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RELIGIOUS FAITH, LIFESTYLE AND HEALTH – AN EMPIRICAL STUDY OF THE PEOPLE OF OSLO[1]

Abstract

OBJECTIVE: a) to analyse the relationship between dimensions of a religious faith, self-rated health and lifestyle. DESIGN: A population-based survey conducted in 2000/2001 inviting all citizens in Oslo born in different age groups, 18, 770 participants. RESULTS: Christians with what the authors define as an extrinsic (attending a religious meeting at least once a month) or an intrinsic religiosity (finding strength and comfort in a religious faith) had more friends ($p<0.001$), consumed significantly less alcohol and had a lower rate of daily smoking ($p<0.001$ and $p<0.05$) than respondents with non/little religiosity. Religious oriented respondents did not report better self-rated health than the non-religious. There was a significant association between sick benefit (certified as being ill) and intrinsic religiosity for both Christians and Muslims ($p<0.01$ and p 0.05). CONCLUSION: Religiously oriented respondents did not report better self-rated health than the non-religious despite a significantly lower percentage using tobacco and alcohol and indications of a healthier diet. More research is warranted to look at religious faith as an incitement for a healthy lifestyle combined with being a source of strength and comfort when illness occurs.

Keywords: Religiosity, self-rated health, lifestyle and health indicators

Introduction

Norway has like the other Nordic countries some of the best welfare conditions in the world. The political system is based on a social democratic model where the inhabitants think that the formal authorities should take care of the health and welfare politics (Kuhn 2001). Traditionally, the Nordic countries have had a strong foundation in the Protestant ethic, an ethic that promotes a good job morality and puritanical lifestyle (Kalberg 2002).

The dramatic changes in lifestyle in recent decades have resulted in ethical and economical challenges. A few decades ago lifestyle diseases were more common in the lower than the higher social classes. Today there is an increasing malnutrition, obesity, drug addiction and reduced physical activities in all social classes. Another trend

is that members of the Church of Norway have become more passive; attend church less frequently, during the last decades (Repstad 2000). The general impression is that people want freedom and autonomy, not rules and paternalism. Those who want to change people's attitudes towards a healthier lifestyle are sometimes called «new moralists» or «health prophets». Fugelli (1998, 2004) encourages people to enjoy life and make decisions about their own lifestyle. However, it is well known that many diseases might be caused by an unhealthy lifestyle. Jacobsen (2004) emphasizes that lifestyle is not just a personal matter. The recently introduced anti-smoke law is meant to protect people from involuntary smoking (Sanner and Dybing 2004). Jacobsen (2004) is critical to medical professionals who use their authority to increase resistance against adjustments that might improve public health. He argues that in the media debate, before the Norwegian anti-smoke law was passed, ethical principles were misused.

The World Health Organization's (WHO) definition of health from 1946, «Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity», has been widely used, in spite of criticism that it is a passive definition. WHO gave an important signal when the organization wanted to include «spiritual well-being» in their definition of health (WHO 1999). Abouzaid (1999) emphasized that a spiritual dimension might play an important role in people's lives and influence their lifestyle. Recognition of this dimension is also the concern of environmental health. Several studies concerning religious orientation and health have concluded that religious engagement may have a positive effect on both mental and physical health. Antonovsky (1987) introduced the sense of coherence (SOC) scale to measure the extent to which a person perceives life as comprehensible, manageable, and meaningful. «The strong SOC person will be motivated to see the task as a challenge, to impose structure, to search for appropriate resources. He or she will have more confidence that performance outcome will be reasonable» (1987:182). For many people religion is a major source of hope, and spiritual practice gives meaning. Sense of coherence is a major predictor of mental and physical health, happiness, and satisfaction with life. Koenig et al. (2001), authors of *The Handbook of Religion and Health*, have examined both the positive and the negative «effects» of religion and health across the life span by analysing 1,200 studies and 400 research reviews conducted during the twentieth century. They concluded with the following statement: «If religious faiths and practices have negative health consequences, do the health benefits outweigh the negative effects? Indeed, these are testable research questions» (2001:77).

Seeman et al. (2003) conducted a critical review of the evidence of biological pathways related to religiosity/spirituality and health. They found that emotional, social, and spiritual health had no effect on self-reported health status. Ratner et al. (1998) made the same conclusion after secondary analysis of cross-sectional survey data. Hill and Pargament (2003) emphasized that the connection between religion, spirituality and health were unclear. The reason could be that religion and spirituality had been measured by global indices (e.g. frequency of church attendance, self-rated religiosity and spirituality). They recommended the use of measures that were more conceptually related to physical and mental health (e.g. closeness to God, religious

orientation and motivation, r
(2000) defined lifestyle as a
each individual. Variables th
alcohol consumption, tobacco

To reiterate, the aim of t
religious faith and self-rated h
and lifestyle, especially with r

Methods

Subjects

The Oslo Health Study was c
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Health), the University of Os
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Data Inspectorate approved th
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All respondents, a total o
answered at least one questio
with the letter of invitation. Of
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which they were instructed to
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consumption and social and rel
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In addition, we included weigh
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Religious faith

To define religious faith (in ad
of religious orientation have b
religiosity (ER) (Koenig 2001
extrinsic religiosity for practic
intrinsic and extrinsic religious
In our study the dimension c
strength and comfort in a rel
«Sometimes» found comfort or

orientation and motivation, religious support, religious struggle). Kamieneski et al. (2000) defined lifestyle as a manner of living that reflects the values and attitudes of each individual. Variables that are often investigated with respect to lifestyle include alcohol consumption, tobacco consumption, type of diet and amount of exercise.

To reiterate, the aim of the present study is: i) What is the association between religious faith and self-rated health? ii) What is the association between religious faith and lifestyle, especially with respect to the use of stimulants?

Methods

Subjects

The Oslo Health Study was conducted in the city of Oslo from May 2000 to September 2001 (Søgaard et al. 2004). It was the result of a joint collaboration of the National Health Screening Service of Norway (now the Norwegian Institute of Public Health), the University of Oslo and the Municipality of Oslo. The population to be studied included all individuals in Oslo County born in 1924/25, 1940/41, 1955/60 and 1970. The Regional Committee for Medical Research Ethics and the Norwegian Data Inspectorate approved the study protocol in accordance with the World Medical Association Declaration of Helsinki. Several research centres have contributed to the study with questions regarding relevant themes. In this article we present data focusing on the relationship between religious orientation, health and lifestyle.

All respondents, a total of 18, 770, underwent a physical examination and/or answered at least one questionnaire. A self-administered questionnaire was enclosed with the letter of invitation. Of those who attended the screening, 84 % agreed to participate in an additional study. They were given two supplementary questionnaires, which they were instructed to fill out at home and return by mail in pre-stamped addressed envelopes. The questionnaires provided information on several aspects of health. In addition, a variety of lifestyle questions regarding diet, smoking, alcohol consumption and social and religious involvement were included. In this article we are using the main questionnaire and supplement 1 (www.fhi.no HUBRO A and B 2001). In addition, we included weight and height measurements from the physical examination, used in calculation of the Body Mass Index (kg/m^2).

Religious faith

To define religious faith (in addition to religious belonging), two different dimensions of religious orientation have been considered: *intrinsic religiosity* (IR) and *extrinsic religiosity* (ER) (Koenig 2001:513). We chose to use the abbreviations intrinsic and extrinsic religiosity for practical reasons. Allport (1967) developed the concepts of intrinsic and extrinsic religious orientation in the 1950s. Our concepts differ from his: In our study the dimension of *intrinsic religiosity* included the sense of finding strength and comfort in a religious faith. Those who stated that they «Often» or «Sometimes» found comfort or strength in their religious faith are referred to as «IR»,

while the group categorized as «Non-IR» «Rarely» or «Never» found strength or comfort in their religious faith or found the question «Irrelevant». The category *extrinsic religiosity* was used to characterise respondents attending a religious meeting at least once a month, while the «Non-ERs» attended religious meetings less frequently. Informants belonging to both the «IR» and «ER» group were defined and classified as having a combined religious orientation (CR). The rest of the respondents were categorised as «Non-CR».

DEFINITIONS OF ABBREVIATIONS: RELIGIOUS ORIENTATIONS

Intrinsic Religiosity (IR)	*Extrinsic Religiosity (ER)*	*Combined Religious Orientation (CR)*
IR: «Often» or «Sometimes» found comfort or strength in their religious faith.	ER: «Attending a religious meeting at least once a month».	CR: «Often» or «Sometimes» found comfort or strength in their religious faith *and* are attending a religious meeting at least once a month.
Non-IR: «Rarely» or «Never» found strength or comfort in their religious faith or stated the question «Irrelevant».	Non-ER: Attended religious meetings less frequently than once a month or stated the question «Irrelevant».	Non-CR: Do not «Often» or «Sometimes» found comfort or strength in their religious faith *or are* not attending a religious meeting at least once a month.

Lifestyle

The lifestyle variables included in our analysis can be categorised as: a) use of stimulants, b) social relations, c) diet and d) physical exercise. The explicit questions included in each of these categories were a) alcohol ≥ 3 drinks pr occasion, alcohol once or more a week, daily smoking; b) living with a spouse/partner, friends ≥ 7; c) eating fat fish (e.g. salmon, trout, mackerel, herring) at least once a week, eating raw vegetables/salad four times a week or more, eating fruit/berries at least once a day; d) light exercise (do not sweat or feel out of breath) three hours a week or more. Continuous variables have been recoded as categorical variables and the cutting point for each of these variables are chosen so as to divide the sample into two categories of equal size.

Health

As a main parameter of health, we chose to apply the global assessment question of self-rated health. Self-rated health has been seen to give a valid measure of a person's health condition (Ellis et al. 1995; Grønflaten 2004). Self-rated health also seems to be comparable across culture and gender (Risberg et al. 1996; Stern et al. 1992). The question of self-rated health was answered by one of four possible categories. In the statistical analysis this variable was dichotomised, defining «Poor health» as: «Poor» or «Not very good» and «Good health» as: «Good» or «Very good». Questions concerning usage of medicines were dichotomised according to «daily» or «not/seldom used». Variables including sick benefit (certified as being ill), rehabilitation/training

allowance and disability
groups. Obesity was defi
psychological variable w
respondent feel «Secure a
little» versus «Quite a bit»

Statistical analyses

The analyses were perfor
Variables previously know
from the database and res
methods. Categorical data
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having self-rated health as
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model using forward selec
as dependent variables. Tl
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The Islamic group, N=392

Results

Religious belonging

Seventy three percent of t
The Catholic and Muslim c
of the respondents belonge
respondents did not state ar

TABLE 1. RELIGIOUS BELON

Hinduism
Buddhism
Islam
Catholicism
Church of Norway
Other Christian groups
The Norwegian Humanist Assoc
*Minorities**
None
Total

* The Mosaic religious commu

allowance and disability pension (full or part) were categorised into «yes» or «no» groups. Obesity was defined as BMI ≥ 30 and risk of malnutrition BMI < 20. One psychological variable was chosen: In the course of the last two weeks, did the respondent feel «Secure and calm». This variable was dichotomised into «No» or «A little» versus «Quite a bit» or «Very».

Statistical analyses

The analyses were performed using SPSS software: version 11, (www.spss.com). Variables previously known to be associated with lifestyle and health were extracted from the database and results were assessed statistically by univariate and bivariate methods. Categorical data were analysed by Pearson's chi-square analysis. A binary logistic regression model applying a forward selection method was implemented, having self-rated health as the dependent variable. Results are displayed in terms of odds ratios (ORs) with 95 % confidence intervals (CI). Another logistic regression model using forward selection was implemented using «CR» and «IR» respectively, as dependent variables. These logistic regression models were applied on two samples: a) the Church of Norway and all the Christian dominations, N=11709 and b) The Islamic group, N=392.

Results

Religious belonging

Seventy three percent of the respondents were members of the Church of Norway. The Catholic and Muslim communities of faith represent 5 % of the total sample. 7 % of the respondents belonged to «Other moral/religious community» while 14 % of the respondents did not state any religious belonging (Table 1).

TABLE 1. RELIGIOUS BELONGING

	N	*%*
Hinduism	102	0.7
Buddhism	93	0.6
Islam	392	2.6
Catholicism	403	2.7
Church of Norway	10 991	72.6
Other Christian groups	372	2.4
The Norwegian Humanist Association	378	2.5
*Minorities**	230	1.5
None	2 171	14.3
Total	15 132	99.9

* The Mosaic religious community, Jehovah's witnesses, etc.

Religious faith and self-rated health

Table 2 shows the percentage of men and women in the different age groups finding strength and comfort in a religious faith (IR), the percentage attending religious meetings (ER) and the percentage having a combined religious orientation (CR). In addition, the rate of respondents having poor health in each subgroup is given.

About one-third (34 %) of the informants in the sample did find comfort or strength in their religious faith (IR) and 16 % attended a religious meeting at least once a month (ER). The percentages finding strength and comfort in a religious faith in the different age groups, born in 1924/25, 1940/41, 1955/60 and 1970, were 44 %, 36 %, 30 % and 27 % respectively. The corresponding percentages attending a religious meeting at least once a month were 25 %, 17 %, 14 % and 13 %. The percentages having «CR» were 24 %, 15 %, 12 % and 11 % for the different age groups. A total of 39 % of the women belonged to the «IR» group while the corresponding percentage among men was 27 %. Religion as a source of comfort and strength was significantly more important to women than men ($p<0.001$) in all four age groups. The percentages of men and women in the «ER» group were 15 % and 17 %, respectively. A significant difference between the genders was found only for the most elderly group, with 20 % of the men and 29 % of the women attending a religious meeting at least once a month ($p<0.($ «ER» group. For the tota ($p<0.001$).

A total of 25 % of the poor. The percentage rep erly to 12 % among the y health as being poor was elderly group, 53 % of ($p<0.001$). The difference 1970. For respondents bc reported self-rated health higher percentage of infc reporting poor health, fo ($p<0.001$). The percentag were 39 % and 41 % for i responding numbers amor percentages in the «ER» health for men born in 1 1970 (22 % versus 12 %, ences between «IR» or «E

TABLE 2. ALL RELIGION AND LIFE STANDS INCLUDED: RATE OF RESPONDENTS ACCORDING TO FINDING STRENGTH AND COMFORT (IR), ATTENDANCE AT RELIGIOUS MEETINGS (ER), A COMBINED RELIGIOUS ORIENTATION (CR) AND RATE OF INFORMANTS HAVING POOR HEALTH FOR MEN AND WOMEN IN FOUR AGE GROUPS. N=14,438; 12,383; 1,1713 AND 18,390.

Year of birth		*Intrinsic Religiosity (%)*	*Extrinsic Religiosity (%)*	*Combined Religiosity (%)*	*Poor self-rated Health (%)*
1924 & 1925:	Male	346 (32)	156 (20)	110 (16)	346 (32) *
	Female	765 (53) ***	318 (29) ***	283 (29) ***	765 (53) ***
	Total	1111(44)	474 (25)	393 (24)	1111(44)
1940 & 1941:	Male	471 (28) ***	225 (17)	175 (14)	570 (28)
	Female	809 (43)	265 (17)	227 (16)	820 (36) ***
	Total	1280 (36)	490 (17)	402 (15)	1390 (32)
1955 & 1960:	Male	585 (26)	287 (14)	230 (12)	579 (20)
	Female	974 (34) ***	355 (14)	303 (12)	799 (22) **
	Total	1559 (30)	642 (14)	533 (12)	1378 (21)
1970:	Male	300 (21)	177 (13)	129 (9)	175 (10)
	Female	588 (32) ***	233 (14)	198 (12)	322 (14) ***
	Total	888 (27)	410 (13)	327 (11)	497 (12)
Total	Male	1702 (27)	845 (15)	644 (12)	1800 (22)
	Female	3136 (39) ***	1171 (17)	1011 (15) ***	2796 (28) ***
	Total	4838 (34)	2016 (16)	1655 (14)	4596 (25)

*** P<0.001, **P<0.01, * P<0.05

Religious faith and lifest

Table 3 shows the percenta the «non-IR» group. The poor versus good self-rate quency of alcohol and smol

In comparing the «IR» fish at least once a week ($p<0.01$). Also, there was than «non-IR», but signifi eight subgroups. We found trend was noted among re tion.

The most striking resul differences concerning alc drinking alcohol at least ($p<0.001$) in all eight subgr occasion was significantly l in the «IR» was also signif women, $p>0,001$. We also sus «Non-IR» ($p<0.01$) for «ER» versus «non-ER» gro sumption and smoking, wer

different age groups finding
rcentage attending religious
eligious orientation (CR). In
ch subgroup is given.
sample did find comfort or
a religious meeting at least
d comfort in a religious faith
'55/60 and 1970, were 44 %,
percentages attending a reli-
4 % and 13 %. The percent-
r the different age groups. A
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in all four age groups. The
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d only for the most elderly
ending a religious meeting at

*E OF RESPONDENTS
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R) AND RATE OF
IN FOUR AGE GROUPS.*

Combined Religiosity (%)	*Poor self-rated Health (%)*
110 (16)	346 (32) *
283 (29) ***	765 (53) ***
393 (24)	1111(44)
175 (14)	570 (28)
227 (16)	820 (36) ***
402 (15)	1390 (32)
230 (12)	579 (20)
303 (12)	799 (22) **
533 (12)	1378 (21)
129 (9)	175 (10)
198 (12)	322 (14) ***
327 (11)	497 (12)
644 (12)	1800 (22)
1011 (15) ***	2796 (28) ***
1655 (14)	4596 (25)

least once a month ($p<0.001$). The same trend was found in the «CR» group, as in the «ER» group. For the total sample, the difference between the genders was significant ($p<0.001$).

A total of 25 % of the participants in the sample rated their own health as being poor. The percentage reporting poor health declined from 44 % among the most elderly to 12 % among the youngest. The percentage of women who reported self-rated health as being poor was significantly higher in all of the four age groups. In the most elderly group, 53 % of the women and 32 % of the men reported poor health ($p<0.001$). The difference was also significant for respondents born in 1940/41 and 1970. For respondents born in 1955/60, 20 % of the men and 22 % of the women reported self-rated health as poor ($p<0.05$) (Table 2). We found that a significantly higher percentage of informants in the «IR» group compared with the «non-IR» reporting poor health, for both men and women in the two youngest age groups ($p<0.001$). The percentages of informants in the «IR» group reporting poor health were 39 % and 41 % for informants born in 1955/60 and 1970, respectively. The corresponding numbers among those reporting good health were 29 % and 26 %. The percentages in the «ER» group were significantly higher among those with poor health for men born in 1955/60 (22 % versus 13 %, $p<0.001$) and women born in 1970 (22 % versus 12 %, $p<0.001$). In the two elderly groups, no significant differences between «IR» or «ER» and self-rated health were found.

Religious faith and lifestyle

Table 3 shows the percentages among those having an intrinsic religiosity (IR) versus the «non-IR» group. The analysis also compares the percentage of informants with poor versus good self-rated health concerning explicit diet variables, exercise, frequency of alcohol and smoking.

In comparing the «IR» and the «non-IR» groups, the percentages of «IR» having fish at least once a week were significantly higher for the two youngest age groups ($p<0.01$). Also, there was a tendency for «IR» to eat vegetables and fruit more often than «non-IR», but significant differences were found only in two and three of the eight subgroups. We found no clear association between «IR» and exercise. The same trend was noted among respondents having an extrinsic and/or a combined orientation.

The most striking results concerning lifestyle of «IR» versus «non-IR» were the differences concerning alcohol consumption and smoking. The rate of informants drinking alcohol at least once a week was significantly lower among the «IR» ($p<0.001$) in all eight subgroups. Also, the percentage that had more than 3 drinks per occasion was significantly lower in all age groups ($p<0.05$). The rate of daily smokers in the «IR» was also significantly lower than in the «non-IR» in all age groups, for women, $p>0,001$. We also noticed a lower rate of parents smoking among «IR» versus «Non-IR» ($p<0.01$) for both males and females in all age groups. Analyses of the «ER» versus «non-ER» groups supported these conclusions concerning alcohol consumption and smoking, were giving the same significant results. People in good health

TABLE 3. ALL CHRISTIAN CHURCHES AND DENOMINATIONS INCLUDED: PERCENTAGES ACCORDING TO AGE, LIFESTYLE INCLUDING DIET, EXERCISE AND USE OF STIMULANTS AMONG RESPONDENTS WITH OR WITHOUT INTRINSIC RELIGIOUS ORIENTATION AND POOR OR GOOD SELF-RATED HEALTH.

Variables	*Fish meal ≥ once a week*	*Raw vegetab. ≥ 4 times a week*	*Fruit ≥ once a day*	*Exercise ≥ 3hours a week*	*Alcohol ≥ once a week*	*Alcohol ≥3 drinks pr occasion*	*Smoking Yes/no*
Age 75–76: M							
Poor health	204 (65)	63 (20)	103 (33)	110 (35)	139 (45)	42 (14)	61 (20)**
Good health	477 (65)	217 (30)***	309 (42)**	440 (60)***	390 (53)**	103 (14)	95 (13)
IR	493 (65)	100 (31)**	13 (44)*	170 (56)	134 (42)	40 (13)	33 (10)
None-IR	207 (65)	183 (24)	280 (37)	385 (51)	409 (54)***	107 (13)	129 (17)**
Age 75–76: F							
Poor health	374 (61)	184 (30)	318 (52)	223 (36)	169 (27)	24 (4)	111 (18)*
Good health	577 (65)	319 (36)**	507 (57)*	470 (53)***	326 (37)***	38 (4)	123 (14)
IR	457 (63)	245 (34)	409 (56)	365 (50)**	195 (27)***	22 (3)	87 (12)
Non-IR	514 (63)	267 (33)	426 (53)	345 (43)	309 (44)	41 (5)*	153 (19)***
Age 59–60: M							
Poor health	170 (48)	91 (25)	102 (29)	163 (46)	197 (55)	152 (43)*	117 (33)***
Good health	567 (54)*	341 (33)**	380 (36)**	518 (49)	733(70)***	380 (36)	241 (23)
IR	209 (53)	133 (34)	147 (37)	207 (53)*	229 (58)***	127 (32)	88 (22)
Non-IR	541 (52)	302 (29)	341 (33)	484 (47)	713 (69)	415 (40)**	278 (27)
Age 59–60: F							
Poor health	302 (51)	191 (33)	403 (51)	271 (47)	251 (44)	118 (21)	165 (29)*
Good health	616 (55)	505 (45)***	851 (58)**	596 (53)*	619 (55)***	195 (17)	270 (24)
IR	415 (57)*	323 (44)**	414 (57)	392 (54)*	352 (48)*	93 (13)	154 (21)
Non-IR	514 (52)	380 (38)	519 (53)	485 (49)	526 (53)	224 (23)***	285 (29)***
Age 40 + 45: M							
Poor health	86 (38)	58 (25)	41 (18)	91 (40)	124 (54)	123 (54)	105 (46)***
Good health	477 (39)	372 (30)	344 (28)**	562 (46)	771 (63)*	695 (56)	341 (28)
IR	167 (44)**	129 (34)*	129 (34)***	172 (44)	196 (52)***	171 (45)	97 (26)
Non-IR	402 (37)	303 (28)	260 (24)	484 (45)	703 (65)	650 (60)***	351 (32)**
Age 40 + 45: F							
Poor health	124 (37)	137 (37)	129 (35)	94 (53)	153 (37)	143 (39)	158 (43)**
Good health	621 (37)	789 (46)***	801 (47)***	830 (55)	853 (50)***	642 (37)	573 (34)
IR	312 (41)***	366 (48)**	364 (48)*	429 (56)	330 (43)	242 (32)	211 (28)
Non-IR	442 (32)	566 (43)	577 (43)	709 (53)	667 (50)**	554 (42)***	528 (40)***
Age 30: M							
Poor health	13 (22)	19 (33)	10 (17)	23 (40)	25 (43)	40 (69)	11 (19)
Good health	261 (28)	253 (27)	200 (21)	493 (53)*	519 (55)*	641 (68)	182 (19)
IR	77 (33)*	66 (31)	52 (24)	111 (52)	109 (51)	115 (54)***	38 (18)
Non-IR	204 (26)	208 (26)	158 (20)	402 (52)	440 (56)	519 (72)	156 (20)
Age 30: F							
Poor health	30 (22)	39 (20)	39 (29)	62 (46)	32 (24)	73 (56)	48 (36)***
Good health	326 (26)	564 (45)***	515 (42)**	775 (62)***	450 (37)**	610 (49)	274 (22)
IR	143 (32)***	220 (49)**	202 (45)**	292 (65)**	137 (31)	164 (37)	83 (19)
Non-IR	220 (23)	390 (41)	357 (38)	553 (11)	350 (37)**	525 (56)***	240 (26)**

N= 18,390 ***p<0.001, **p<0.01, *p<0.05

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TABLE 4. THE RESULTING ES
LIMITS FOR SIGNIFICANT PRI
LOGISTIC REGRESSION MODI

Predictors
Year of birth
1924/25
1940/41
1955/60
1970 (ref)
Education
< 12 year
≥ 12 year (ref)
Heart attack in close fa
Yes
No (ref
Exercise
< 3 hours a week
≥ 3 hours a week (r
Alcohol frequency
< once a week
> once a week (ref)
Smoking
Yes, now
Earlier or never (re
Coffee
< 3 cups a day
≥ 3 cups a day (ref)
Friends
< 7 close friends
≥ 7 close friends (re
Gender
Female
Male (ref)
Religious faith *
«IR»
«Non-IR» (ref)
Civil status
Not living with a spo
Living with a spouse

N= 18,390 * both Christian and nc

ate more vegetables and fruit (expect for the youngest age groups) and they exercised more (in all age groups). We also noticed a larger percentage consuming alcohol at least once a week among people in good health compared with those in poor health. However, people in good health enjoyed less frequently more than 3 drinks when consuming alcohol and they also smoked less.

TABLE 4. THE RESULTING ESTIMATED EXPECTED ODDS RATIOS AND CONFIDENCE LIMITS FOR SIGNIFICANT PREDICTORS OF SELF-RATED POOR HEALTH IN A BINARY LOGISTIC REGRESSION MODEL APPLYING FORWARD CONDITIONAL SELECTION.

Predictors	*Odds ratio (confidence limits, 95 %)*
Year of birth	
1924/25	4.04 (3.24 – 5.04
1940/41	3.67 (3.00 – 4.48
1955/60	1.83 (1.52 – 2.21
1970 (ref)	
Education	
< 12 year	1.73 (1.53 – 1.97)
≥ 12 year (ref)	
Heart attack in close family	
Yes	1.26 (1.11 – 1.42)
No (ref	
Exercise	
< 3 hours a week	1.37 (1.22 – 1.54)
≥ 3 hours a week (ref)	
Alcohol frequency	
< once a week	1.27 (1.12 – 1.43)
> once a week (ref)	
Smoking	
Yes, now	1.52 (1.32 – 1.74)
Earlier or never (ref)	
Coffee	
< 3 cups a day	1.35 (1.19 – 1.52)
≥ 3 cups a day (ref)	
Friends	
< 7 close friends	1.33 (1.19 – 1.50)
≥ 7 close friends (ref)	
Gender	
Female	1.26 (1.11 – 1.42)
Male (ref)	
Religious faith *	
«IR»	1.19 (1.05 – 1.35)
«Non-IR» (ref)	
Civil status	
Not living with a spouse/partner*	1.17 (1.03 – 1.32)
Living with a spouse/partner (ref)*	

N= 18,390 * both Christian and non-Christian moral/religious communities

Religious faith and self-rated health

In order to understand the association between religious faith and health more closely, a binary logistic regression model was implemented applying self-rated health as the dependent variable. In addition to the two separate dimensions of a religious faith considered (IR and ER), several other background and lifestyle variables were included. The predictors included were based on questions concerning educational level, marital status, diet, smoking, alcohol, exercise and illness in close family.

Table 4 shows the final model, demonstrating significant predictors applying forward conditional selection. The variables were listed in the same order, as they were included in the model. We noticed that respondents in «IR» had a significant odds ratio of 1.1 compared with «non-IR» in predicting self-rated poor health. Attendance at religious meetings («ER») was not significant (p=0.39). Other variables excluded from the model as being non-significant were moving during the past five years (p=0.55), parents smoking (p=0.79), average number of drinks when consuming alcohol (p=0.37) and fish-oil supplement (p=0.33). We noticed that educational level was an important explanatory variable in predicting self-rated poor health.

Explorative analyses of lifestyle, health and religiosity

In order to characterize the lifestyle and health indicators of the religious versus the non-religious sample, a logistic model using the combined religiosity dimension «CR» as a dependent variable, was implemented. The following variables were included in the model, using a forward selection method: Self-rated health, feeling secure or calm, sick benefit, rehabilitation/training allowance, disability pension, medications (including medication for high blood pressure, cholesterol-reducing medicine, painkillers off prescriptions, painkillers on prescription, sedatives, hypnotics, anti-depressives, other medicine on prescription), living with a spouse/partner, friends ≥ 7, exercise, diet (fat fish, raw vegetables and fruit), alcohol (≥ 3 drinks pr occasion, once or more a week), daily smoking, obesity (MBI ≥ 30), risk for malnutrition (BMI < 20), age group, gender, education > 12 and adult smoking at home. The final model confirmed the strong association between extrinsic or intrinsic religiosity and less use of alcohol, tobacco and a healthier diet. The respondents in the «CR» were more educated, had more friends and less often lived with a partner than those in the «non-CR» group (p<0.001). All of the ten predictors included in the model were significant on a 1 % level. The model summary gave an explanatory value of 12 %.

The same regression model as described was implemented using «IR» as the dependent variable. Nine of the ten variables included in the final «CR» model were also included using «IR» as the dependent variable, see table 5.

In addition, gender, age group: 40 + 45 years, use of raw vegetables, exercise, use of sedatives, sick benefit and rehabilitation/training allowance were significant predictors at a 5 % level. We confirmed a significant association between having poor self-rated health and receiving sick benefit or rehabilitation/training allowance (p=0.001). The model summary gave an explanatory value of 9 %.

TABLE 5. ALL CHRIST
EXPLANATORY VARIAI
VARIABLE «INTRINSIC

Explanatory variables
Back ground data
Gender (female)
Aged: 40 + 45
Aged: 30
Education ≥ 12 years
Live with a spouse/partı
Adults did smoke at hor
≥ 7 close friends
Use of stimuli
Smoking: now or earlier
Alcohol frequency > onc
Alcohol consume: ≥ 3 di
Sedatives daily
Diet and exercise
Raw vegetables ≥ 4 pr w
Fat fish > once a week
Exercise ≥ 3 hours a wee
Receiving benefits
Sick benefits
Rehabilitation/training a

n= 14,438 *when the resp

Muslims

A logistic regression r
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Discussion

In the present study, re
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TABLE 5. ALL CHRISTIAN CHURCHES AND DENOMINATIONS INCLUDED. FINAL MODEL: EXPLANATORY VARIABLES FOR HEALTH AND LIFESTYLE RELATED FACTORS. DEPENDENT VARIABLE «INTRINSIC RELIGIOSITY» (IR).

Explanatory variables	*Odd ratio (OR)*	*Confidence limits 95 %*	*P (Chi-square)*
Back ground data			
Gender (female)	1.6	1.50–1.79	0.001
Aged: 40 + 45	0.9	0.90–0.96	0.001
Aged: 30	0.9	0.84–0.90	0.001
Education ≥ 12 years	1.5	1.33–1.60	0.001
Live with a spouse/partner	0.9	0-79–0.94	0.001
Adults did smoke at home*	0.7	0.61–0.75	0.001
≥ 7 close friends	1.2	1.10–1.29	0.001
Use of stimuli			
Smoking: now or earlier	0.8	0.73–9.89	0.001
Alcohol frequency > once a week	0.6	0.62.0.74	0.001
Alcohol consume: ≥ 3 drinks pr occasion	0.7	0.59–0.71	0.001
Sedatives daily	1.5	1.12–1.91	0.01
Diet and exercise			
Raw vegetables ≥ 4 pr week	1.1	1.00–1.19	0.03
Fat fish > once a week	1.2	1.07–1.27	0.001
Exercise ≥ 3 hours a week	1.1	1.00–1.18	0.04
Receiving benefits			
Sick benefits	1.3	1.03–1.56	0.02
Rehabilitation/training allowance	1.5	1.07–1.96	0.01

n= 14,438 *when the respondents was growing up. R2= 0.09 (Nagelkerke)

Muslims

A logistic regression model for the Muslims, using the «CR» as the dependent variable resulted in a three-step model including less use of alcohol, a higher frequency of disability pension and a higher percentage of males in the «CR-group» versus «non-CR». The same regression model was implemented using «IR» as the dependent variable. In the second model, the following variables were significant: less education, higher percentage receiving sick benefit, and a lower percentage of individuals born in 1955 and 1960. The explanatory values were 9 % and 5 % respectively.

Discussion

In the present study, religious faith, lifestyle and self-rated health, and three separate dimensions of a religious faith were considered: religious belonging, faith as a source of strength and comfort («IR») and attendance at religious meetings («ER»). Three quarters of the respondents were members of the Church of Norway. Of those who

found strength in their faith, more than half (58.7 %) attended a religious meeting at least once a month. The corresponding percentage declined to 4.1 % among those who rarely or never found strength in their faith. The two dimensions were analyzed separately, with each dimension used as a dividing variable categorizing the sample into religiosity or non-religiosity. Koenig et al. (2001) did not advice to mix scales that measure intrinsic and extrinsic religiosity. Each of these dimensions should be analyzed separately when examining relationships to physical or mental health (2001:509). However, we also included a combined variable in order to highlight differences between the religious and the non-religious groups.

The Oslo health study only included three dimensions of faith. We would suggest having more detailed information concerning religious faith to obtain a wider understanding of the respondents' religious orientation. The lifestyle and health variables included in the study, have been selected after literature review and systematic analyses. It is important that inclusion of other variables could give other explanations associating religious faith, health and lifestyle

The present study showed that within all four age groups, women more often than men found strength and comfort in their religious faith. However, significant differences in attending religious meetings between male and female were found only in the most elderly group, possibly because women experienced widowhood more often than men did. As long as they were a couple, spouses attended religious meetings together. The elderly people more often found strength and comfort in their religious orientation than did younger people, and they attended religious meetings more frequently. These results corresponded with other studies (Ellis et al. 1995; Repstad 2000; Grønflaten 2004). We have also noticed that women reported significantly poorer health than men within all age groups and, as expected, more elderly people had poorer health than younger people did. In order to avoid confounding effects of gender and age in relating religious faith, lifestyle and health, all subsequent analyses were performed for the eight subgroups separately, each subgroup representing either male or female, at four different age stages.

In describing the association between religious faith and self-rated health, we found that in the two youngest age groups, informants in poor health more often found strength and comfort in their faith than informants in good health did. In two subgroups, the attendance at religious meetings was also more frequent among those in poor health. When younger people met chronic diseases or fatal illness, religion seemed to be a place to seek meaning and comfort (Risberg et al. 1996; Stern et al. 1992; Ironson et al. 2002).

Only results applying the dimension of faith as intrinsic religiosity, dividing the sample into «IR» and «non-IR», are presented. However, results relating «ER» with lifestyle mainly supported the conclusions made. The results indicate a healthier diet including more fish, fruit and vegetables among «IR» compared with «non-IR» in the two youngest age groups. People reporting good health ate vegetables and fruit more often than those reporting poor health across all age groups, with the exception of the youngest group. It is reasonable to assume that health problems at a younger age might result from factors other than diet and lifestyle.

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In all age groups, the respondents with «IR» were less likely than the «non-IR» to smoke or to enjoy alcohol both with respect to frequency and average consumption. Bock et al. (1987) documented a higher rate of abstinence among people with a religious affiliation (Conservative Protestants, in particular). Both smoking and heavy alcohol consumption were known to represent major risk factors predicting poor health (Baum-Baicker 1985; San Jose et al. 2000). In spite of these indications of a healthier lifestyle both in terms of diet and application of stimulants, the religious group did not report a better state of health than other respondents. This was the case both with respect to the intrinsic and extrinsic dimension of religiosity. Physical activities were important for promoting health and preventing illness (Baumann 2004; Wannamethee 2001; Blair et al. 1992). For the two groups of «IR» and «non-IR», there was no difference in exercise as measured by three hours a week or more. If those with an «IR» combined their healthy diet, abstinence from smoking and only moderate use of alcohol with more exercise, this could lead to a better self-rated health.

The percentage of people consuming alcohol more than once a week was higher among those reporting good health as compared to those reporting poor health. Also, in predicting poor health (Table 4), an alcohol consumption frequency rate of less than once a week represented a significant risk factor in predicting poor health. The public believes in health benefits of moderate drinking (Ogborne & Smart 2001) with the definition of moderate drinking varying (Dufor 1999). In the present study, the relationship between a higher frequency of alcohol consumption and good health might be explained by social differences. The higher educational group consumed alcohol more frequently than the lower educational group, and a lower educational level represented a risk factor in predicting self-rated health as poor. Room and Mäkelä (2000) state, «Where drinking is more contained within the frame of everyday sociability, intoxication may be quite frequent but less extreme, and marked by less change in behaviour.» In Norway, a change from weekend or fiesta drunkenness to a more frequent but moderate alcohol consumption may over time give other health problems.

Only the dimension of a religious faith as a source of comfort and strength (IR) was found to be a significant factor in predicting poor health, while attendance at religious meetings (ER) was non-significant. The reason that religious faith as a source of comfort and strength was significant could not be explained by differences in educational levels. No clear association between religiosity and education level was found, except for finding a higher percentage of «IR» among the higher educated group in two subgroups.

Studies have documented that more prayer activity was related to low levels of functional status (Meisenhelder & Chandler 2000; Meraviglia 2002). Krause (1991) documented that when health difficulties became more bothersome, religious involvement tended to intensify. Religion could be used as a method for coping with health problems. In the present study a higher percentage of respondents in the «IR» compared with the «non-IR» group received sick benefit and rehabilitation allowance.

In order to get a more homogeneous sample, non-Christian religions and other moral communities were excluded. The healthy lifestyle was confirmed, but did not

result in a better self-rated health. An objective measure of health could be the frequency of disability pension. In Norway, 10 % of the population in the age group 18–67 receive a disability pension, 57 % being women (Statistics Norway 2005). Lian (2001) asked if this is a signal of increased morbidity or changing conditions in society. A logistic regression model, not adjusted for educational level, showed that people with combined intrinsic and extrinsic religious orientation less frequently received disability pension. A possible explanation being that a Protestant ethic could be associated with the attitude to stay at work. Including the variable of educational level in the model, no significant differences in the use of disability pensions were found as respondents with «CR» had a significant higher education level than the «non-CR».

Furthermore, the respondents with a «CR» had more friends than those with «non-CR». Libler and Sandefur (2001) documented that people who regularly attend religious services appear to have larger and denser social networks to provide emotional support and other forms of assistance, than less frequent attendees.

The respondents in «CR» lived less frequently with a spouse/partner than «non-CR». This difference was significant for the youngest age group (born 1970). The average age for the first marriage in Norway in 2000/2001 was 30 years for females and 32 years for male (www.ssb.no). If religious people got married at a younger age, the differences should have decreased for those who had passed thirty years.

The national health politics have an important influence on the health status of the inhabitants. Thelle (2001) has noted that even in the Nordic countries, various governmental politics lead to different public health problems. A recipe for a healthier Norway was given in a governmental white paper (Stm. 16/2002–2003). The white paper suggested that the most effective way to promote health would be to motivate people to change their lifestyle, including a reduction of smoking tobacco, engagement in more physical activities and having a healthier diet.

Conclusions

People categorized as finding strength and comfort in their faith did not report a better self-rated health than other respondents, in spite of a significantly lower percentage using tobacco and alcohol and indications of a healthier diet. Younger people with poor self-rated health find strength in their religious faith. More research is warranted to look at religious faith as an incitement for a healthy lifestyle combined with the need for strength and comfort when illness occurs.

Notes

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References

Abouzaid, Hussain 1999. E
health journal 5 (4): 65

Allport Gordon W and J. M
nal of personality and s

Antonovsky, Aaron 1987. *U*

Bauman, Adrian E. 2004. U
demiological review 20C
19.

Baum-Baicker, Cynthia 198
the literature. *Drug and*

Beck, Anne Marie, Lars Ove
of 65+-y-old patients fro
Nutritional Assessment.

Blair, Steven N., Harold Kol
cal activity is good for he

Bock, Wilbur E., John K. Cc
influence of denominatic
(28): 89–103.

Das, Sandeep R., Linda S. K
Burdick and Steven J. Ye
medical facilities. *Americ*

Dufour, Mary C. 1999. What
hol research & health 23

Ellis, Jay M., Chris McManu
chaplains: a preliminary e

Fugelli, Per 2004. Verdier og
health promotion) *Tidsskr*

Grønflaten, Lars 2004. *Verdi*
tistisk Sentralbyrå.

Hill, Peter C. and Kenneth I. I
ment of religion and spirit
American psychologist 58

Horani Mohamad H. and Arsl
special considerations. *Tre*

HUBRO A (2001). Questionn
(http://www.fhi.no/dav/66

HUBRO B (2001). Questionn
(http://www.fhi.no/dav/3D
2005).

Ironson, Gail, George F. Solon
son and Teresa E. Woods 2
ated with long survival, he

REFERENCES

Abouzaid, Hussain 1999. Environmental health: a discipline in transition. *Eastern Mediterranean health journal* 5 (4): 654–656.

Allport Gordon W and J. Michael Ross 1967. Personal religious orientation and prejudice. *Journal of personality and social psychology* Apr; 5(4):432–443.

Antonovsky, Aaron 1987. *Unravelling the mystery of health.* San Francisco: Jossy-Bass.

Bauman, Adrian E. 2004. Updating the evidence that physical activity is good for health: an epidemiological review 2000–2003. *Journal of science and medicine in sport* Apr; 7 1 Suppl: 6–19.

Baum-Baicker, Cynthia 1985. The health benefits of moderate alcohol consumption: a review of the literature. *Drug and alcohol dependence* 15 (3): 207–227.

Beck, Anne Marie, Lars Ovesen and Marianne Schroll 2001. A six months' prospective follow-up of 65+-y-old patients from general practice classified according to nutritional risk by the Mini Nutritional Assessment. *European journal of clinical nutrition* 55 (11): 1028–1033.

Blair, Steven N., Harold Kohl, Neil F. Gordon and Ralp S. Paffenbarger 1992. How much physical activity is good for health? *Annual review of public health* (13): 99–126.

Bock, Wilbur E., John K. Cochran and Leonard Beeghley 1987. Moral message: The relative influence of denomination on the religiosity-alcohol relationship. *The Sociological quarterly* (28): 89–103.

Das, Sandeep R., Linda S. Kinsinger, William S., Yancy, Anthea Wang, Eileen Ciesco, Mary Burdick and Steven J. Yevich 2005. Obesity prevalence among veterans at Veterans Affairs medical facilities. *American journal of preventive medicine* 28 (3):291–294.

Dufour, Mary C. 1999. What is moderate drinking? Defining «drinks» and drinking levels. *Alcohol research & health* 23 (1):5–14.

Ellis, Jay M., Chris McManus and B.A. Newton 1995. How patients perceive the role of hospital chaplains: a preliminary exploration. *Quality in health care* 4 (3):174–177.

Fugelli, Per 2004. Verdier og strategier i det forebyggende helsearbeidet. (Values and strategies in health promotion) *Tidsskrift for Den norske lægeforening* 124 (13): 1822.

Grønflaten, Lars 2004. *Verdiundersøkelsen* 1996. Norwegian values and attitudes. Oslo: Statistisk Sentralbyrå.

Hill, Peter C. and Kenneth I. Pargament 2003. Advances in the conceptualization and measurement of religion and spirituality. Implications for physical and mental health research. *The American psychologist* 58 (1): 64–74.

Horani Mohamad H. and Arshang D. Mooradian 2002. Management of obesity in the elderly: special considerations. *Treatments in endocrinology* 1(6): 387–398.

HUBRO A (2001). Questionnaire: Main. (http://www.fhi.no/dav/66091FDE33734FAB96849B26D9F46333.pdf) (Accessed Oct 2005).

HUBRO B (2001). Questionnaire: Supplement 1. (http://www.fhi.no/dav/3DFB9FB1267E4623A1BCDAA2A87DD907.pdf). (Accessed Oct 2005).

Ironson, Gail, George F. Solomon, Elisabeth G. Balbin, Anna George, Manish Kumar, Dirk Larson and Teresa E. Woods 2002. The Ironson-woods Spirituality/Religiousness Index is associated with long survival, health behaviors, less distress, and low cortisol in people with

HIV/AIDS. *Annals of behavioral medicine: a publication of the Society of Behavioral Medicine*, Winter 24 (1):34–48.

Jacobsen, Carl Ditlef 2004. Samfunnsmedisinen og det forebyggende helsearbeid (Community medicine and health promotion) *Tidsskrift for Den norske lægeforening* 124 (3): 389–390.

Kalberg, Stephen 2002 (1920). Introduction to the protestant ethic. In Weber M. *The Protestant Ethic and the Spirit of Capitalism,* xi–Lxxvi. trans. Stephen Kalberg Parsons. Los Angeles, CA.: Roxbury Publishing.

Kamieneski, Robert, Clive M. Brown, Karen M. Perrin and Karen Dindial 2000. Health benefits achieved through the Seventh-Day Adventist Wellness Challenge program. *Alternative therapies in health and medicine* 6 (6): 65–69.

Koenig, Harold G., Michael E. McCullough and David B Larson 2001. *Handbook of religion and health.* Oxford: University press.

Krause, Neal 1991. Stress, religiosity, and abstinence from alcohol. *Psychology and aging* 6 (1): 134–144.

Kuhnle, Stein 2001. Velferdsstatens politiske grunnlag. In *Den norske velferdsstaten* (The Norwegian welfare state), Aksel Hatland, Stein Kuhnle and Tor Inge Romøren (ed.), 9–51. Oslo: Gyldendal akademiske.

Lian, Olaug S. 2001. http://www.tidsskriftet.no/lts-pdf/pdf2001/1451.pdf

Liebler, Carolyn A. and Gary D. Sandefur 2001. *Exchanging social support with friends, neighbours and co-workers at midlife.* University of Wisconsin-Madison. Centre for Demography and Ecology. http://www.ssc.wisc.edu/cde/cdewp/2001-12.pdf

Meisenhelder, Janice B. and Emily N. Chandler 2000. Prayer and health outcomes in church members. *Alternative therapies in health and medicine* 6 (4): 56–60.

Meraviglia, Martha G. 2002. Prayer in people with cancer. *Cancer Nursing* 25 (4):326–331.

Ogborne, Alan C. and Reginald G. Smart 2001. Public opinion on the health benefits of moderate drinking: results from a Canadian National Population Health Survey. *Addiction* 96 (4): 641–649.

Randhoff, Anette H, Anne U. Gjøen and Morten Mowe 2005. Screening for malnutrition in elderly acute medical patients: the usefulness of MNA-SF. *Nutrition and health* 9 (4): 221–225.

Ratner, Pamela A., Jean L. Johnsson and Brett Jeffery 1998. Examining emotional, physical, social, and spiritual health as determinants of self-rated health status. *American journal of health promotion* 12 (4): 275–282.

Repstad, Pål 2000. *Religiøst liv i det moderne Norge: et sosiologisk kart.* (Religious life in modern Norway – a sociological map). Kristiansand: Høyskoleforlaget (second edition).

Risberg, Terje, Stein Kaasa, Erik Wist, Eilef Lund and Jan Norum 1996. Spiritual healing among Norwegian hospitalised cancer patients and patients' religious needs and preferences of pastoral services. *European journal of cancer* 32A (2): 274.

Room, Robin and Klaus Mäkelä 2000. Typologies of the cultural position of drinking. *Journal of studies on alcohol* 61 (3): 475–483.

Russell, Marcia et al. 2004. Alcohol consumption and problems: the relevance of drinking patterns. *Alcoholism, clinical and experimental research* 28 (6): 921–930.

San Jose, Begona, Hans A.M. Van Oers, H. Dike van de Mheen, Henk F.L. Garretsen and Johan P. Mackenbach 2000. Drinking patterns and health outcomes: occasional versus regular drinking. *Addiction* 95 (6): 865–872.

Sanner, Tor and Erik Dybing 2
Tidsskrift for Den norske l

Seeman Teresa E., Linda Fagan
A Critical review of the evi
53–63.

Seidell Jaap C. 2005. Epidemic

Søgaard, Inger Johanne, Randi
Study: The impact of self-se
for equity in health (3):3. h

SPSS 2005. www.spss.com (A

St.meld. nr. 16 2002–2003. *Res*
ipe for a healthier Norway.

St.prp. nr. 23 (2002–2003). *Enc*
on total banning of smoking

Statistics Norway 2005. Uførep
Available from: http://www

Statistics Norway 2005. Religic
http://www.ssb.no/emner/0

Statistics Norway 2005. Marria
http://www.ssb.no/emner/02

Stern Robert C., et al. 1992. Use
national journal of adolesce

Thelle, Dag S. 2001. Different g
of public health 11 (4): 455-

Ventegodt, Soren and Joav Meri
Journal 3 (8): 811–825.

Wannamethee, Goya S. and Ger
vascular disease: an epidemi

World Health Organization 199
7th of April A52/24.

Sanner, Tor and Erik Dybing 2004. Risiko for lungekreft og hjertesykdom ved passiv røyking. *Tidsskrift for Den norske lægeforening* 2004; 124: 387–388.

Seeman Teresa E., Linda Fagan Dubin, Milvin Seeman 2003. Religiosity/spirituality and health. A Critical review of the evidence for biological pathways. *The American psychologist* 58 (1): 53–63.

Seidell Jaap C. 2005. Epidemiology of obesity. *Seminars in vascular medicine* 5 (1): 3–14.

Søgaard, Inger Johanne, Randi Selmer, Espen Bjertnes and Dag Thelle 2004. The Oslo Health Study: The impact of self-selection in a large, population-based survey. *International journal for equity in health* (3):3. http://www.equityhealthj.com/content/pdf/1475-9276-3-3.pdf

SPSS 2005. www.spss.com (Accessed Oct 2005).

St.meld. nr. 16 2002–2003. *Resept for et sunnere Norge.* Folkehelsepolitikken. White paper. Recipe for a healthier Norway. Oslo.

St.prp. nr. 23 (2002–2003). *Endring i tobakksskadeloven om røykfrie serveringssteder.* (The bill on total banning of smoking in the hospitality business introduced the1th of June 2004, 2003.)

Statistics Norway 2005. Uførepensjonisters bakgrunn (The reason behind disability pension). Available from: http://www.ssb.no/english/subjects/03/04/ (Accessed Oct. 2005).

Statistics Norway 2005. Religious denominations. Available from: http://www.ssb.no/emner/07/02/10/trosamf/ (Accessed Oct. 2005).

Statistics Norway 2005. Marriage and age. Available from: http://www.ssb.no/emner/02/02/30/ekteskap/tab-2005-09-01-05.html (Accessed Oct. 2005).

Stern Robert C., et al. 1992. Use of non-medical treatment by cystic fibrosis patients. *International journal of adolescent medicine and health* 13 (7): 612–615.

Thelle, Dag S. 2001. Different governments, different public health problems. *European journal of public health* 11 (4): 455–457.

Ventegodt, Soren and Joav Merrick 2003. Lifestyle, quality of life, and health. *Scientific World-Journal* 3 (8): 811–825.

Wannamethee, Goya S. and Gerald A. Shaper 2001. Physical activity in the prevention of cardiovascular disease: an epidemiological perspective. *Sports medicine* 31 (2): 101–114.

World Health Organization 1999. Amendments to the Constitution. Report by the secretariat the 7th of April A52/24.