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Does prevention of risk behaviour in primary care require a gender-specific approach? A cross-sectional study

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Background. In planning a prevention programme, it is important to know to what extent gender, risk behaviour and GP consultation need to be taken into account.

Objective. To determine whether gender plays a role in the relation between risk behaviour and use of GP services.

Methods. The data used in this study originate from the Second Dutch National Survey of General Practice of 2000-02. We used respondent interviews in three age groups: 555 respondents aged 18-22; 1005 respondents aged 45-49; and 536 respondents aged 70-74. We studied smoking, alcohol abuse, excessive alcohol intake, use of soft drugs, overweight and insufficient physical exercise in relation to use of primary care and gender.

Results. Almost all risk behaviours were more prevalent in men. Of all studied risk behaviours, only smoking was related to yearly GP contact and consultation frequency in relation to gender. Smoking men consulted their GP significantly less frequently than non-smoking men, whereas in women, the opposite was the case.

Conclusions. Both rates of consultation and yearly contact were significantly lower in smoking men than in smoking women. Preventive actions by means of case-finding, therefore, are less attainable in men than in women. This outcome may create a double setback for Dutch men, as smoking is a major cause of lower life expectancy in men. Recent data show that under-representation of men among consulters in general practice and excess of smoking men still exist

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in the Netherlands. This confirms the actual relevance of our findings although these were obtained 10 years ago.

INTRODUCTION

The higher morbidity, yet extended longevity, of women may have created an emphasis on women's health. More men than women smoke, drink alcohol, and are overweight,¹ but they utilize less health care than women.^{2,3} One might ask, therefore, whether men are short-changed on health. Pinkhasov *et al.*² even hypothesized that this high-risk behaviour and low utilization of health services may contribute to the higher mortality in men. Gender plays a role in people's utilization of health care and reasons for consultation.

Reasons for consultation in primary care are different for men and women. Health status and physical symptoms are of greater importance in consultation by men, and factors related to screening and health education, obstetrical diagnoses and disorders of the genitourinary system are of greater significance among women.^{3,4} To our knowledge, the relation between gender differences in risk behaviour and use of primary health care is unknown. Risk behaviour affects health and life expectancy but can also be used as a focus for preventive actions. For instance, smoking cessation is a key strategy for decreasing the burden of smoking related death and disability.⁵ There is clear evidence that GP-based health programmes have a modest and variable effect on health outcomes such as lifestyle change.⁶ To improve this effect, GPs need to offer lifestyle advice routinely and repeatedly or they should direct their efforts towards high-risk groups, where the potential for substantial change may be greater.⁶ GPs are ideally placed for practising preventive medicine and health promotion in the form of early enquiry about patients' lifestyles and for providing information and counselling concerning risk factors.⁷ They are important professionals for disease prevention as about three-quarters of all people consult their GPs at least once a year.⁸ Moreover, most patients do not object to the organization of preventive care through case finding and risk-monitoring in primary care.⁹ Dutch GPs have a central position in health care as gatekeepers to secondary care, and thus access to Dutch GP care is considered very good. In planning a prevention programme for high-risk groups in primary care, it is important to know whether gender, risk behaviour and GP consultation are variables that should be taken into account and to what degree. We wanted to know whether prevention by means of passive case-finding was applicable to both men and women in primary health care. The aim of this study, therefore, was to determine whether gender played a role in the relation between risk behaviour and the use of GP services. We studied this in three age groups (young, middle, and old age) to find out whether age also played a role in the relation between risk behaviour and gender. We hypothesized that both men and women with high-risk behaviours consulted their GP more frequently than men and women with low-risk behaviours. We studied gender and age differences in the relation between people's use of primary health care and the risk behaviours of smoking, alcohol abuse, excessive alcohol intake, use of soft drugs, overweight, and insufficient physical exercise. We controlled for self-rated health (SRH) and socio-economic status (SES) because SRH and SES are potential confounders that affect the use of GP care, although only a few studies have specifically assessed the influence of SRH on gender differences in use of GP services.^{10,11}

METHODS

The data used in this study originated from the Second Dutch National Survey of General Practice (DNSGP- 2) by the Netherlands Institute for Health Services Research, which was carried out in cooperation with the National Information Network of General Practice (NIN-GP).¹² The DNSGP-2 was performed with the aim of providing information to researchers and policymakers about the role of general practice in the Dutch health care system. Data were collected between April 2000 and January 2002. The study was carried out in 104 general practice institutions in the Netherlands, comprising 195 GPs (in total, 165 GP full-time equivalents).

The patients listed in these practices ($N = 385\ 461$) form a representative sample of the Dutch population. An all-age random sample of ~ 5% of the listed Dutch speaking patients was invited *via* their GP to participate in a 90-minute health interview survey ($N = 19\ 685$); 12 699 patients responded (64.5%). To avoid seasonal patterns, the health interviews were randomly distributed over the year.

Apart from the interview data, we also used 1-year data derived from the respondents' electronic medical records. For our analyses, we divided all respondents into three age groups: a young age group, aged 18–22 years ($N = 555$); a middle age group, aged 45–49 years ($N = 1005$); and an old age group, aged 70–74 years ($N = 536$). These age groups were chosen to avoid other causes for GP consultation in the female respondents, such as pregnancy in the young age group and menopause in the middle age group. The oldest group was chosen because, from a preventive point of view, it is effectively possible to add to the quality of life at this age. An even older group (>75 years of age), finally, would have contained fewer respondents because of the higher prevalence of cognitive disability.

Self-reported risk behaviour

The following self-reported indicators were used: smoking, alcohol abuse, excessive alcohol intake, use of drugs, overweight, and insufficient exercise. Smoking was defined as a positive answer to the question whether the respondent to the health interview was actually a smoker. Alcohol abuse was defined as two or more positive answers to the CAGE questionnaire: Have you ever felt you should Cut down on your drinking? Have other people Annoyed you by criticizing your drinking? Have you ever felt Guilty about drinking? Have you ever taken a drink in the morning to steady your nerves or get rid of a hangover (Eye-opener)?¹³ More than 21 standard alcoholic drinks a week for men and more than 14 standard alcoholic drinks a week for women were considered excessive alcohol intake. Use of drugs was defined as a positive answer to the question whether soft drugs had actually been used in the past 2 months. Soft drugs such as hashish and marijuana are drugs that are regarded to pose fewer risks to public health than hard drugs such as heroin, cocaine, LSD (lysergic acid diethylamide), and ecstasy. The group of hard drug users proved to be so small that we only included soft drug users. People with a body mass index (BMI) of 25 or higher were considered overweight; those with a BMI between 18 and 25 were considered to be of normal weight; and those with a BMI below 18 were considered underweight. Insufficient physical exercise was defined as less than 30 minutes of exercise for 5 days a week.

GP consultation

We determined both whether someone had or had not had contact with their GP in the year of the interview and, if so, the number of consultations in the year of the

interview. Data to determine GP consultation rate were derived from the respondents' electronic medical records.

Self-rated health

SRH was operationalized as the score on the general perceptions scale of the short-form health survey (SF- 36). The question asked was as follows: In general, would you say your health is excellent, very good, good, fair or poor?¹⁴ A Dutch version had been validated previously.¹⁵

Socio-economic status

SES was determined by the self-reported highest accomplished educational level, divided into three groups: lowest (none or primary education), middle (lower secondary professional education), and highest (high school and university) educational level.

Analyses

Statistical analyses were performed with SPSS statistical software for Windows. Chi-square analysis was used to test for bivariate relations between risk behaviour and gender. An independent samples *t*-test was used to test for gender differences in respondents' use of GP services. A logistic regression model was used to assess the relation between yearly contact with the GP and gender, risk behaviour and age group. We added interaction terms into the model to look for a moderating effect of gender on the relation between risk behaviour and yearly contact with the GP. Negative binomial regression was used to model the relation between consultation rates as a dependent variable and both risk behaviour and gender as independent variables. We added interaction terms into the model to look for modifications in the relation between (i) risk behaviour and SRH and (ii) consultation rates by gender. Non-significant interaction terms were removed from the models. SES and SRH were used as control variables in both models and were not removed, even if they did not attain statistical significance. We considered a *P*-value <0.05 as significant.

RESULTS

Data of 2069 men and women were included. Table 1 shows the characteristics of the men and women who took part in the study.

Risk behaviour: age and gender

Table 1 shows the risk behaviour characteristics. In all age groups, the number of smoking men was higher than the number of smoking women. Alcohol abuse occurred more frequently in men than in women in all age groups, and excessive alcohol intake also was found more frequently in men than in women. Use of soft drugs was low in all age groups. In the young and middle age groups, more men than women were overweight.

In the oldest age group, slightly more women were overweight. Insufficient physical exercise was higher in young and old women than in young and old men; in the middle age group, insufficient exercise was higher in men than in women.

[TABLE 1 AND 2]

Use of GP services

In all age groups, more women than men consulted their GP at least once in the year the interviews were held.

Gender differences in yearly GP consultations were statistically significant ($P < 0.001$) for the young and middle aged groups, whereas this gender gap disappeared in the older age group ($P = 0.132$; Table 2). The women's consultation rate was also higher than the men's consultation rate. This difference was statistically significant in all three age groups ($P < 0.001$ for all groups; Table 2).

Risk behaviour in relation to use of GP services

Of all the risk factors we studied, only the relation of smoking with yearly GP contact was significantly modified by gender ($P = 0.040$; Table 3). The coefficients of gender, smoking, and gender by smoking in Table 3 demonstrate that smoking men have less GP contact than non-smoking men and that this relation is reversed in women. The relation between age and GP consultation rate attained statistical significance ($P < 0.001$). People from the old age group consulted their GP twice as much as people from the young age group. Gender did not have a statistically significant moderating effect on the relation between consultation rate and the risk behaviours of alcohol abuse, excessive alcohol intake, use of drugs, overweight, and insufficient exercise; gender only had such an effect on the relation between consultation rate and smoking ($P < 0.001$). Estimated marginal means of the negative binomial regression showed that smoking men consulted their GP less frequently than non-smoking men (expected mean consultation rate: 3.08 versus 4.28 times a year), whereas smoking women consulted their GP more frequently than non-smoking women (expected consultation frequency: 6.26 versus 5.74 times a year; Table 4).

[TABLE 3 AND 4]

DISCUSSION

Summary of main findings

We hypothesized that men and women with high-risk behaviours would consult their GP more frequently than men and women with low-risk behaviours. Nevertheless, we found that men consult their GP less than women; however, although smoking women see their GP more often, smoking men stay away even more from their GP, resulting in the estimated consultation rate of smoking men being half that of smoking women. A GP, therefore, sees a smaller proportion of smoking men than smoking women, both as a result of a lower consultation rate and less number of yearly contacts. Preventive actions by means of passive case-finding, i.e. on the occasion of a consultation by the patient for another reason, are therefore less attainable and successful in men than in women because of men's lower attendance. This outcome may create a double setback for men, considering that several studies have shown that smoking is the most important cause of lower life expectancy in men and the contribution of smoking to sex difference turned out to be up to 40–60%.^{16,17}

Comparison with existing literature

Pinkhasov *et al.*² also discovered this double setback, but, in contrast to their study, we discovered a direct gender disparity in risk behaviour and in use of GP services, to the detriment of smoking men in particular. We observed that the group that is most in danger, smoking men, is the group that shows the lowest utilization of

primary health care. Alcohol abuse, excessive alcohol intake, use of soft drugs, overweight, and insufficient exercise showed no significant gender difference in consultation frequency or yearly contact with the GP.

Almost all risk behaviours were more prevalent in men than in women. These outcomes are in conformity with earlier outcomes.² Age was not a significant interaction term in any analysis.

Strengths and limitations of the study

The strength of this study is that we focused on a group of men and women with good access to GP services, providing us with self-reported data on their health and health behaviour and combined these with data derived from the electronic medical records on use of GP services.

By using a nationwide representative survey (the DNSGP-2), we had a high response rate. A limitation of our study is that, even though the response rate was high, the respective subgroups were small.

Second, we used the highest accomplished educational level as a proxy measure for SES. Income and education are correlated, but not interchangeable.¹⁸ Because education is a more constant measure of social status over one's lifetime than variables such as income or residence,¹⁹ however, we used this parameter to define SES. Furthermore, we used self-reported data, which may have involved underestimation of risk behaviour.

Another limitation is the fact that our data are 10 years old. Based on data from the Dutch Expert Centre on Tobacco Control (STIVORO)²⁰ and the Dutch Central Bureau for Statistics (CBS),^{21,22} we can conclude that though the number of smokers has decreased in the past 10 years, still more men smoke than women. And though differences in yearly GP contact and consultation frequency between men and women are slightly levelling out, we still see a large gender difference in use of primary care. Based on these findings, we presume that our conclusions are still valid. The last limitation is the cross-sectional character of the study, whereby we studied the relation between smoking and GP consultation.

This may cause a healthy smoker bias: unhealthy smokers may have already quit smoking, whereas 'healthy' smokers continue to smoke. Part of the lower number of older smoking women and the constant number of older smoking men annually consulting their GP can be accounted for by this phenomenon.

Implications for practice and research

Men who smoke consult their GP significantly less frequently than women who smoke. Preventive actions by means of passive case-finding, therefore, might be less attainable and less successful in men than in women. Consequently, prevention by means of passive case-finding is more applicable to women than to men in primary care and there is less need for a proactive invitation strategy in women compared to men. In order to lower risk behaviour in men, we need public health activities or special primary care programmes that target people who have fewer GP contacts. Furthermore, we recommend finding strategies to positively influence (i) the knowledge of smoking and smoking cessation and (ii) readiness to promote smoking cessation by other health care providers such as dental professionals and occupational physicians. Whether or not GPs are willing and able to organize prevention programmes requires further exploration, although we know that, despite

the increase in workload this involves, GPs are positive about health promotion and lifestyle counselling.⁷

Declaration

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Conflict of interest: none.

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TABLES

TABLE 1 *Characteristics of risk behaviour in Dutch men and women in three age groups (data collected in 2000–02)*

Age groups	Risk factor	Men	Women	P
Young (18–22) ^a	Smoking	42%	33%	0.029
	Alcohol abuse	11%	5%	0.009
	Excessive alcohol intake	25%	6%	0.000
	Insufficient physical exercise	41%	43%	0.613
	Use of soft drugs	8%	7%	0.092
	Overweight	17%	13%	0.066
Middle (45–49) ^b	Smoking	41%	37%	0.263
	Alcohol abuse	12%	7%	0.150
	Excessive alcohol intake	16%	11%	0.018
	Insufficient physical exercise	43%	37%	0.056
	Use of soft drugs	2%	1%	0.005
	Overweight	57%	40%	0.548
Old (70–74) ^c	Smoking	24%	14%	0.004
	Alcohol abuse	4%	0%	0.008
	Excessive alcohol intake	8%	3%	0.018
	Insufficient physical exercise	37%	54%	0.000
	Use of soft drugs	0%	0%	0.467
	Overweight	60%	61%	0.548

^aMen: 263 (47%; mean age: 20.13); women: 292 (53%; mean age: 19.76).

^bMen: 437 (43%; mean age: 46.97); women: 568 (57%; mean age: 46.99).

^cMen: 229 (43%; mean age: 71.98); women: 307 (57%; mean age: 71.89).

TABLE 2 *Number of Dutch men and women in three age groups consulting their General Practitioner yearly and consultation rate in the year the interview was carried out (data collected in 2000–02)*

Age	≥1 GP consultations in men	≥1 GP consultations in women	P	Consultation rate in men	Consultation rate in women	P
Young (18–22)	161 (60%)	244 (82%)	0.000	1.8	4.0	0.000
Middle (45–49)	316 (72%)	473 (83%)	0.000	3.3	5.0	0.000
Old (70–74)	191 (82%)	273 (87%)	0.132	5.8	8.6	0.000

TABLE 3 Relation between risk behaviour and yearly contact with the General Practitioner by age group and gender in the Netherlands
 (data collected in 2000–02)

Parameter	Beta	P	Odds ratio	95% Confidence interval
Men (reference: women)	-0.802	0.009	0.449	0.247–0.816
Age	–	0.004	–	–
Young (18–22)	-0.605	0.001	0.546	0.378–0.788
Middle (45–49)	-0.450	0.005	0.638	0.465–0.874
Old (70–74)	reference	–	–	–
Smoking (reference: not smoking)	0.206	0.290	1.229	0.839–1.799
Gender (male) × smoking	-0.511	0.040	0.600	0.368–0.977
BMI	–	0.477	–	–
BMI < 18	-0.350	0.336	0.705	0.345–1.438
BMI = 18–25	0.058	0.644	1.060	0.828–1.357
BMI > 25	reference	–	–	–
Alcohol abuse (reference: no alcohol abuse)	0.367	0.130	1.444	0.897–2.324
Excessive alcohol intake (reference: no excessive alcohol intake)	-0.216	0.217	0.806	0.572–1.135
Sufficient physical exercise (reference: insufficient physical exercise)	0.003	0.979	1.003	0.798–1.261
Use of soft drugs	–	0.067	–	–
Current use of soft drugs	reference	–	–	–
Use of soft drugs in the past	-0.589	0.139	0.555	0.254–1.211
No use of soft drugs ever	-0.105	0.770	0.900	0.445–1.823
SRH	–	0.000	–	–
Excellent SRH	reference	–	–	–
Very good SRH	0.177	0.543	1.194	0.675–2.112
Good SRH	0.175	0.509	1.191	0.709–2.002
Fair SRH	1.904	0.000	6.714	2.745–16.418
Poor SRH	0.591	0.456	1.806	0.381–8.564
SES	–	0.353	–	–
Lowest SES	0.167	0.243	1.182	0.893–1.564
Middle SES	0.213	0.175	1.237	0.910–1.683
High SES	reference	–	–	–
Gender × SRH	–	0.005	–	–
Gender (male) × excellent SRH	reference	–	–	–
Gender (male) × very good SRH	0.109	0.768	0.768	0.541–2.297
Gender (male) × good SRH	0.681	0.045	1.976	1.017–3.840
Gender (male) × fair SRH	-0.966	0.078	0.381	0.130–1.115
Gender (male) × poor SRH	0.908	0.376	2.479	0.332–18.501

TABLE 4 *Estimated marginal means of GP consultation rate for Dutch men and women for smoking (data collected in 2000–02)*

Gender	Risk behaviour	Mean	95% confidence interval
Men	Smoking	3.08	2.45–3.72
	Not smoking	4.28	3.41–5.14
Women	Smoking	6.26	4.94–7.57
	Not smoking	5.74	4.57–6.90