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## DETERMINANTS OF SELF-REPORTED HEALTH

### *Abstract*

*The theoretical background of this article is based on the biopsychosocial model of health and the resource theory. The basic hypothesis is that socio-economic status has an impact on risk behaviour as well as on health status. The respondents have been asked about various aspect of their physical fitness, risk behaviour and the frequency of perceived symptoms of illness experienced during the last year. Gender, age, education and average household income per capita have been used as indicators of socio-economic status.*

*Data has been obtained with the questionnaire 'Quality of Life in Slovenia - 1994' on a representative sample of the Slovenian population. The hypothesis has been tested on a sample of respondents aged from 18 to 75 years, using the chi-square test and multiple regression analysis.*

*Results demonstrate that most women (87%) and men (85%) have at least one habit that can be considered harmful to the health. Men tend to have more health endangering habits than women. Gender, followed by age and education, has the highest explanatory power for engaging in high risk behaviour as well as for the incidence of self-reported symptoms of illness. Average household income per capita has the lowest weight although, in most cases, it is statistical significant. The relations between socio-economic status and health indicators are greater for women than for men.*

*Keywords: health, risk behaviour, symptoms of illness, socio-economic status, gender, quality of life*

### INTRODUCTION

Health is one of the most important dimensions of the overall quality of life. It is an inexchangeable personal resource necessary for the creation of positive living conditions and it is also among the most holistic indicators which can be used to evaluate the general level of living. The first studies of life standards and of quality of life have taken into account various aspects and factors of the overall health of the population. In addition to positive indicators, such as accessibility of health care, so-called negative indicators have predominated in these studies. 'Negative' indicators measure the absence of health as reflected by the incidence of certain illnesses and various mortality indexes. Such data are systematically gathered by government agencies in most countries and are used as standard indicators for international comparison. We will use standard data to illustrate the posi-

tion of Slovenia compared to other European countries. In 1990 Slovenia ranked 13th among 35 countries (between Italy and Ireland) as measured by infant deaths per 1000 live births (8.4). The life expectancy of women is 77.3 years, 20th place among 39 countries (after Denmark and Croatia). The life expectancy of men is 69.4 years, the 24th place following Bosnia and Herzegovina and Albania (source: Statistični letopis Republike Slovenije 1994: 594-596). In terms of infant mortality, Slovenia is in the top half of European countries; life expectancy of women ranked Slovenia in the middle and life expectancy of men in the bottom half.

However, the available statistical data measures only very limited aspects of the health status of the population as most of these indicators are based on a negative concept of health. The negative concept of health treats health merely as the absence of illness. Such a notion of health is inadequate for policy planning, the priority of which should be investments in improving and preserving health. For this reason, the World Health Organisation (WHO) supports endeavours for asserting both a positive and holistic concept of health which is defined as total physical, psychic and social well-being (WHO, 1951). Although in a different context, these same terms are used in the operationalisation of the quality of life concept. Among the prerequisites for health and healthy living are the following: being free from threats to life, having meaningful role and function in society, a good education, a decent home and sufficient income to meet basic needs (WHO, 1994:1). The latter is, to a great extent, consistent with the three groups of needs defined by Allardt (1993): having (physiological needs and needs to be safe), loving (the need to belong), being (the need for self-realisation).

The WHO's definition of health is essentially universal and therefore it is difficult to operationalise. This is an important reason why this concept of health is not used by statistical offices. Okolski argues that "in spite of the central position occupied by health care in various areas of societal activities and extensive research in various areas of health, the very notion of 'health' remains unclear and value-loaded" (Okolski, 1993:127). The concept of health used most often which assumes that health is the absence of disability, i.e. restriction of activity 'in the manner or within the range considered normal for a human being' is, according to Okolski and many other authors, vague and subjective. Such a train of thought could lead to the conclusion that people cannot be healthy unless they are living in adequate social, political and economic conditions or unless they are capable of love, work and creativity (Selič, 1994). On the one hand this definition exceeds the prevailing narrow comprehension of health because it considers not only the absence of illness and negative feelings but considers the whole life situation. On the other hand, it invites misinterpretation because on this basis everyone who is not satisfied could be considered sick.

The WHO's programme 'Health for all by the year 2000' is a new development in the direction of health policy which emphasises the biopsychosocial model of health. This model emphasises the interaction of biological, psychological and social factors important for health. (Polič, 1995) Thus, health is not a state which is a given, but rather one which has to be created in accordance with the biological characteristics and specific needs of

the human being. When it is created, it functions as a source for the realisation of personal and social potentials. WHO (WHO, 1994) considers the following life-styles as healthy: non-smoking, moderate drinking of alcohol, no use of drugs, healthy nutrition, regular physical activity and safe sexual behaviour.

Our analysis focuses on a single dimension of health: namely, self-reported physical well-being. Thus, the term health is operationalised as the absence of symptoms of illness. In some of the indicators of health, a physical dimension is revealed (for example, physical fitness) while in others, a psychic dimension is also revealed (for example, restlessness or tiredness). In all cases, what was registered was the subjective perceptions of the respondents.

The following activities which endanger health have also been analysed: smoking, drinking alcohol and the absence of regular activities for maintaining psycho-physical well being. However, the authors are aware that these are only a few of the risks that can contribute to a worsened health status. Following the example of other studies focused on the influence of socio-economic factors on health (Gross, 1989; Ross & Bird, 1994; Davis & Fine-Davis, 1991) the following socio-economic indicators were also taken into account: gender, age, education and average household income per capita.

All analyses were conducted on a sample of 1717 respondents aged 18 to 75 years.

## **DETERMINANTS OF HEALTH**

It is a known fact that diseases which occur frequently in developed countries are closely connected with unhealthy behaviour such as smoking, insufficient physical activity, harmful eating habits and inadequate nutrition. Such behaviour patterns can be changed regardless of socio-economic status. However, the chances for change decrease if the pattern of activity becomes a habit; this is especially true when the habit is not the direct cause of obvious negative consequences. Unhealthy behaviour patterns usually develop in early life or in early adulthood when most people do not yet have any serious problems with their health. Thus, most of the negative consequences appear after a long period. Usually, such unhealthy habits serve some social function or enhance 'short-term satisfaction' and equilibrium. For this reason an exceptionally high level of motivation is required in order to stop the unhealthy habit before related disease appears.

The analysis of risk factors has demonstrated that physical activity is the most critical area related to health status. To be physically passive (as compared to smoking or drinking alcohol) is more acceptable in society, especially for women who are usually double-burdened with paid work and with care for the family. Only a minority of respondents is engaged in a regular activity intended to maintain good physical and mental shape. This minority is mainly represented by men as well as by young and well-educated people. The greatest differences are to be found between different age and

**Table 1:**  
**RISK FACTORS**

	Smoking <sup>(1)</sup> (%)		Consumption of alcohol <sup>(2)</sup> (%)		Irregular physical activity <sup>(3)</sup> (%)
Total sample	29.7		12.7		78.8
Males	33.9		22.0		74.8
Females	25.7		3.9		82.6
Chi-square	13.9	***	208.4	***	15.5
15-24 years	30.4		6.7		61.6
25-34 years	44.5		8.5		75.2
35-44 years	38.3		12.1		82.0
45-54 years	25.9		14.7		82.4
55-75 years	12.9		18.3		86.0
Chi-square	113.8	***	45.9	***	64.2
Less than					
primary school	23.5		19.4		90.7
Primary school	27.3		10.1		86.9
Vocational training	36.0		12.7		80.9
Secondary school	31.5		10.6		67.2
More than					
secondary s.	23.6		16.2		64.1
Chi-square	17.2	***	57.2	***	94.1

In the table are presented % of respondents who answered that they:

(1) smoke;

(2) drink alcohol every day or nearly every day;

(3) exercise less than twice each week.

Statistical significance:      0.05 < p ≤ 0.1      \*

   0.01 < p ≤ 0.05      \*\*

   p ≤ 0.01                      \*\*\*

education groups. The number of physically active respondents significantly decreases after the age of 24. According to education, the critical difference is between the group with vocational education or less and other groups. Although the differences between men and women are statistically significant, they are much smaller than the differences revealed in education and age categories when expressed as a percentage.

Smoking is ranked in second place among negative habits. More than every third men and every fourth women are smokers. The majority of them (approximately 70%) smokes more than 10 cigarettes per day. The relationship between smoking and age group is not linear. The greatest share of smokers is to be found in the age group from 25 to 45 years which is also the period when working and family burdens are the greatest. After the 45 years, the number of smokers decreases drastically as the negative effects of smoking become clearly visible. Only a minority continues to smoke after the age of 55. The relationship between the level of education and smoking is not linear either. There are a relatively low share of smokers in lower educational categories, probably due to the age structure of that category

(there are mostly older people)<sup>1</sup>. The share of smokers declines with completion of secondary school. The difference in numbers of smokers between sexes is also statistically significant.

More than 10% of respondents drink alcohol every day or nearly every day and one-quarter of them drink heavily (for example more than 1/2 l of wine per day). There are substantial gender differences in alcohol consumption. Yet because drinking alcohol is socially more unacceptable for women, the question arises whether these results shows the real situation. Men usually solve every day problems and discomfort with alcohol while women are more likely to take some types of medication (Černigoj Sadar, 1987). Consumption of alcohol increases with age as well as with the level of education. The differences are greater between age groups than between groups with different education level.

We took a special interest in whether risk factors were cumulative or whether they functioned separately. Analysis revealed the cumulation of risk factors in the case of men in lower educational categories. Men have a greater tendency to experience a cumulative effect in risk factors than women. In the case of women, one risk factor tends to be dominant and this is usually the absence of physical activity.

The share of men and women who do not engage in any of the above-mentioned risk factors increases with the level of education. The greatest share of respondents who live healthy lives (i.e. have no analysed risk factors) is among the young and more among men than women. With age the gender difference increases. The greatest number of persons who do not smoke or drink and who exercise at least twice a week is among the young and more among man than women. In terms of cumulative risk factors, the gender difference increases with age.

As we discovered that age and education are related (in general, older people have lower education) and that household income per capita relates to education ( $r=0.23$ ), we used multiple regression analysis to find out which factor is the strongest determinant on a total number of risk factors.

In the case of women, education and age determine the number of risk factors to a larger extent than in the case of men while just the opposite holds true for income. Women's behaviour is generally influenced more by social milieu and life period. The same results were observed in research which focused on patterns of leisure activity (conducted in the mid-80s by Černigoj Sadar, 1989). The two sets of results undoubtedly prove that women are more influenced by social milieu and its expectations. The role that age plays in the two genders is also interesting: the older the man is the more likely he is to live unhealthy while the older the woman is the less risk factors she tends to engage in.

These differences can be explained in the same way as the differences in the number of risk factors. Men who have more negative habits that most probably do not change in their old age, while at the same time physical activity decreases markedly in older age groups. In contrast, it is possible that middle-aged women give up negative habits more often than men due

to a greater sensitivity to the visible signs of ageing. Such signs of age appear sooner and more drastically in smokers and in those who are physically passive.

**Table 2:**  
**RELATION BETWEEN SOCIO-ECONOMIC STATUS AND THE NUMBER OF RISK FACTORS**

Independent variables	Subsample	B	Beta	T-test
Household income per capita	Males	-0.0027	-0.077	-2.10 **
	Females	-0.0017	-0.065	-1.67 *
	All	-0.0026	-0.084	-3.23 ***
Age	Males	0.0033	0.063	1.73 *
	Females	-0.0060	-0.164	-4.21 ***
	All	-0.0017	-0.038	-1.49
Education	Males	-0.0142	-0.115	-3.13 ***
	Females	-0.0287	-0.152	-3.64 ***
	All	-0.0135	-0.096	-3.65 ***
Constant	Males	2.4158		22.56 ***
	Females	2.7413		23.72 ***
	All	2.5169		34.87 ***
R <sup>2</sup>	Males		0.027	
	Females		0.044	
	All		0.02	
F-test	Males		7.03	***
	Females		12.25	***
	All		10.84	***

Dependent variable is the number of risk factors (smoking, consumption of alcohol, irregular physical activity).

Legend: B ... regression model parameters  
 Beta ... estimations of regression coefficients (in the case of standardised variables these are partial coefficients)  
 R<sup>2</sup> .. square of multiple correlation coefficient

Gender differences which relate to the number of risk factors in different age groups may also be the result of certain socio-economic influences to which some generational groups were exposed and others were not. For example, older generations were under strong social pressure regarding gender roles and related patterns of behaviour. Smoking, not to mention alcohol consumption, were viewed negatively in the case of women, while accepted in the case of men. Another example is that of good physical shape which is very highly valued in younger generations. One cannot control for all of these influences unless the behaviour patterns of different generations are longitudinally followed which is not the case in this study.

The proportion of explained variance in risk factors is statistically significant, yet very low. This can be explained by the fact that the persistence of some health-endangering habits is related to certain personality character-

istics and to certain socio-economic indicators (such as family cycle and employment status) were left out of our analysis. It is also possible that socio-economic status effects the intensity of a particular habit more than the number of health-endangering habits engaged in. Due to the greater awareness and higher expectations of their social milieu, those from higher social strata control the intensity of the negative habit more than those from a lower social strata.

## HEALTH STATUS

In the analysis of health status we studied the following indicators: physical fitness, perception of troubles caused by the poor functioning of various body systems, chronic tiredness and frequency of visits to the doctor.

**Table 3:**  
**HEALTH STATUS INDICATORS**

	Poor physical condition (%)	Chronic tiredness (%)	Visits to doctor (%)
Total sample	11.1	52.5	54.4
Males	8.2	44.6	49.0
Females	13.8	59.9	59.4
Chi-square	51.6 ***	51.9 ***	18.9 ***
15-24 years	0.8	40.6	47.2
25-34 years	2.2	45.0	44.8
35-44 years	5.6	49.0	47.6
45-54 years	15.5	59.9	59.1
55-75 years	25.3	62.9	68.4
Chi-square	560.3 ***	102.4 ***	63.8 ***
Less than primary school	26.7	68.9	61.1
Primary school	15.5	59.4	60.2
Vocational training	7.7	51.6	50.8
Secondary school	4.9	44.3	50.6
More than secondary s.	2.3	34.0	48.1
Chi-square	221.0 ***	94.6 ***	17.9 ***

Poor physical condition: have problems walking 100 m, running 100 m and walking up and down stairs.  
Chronic tiredness: often felt tired in the past 14 days, or had difficulties getting started in the morning, were especially tired during the day and felt very tired in the evening.  
Visits to doctor: Visited doctor due to health problems in the past 12 months (visits to dentists and gynaecologists not included).

More than every tenth respondent is in a very bad physical shape and thus number sharply increases after the age of 45. Well-educated respondents (those with a secondary level education or more) take better care of their health which is reflected in their over-all physical fitness. The greater number of women in poor physical shape, as compared to men, is not surprising when one considers the empirical evidence regarding the dominant patterns of women's activities (Černigoj Sadar, 1993). Differences between the sexes in this area are statistically significant regardless of age group.

The data on chronic tiredness<sup>2</sup> are especially alarming; namely, more than half of the respondents reported that they are chronically tired. More women than men report chronic fatigue and such fatigue appears to increase with age. Nevertheless, the proportion of chronically-tired among the young is also extremely high - two-fifths of younger respondents reported chronic fatigue during the late spring in 1994. The perception of chronic fatigue is related more to the level of education than to age; the ratio between the lowest and the highest age category is 1:2. The number of respondents who reported chronic fatigue is approximately the same as the number which visited the doctor at least once in the past year. However, the number of visits to the doctor does not decrease as drastically with a higher level of education than does the number of chronically tired. More than half of the respondents visited the doctor due to an illness or health problems during the past year, the highest number being among older respondents and among those with lower levels of education. The differences between genders, age groups and education categories are statistically significant. Women tend to have more symptoms of illness and visit doctors more often than do men.

## **RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS, RISK FACTORS AND PERCEPTION OF ILLNESS**

Among socio-economic indicators, age explains the greatest part of illness symptoms. Age is followed by household income per capita and education, both of approximately the same weight. The effect of the number of risk factors is not statistically significant, for which there are several possible explanations. In the previous discussion it was already indicated that the consequences of health-endangering habits often become visible only after a longer period of time. Furthermore, many respondents probably gave up their 'negative' habits after having fallen seriously ill. Moreover, those who have just started to live healthier lives may not have perceived an improvement in their health status at the time of the study and only data on current situation was analysed in the present study. Lastly, the measure of risk factors used in this study is relatively rough as it does not take into account the intensity of risk factors.

Among all determinants of symptoms of illness included in our study, the influence of age appears to be the greatest for both sexes. However, the influence of other determinants is gender-differentiated. Education has much greater effect on health in women than it does in men, while just the opposite is true for the number of risk factors. The latter is statistically significant factor associated with the reported symptoms of illness of men but not of women. As regards the effect of household income per capita, no difference between men and women was found.



**Table 4:**  
**RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS, RISK FACTORS AND PERCEIVED SYMPTOMS OF ILLNESS(1)**

Independent variables	Subsample	B	Beta	T-test	
Household income per capita	Males	-0.01	-0.11	-3.2	***
	Females	-0.01	-0.11	-3.1	***
	All	-0.02	-0.13	-5.3	***
Age	Males	0.07	0.40	12.0	***
	Females	0.06	0.32	8.8	***
	All	0.07	0.38	16.3	***
Education	Males	-0.03	-0.06	-1.9	***
	Females	-0.16	-0.18	-4.6	***
	All	-0.06	-0.11	-4.6	***
Number of risk factors	Males	0.20	0.06	1.9	*
	Females	-0.07	-0.02	-0.5	
	All	0.01	0.002	0.1	
Constant	Males	0.65		1.6	
	Females	4.19		6.2	***
	All	2.06		5.9	***
R2	Males		0.185		
	Females		0.200		
	All		0.191		
F-test	Males		43.1	***	
	Females		47.9	***	
	All		91.9	***	

(1) The perceived symptoms index (dependent variable) is a sum of subjective perception of single symptoms of illness classified in the following groups:

- headache, migraine;
- pains in shoulders, back, breast, chest or hands, rheumatism, hip trouble and the like;
- heart conditions, low or high blood pressure, extended veins, swollen legs, difficulty in breathing, dizziness;
- indigestion, gastric trouble, trouble with blisters, kidney trouble, gall bladder or liver trouble;
- general tiredness;
- nervous problems, anxiety, tension;
- depression

There were three possible answers:

1 - no troubles or illness in the past 12 months

2 - minor troubles

3 - serious troubles or serious illness

Estimates for single groups were totalled and transformed into a scale 1 to 15. Cronbach alpha for the index of symptoms is 0.72, standardised item alpha is 0.73.

Considering the clear differences which emerged in the study between men and women, we took a greater interest in the role of gender. Results of multiple regression analyses where gender was included as a dummy variable demonstrate, that gender has the highest weight among socio-econom-

ic indicators in explaining self-perceived health status. Women report statistically significant more symptoms of illness than men. The importance of gender is followed by age (which positively correlates with the number and intensity of symptoms reported) and education (which negatively correlates with reported symptoms). The importance of household income per capita (which negatively correlates with reported symptoms) is the lowest but is still statistically significant at the level 0.001. Education has a greater importance in the case of women while the importance of age does not differ significantly between the sexes. These results correspond with the results of the two-dimensional and multi-dimensional analyses already discussed.

## CONCLUSION

The results of the study show that most women (87%) and men (85%) have at least one habit that is bad for the health. The most frequently reported negative habit is the absence of regular activity for maintaining psycho-physical fitness, followed by smoking and consumption of alcohol. Men tend to have more health-endangering habits than women and the accumulation of risk factors is higher for men than for women. Almost three-fifths of men reported two or three risk factors while only one-fifth of women reported a similar level. Conversely, more women than men report poor physical condition, more women report chronic fatigue and experience a higher number of symptoms of illness (the average number of reported symptoms in our sample is 2.56 for women and 1.61 for men). It is difficult to ascertain whether this 'contradiction' is the result of women's greater sensitivity or is also the partial result of not including all relevant risk factors in the analysis. For example, being overburdened with both paid and unpaid work was not included as a risk factor. Namely, even if one does not smoke or consume alcohol and does exercise regularly, one can still feel poorly if one cannot stand the pressure of social and work obligations. Such a situation can also lead to chronic tiredness and other illnesses.

Moreover, we must also be cautious when interpreting data on risk factors as answers may be influenced by the desire to present a positive image of oneself. The number of respondents who admitted health-endangering habits, with the exception of irregular physical activity, seems relatively low. In addition, only data on current status were analysed. It is clear that data on past behaviour is also relevant. However, this would require a different methodological approach (specifically, event history analysis). Most likely, these shortcomings in the methodology reduced the statistical significance of the number of risk factors on perceived symptoms of illness.

Gender, followed by age and education, proved to be the most important determinant of risk factors as well as of the frequency of perceived symptoms. Household income per capita has the lowest weight although, in most cases, it is statistically significant.

The study showed that women's health status is more related to social position than is men's. This means that not only are women in higher social strata more aware of the importance of a healthy way of living than are men, but also that they utilize various strategies to overcome the burdens of everyday life which may (or may not) result in a better health status.

According to all of the analysed health status indicators, the groups which have a distinctively worse health status are as follows: older people, women, lower educated respondents, and those with lower household

income per capita. These findings are particularly concerning because these are the characteristics of groups which are already at the margins of the society. Our results are also consistent with the results of research studies which used the subjective indicator of health status (Gross, 1989, Ross & Bird, 1994, Davis & Fine-Davis, 1991) as well as with the results of studies which were based on aggregate statistical data (Okolski, 1993). Davis and Fine-Davis (1991) stated that already in 1952 Myrdal had pointed out the complexity of the relationship between health and socio-economic status. The author explicitly emphasised the problem of 'cumulative social causation' in social systems, whereby low income causes sickness and sickness increases poverty. In short, what is referred to is the vicious cycle of bad health and worsening social status.

## NOTES

1) Correlation between years of education and age is -0.20.

2) Reports of chronic tiredness were also influenced by the season when the inquiry was conducted (May, June) and by the ending of the school year which is a burden for parents as well as for students.

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