physician, public health nurse, or family member. However, about 40% of men in both groups were advised by family members, while only a small number were counselled by physicians or public health nurses. A small proportion of the low-risk men received counselling for weight control and physical exercise from professionals. However, 78% of the high-risk men had been advised on weight management by physicians. The respective numbers were a little higher (15%) when given by family members. For alcohol use, health counselling was essentially not offered by physicians and public health nurses, but when provided by family members the number was somewhat higher (10%) in the group of low-risk men (Table 7).

Table 7. Health counselling given by physician, nurse, and health advising by family member (%) amongst low risk (n=145) and high risk (n=128) males.

<table>
<thead>
<tr>
<th></th>
<th>Physician</th>
<th>p</th>
<th>Nurse</th>
<th>p</th>
<th>Family member</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoking (yes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low risk</td>
<td>13.8</td>
<td></td>
<td>10.7</td>
<td></td>
<td>39.4</td>
<td></td>
</tr>
<tr>
<td>High risk</td>
<td>17.5</td>
<td>.656</td>
<td>12.7</td>
<td>.790</td>
<td>43.0</td>
<td>.601</td>
</tr>
<tr>
<td>Alcohol consumption (yes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low risk</td>
<td>0.7</td>
<td></td>
<td>0.8</td>
<td></td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>High risk</td>
<td>3.4</td>
<td>.136</td>
<td>1.7</td>
<td>.488</td>
<td>1.7</td>
<td>.017</td>
</tr>
<tr>
<td>Weight control (yes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low risk</td>
<td>2.9</td>
<td></td>
<td>2.9</td>
<td></td>
<td>15.0</td>
<td></td>
</tr>
<tr>
<td>High risk</td>
<td>77.8</td>
<td>.015</td>
<td>10.5</td>
<td>.015</td>
<td>34.5</td>
<td>.001</td>
</tr>
<tr>
<td>Physical exercise (yes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Low risk</td>
<td>4.3</td>
<td></td>
<td>2.2</td>
<td></td>
<td>15.7</td>
<td></td>
</tr>
<tr>
<td>High risk</td>
<td>10.4</td>
<td>.061</td>
<td>6.3</td>
<td>.107</td>
<td>34.7</td>
<td>.001</td>
</tr>
</tbody>
</table>
The incidence of selected symptoms and complaints in the past month by the values of body mass index in the groups of low (n=145) and high risk (n=128) are presented in Table 8. Joint ache (p=.012) in the group of low-risk men and sciatica (p=.047) in the high-risk men were the only statistically significant differences related to normal weight versus overweight status.

Table 8. Incidence of selected symptoms and complaints in the past month by the values of the body mass index in the groups of low (n=145) and high risk (n=128) men (%).

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Low risk</th>
<th>High risk</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal¹</td>
<td>Overweight²</td>
<td></td>
</tr>
<tr>
<td></td>
<td>n=71</td>
<td>n=74</td>
<td></td>
</tr>
<tr>
<td>Headache</td>
<td>40.8</td>
<td>36.5</td>
<td>.590</td>
</tr>
<tr>
<td>Back pain</td>
<td>33.8</td>
<td>31.1</td>
<td>.726</td>
</tr>
<tr>
<td>Stress</td>
<td>23.2</td>
<td>21.9</td>
<td>.856</td>
</tr>
<tr>
<td>Insomnia</td>
<td>22.5</td>
<td>20.3</td>
<td>.739</td>
</tr>
<tr>
<td>Eczema</td>
<td>19.7</td>
<td>21.6</td>
<td>.777</td>
</tr>
<tr>
<td>Cardialgia</td>
<td>15.5</td>
<td>20.3</td>
<td>.453</td>
</tr>
<tr>
<td>Depression</td>
<td>12.7</td>
<td>18.9</td>
<td>.304</td>
</tr>
<tr>
<td>Joint ache</td>
<td>7.0</td>
<td>20.3</td>
<td>.012</td>
</tr>
<tr>
<td>Toothache</td>
<td>9.9</td>
<td>8.1</td>
<td>.712</td>
</tr>
<tr>
<td>Sciatica</td>
<td>7.0</td>
<td>8.1</td>
<td>.809</td>
</tr>
<tr>
<td>Chest pain</td>
<td>1.4</td>
<td>8.1</td>
<td>.060</td>
</tr>
<tr>
<td>Swelling in feet</td>
<td>2.8</td>
<td>4.1</td>
<td>.683</td>
</tr>
</tbody>
</table>

¹normal <25.0 kg/m²  ²overweight ≥ 25.0 kg/m²

5.5. Impact of follow-up study

One-year follow-up amongst continued and interrupted males and health counselling

Table 9 presents the risk factors for cardiovascular amongst continued (n=46) and interrupted (n=71) males in 2001 and 2002. Analyzes proved that there were no statistically significant differences between these groups. Figure 2 presents the slopes of risk factors amongst continued and interrupted males in 2001 and 2002. Both groups reduced risk factors.
Table 9. A one-year follow-up of risk factors for cardiovascular diseases in the groups of continued (n=46) and interrupted (n=71) males (%).

<table>
<thead>
<tr>
<th>Risk factor</th>
<th>Continued males</th>
<th>Interrupted males</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001</td>
<td>2002</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 24.9</td>
<td>15.2</td>
<td>23.9</td>
</tr>
<tr>
<td>25.0-29.9</td>
<td>65.2</td>
<td>61.0</td>
</tr>
<tr>
<td>≥ 30.0</td>
<td>19.6</td>
<td>15.1</td>
</tr>
<tr>
<td>WC (cm)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 100</td>
<td>52.2</td>
<td>60.9</td>
</tr>
<tr>
<td>≥ 100</td>
<td>47.8</td>
<td>39.1</td>
</tr>
<tr>
<td>DBP (mmHg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 90</td>
<td>30.4</td>
<td>55.6</td>
</tr>
<tr>
<td>≥ 90</td>
<td>69.6</td>
<td>44.4</td>
</tr>
<tr>
<td>SBP (mmHg)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 140</td>
<td>43.5</td>
<td>78.3</td>
</tr>
<tr>
<td>≥ 140</td>
<td>56.5</td>
<td>21.7</td>
</tr>
<tr>
<td>Kol HDL (mmol/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1.0</td>
<td>10.9</td>
<td>13.0</td>
</tr>
<tr>
<td>≥ 1.0</td>
<td>89.1</td>
<td>87.0</td>
</tr>
<tr>
<td>Kol LDL (mmol/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 3.0</td>
<td>37.8</td>
<td>22.2</td>
</tr>
<tr>
<td>≥ 3.0</td>
<td>62.2</td>
<td>78.8</td>
</tr>
<tr>
<td>Trigly (mmol/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 1.7</td>
<td>69.6</td>
<td>41.3</td>
</tr>
<tr>
<td>≥ 1.7</td>
<td>30.4</td>
<td>58.7</td>
</tr>
<tr>
<td>fB Gluc. (mmol/l)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; 5.3</td>
<td>54.3</td>
<td>68.2</td>
</tr>
<tr>
<td>≥ 5.3</td>
<td>45.7</td>
<td>31.8</td>
</tr>
</tbody>
</table>
Figure 2. Risk factors in 2001 and 2002 among continued (n=46) and interrupted (n=71) males.
The fourth objective was to analyse the impact of brief counselling on cardiovascular risk factors among 40-year-old men at risk according to marital status, occupation and self-rated health during 2001-2004 (IV).

Three-year follow-up

The results at the first follow-up showed an improvement compared to the baseline. However, the final measurements indicated that almost all risk factors, except LDL and HDL, tended to revert back to baseline. Negative reversions were seen for BMI and glucose values in predictor groups (Table 10).

Table 10. The means of risk factors according to marital status and occupation (n=46).

<table>
<thead>
<tr>
<th>Predictor (n)</th>
<th>WC (cm)</th>
<th>BMI (kg/m²)</th>
<th>SBP (mmHg)</th>
<th>DBP (mmHg)</th>
<th>HDL (mmol/l)</th>
<th>LDL (mmol/l)</th>
<th>TG (mmol/l)</th>
<th>fBGluc (mmol/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married (35)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>98.9</td>
<td>27.1</td>
<td>141</td>
<td>92</td>
<td>1.3</td>
<td>3.9</td>
<td>1.6</td>
<td>5.3</td>
</tr>
<tr>
<td>2</td>
<td>96.8</td>
<td>26.4</td>
<td>130</td>
<td>87</td>
<td>1.4</td>
<td>3.6</td>
<td>1.5</td>
<td>5.1</td>
</tr>
<tr>
<td>3</td>
<td>97.6</td>
<td>27.0</td>
<td>134</td>
<td>87</td>
<td>1.5</td>
<td>3.3</td>
<td>1.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Not mar. (11)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>100.8</td>
<td>28.1</td>
<td>132</td>
<td>90</td>
<td>1.2</td>
<td>3.7</td>
<td>1.6</td>
<td>5.4</td>
</tr>
<tr>
<td>2</td>
<td>100.2</td>
<td>27.9</td>
<td>131</td>
<td>86</td>
<td>1.2</td>
<td>3.6</td>
<td>1.4</td>
<td>5.2</td>
</tr>
<tr>
<td>3</td>
<td>102.5</td>
<td>29.0</td>
<td>136</td>
<td>90</td>
<td>1.2</td>
<td>3.3</td>
<td>1.5</td>
<td>5.6</td>
</tr>
<tr>
<td>Interaction</td>
<td>F</td>
<td>p</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>1.35</td>
<td>1.99</td>
<td>2.11</td>
<td>1.64</td>
<td>1.78</td>
<td>.566</td>
<td>1.47</td>
</tr>
<tr>
<td>p</td>
<td>.262</td>
<td>.117</td>
<td>.087</td>
<td>.199</td>
<td>.174</td>
<td>.695</td>
<td>.857</td>
<td>.355</td>
</tr>
<tr>
<td>Occupation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Industrial (19)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>99.7</td>
<td>27.5</td>
<td>143</td>
<td>89</td>
<td>1.4</td>
<td>3.7</td>
<td>1.7</td>
<td>5.4</td>
</tr>
<tr>
<td>2</td>
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<td>26.8</td>
<td>131</td>
<td>87</td>
<td>1.4</td>
<td>3.7</td>
<td>1.3</td>
<td>5.4</td>
</tr>
<tr>
<td>3</td>
<td>99.6</td>
<td>26.9</td>
<td>133</td>
<td>88</td>
<td>1.5</td>
<td>3.3</td>
<td>1.6</td>
<td>5.7</td>
</tr>
<tr>
<td>Clerical (27)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>98.7</td>
<td>27.1</td>
<td>136</td>
<td>93</td>
<td>1.3</td>
<td>4.0</td>
<td>1.6</td>
<td>5.3</td>
</tr>
<tr>
<td>2</td>
<td>96.7</td>
<td>26.7</td>
<td>129</td>
<td>88</td>
<td>1.3</td>
<td>3.5</td>
<td>1.3</td>
<td>5.0</td>
</tr>
<tr>
<td>3</td>
<td>97.8</td>
<td>27.1</td>
<td>135</td>
<td>88</td>
<td>1.3</td>
<td>3.2</td>
<td>1.4</td>
<td>5.4</td>
</tr>
<tr>
<td>Interaction</td>
<td>F</td>
<td>p</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.260</td>
<td>.733</td>
<td>1.99</td>
<td>2.66</td>
<td>1.60</td>
<td>.925</td>
<td>2.69</td>
<td>.452</td>
</tr>
<tr>
<td>p</td>
<td>.117</td>
<td>.074</td>
<td>.105</td>
<td>.207</td>
<td>.400</td>
<td>.074</td>
<td>.630</td>
<td>.875</td>
</tr>
</tbody>
</table>

1=baseline measurement in 2001, 2= in 2002, 3= in 2004.
Interaction between time and group: F, p-value, df - values: marital status (2-4, 86-88), occupation (2-6, 82-88)

Figures 3 and 4 show the slopes during the follow-up study according to marital status and occupation. Married males had lower risk factors than unmarried males but the slopes were similar during follow-up, and the risk factors returned back to baseline level in both groups, except for LDL and HDL, which had positive slopes in both groups. Data for office workers and industrial workers produced similar curves during follow-up, although office workers had fewer risk factors.
Figure 3. Risk factors during follow up study (n=46) according to marital status (married n=35, not married n=11).
Figure 4. Risk factors during follow-up study (n=46) according to occupation (industrial n=19 and office/clerical n=27).
5.6. Description of non-participating males

The fifth objective was to explore male-specific health and utilisation of health services and reasons for non-participation amongst non-participants (V).

Sociodemographic factors showed that two-thirds of the males (n=28) were married, five were single and five were divorced. All educational levels, from no vocational training to an academic degree and all occupational categories from manual labourers (e.g., construction workers) to professionals (e.g., architects), were represented. Of the participants, three were unemployed and two were pensioned.

While inquiring about perceptions about the general health, four participants rated their health as excellent and eighteen males considered their health as good. Two males regarded their health as average and the respondents, who were unemployed and retired, perceived it as poor. Employed males (n=23) were motivated to take care of their health while retired and unemployed males expressed poor motivation. During interviews, several various symptoms and constraints were revealed by males, such as low back pain (n=16), insomnia (n=14), headache (n=9), fears (n=8), depression (n=7), anxiety (n=6), indigestion (n=6), arrhythmia (n=4) and chest pain (n=3). Clinical measurements indicated that of all the males, seven were normal weight, 16 were overweight and five were obese. Most of the males (n=19) had blood pressures higher than the recommended levels (over 140/90). The results showed that non-respondents had a number of symptoms, complaints, and they were more hypertensive and overweight than respondents who participated in the health survey in 2001.

Health behaviour and non respondents

Over one-half (n=15) of the males (n=28) reported smoking cigarettes daily and drinking to excess. Three males said that they could not exercise owing to their physical condition, but the majority of the males (n=23) expressed that they were engaged in physical activity 4-6 times a week (V). According to telephone survey (n=40) a third were smokers and used alcohol excessively at least once a week. Of all non respondents (n=68) 18% gained weight during last year (Table 3).

Core information

In the initial interview sessions, the interviewer noticed that the participants expressed sensitive messages when a session was ending and when the participant was close to the door and leaving the room. This ‘core’ information included major causes of concern and anxiety. In this study, characteristics of both masculinity and femininity were found. However, these approaches could not be categorised according to socio-demographic factors such as marital status, education or occupation. Work was widely experienced as excessively demanding. Ageing, possible learning difficulties associated with new demands at work, and fears of becoming ill or disabled were the biggest concerns amongst males. Some of them were very anxious about work harassment and they had fears of death. Similarly a male’s sporting and sexual abilities pointed to questions that they would have wanted to discuss with some health care provider. Although males had a number of health needs, they were afraid of the potential stigma of the sick person and, therefore, avoided occupational health services.
**Reasons for non-participation**

According to qualitative research (n=28) and telephone survey (n=40), non-participants (n=68) didn’t participate in the project because of lack of time (33%), because they forgot the invitation (28%) or because it was nonsense (25%). The reasons given by the males for not responding to a first invitation for the metabolic syndrome project were mainly a lack of perceivable symptoms and unwillingness to seek help from health professionals.

In Table 11, covariates of participation from the HBQ are shown. When analysing participation a logistic regression model was used the all the informant’s (n=341).

Table 11. Covariates of the participants and non-participants (n=341) for a logistic model.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Measurement</th>
<th>n</th>
<th>(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td>Married (0)</td>
<td>235</td>
<td>69.1</td>
</tr>
<tr>
<td></td>
<td>Single, divorced, widowed (1)</td>
<td>105</td>
<td>30.9</td>
</tr>
<tr>
<td>Basic education</td>
<td>Elementary (2)</td>
<td>23</td>
<td>6.8</td>
</tr>
<tr>
<td></td>
<td>Comprehensive (1)</td>
<td>174</td>
<td>51.8</td>
</tr>
<tr>
<td></td>
<td>High (0)</td>
<td>139</td>
<td>41.4</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>Never, seldom (0)</td>
<td>136</td>
<td>41.5</td>
</tr>
<tr>
<td></td>
<td>6 units at a time Once a month (1)</td>
<td>110</td>
<td>33.5</td>
</tr>
<tr>
<td></td>
<td>Once a week or daily (2)</td>
<td>82</td>
<td>25.0</td>
</tr>
<tr>
<td>Physical exercise</td>
<td>Once a week or daily (0)</td>
<td>221</td>
<td>66.4</td>
</tr>
<tr>
<td></td>
<td>2-3 times a month or less (1)</td>
<td>112</td>
<td>33.6</td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td>&lt; 25.0 (0)</td>
<td>113</td>
<td>33.1</td>
</tr>
<tr>
<td></td>
<td>≥ 25.0 (1)</td>
<td>228</td>
<td>66.9</td>
</tr>
<tr>
<td>Self-rated health</td>
<td>Average/poor (0)</td>
<td>159</td>
<td>47.3</td>
</tr>
<tr>
<td></td>
<td>Good (1)</td>
<td>177</td>
<td>52.7</td>
</tr>
<tr>
<td>Participation</td>
<td>No (0)</td>
<td>68</td>
<td>19.9</td>
</tr>
<tr>
<td></td>
<td>Yes (1)</td>
<td>273</td>
<td>80.1</td>
</tr>
</tbody>
</table>

Table 12 shows the determinants of participation. Men who were married (p=0.001) and were well educated (p=0.001), were more likely to participate than their peers. Males who were physically active, and had exercise once a week or daily were more to participate than physically inactive (p=0.016). Also men, who rated their health as good, were over two-fold more likely to participate than men who rated their health as average or poor (p= 0.010).
Table 12. Determinants of participation in the Metabolic Syndrome Project (n=341).

<table>
<thead>
<tr>
<th>Participation of males</th>
<th>OR</th>
<th>(95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marital status</td>
<td>0.12</td>
<td>(0.59-0.23)</td>
<td>0.001</td>
</tr>
<tr>
<td>Education</td>
<td>0.33</td>
<td>(0.19-0.56)</td>
<td>0.001</td>
</tr>
<tr>
<td>Alcohol use</td>
<td>1.01</td>
<td>(0.69-1.54)</td>
<td>0.901</td>
</tr>
<tr>
<td>Exercise</td>
<td>0.44</td>
<td>(0.23-0.86)</td>
<td>0.016</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>0.61</td>
<td>(0.29-1.24)</td>
<td>0.175</td>
</tr>
<tr>
<td>Self-rated health</td>
<td>2.38</td>
<td>(1.22-4.61)</td>
<td>0.010</td>
</tr>
</tbody>
</table>
6. DISCUSSION

6.1. Understanding participants and their health

In average, 80% of all the participating males (n=341) were married and well-educated while one-third of non-participants (n=68) had college or academic level education. Motivation for health behaviour was found among married men (II). This was in line with the result that married men showed a greater willingness than single, divorced or widowed men to promote their health (Pietinen 2006). This seems to be a femininity norm, when married men promote their health according to Courtenay (2003). Unmarried men had more risk factors and they used more alcohol than married men (I, II). These results strengthened earlier findings, according to which unmarried men had more serious health risks than married men and engaged in poorer health behaviour (Kelleher 1999; Courtenay 2003, 2000). Furthermore, all of the current evidence indicated that correlations with mortality - and other health risks associated with being unmarried - are greater for men than for women (Courtenay 2000, 2003), and marriage is consistently found to be positively associated with longevity (Koskinen et al. 1999; Helakorpi et al. 2005).

Compared with single or divorced responders, married men were more likely to use medication (II). This might be a consequence of input by their spouses (Ramirez Garcia 2006), who motivated males to use medicine and visit doctors. This is in line with the Theory of Reasoned Action (TRA), where significant others have a positive influence on health behaviour (Fishbein & Ajzen 1975; Ajzen & Fishbein 1980; Ajzen 1985). As with the use of medication, both marital status and occupation explained the motivation for health behaviour in Model 5 (II). This result again strengthens previous findings that family members and higher work status are associated with one’s willingness to take care of their own health (Franklin et al. 2001). Occupational class was also related to male’s health experiences in that males who were office workers rated their health as better than industrial workers; the difference was statistically significant (p=0.045) (I), and this was in line with Laaksonen et al. (2006), who found that working conditions were associated with physical and mental health.

In general, the men’s health situation was not on an adequate level; almost half of all the men had clinical risk factors, and two-thirds of the men had readings above the recommended BMI level. One-fifth reported gaining weight during the last twelve months (I). These results were in line with previous studies (Collins et al. 1990; Wood 1998; Pyörälä. & Wood 1998; Alberti & Zimmet 1998; Goldman et al. 2004; Eckel et al. 2005). Overweight males are continuously found to be at increased risk of cardiovascular diseases and morbidity (Haffner et al. 1998; Gu et al. 2006; Gami et al. 2007).

A comparison between low- and high-risk males revealed that in addition to clinical risk males reported to have pain, symptoms and complaints (III). In this study men reported their mental experiences like fears, depression and lack of confidence following femininity norms. Depression amongst males proved how the health care system contributed the social construction of various diseases, where depressive males were maltreated (Courtenay 2000). Men, who were considered to be at low risk had similar mental and physical symptoms as those expressed by high-risk males. Low-risk men revealed strong associations between poor health and symptoms of depression that were highly associated with chest and back pain, tooth ache, insomnia and stress (III). The evidence
suggested that there were important differences between men and women with respect to experience of pain (Keogh 2006). One explanation was that men and women might respond emotionally to pain in different ways, men expressed anxiety and depression related to pain (Edwards et al. 2000; Robinson et al. 2003; Keogh et al. 2006).

Despite clinical risk factors, participants reported their health as good (I), which seemed to be a masculine action (Connell 2000.) This strengthens the idea of Gough and Conner (2006), who pointed out the self-rated problems, especially among male groups, who did not recognize their health situation or they overestimated it. A similarity was found with previous results where men rated their health as good and had a lack of perceivable symptoms and complaints (Griffiths 1996; Barton 2000; Tudiver & Talbot 1999; Courtenay 2003; Howerton 2007). Males were not symptomless, when they were asked in detail about symptoms (II, III), and when asked about the reasons why they did not participate (V) or to self-rate their health (I). This phenomenon may also be described as “unrealistic optimism”, whereby people tend to underestimate their health risks (Weinstein 1982). Men may be less likely than women to notice signs of illness when they are ill (Blaxter 1990; Sandman et al. 2000; Courtenay 2003).

Attitudes towards a male’s health might be a reason for underestimating health risks because, in general, men’s shorter lifespan were accepted as a natural aspect, and this attitude included masculine aspects (Bayne-Smith 1996). It is quite possible to research men as objects along with other objects such as women; however, to delve deeper into these people’s experiences and offer a deconstructed and decentred viewpoint of men requires more sensitive methods (White & Johnson 1998). The findings of ‘core’ information differed from a previous study (Griffiths 1996), where the results indicated that males did not express their feelings. In this study they were open-minded (V). Approximately half of the males rated their dental health as good (n=341). Physical predictors such as dental health had the strongest associations with perceived poor overall health (II). This finding was consistent with previous results, where dental health must be paid attention as a risk factor and as a health indicator, especially when preventing cardiovascular diseases (Nakazono et al. 1997; Jansson et al. 2001).

### 6.2. Risk taking behaviour

According to the results concerning lifestyles, men used alcohol, smoked, gained weight (I) and were stressed (II, V). This strengthens the findings of previous studies, where men did not accept health promotional behavioural advice (Courtenay 2003). Use of alcohol was excessive in 40% of males (I, V), which corroborates previous results on risky behaviour that showed heavy drinking habits in Finland are on the rise (Lahelma et al. 2006), with one-third of working aged men reported to consume alcohol at least once a week at a rate of six portions or more at once (Helakorpi et al. 2005, p. 9). In 2006, the deaths of 7,475 men of working age (15-64 years) could be attributed to alcohol-related diseases (Mustonen & Simpura 2006, pp. 42-44).

Almost half of the men smoked daily (I), whereas one-third of non-participants were smokers. Similar results were found in a large Finnish study (n=3,287 males and females aged 15-64 years) where one-third of working aged men were smoking daily in 2005 (Helakorpi et al. 2005, p. 4; Vartiainen et al. 2006, pp. 40, 41). Seventy percent of interrupters were smokers, especially men with less education. The results were in line with a previous study, where Korkeila et al. (2001) reported that non-respondents
smoked more than respondents did. This strengthened previous results where socioeconomic differences in diseases were related to smoking, which will increase in the coming decades in many European countries (Cavelaars et al. 2000). Despite the fact that males were reported to be physically active, one-third of low- and high-risk males and over a third of continued males at risk were gaining weight. About 80% of low-risk males were reported to be physically active (III). This was a contradiction because the males had health risks, and they were stressed during physical activity (V). Physical activity must be regular and repeated often to promote good health (Kukkonen-Harjula et al. 2005; Vuori 2006). Physical activity was investigated in a large study among Finnish men and women in 2005, where 27% of men aged 15-64 years engaged in physical exercise at least four times a week (Helakorpi et al. 2005, p. 10).

Research into the health determinants of men (II) showed that burnout was strongly predicted by insomnia and depression. This strengthens the results of several previous studies, where insomnia and depression decreased the wellbeing of males and caused burnout (Koskinen 1999; Marks et al. 1999; Courtenay 2003; Lahelma et al. 2006) and where 20% of working aged men in Finland reported sleeplessness during the last month and 7% thought that they were more stressed than other people (Lönnqvist 2006, p. 67).

**Males and stress**

The results concerning the association between excessive alcohol consumption and stress (V) were in concordance with the findings of Courtenay (2003) that men respond to stress in less healthy ways than women do, and they are more likely than women to use avoidant coping strategies. The more traditional health beliefs of *masculinity* men have, the more health risks they exhibit. These beliefs have been linked with smoking, excessive alcohol consumption, drug use, insomnia, depression, cardiovascular diseases, stress and unhealthy dietary habits (Fishbein & Ajzen 1975, pp. 12-14, 405-406; Ajzen 1985, pp. 11-40; Courtenay 2000 a, b). Males in Helsinki seemed to be stressed even during their leisure time. Despite engaging in physical exercise, they were lacking in energy due to stress. These findings were consistent with a previous study by Robertson (1995), who noticed that a lack of energy and rejection of feelings limited a person’s ability to cope with his life.

Work was widely experienced as excessively demanding, which supported previous study results (Laaksonen et al. 2006). According to the social constructionist idea, the workforce is one of the institutional structures that strengthened the sex roles of a real man (Courtenay 2000). Harassment at work was experienced by 11% of non-participants (V). These results are similar to previous studies, where males reported harassment at work that caused them to experience mental symptoms and social isolation, which was in line with Gillow’s (1998) idea of work harassment where employers were liable for psychological injury as well as physical injury. Additionally these findings were similar to previous studies where mental stress at work influenced one’s health (Aromaa et al. 1999; Leiter et al. 1999; Hemmingsson & Lundgren 2006; Laaksonen et al. 2006). Stress and low job control were associated with and increased the relative risk of coronary heart disease (CHD) (Kivimäki et al. 2006). Among non-participants illness and ability not to work affected their poor health, which strengthens the previous study (Barton 2000; Tüdiver & Talbot 1999; Courtenay 2003) of work-oriented males. The feminine perspectives were also expressed - on the one hand fears of death and harassment at work and on the other hand the meaning of health and its benefits for men’s lives.
6.3. Health counselling

Only small percentages (2-4%) of the low- and high-risk men received counselling for weight control and physical exercise from professionals such as doctors and nurses (III). The results support earlier findings that physicians generally counselled only a minority of patients about exercise and targeted more of their advice toward secondary prevention (Griffiths 1996; Barton 2000; Piper 1997). Alcohol counselling (advising, supporting) by family members was associated with non-use of alcohol (II). This finding supports a recent study among the Finnish adult population (n=3,287) in which one-fifth of Finnish men aged 35-44 years reported being counselled by family members, 3% by their physician, and 4% by public health nurses (Helakorpi et al. 2005). Thus, the role of family members as "health keepers" was important not only for men, but entire families. It appeared that attention must be paid to family members, who followed information about healthy nutrition, the necessity of exercise and the dangers of smoking better than men and work health agents for them. This supports the theory of Reasoned Action, where significant others were key persons to motivate a person to adopt healthy behaviour (Fishbein & Ajzen 1975). It was important, therefore, that support and counselling were tailored according to each individual’s motivational readiness to change. In this process the most crucial role was played by family members, especially spouses.

According to Courtenay (2000 a), “health matters were women’s matters”; such collective beliefs and assumptions are referred to by social scientists and called social norms or subjective norms (Ajzen 1985, pp. 11-40; Blaxter 1990, pp. 102-105, 113; Charmaz 1995, pp. 266-291). Men who interrupted the study got slightly more health counselling from doctors and family members. However, these males rated their health as poorer, and smoked more than participants. The impact of counselling seems to be ineffective. Preventing alcohol consumption also prevents the consequences of the associated risks, such as various physical diseases, accident-related injuries (Vollrath et al. 1993; Courtenay 2003), mental health problems, difficulties at work, violence and family problems (Courtenay 2003).

The three-year follow-up of the males revealed that the critical point for health behaviour maintenance was the measurement and intervention in 2002, the results of which showed an improvement compared to the baseline. (IV). It appeared that men noticed their health risks, and they changed their health behaviour for a while. However, two years later in 2004 the readings were almost the same as at baseline. This supported the idea of timing of the Transtheoretical model (TTM) proposed by Prochaska (Prochaska et al. 1994; Prochaska & Velicer 1997), according of which there are people, who know that they are too inactive and do not intend to change (aware precontemplators) and people who do not know that they are too inactive and therefore experience no need to change (unaware precontemplators) (Lechner et al.1998). These are the people that should be recruited for action-oriented or exercise programs (Prochaska et al. 1994, Prochaska & Velicer 1997). Most essential however is to understand what happens at each follow-up phase. Also the mismatch between people’s needs and the interventions maybe a major cause for resistance to new health habits (Tones et al.1990; Prochaska et al. 1994, Prochaska & Velicer 1997, Velicer et al. 1998). The importance of adherence to health counselling was also noticed in the Finnish Diabetes Prevention Study (Lindström et al. 2006, 2008).
Despite interventions, the stages of maintenance and termination were reached only partly in this study process during the period 2002-2004. At Helsinki Heart District, men had the same familiar public health nurses who knew the clients (2001-2002). Nurses had the ability to motivate the men to have favourable lifestyles because the results were positive at first follow-up. It seemed that continuity of the preventive action was one key point to motivate men, because in 2004 the men had to contact new nurses and more bureaucratic systems at communal health services; this might take more energy for the clients and the men’s motivation decreased.

6.4. Reasons for non-participation

The basic and professional education of non-participants was poorer than education amongst originally participated males. They also were more often unemployed than participants (V). This was in line with a previous study, where non-participating males were those, who did not graduate from high school and who were unemployed (Caetano et al. 2003). One-third of physically active males participated. Males who rated their health as good were participating 2.4-fold more often than men who rated their health as poor. This was in line with results of Connell (1993) and Courtenay (2003), where good self-rated was positively associated with participation.

The reasons given by these males for not responding to an invitation to participate in the metabolic syndrome project (e.g., a lack of perceivable symptoms (V) were in line with research by Griffiths (1996) and Barton (2000). The results also were in concordance with Becker’s concept of perceived severity, which includes the person’s belief of how serious his/her condition and its consequences are (Becker 1974; Becker et al. 1978). It seemed that males were not aware of their health situation. Males also expressed doubt about health services, which might also explain their decision not to participate and not to visit health services. This lack of confidence was in line with Becker’s theory of HBM, where “self-efficacy” consists of the confidence in one's ability to take action (Becker 1974; Becker et al. 1978). Lack of confidence was also supported by psychological theories, according to Tudiver and Talbot (1999), Fronstin and Hicks (2004) and Schoen et al. (2004) (V).

6.5. Non participants and health care utilization

Avoiding health interventions did not depend only on socioeconomic status, males proved their masculine power by refusing to health intervention (V), which strengthened the idea of social structural framework and masculinity (Courtenay 2000). This also supported the results of Sobralske (2007), who pointed out the concept of machismo among Mexican American men, where they avoided health services and medical use because of a lack of awareness of their health situation and because men have to be healthy to be good fathers, husbands, brothers, sons, workers and community members.

Non-participants reported “to be lazy or busy for participation in the previous study “(V). This result can be seen as a masculine characteristic. Pressed for time seemed to represent the new middle class approach by Connell (1993). The reasons given by the males for not responding to an invitation from the metabolic syndrome project (V) support the results of Galdas et al. (2005) and Courtenay (2000, 2003), who found that generally males were less willing than females to seek help from health professionals. It might be the case that medical institutions underestimate men’s real health situations by
making poor invitations to participate in studies and by asking only a few questions related to men’s health (Courtenay 2000).

One-third of non-participants visited the doctor at communal health and occupational health care centres, usually when they had symptoms. These men seldom used health care services. This supports the findings of Boshuizen et al. (2006), who also reported less frequent use of health care services among men. Also, it supports the results of Galdas et al. (2005) and Courtenay (2003), who found that males were less willing than females to seek help from health professionals. Non-participated males expressed their needs for individual, flexible health services, and they pointed out the availability of services. They wanted to discuss various health problems as well as sexual and ageing questions (V). Although males had a number of health needs, they were afraid of the potential stigma of a sick person and therefore avoided occupational health services. These men showed “softness” and femininity, and they were not “real men” (Courtenay 1998, 2000). This was in line with men’s health experiences in Mexico, where pain and disability were motivating factors in finding ways to regain their health and making use of health services (Sobralske 2007). Health Behaviour Model according to Becker (1974) explained why some people did not use health services, this model might be interesting to use amongst males in Finland.

6.6. Validity, reliability and study limitations

All models of validity require some form of interpretation: could it measure what it intends to measure (Campbell & Stanley 1966) Many relevant and good variables could not be used because of the low response rate and careless filling out of the survey documents, which lowered the validity and removed the possibility of utilising the instrument (Renders et al. 2001; Yu 2006, pp. 777-784). HBQ was a validated instrument whose variables were well operationalised and tested over decades.

The reliability of the clinical measurements was ascertained by having them taken by the same nurses, same instruments, in the same environment during health examinations, which measured the stability, equivalence and consistency (Burns 1989; Waltz et al. 1991). The measurements in 2004 were carried out by nurses of health care centres of Helsinki, which might weaken the reliability.

The follow-up study described the results of health counselling only by describing the slopes, but the statistical significance was not described properly, because of limited data. Only 46 men with high risk were followed.

In qualitative research, triangulation aims to enhance the reliability and validity of the results, giving a more detailed and balanced picture of the situation (Creswell & Miller 2000; Golafshani 2003). By using data triangulation a more holistic description of the males was created. The interviews and health checks were carried out at the men’s own community hospital at weekends and during time away from work during a two-month period in spring 2004 by one researcher.

The reliability of the survey was ensured by using the same observers, environment, instruments and laboratory during health examinations and the telephone survey. The nurses and public health nurses of Helsinki Heart District were co-operated with researcher all the time during study process.
Limitations of the study

Our study population consisted only of men who were born in 1961 and lived in one area of a city. The main limitation of this study was a low response rate (40%). Data was population-based and respondents had to self-select to be enrolled in the study, by contacting a public health nurse freely. Because appointments took time, participants might not have been willing to make them. Thus, our results probably reflect the levels of health indicators and health behaviours of particularly motivated individuals (I).

The HBQ included several relevant questions that were considered equivalent to Courtney’s determinants, however many of them provided no new information owing to the low response rates (II). A lack of relevant questions regarding the content of health counselling also limited the information obtained on men’s real need for counselling. The results of this study recommend more detailed measurements to determine what counselling content, practices and skills would lead to positive health behaviour changes in the long term (III).

The drop-out rate of males after the first follow-up reduced the final number of the followed participants. An important not-known-reason for this may be the change in the location where measurements were taken at the final follow-up. Short-term counselling was not sufficient to produce stable results for all risk factors (IV).

Data gathering amongst non-participating males was demanding, and during the process there were many drop-outs (V). Males were telephoned, and a study limitation was that males had to be motivated to participate in interviews by phone. Males were busy, and lack of time limited the study.
7. CONCLUSIONS AND IMPLICATIONS

1. Men rated their health as good, despite the fact they were stressed and work-oriented and had various mental and physical symptoms and complaints. The results underscore the importance of understanding the contradiction that exists between subjective and objective health ratings. Nurses and physicians are in a key position to educate men how to use simple measurements to objectively assess their risk factors for cardiovascular diseases, and thus, potentially reduce their risk of developing diabetes, heart attack or stroke. Body mass index, waist circumference and blood pressure were good measurements and easy to use first before expensive blood tests. Dental health situation need more attention when reducing risk factors for CVD.

2. Many relevant predictors that were significantly associated with the selected key determinants of health behaviour and health beliefs of middle-aged men were found in this study. The promotion of regular physical and lifestyle activities and healthy lifestyles among middle-aged men is currently one of the most important priorities of preventive work in primary health care. More gender-specific studies are needed to obtain a deeper understanding regarding men’s health issues.

3. A short-term follow-up was not sufficient to produce stable results. It is critically important to pay attention to a longer time period in measurements, confirming the continuity of interventions, and to take males into account as they talk about issues of health promotion. One of the keys to getting males to commit themselves to better participation is by forming a confidential relationship with them and understanding what is their motivational readiness to change health habits. This presents a great challenge for nurses and physicians in primary health care. Additionally, family members function as "health keepers" of not only men but entire families, and this suggests that campaigns to educate spouses and children should lead to improved family health.

4. The questions about occupational health services provided notable means to understand the obstacles to men’s health and health services utilisation. Easy access to a consultation and special attention to the requirements of patient-centred care are required to focus on the issues important for males’ health. It may be more individually effective to integrate health interventions into environments like libraries, malls and sporting events that are accessible and familiar to men and their families. Although this study was a community-based project, where screening for risk factors for cardiovascular diseases and subsequent brief counselling was not incorporated into routine practice in health centres, it could easily be transferred into normal consultations in primary health care. More education concerning pedagogical skills amongst nurse- and doctor students and health professionals are needed in future.

5. By using an in-depth interview as one research strategy, more sensitive expressions in health and ill health were got by men. The results emphasize a male’s self-perception of his masculinity that may have relevance to the health experience of the male population. More attention is needed to develop a deep understanding of males’ gender specific health to encourage for healthy behaviour.
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APPENDIX

1. Health behaviour questionnaire.

ARVOISA VASTAANOTTAJA


Vastausesimerkkejä:

Esimerkki 1.

Sivillä on
1. Naimisissa tai avolittoissa
2. Naimon
3. Asumuserossa tai eronnut
4. Leski

Esimerkki 2.

Kuinka monta kupillista juotte kahvia tai teetä tavallisesti päivässä? Merkitä 0, jos ette juo lainkaan.

Kahvia ___, Teetä ___.

Esimerkki 3.

Onko Teitä viimeksi kuluneen vuoden (12 kk) aikana ollut seuraavia lääkäriin toteamia tai hoitamia sairauksia?

Kyllä

Kohonnut verenpaine, ___.
Verenpainetaulu ___.
Sokeritau ___.
Sydänveritulppa, sydänmorkki ___.
Sepelvaltimo, angina pectoris ___.
(rintakipua rastitkessa) ___.
Sydämen vajaatoiminta ___.

Esimerkki 4.

Oletteko viimeksi kuluneen vuoden (12 kk) aikana muuttanut tottmuksiasi terveydellisten näkökohtien perustella?

Kyllä

Vähentänyt rasvan määrä ___.
Muuttanut rasvan laatu ___.
Lisänyt kasvisten käyttö ___.
Vähentänyt sokerin käyttö ___.
Vähentänyt suolan käyttö ___.
Lisänyt liikunta ___.

Osallistuesanne tutkimukseen tuette kamppailua kansanterveysongelmien voittamiseksi ja kansalaisten terveyden parantamiseksi. Yhteistyöstä kiitään

Pekka Puska
professori

Antti Uutela
dosentti

KANSANTERVEYSLAIITOS
Epidemiologian ja terveyden edistämisen osasto
VASTAUSLOMAKE 2000

1. Sukupuoli
   1 mies
   2 nainen

2. Syntymävuosi 19 ___

3. Siviilisääty
   1 naimisissa tai avoliitossa
   2 naimaton
   3 asumuserossa tai eronnut
   4 leksi

4. Montako alle 18-vuotiasta lasta Teillä on kotona? Jos Teillä ei ole lapsia merkitkää 0.
   ___ lasta

5. Miten asutte?
   1 kerrostalossa
   2 pari- tai rivitalossa
   3 omakotitalossa

   ___ vuotta

7. Millaista työtä teette suurimman osan vuodesta?
   1 maanviljelys, karjanhoito, metsätyö, emäntä
   2 tehdas-, kaivos-, rakennus-, tai muu vastaava työ
   3 toimistotyö, henkisen työ, palvelutyö
   4 opiskelu tai koulunkäynti
   5 kotiropua, kotilaita, koti-isi
   6 eläkeläinen
   7 työttömä

8. Mikä on ammatinne?

9. Mikä on tämänhetkinen työtilanteenne?
   1 työttömä
   2 lomautettu
   3 lyhennetyllä työajalla (impan omana toivomusta)
   4 työssä, mutta työttömyys uhkaa
   5 normaalisti työssä (tarkoittaa myös opiskelijoita, perheenmäntää tms.)
   6 eläkeläinen

10. Oletko ollut viimeksi kuluneen 12 kuukauden aikana työttömänä tai lomautettuna (kokoanap poissa työstä, tämänhetkinen työttömyys tai lomautus mukaan lukien)?
    1 en lainkaan
    2 0 – 1 kk
    3 2 kk – 3 kk
    4 4 kk – 6 kk
    5 7 kk – 11 kk
    6 12 kk (koko vuoden)

TERVEYSPALVELUT JA TERVEYDENTILA

11. Montako kertaa viimeksi kuluneen vuoden (12 kk) aikana olette käynyt lääkärin vastaanotolla (sairaala- ja poliklinikakäyntit lasketaan mukaan)?
    ___ kertaa

12. Saatteko jonkin sairauden tai vammojen vuoksi työkyvyttömyyyseläkettä?
    1 en
    2 kyllä, osaeläkettä
    3 kyllä, määräaikaista eläkettä
    4 kyllä, pysyvä eläkettä

    ___ päivää
14. Onko Teillä viimeksi kuluneen vuoden (12 kk) aikana ollut seuraavia lääkärin toteamia tai hoitamia sairauksia?

kyllä

kohonnut verenpaine, ................................. 1
verenpainetautti ........................................ 1
kohonnut veren kolesteroli ......................... 1
sokeritauti .................................................. 1
sydänveritulppa, sydäninfarkki ....................... 1
sepelvaltimotauti, angina pectoris (= rintakipua rasituksessa) ......................... 1
sydänmen vajaatoiminta ................................ 1
nivelreuma .................................................. 1
selän kulmavikka, muu selkäsairaus ............ 1
pikääikainen keuhkoputketuntulehdus, keuhkolääjentuma ........................................ 1
astma ......................................................... 1
vatssasairaus (mahakatarri, gastritti, mahahaava) .......................................................... 1

15. Onko Teillä viimeksi kuluneen kuukauden (30 pv) aikana ollut seuraavia oireita tai vaivoja?

kyllä

rintakipua rasituksessa .................................. 1
nivelääkkyä ................................................. 1
selkääipua, selkäsärkyä .............................. 1
hammassärkyä ............................................ 1
turvotusta jaloissa ....................................... 1
suonikohjuja ............................................... 1
ihottumaa .................................................. 1
päänsärkyä .................................................. 1
unettomuutta ............................................. 1
masentuneisuutta ....................................... 1
ummetusta ................................................ 1
näätystä .................................................... 1
muita ruoansulatusvaivoja (ilmaviaivoja, ripulla) .............................................................. 1
iskiasta (selkääipua, joka säteilee sääreän) ................................................................. 1

16. Onko Teillä viimeisen vuoden (12 kk) aikana esiintynyt jonkin aikaa lähä päivittäin limaisia ysköksiä?

1 ei ole
2 kyllä, alle 1 kk yhtäjaksoisesti
3 kyllä, 1 – 2 kk yhtäjaksoisesti
4 kyllä, 3 kk tai enemmän yhtäjaksoisesti

17. Pystytekö yleensä seuraaviin suorituksiin? .......................... kyllä en

noin puolen kilometrin matkan käveleminen 
leväämättä .............................................. 1 .......................... 2
lyhyehkö matkan (noin sata metriä) juokseminen ............ 1 .......................... 2
pitkähkö matkan (yli puoli kilometriä) juokseminen ........... 1 .......................... 2

18. Onko oma terveydentilanne nykyisin mielestänne yleensä:

1 hyvä
2 melko hyvä
3 keskitasonen
4 melko huono
5 huono

19. Onko Teillä sairaus tai vamma, joka haittaa työ- ja toimintakykyä?

1 ei
2 kyllä

20. Oletteko tuntenut itseän jännityneeksi, stressaantuneeksi tai kovan paineen alaiseksi viimeksi kuluneen kuukauden (30 pv) aikana?

1 kyllä – olämäntilanteeni on mittei sietämätön
2 kyllä – melkoisesti enemmän kuin ihmiset yleensä
3 kyllä – jonkin verran, mutta en enempää kuin ihmiset yleensä
4 en ollenaan

21. Onko Teillä vaikeuksia selviytyä arkiaiskareistanne, työtehtävistanne tai muista olämäntilanteen vaatimuksista?

1 ei ole vaikeuksia selviytyä
2 on lieviä vaikeuksia selviytyä
3 on melkoisia vaikeuksia selviytyä
4 en selviä omin voimin

22. Montako kertaa viimeksi kuluneen vuoden (12 kk) aikana olette käynyt apteekissa?

□□□□ kertaa
23. Oletteko viimeksi kuluneen viikon (7 pv) aikana käyttänyt mitään tabletteja, pulvereita tai muita lääkkeitä?

kyllä

verenpainelääkkeitä..........................1
päänsärkyläääkkeitä..........................1
muita särkyläääkkeitä.........................1
ehkäisypilleriä.................................1
rauhoittavia lääkkeitä..........................1
unilääkkeitä....................................1
vitamiin- ja kivennäisvalmisteita..............1
yskänläääketttä.................................1
kolesterolläääkkeitä..........................1
hormonilääkkeitä vaihdevuosiin (tai
niiden jälkeisen aikana) naisille..............1
potenssihantioilääkkeitä (miehille)............1

24. Onko Teiltä koskaan mitattu
verenpainetta? Milloin viimeksi?

1 viimeksi kuluneen vuoden aikana
2 1 v – 5 v sitten
3 yli 5 v sitten
4 ei koskaan

25. Onko Teiltä koskaan tutkittu veren
kolesterolpitouisuutta? Milloin viimeksi?

1 viimeksi kuluneen vuoden aikana
2 1 v – 5 v sitten
3 yli 5 v sitten
4 ei koskaan
5 en tiedä

26. Jos verenne kolesterolpitouisuus on
todennut korkeaksi, niin annettiko Teille
lähtöisesti ruokavaliollisuuksia
kyllä

2 kyllä

27. Montako kertaa viimeksi kuluneen
vuoden (12 kk) aikana olette käynyt
hammaslääkärin vastaanottolia?

kertaa

28. Kuinka monta hammasta Teiltä puuttuu?

1 ei puuttu yhtään hammasta
2 puuttuu 1 – 5 hammasta
3 puuttuu 6 – 10 hammasta
4 puuttuu yli 10 hammasta mutta ei
kaikkia
5 kaikki hampaat puuttuvat tai on
kokoproteesi

29. Miten usein Teiltä on tapana harjata
hampaan?

1 useammin kuin kerran päivässä
2 kerran päivässä
3 harvemmmin kuin kerran päivässä
4 ei koskaan

30. Millaiseksi arvioitte suunne ja
hampaittenne terveydentilan tällä
hetkellä?

1 erinomaiseksi
2 hyväksi
3 keskinkertaiseksi
4 huonoks
5 erittäin huonoks

TUPAKOINTI

31. Tupakoitteko itse tai tupakoi joku muu
perheenä jäsenistä asunnossanne?

kyllä

ei

32. Oletteko kodissanne kärinä ulkopuolella
tulleesta tupakansavusta viimeisen
vuoden (12 kk) aikana?

1 kyllä
2 yli 5 tuntia
3 1 – 5 tuntia
4 alle tunnin
5 en juuri koskaan
6 upea tillsä kodin ulkopuolella

33. Montako tuntia olette päivittäin
työpaikallanne huoneissa tai muissa
tiloissa, joiden ilmassa on tupakansavua?

1 yli 5 tuntia
2 1 – 5 tuntia
3 alle tunnin
4 en juuri koskaan
5 en ole töissä kodin ulkopuolella

34. Miten tupakoointi on järjestetty
työpaikallanne?

1 kukaan ei tupakoi
2 salitti vain erityisessä
3 salitti tupakkahuoneessa ja yksittäisissä
työhuoneissa
4 salitti myös muualla sisätiloissa
35. Oletteko tyytyväinen työpaikkanne tupakointijärjestelyyn?
1 en
2 kyllä

36. Pitäisikö mielestänne kaikissa ravintoloissa ja baareissa olla selvästi erillinen osa tupakoiville asiakkaille?
1 ei
2 kyllä
3 vaikea sanoa

37. Oletteko tupakoinut koskaan elämänne aikana?
1 en (siirrykää kysymykseen 57)
2 kyllä (jalatakaa kysymykseen 38)

38. Oletteko tupakoinut elämänne aikana vähintään 100 kertaa (savukkeita, sikareita tai pippua)?
1 en
2 kyllä

39. Oletteko koskaan tupakoinut päivittäin ainakin yhden vuoden ajan? Kuinka monta vuotta yhteensä?
1 en ole koskaan tupakoinut päivittäin
2 olen tupakoinut päivittäin yhteensä ---- vuotta

40. Tupakoitteko nykyisin (savukkeita, sikareita tai pippua)?
1 kyllä, päivittäin
2 satunnaisesti
3 en lainkaan

41. Milloin olette tupakoinut viimeksi?
Jos tupakoitte jatkuvasti, merkitkää vaihtoehto 1.
1 eilen tai tänään
2 2 pv - 1 kk sitten
3 1 kk - puoli vuotta sitten
4 puoli vuotta - vuosi sitten
5 vuosi - 5 vuotta sitten
(siirrykää kysymykseen 57)
6 5 - 10 vuotta sitten
(siirrykää kysymykseen 57)
7 yli 10 vuotta sitten
(siirrykää kysymykseen 57)

42. Miten paljon polttatte nykyisin tai poltitte ennen lakkoa keskimäärin päivässä?
Vastakaa joka kohtaan. Merkitkää 0, jos ette tupako lainkaan.

43. Miten pian herätysnne polttatte tai ennen lakkoa poltitte ensimmäisen savukkeen?
1 viiden ensimmäisen minuutin sisällä
2 6 - 30 minuutin sisällä
3 31 - 60 minuutissa
4 myöhemmin kuin ensimmäisenä tuntina

44. Onko Teistä, tai oliko Teistä ennen lakkoa, vaikea pidättäytyä tupakoimasta sellaisissa paikoissa, joissa se on kiellettyä?
1 kyllä
2 ei

45. Mistä savukkeesta luopuminen olisi Teille vaikeinta (tai mistä savukkeesta luopuminen on ollut ennen lakkoa Teille vaikeinta)?
1 aamun ensimmäisestä
2 jostain muusta savukkeesta

46. Polttatteko, tai pollitteko ennen lakkoa, heräämästä seuraavina tunteina enemmän kuin loppupäivänä?
1 kyllä
2 en

47. Polttatteko tupakkaa, jos olette niin sairas, että olette vuoteessa melkein koko päivän (tai poltitteko ennen lakkoa)?
1 kyllä
2 en

48. Haluaisitteko lopettaa tupakoiminnan?
1 en
2 kyllä
3 en osaa sanoa
4 en tupakoi nykyisin
49. Jos yrittäisitte lopettaa tupakoinnin, niin lueletteko, että onnistuisitte siinä?
   1 en
   2 kyllä
   3 en osaa sanoa
   4 en tupakoit nykyisin

50. Harkitsetteko vakavasti tupakoinnin lopettamista seuraavien 6 kuukauden aikana?
   1 en
   2 kyllä

51. Suunnitteletteko tupakoinnin lopettamista seuraavien 30 vuorokauden aikana?
   1 en
   2 kyllä

52. Oletteko milloinkaan vakavasti yrittänyt lopettaa tupakoointia ja ollut tupakoimatta vähintään 24 tuntia? Jos olette, niin milloin viimeksi?
   1 viimeisen kuukauden aikana
   2 1 kk – puoli vuotta sitten
   3 puoli vuotta – vuosi sitten
   4 yli vuosi sitten
   5 en koskaan

53. Kuinka monta kertaa olette vakavasti yrittänyt lopettaa tupakoinnin?
   1 en kertaakaan
   2 1 – 2 kertaa
   3 3 – 4 kertaa
   4 5 kertaa tai useammin

54. Oletteko huolissanne siitä, että tupakointinne voi aiheuttaa omalle terveydellenne vahinkoa?
   1 hyvin huolissani
   2 hieman huolissani
   3 en juurikaan huolissani
   4 en lainkaan huolissani

55. Oletteko viimeksi kuluneen vuoden (12 kk) aikana käyttänyt nikotiinin korvaushoitoa (purukumi, laastari, pilleri ym.)?
   1 en ole käyttänyt
   2 kyllä, tupakoinnin lopettamisen tukena
   3 kyllä, muusta syystä

56. Onko joku alla mainituista henkilöistä viimeksi kuluneen vuoden (12 kk) aikana kehottanut Teiltä lopettamaan tupakoinnin?
   kyllä ei
   lääkäri .................................................. 1 ........ 2
   terveydenhoitaja tai
   työterveyshoitaja .................................. 1 ........ 2
   hammaslääkäri ....................................... 1 ........ 2
   perheen jäsen ........................................ 1 ........ 2
   joku muu ............................................. 1 ........ 2

RAVINTO

57. Missä syötte useimmiten lounaanne (klo 10 – 15 välillä) arkisin?
   1 kotona
   2 ravintolassa tai baarissa
   3 työpaikkaruokalassa
   4 muualla kuin mainituissa paikoissa
   5 en syö lounasta ollenkaan

58. Missä syötte useimmiten päivällisenne (klo 15 - 20 välillä) arkisin?
   1 kotona
   2 ravintolassa tai baarissa
   3 työpaikkaruokalassa
   4 muualla kuin mainituissa paikoissa
   5 en syö päivällä ollenkaan

59. Syöttekö useimmiten
   1 lämpimän aterian sekä lounaalla että päivällisellä
   2 vain yhden lämpimän aterian: lounaan (klo 10 – 15 välillä)
   3 vain yhden lämpimän aterian: päivällisen
     (klo 15 – 20 välillä)
   4 en syö lainkaan lämpimiä aterioita

60. Syöttekö yleensä aamupalaa?
   1 en
   2 kyllä
61. Mitä rasvaa käytätte enimmäkseen leivällä?
1. ei mitään
2. kevytlevitetä, jossa alle 65 % rasvaa (esim. Kevyempi Keiju, Kevyempi Flora, Kevyt Becel, Kevyt Linja, Kevyt Levi 40 tai 60)
3. kasvistanolimargarinia (esim. Benecol, Kevyt Benecol)
4. margarinia tai rasvalevitetä, joissa 70 – 80 % rasvaa (esim. Flora, Becel, Keiju)
5. voi-kasvisöljyseosta (esim. Voimariini, Enilet)
6. voita

62. Mitä rasvaa kotonanne käytetään enimmäkseen ruoan valmistuksessa?
1. kasviöljyä
2. kevytlevitetä, jossa noin 60 % rasvaa (esim. Kevyempi Flora, Kevyempi Keiju, Kultarypsi)
3. kasvistanolimargarinia (Benecol)
4. margarinia tai rasvalevitetä, joissa 70 – 80 % rasvaa (esim. Flora, Becel, Voomix, Keiju)
5. talousmargarinia (esim. Miida, Sunnuntai)
6. voi-kasviöljyseosta (esim. Voimariini, Enilet)
7. voita
8. ei mitään rasvaa

63. Kuinka monta lasillista maitoa tai piimää (1 lasilighten on 2 dl) juotte tavallisesti päivässä? Merkitkää 0, jos ette juu lainkaan.

dalaita _____ lasillista
piimää _____ lasillista

64. Jos juotte maitoa, käytättekö tavallisesti
1. tilamaitoa (käsittelemätön maito)
2. täysmaitoa (entinen kulutusmaito)
3. kevytmaitoa
4. ykkösmaitoa
5. rasvatonta maitoa
6. en juo maitoa

65. Minkälaista juustoaa tavallisesti käytätte (ei koske sulatejuustoaa)?
1. kasvisrasvajuustoaa
2. tavallista juustoaa
3. en käytä juustoaa


leipää (ruiss-, näkkileipä ym.)
viipaleita päivässä
seka-, hiiva-, gramma-, kauraleipää
viipaleita päivässä
ranskanleipää, polakka
viipaleita päivässä

67. Kuinka monta kupillista juotte kahvia ja teetä tavallisesti päivässä? Merkitkää 0, jos ette juo lainkaan.

kahvia _____ kupillista
teetä _____ kupillista

68. Montako sokeripalaa tai teelusikallista hienoa sokeria käytätte juodessanne yhdens kupillisentä kahvia tai teetä? Merkitkää 0, jos ette lainkaan.

palaa tai lusikallista sokeria

palaa tai lusikallista sokeria

69. Miten usein lisätätte ruokaanne suolaa pöydässä?
1. en juuri koskaan
2. yleensä silloin, kun ruoka ei maistu riittävän suolaiselta
3. jokseenkin aina ennen maistamista

70. Mitä suolaa kotonanne pääasiassa käytetään?
1. tavallista jodipitoista ruokasuolaa (esim. Jozo, Junior, Meira)
2. merisuolaa
3. mineraalisuolaa (esim. Pan-suola, Selton)
4. muuta (esim. maustesuolat)
5. ei käytetä suolaa
71. Millaista voita tai margarinia tavallisesti käytätte?
   1 normaalisuolaisia
   2 voimakkasuolaisia
   3 vähäsuolaisia tai suolatonta
   4 en käytä lainkaan voita tai margarinia

72. Syödessänne kodin ulkopuolella onko ruoka kotiurokaan verrattuna?
   1 suolaisempaa
   2 yhtä suolaisia
   3 vähemmän suolaisia

73. Onko mielestänne valmisruoka (einekset, pakasteroamat) kotiurokaan verrattuna?
   1 suolaisempaa
   2 yhtä suolaisia
   3 vähemmän suolaisia

74. Kuinka usein olette viimeksi kuluneen viikon aikana käyttänyt seuraavia ruokia ja juomia?

<table>
<thead>
<tr>
<th>Ruoka</th>
<th>1 - 2 päivänä</th>
<th>3 - 5 päivänä</th>
<th>6 - 7 päivänä</th>
</tr>
</thead>
<tbody>
<tr>
<td>keitettävä perunoita</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>ranskalaisia perunoita</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>riisiä/pastaa</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>puuroja, muroja</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>rasvaisia juustoja</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(esim. Edam, Emmental, Oltermanni)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>vähärasvaisia juustoja</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>(esim. Minora, Polar-15, Magré, Kadett, Oltermanni 17)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>kananä</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>kalaa</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>lihaa</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>lihajaloistä (makkarat yms.)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>tuoreita vihanneksia/ juureksia</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>kypsennettyä vihanneksia/ juureksia</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>hedelmiä/marloja</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>makeita leivonnaisia</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>jäätelöä</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>makeisia</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>viivoitusjuomia</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>kananmunia</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
75. Onko joku alla mainituista henkilöistä kuluneen vuoden (12 kk) aikana kehottanut Teitä muuttamaan ruokatottumuksianne terveyystä?

   käytät
   ei

   lääkäri ............................................. 1 .... 2
   joku muu
   terveydenhoitoenkilö ......................... 1 .... 2
   perheenjäsen ................................... 1 .... 2
   joku muu ........................................... 1 .... 2

76. Oletteko viimeksi kuluneen vuoden (12 kk) aikana käytteet mitään alkoholijuomia (olutta, viiniä tai väkevää)?

   1 käytät
   2 ei

77. Montako lasillista (tavallista ravintolannosta) tai pullollista olette juonut edellisen viikon (edelliset 7 vri) aikana?

   olutta (IVA tai III) (1/3l) pullollista (1/3l)

   long drink-juomia (1/3l) pullollista (1/3l)

   väkevää alkoholia ..... ravintolannosta

   viiniä tai vastaavaa ..... lasillista

   alkoholipitoisuus yli 5 %

   alkoholipitoista siideriä tai kevytviiniä

   alkoholipitoisuus noin 5 %

   lasillista

78. Mitä olutta juotte tavallisesti?

   1 en juo olutta
   2 keskiolutta
   3 keskiolutta ja A-olutta suunnilleen yhtä usein
   4 A-olutta

79. Kuinka usein tavallisesti juotte olutta?

   1 päivittäin
   2 2 – 3 kertaa viikossa
   3 kerran viikossa
   4 2 – 3 kertaa kuukaudessa
   5 muutaman kerran vuodessa tai harvemmin
   6 en koskaan

80. Kuinka usein tavallisesti juotte väkevä alkoholijuomia tai viinää?

   1 päivittäin
   2 2 – 3 kertaa viikossa
   3 kerran viikossa
   4 2 – 3 kertaa kuukaudessa
   5 muutaman kerran vuodessa tai harvemmin
   6 en koskaan

81. Kuinka usein tavallisesti juotte viiniä?

   1 päivittäin
   2 2 – 3 kertaa viikossa
   3 kerran viikossa
   4 2 – 3 kertaa kuukaudessa
   5 muutaman kerran vuodessa tai harvemmin
   6 en koskaan

82. Kuinka usein juotte alkoholia kerralla kuusi annosta tai enemmän (alkoholiannos käsittää pullon olutta tai vastaavaa, lasin viiniä tai ravintolannoksien väkevää alkoholijuomaa)?

   1 en koskaan
   2 harvemmin kuin kerran kuukaudessa
   3 kerran kuukaudessa
   4 kerran viikossa
   5 päivittäin tai lähes päivittäin

83. Onko joku alla mainituista henkilöistä kuluneen vuoden (12 kk) aikana kehottanut Teitä vähentämään alkoholin käyttöä?

   käytät
   ei

   lääkäri ............................................. 1 .... 2
   joku muu
   terveydenhoitoenkilö ......................... 1 .... 2
   perheenjäsen ................................... 1 .... 2
   joku muu ........................................... 1 .... 2
PITUUS JA PAINO

84. Kuinka pitkä olette?

[ ] cm

85. Miten paljon painatte kevyissä vaatteissa punnittuna?

[ ] kg

86. Onko painonne muuttunut viimeksi kuluneen vuoden (12 kk) aikana?

1 ei, se on pysynyt ennallaan
2 kyllä, olen lihonut
3 kyllä, olen laihnutun

87. Onko joku alla mainituista henkilöistä kuluneen vuoden (12 kk) aikana kehottanut Teitä lähituntumaan?

kyllä ei
lääkäri................................. 1 2
joku muu
lerveydenhoitohenkilö........... 1 2
perheenjäsen......................... 1 2
joku muu............................... 1 2

LIIKUNTA


1 en ole työssä tai työ on kotona
2 kuljen työmatkan kokonaan moottorin ajamalla
3 alle 15 minuuttia päivässä
4 15 – 30 minuuttia päivässä
5 30 – 60 minuuttia päivässä
6 yli tunnin päivässä

89. Kuinka usein harrastatte vapaa-ajan liikuntaa vähintään puoli tuntia niin, että ainakin lievästi hengästytte ja hikoilete?

1 päivittäin
2 4 – 6 kertaa viikossa
3 2 – 3 kertaa viikossa
4 kerran viikossa
5 2 – 3 kertaa kuukaudessa
6 muutaman kerran vuodessa tai harvoimmin
7 en voi vamman tai sairauden vuoksi harrastaa liikuntaa


1 työni on pääasiassa istumatyö, enkä kävele paljoakaan
2 kävelen työssäni melko paljon, mutta en joudu nostelemaan tai kantamaan raskaita esineitä
3 joudun työssäni kävelemään ja nostelemaan paljon tai nousemaan portaita tai ylämäkeä
4 työni on raskaasti ruumiilista työtä, jossa joudun nostamaan tai kantamaan raskaita esineitä, käivamaan, lapioimaan tai hakkaamaan jne.

91. Kuinka paljon liikutte ja rasitatte itseänne ruumiillisesti vapaa-aikana? Jos rasitus vaihtelee paljon eri vuodenaikoina, merkitkää se vaihtoehto, joka parhaiten kuvaa keskimääräistä tilannetta.

1 vapaa-aikanaani luen, katsele televisiota ja suoritan askareita, joissa en paljonkaan liiku ja jotka eivät rasita minua ruumiillisesti
2 vapaa-aikanaani kävelen, pyöräilen tai liikun muulla tavalla vähintään 4 tuntia viikossa
3 harrastan vapaa-aikanaani varsinaista kuntoliikuntaa keskimäärin vähintään 3 tuntia viikossa
4 harjoitelen vapaa-aikanaani kilpailumielessä säännöllisesti useita kertoja viikossa

92. Onko joku alla mainituista henkilöistä kuluneen vuoden (12 kk) aikana kehottanut Teitä lisäämään liikuntaa?

kyllä ei
lääkäri................................. 1 2
joku muu
lerveydenhoitohenkilö........... 1 2
perheenjäsen......................... 1 2
joku muu............................... 1 2
LIIKENNETURVALLISUUS

93. Käytättekö heijastinta liikkuessanne pimeään aikaan valaistujen katujen ulkopuolella?
   1 yleensä aina
   2 joskus
   3 en koskaan
   4 en koskaan liiku valaistun kadun ulkopuolella

94. Käytättekö kypärää pyöräillessänne?
   1 yleensä aina
   2 joskus
   3 en koskaan
   4 en pyöräilte koskaan

95. Käytättekö turvavyötä ajaessaan tai matkustassa auton etupenkillä?
   1 yleensä aina
   2 joskus
   3 en koskaan
   4 en koskaan liiku henkilöautolla

96. Käytättekö turvavyötä matkustassa auton takapenkillä?
   1 yleensä aina
   2 joskus
   3 en koskaan
   4 turvavyöitä ei ole takapenkillä
   5 en koskaan matkusta takapenkillä

97. Miten vakavana liikenneturvallisuus-ongelmana pidätte rattijuopumusta? Miten pitkä vankeusranskaistus törkeästi rattijuopumuksesta (veren alkoholipitoisuus yli 1,2 %) olisi mielestäanne tuomittava?
   1 ei lainkaan vankeutta (sakkorangaistus)
   2 vankeutta 1 – 2 kk
   3 vankeutta 3 – 4 kk
   4 vankeutta 5 – 11 kk
   5 vankeutta 1 – 2 vuotta
   6 vankeutta yli 2 vuotta

98. Tiedättekö jonkun läheisen ystävänne ajaneen autoa alkoholiolottineena edellisen vuoden aikana?
   1 en
   2 kyllä
   3 en osaa sanoa

99. Kuinka monta kilometriä ajoitte autoa viime vuoden aikana?
   1 minulla ei ole ajokorttia
   2 en ole lainkaan ajanut autoa edellisen vuoden aikana
   3 alle 5 000 km
   4 5 000 – 19 999 km
   5 20 000 – 49 999 km
   6 50 000 – km

MUUTA

100. Oletteko viimeksi kuluneen vuoden (12 kk) aikana muuttanut tottumuksianne terveydellisten näkökohtien perusteella?
   kyllä
   vähentänyt rasvan määrää .................. 1
   muuttanut rasvan laatua ................... 1
   lisännyt kasvisten käyttöä .................. 1
   vähentänyt sokerin käyttöä .................. 1
   vähentänyt suolan käyttöä .................. 1
   laihduttanut .................................. 1
   lisännyt liikuntaa ............................ 1
   vähentänyt alkoholin käyttöä .............. 1
   vähentänyt tupakointia ...................... 1

   1 virheellinen ravinto
   2 stressi, vaikeat elinolosuhteet, raskaus työ
   3 tupakointi
   4 liikunnan puute
   5 hivenaineiden, vitamiinien ym. puute (maaperä, ravinto)
   6 ylimaine
   7 perintötekijät
   8 alkoholi
   9 terveyspalvelujen puutteellisuus
   0 muu, mikä? _____________________________
102. Onko Teille viimeksi kuluneen vuoden (12 kk) aikana sattunut jokin seuraavista tapaturmista, jolloin olette tarvinnut lääkärin hoitoa?

kyllä
liikennetapaturma, jossa moottori-ajoneuvo oli mukana..........................1
muu liikennetapaturma
(esim. polkupyörällä) .....................1
työtapaturma (ei kuitenkaan työmatkalla tapahtunut) .................1
kotitapaturma (kotona tai
pihopiirissä) ..................................1
urheilutapaturma (kunto- tai
kilpaureilussa) ..........................1
muu vapaa-ajan tapaturma..............1
muu tapaturma ................................1

103. Oletteko koskaan kokeillut
nuuskamaista?

1 en ole kokeillut
2 olen kokeillut kerran
3 olen nuuskannut 2 - 5 kertaa
4 olen nuuskannut yli 50 kertaa

104. Nuuskaatteko nykyisin?

1 kyllä, päivittäin
2 satunnaisesti
3 en lainkaan

105. Tiedättekö tuttavien joukossa jonkun, joka viimeksi kuluneen vuodon (12 kk) aikana on kokeillut huumaavia aineita (hasista, marihuanaa, amffetamiinia, herooinia)?

1 en tiedä ketään
2 tiedän yhden henkilön
3 tiedän 2 - 5 henkilöä
4 tiedän useampia kuin 5 henkilöä

106. Onko Teille viimeksi kuluneen vuoden (12 kk) aikana tarjottu joko ilmaseksi tai ostettavaksi jotain huumausainetta?

1 ei ole
2 kyllä, ilmaseksi
3 kyllä, ostettavaksi
4 kyllä, sekä ilmaseksi että ostettavaksi

Seuraavilla kysymyksillä tutkitaan Suomessa tapahtuvaan terveyden edistämistyöhön liittyviä ajankohtaisia asioita.

107. Tänä keväänä järjestetään tupakoinnin
lopettamisklipallu "Lopeta ja Voita"
(aikea 2.5.2000) Oletteko kuullut tästä
kilpailusta?

1 kyllä
2 ei

108. Aiotteko osallistua tai oletteko 
osallistunut tähän kilpailuun?

1 kyllä, tupakoinnin lopettajana
2 kyllä, kannattajana
3 en

109. Mistäkuulitteensimmäistäkertaatästä
"Lopeta ja Voita" -kilpailusta?

0 en ole kuullut kilpailusta
1 radiosta
2 televisiosta
3 sanomalehdestä
4 aikakauslehdestä
5 perheenjäseneltä
6 terveydenhuoltohenkilökunnalta
7 muiltä henkilöiltä
8 kilpailuaineistosta (kuponkiesit, juliste)
9 muu, mistä:

110. Olettekokuullut Kunnossa Kaikenikää
-toimintaohjelmasta (KKi-ohjelma)?

1 en
2 kyllä

111. Oletteko osallistunut viimeksi kuluneen
vuoden (12 kk) aikana Kunnossa Kaiken
lkää (KKI) - toimintaan tai -tahtumiin?

1 en
2 kyllä

112. Oletteko kuullut toimenpideohjelmasta
suomalaisten sydän- ja
verisuonitaterveyden edistämiseksi?

1 en
2 kyllä

<table>
<thead>
<tr>
<th>viikoittain</th>
<th>kuukausittain</th>
<th>harvemmin</th>
</tr>
</thead>
<tbody>
<tr>
<td>julisteista tai lehtisistä</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>televisiosta</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>radiosta</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>sanomalehdistä</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>aikakauslehdistä</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>esitelmätilaisuuksissa</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>ei</th>
<th>kyllä</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opiskelu- tai työyhteisössä</td>
<td>1</td>
</tr>
<tr>
<td>Paikallisena (esim. kotikunnassa)</td>
<td>1</td>
</tr>
<tr>
<td>Valtakunnallisena</td>
<td>1</td>
</tr>
</tbody>
</table>

115. Pitäisikö kotikunnanne mielestänne tehdä nykyistä enemmän sairauksien ennaltaehkäisemiseksi, terveellisen ympäristön aikaansaamiseksi tai kuntalaisten terveyden edistämiseksi?

1 | kyllä, mitä?
2 | ei, se tekee jo riittävästi

116. Terveydenhuolto sisältää sekä sairauksien ennaltaehkäisyä että niiden hoitoa ja kuntoutusta. Kumman osuutta pitäisit mielestänne enemmän lisätä vai onko nykyinen tilanne sopiva?

1 | enemmän ennaltaehkäisyä
2 | enemmän hoitoa ja kuntoutusta
3 | nykyinen tilanne on sopiva
4 | en osaa sanoa

Merkitsettekö vielä lomakkeen täytöpäivämäärän:

___ ___ 2000

Pyydämme Teitä vielä ystävällisesti tarkistamaan, että olette vastannut jokaiseen kysymykseen.

KIITOS
Appendix 2. Applied, self-administrative telephone survey

PVM:
Haastateltava
Sotu ID numero

TAUSTATIEDOT

1. Siviilisäätyenne on

2. Koulutustasonne
   4. Akateeminen tutkinto 5. Ei koulutusta

3. Tämänhetkinen työtilanteenne

4. Mikä on ammattinne?  
   henkinen työ, palvelutyö 5. Opiskelu, koti-isyys 6. Ei ammattia

5. Mikä on pituutenne, ______cm painonne________kg___: BMI___

ELINTAVAT

6. Alkoholin käyttö: Kuinka usein juotte alkoholia kerralla kuusi annosta tai enemmän (Alkoholiannos 
   käsittelee pullon olutta, lasin viiniä tai ravintola-annoksen väkevää alkoholijuomaa?)  

7. Tupakointi

8. Liikunta
   Kuinka useasti harrastatte liikuntaa vähintään puoli tuntia niin, että ainakin lievästi hikoilette tai hengästytte?
   1. Päivittäin 2. 1-3 kertaa viikossa 3. 2-3 kertaa kuukaudessa 4. Harvemmin 5. En lainkaan

9. Ravinto
   1. Olen muuttanut ravintotottumuksiani terveellisimmaksi 2. Ravintotottumukseni ovat ennallaan 3. Syön yhä epäterveellisemmin

10. Painon hallinta viimeisen kuukauden aikana
    1. Olen laihtunut 2. Olen lihonut 3. Painoni on pysynyt ennallaan viimeisen kuukauden aikana

TERVEYSPALVELUT

11. Montako kertaa olette viimeksi kuluneen vuoden aikana (12kk) käynyt lääkärin vastaanotolla (sairaala-ja 
    poliklinikkakäyntit lasketaan mukaan)  
    1. terveyskeskushäkäärillä ______ kertaa  
    2. yksityishäkäärillä ______ kertaa  
    3. työterveyslääkäärillä ______ kertaa  
    4. opiskelijoiden terveydenhuollon lääkäärillä ______ kertaa  
    5. sairaala- tai poliklinikkalääkäärillä ______ kertaa  
    6. muualla lääkäärillä , millä ____________

12. Kuvailka terveyspalvelujen saatia akuuteissa tilanteissa:  
    1. Terveyspalvelujen saanti on kiitettävää 2. Terveyspalvelujen saanti on välittävää 3. Terveyspalvelujen saanti on huonoa
13. Mitä terveyspalveluja käytätte säännöllisesti?

14. Mitä asioita tulisi mielestään ensi sijassa kehitteä terveyspalveluissa?
   6. Palvelut omalla äidinkielellä

15. Aiemmin koillisesella alueella toteutettiin MBO projekti vuonna 2001, onko jokin seuraavista perustelusta, että ette osallistunut tutkimusprojektiin?
   1. Ete muista saaneenne kutsua   2. Piditte tutkimusta tarpeettomana omalla kohdallanne  3. Teillä ei ollut aikaa tutkimukseen
   4. Muu perustelu __________________________

16. Milloin hakeudutte terveyspalvelujen piiriin?
   1. silloin, kun teillä on voimakkaita oireita  2. epäilette tarvitsevan terveydenhuollon ammattihenkilön apua
   3. terveystarkastusta varten  4. muusta syystä

17. Miten suhtaudutte ennaltaehkäisevään terveydenhuoltotyöhön?
   1. Myönteisesti  2. Kielteisesti

18. Oletteko saanut terveysneuvontaa terveydenhuoltohenkilöstä?
   1. Kyllä, minkälaista
   ________________________________________________
   2. Ei

19. Onko saamanne terveysneuvonta vaikuttanut terveyskäyttäytymiseen?
   1. Kyllä, miten? __________________________________________
   2. Ei

20. Minkämuotoinen terveysneuvonta olisi teidän mielestäne hyvä juuri miehille?

TERVEYDENTILA

21. Minkälainen on terveydentilanne mielestänne juuri tällä hetkellä

22. Onko teillä sairauden tai vamma, joka haittaa työ- tai toimintakykyä?
   1. Kyllä, minkälainen vamma
   ________________________________________________
   2. Ei

23. Miten itse hoidatte terveyttäneen?
    ________________________________________________

24. Onko teidän vaikea tuoda esiille sairauden tunetta?
   1. Kyllä, miksi?
   ________________________________________________
   2. Ei

25. Liittyykö terveydentilan menetykseen mielestänne pelkoja?
   1. Kyllä, Minkälaisia
   ________________________________________________
   2. Ei

26. Onko teillä todettu pysyvää sairautta?
   1. Kyllä, mikä
   ________________________________________________
   2. Ei
27. Onko lähiisukulaisillanne todettu diabetesta tai sydän- ja verisuonisairauksia nuorella iällä (alle 55-vuotiaana)?

28. Onko teillä esiintynyt seuraavia oireita

ELÄMÄNTILANNE

29. Minkälainen on tämän hetkinen elämäntilanteenne?

STRESSI

30. Onko teillä stressiä?
1. Kyllä  2. Ei

31. Jos teillä on stressiä, niin miten se ilmenee elämässänne?
8. Muuna, miten?
_______________________________________________________________________________________________________

32. Liittyykö stressi mielestänne

TYÖ

33. Oletteko tyytyväinen omaan työhön?
1. Kyllä  2. En  3. En osaa sanoa

34. Kuormittaako työ liikaa elämässänne?
1. Kyllä  2. Ei

35. Koetteko esimiehen työssä

36. Kuvaillkaa työilmapiiriänne
___________________________________________________________________________________________________________

37. Oletteko kohdannut työpaikkakiusaamista?
1. Kyllä, _______________________________________________________________________________________
2. Ei

SOSIAALINEN TUKI, LÄHEISTEN MERKITYS ELÄMÄSSÄ

38. Koetteko olevanne yksinäinen?
1. Kyllä  2. En  3. En osaa sanoa

39. Miten määrittelette teille läheisimmän henkilön?

TERVEYSNEUVONTA

40. Saatteko terveysneuvontaa läheisiltänne
1. Kyllä  2. Ei
41. Onko läheisiltänne saamanne terveysneuvonta vaikuttanut terveyskäyttäytymiseenne?
   1. Kyllä, miten__________________________________________________________
   2. Ei, miksi ____________________________________________________________

42. Saatteko terveysneuvontaa terveydenhoitajan/sairaanhoitajan vastaanotolla? 1. Kyllä 2. Ei

43. Saatteko terveysneuvontaa lääkäрин vastaanotolla? 1. Kyllä 2. Ei

44. Onko terveydenhuoltohenkilöstöltä saamanne terveysneuvonta vaikuttanut terveyskäyttäytymiseenne?
   3. Kyllä, miten__________________________________________________________
   4. Ei, miksi ____________________________________________________________

MOTIVAATIO

45. Kuvailkaa omaa motivaatiotanne hoitaa omant man terveydentilaanne:

TIETOISUUS METABOLISEN OIREYHTYMÄN (MBO) RISKITEKIJÖISTÄ

46. Oletteko saanut tietoa riskitekijöistä, jotka saattavat kehittää metabolisen oireyhtymän?
   Kyllä, mitä tietoa_______________________________________________________
   2. En 3. En osaa sanoa

47. Mikäli teillä todettaisiin MBO (on siis taas selostettava mikä se on ja miten ilmenee), mitä ensisijaisesti lähtisitte muuttamaan elämässänne?