IMPACT OF SOCIO-ECONOMIC FACTORS AND PREVENTIVE MEASURES TO HEALTH IN INDUSTRIAL POPULATION

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INTRODUCTION

Epidemiological studies in the last years dealt with partial risk factors and their impact on health, not in general, but more in relationship with the incidence or prevalence of one or few diseases. Results of many studies affirm a significant relationship between health and education, socio-economic status (SES) and health, and lifestyle and health.

OBJECTIVES

The goal of the study is evaluation of health status in inhabitants of industrial city, their different approach to health and preventive measures in relation with life-style factors and SES.

METHODS

A structured questionnaire was distributed to a random sample of some 3,000 of the population in Ostrava (an industrial city with a total population over 300 thousands) aged 25-70 and collected by postal delivery. In total 634 completed questionnaires were analysed (21.1% of the response rate). The data were double-entered, cleaned and analysed using the statistical software STATA.
The study of reliability was a part of the project. The repeatability of answers, (180 questionnaires being sent again after a six weeks interval), was assessed by two methods: by the percentages of agreement and using the Kappa index. The results of the repeatability study were considered in further analyses of the data and in the interpretation of the study results.

Information on health status was analysed in relationship with socio-demographic factors – sex, age, education, occupation, marital status, economical situation of the family, density of housing etc. The methods used were chi-square test, the analysis of variance ANOVA and logistic regression.
Based on the rough analysis of relationships across the SES factors, life-style factors, approach to health and health preventive measures, and behavioural characteristics (using the chi-square test and the analysis of variance ANOVA) the aggregated variables for passivity, contentment, psychical well-being and risk behaviour were created and the relationships with the health status were analysed by using the logistic regression.

RESULTS

HEALTH STATUS OF THE RESPONDENTS

Three quarters of the respondents (75.5%) evaluated their health status as good or very good, 24.5% reported long time health disorders or diseases. More than a half of the study sample (52.0%) suffered by one or more chronic serious diseases.

For the purposes of further analyses of health status by using the logistic regression 2 categories were created – healthy and ill people. The significant difference was found between the group of healthy and ill respondents in relationship with each of the investigated SES factors excluding marital status (Tab. 1).

Adjusted correlations in model I remained significant with the exception of density of housing (Tab. 1). Significant differences of health status was found in groups by sex – women are less ill than men; age – the number of ill people increase with age, and the respondents over 60 years old were almost 6 more as likely to be ill; education – people with basic education were nearly 3 more as likely to be ill; economic activity – economically non-active respondents were almost twice as likely to be ill than economically active; economic situation of family – people in the group with an average economic situation were significantly less ill than in the group of respondents who evaluated their economic situation as below average.

Tab. 1 Health status in relationship with socio-demographic characteristics
/healthy individual (N=316) – no chronic disease, self-evaluation of a good health status,
ill individual (N=279) – presence of chronic disease/

	Categories of variables	N	CRUDE OR			MODEL I		
			OR	95%CI	P	OR	95%CI	P
Sex	men	283	1+			1+		
	women	352	0.67	0.48-0.93	0.016	0.54	0.36-0.80	0.002
Age	25-30	74	1+			1+		
	31-40	114	1.28	0.66-2.46	0.464	1.63	0.81-3.29	0.172
	41-50	152	1.95	1.05-3.62	0.033	2.19	1.13-4.25	0.021
	51-60	153	4.24	2.28-7.90	0.000	4.08	2.00-8.02	0.000
	>60	135	9.61	4.89-18.88	0.000	5.77	2.64-12.64	0.000
Education	University	140	1+			1+		
	Basic	76	5.08	2.53-10.17	0.000	2.84	1.20-6.31	0.010
	Apprenticeship	211	1.29	0.83-2.00	0.261	1.16	0.69-1.94	0.579
	Secondary	207	1.20	0.77-1.87	0.418	1.30	0.78-2.17	0.307
Occupation	Active	348	1+			1+		
	Non-active	286	3.83	2.72-5.41	0.000	1.92	1.17-3.15	0.010
Family	With a partner	443	1+			1+		
	Living alone	190	1.24	0.87-1.76	0.240	1.11	0.70-1.74	0.666
Economic situation	Below average	138	1+			1+		
	Average	444	0.48	0.32-0.73	0.001	0.47	0.28-0.76	0.002
	Over average	38	0.37	0.17-0.78	0.009	0.54	0.23-1.29	0.165
Density of housing	room/person	625	1.58	1.24-2.02	0.000	1.32	0.96-1.81	0.091

1+ referent category
P - P >|z|
Model I – controlled for all variables in model

USE OF MEDICAMENTS

About a half (46.5%) of all respondents regularly used prescript medicaments, more in women but not statistically significant; older people and economically non-active people significantly more (Fig.1). In women the regular use of medicaments was in adverse correlation with education (p<0.01), in men the relationship was not found. Also no relationship was found by marital status.

The absence of a chronic disease was declared by 19.7% respondents, in spite of that they regularly used the medicaments unlike the 29.1% respondents who reported the presence of the serious chronic disease, but did not regularly use medicaments.

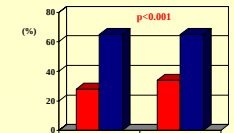

Fig.1. Relationship between regularly used prescript medicaments and economic activity by sex.

Medicaments without prescriptum:
- **analgetics were regularly used by 13.4% of respondents – more in women (p<0.01)**
- **sedations by 5.5% of respondents (no sex differences) and**
- **hypnotics by 3.0% of them – significantly more in women (p<0.01).**

BODY MASS INDEX (BMI)

The average BMI in men was 24.0, in women 21.1. It is obvious from Fig. 2 significantly higher proportion of men in category with overweight (BMI=25-30) and a significantly lower in category with lower BMI (BMI<20). The significant correlation was found between BMI and age – BMI increase with age (p<0.001); health status – worsening health with increasing BMI (p<0.001); education – adverse correlation (p<0.01); and marital status – people living with a spouse or a partner had got higher BMI (p<0.05). No significant differences were found by economical activity.

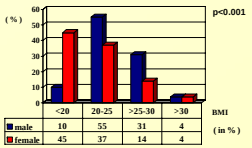

Fig. 2 Relationship between BMI and sex
(N of male 278, N of female 347)

BODY MASS INDEX (BMI) AND ECONOMIC SITUATION

The results of analyses of the relationship between BMI and subjective evaluation of economic situation showed that the respondents with below average and average economical situation were represented in specific categories of BMI in the similar way. The substantial differences of BMI were in the group with over average economic situation – only 21.6% respondents had the standard BMI (BMI=20-25), but nearly a half of them (48.7%) had lower BMI (BMI<20), and almost a third (29.7%) had overweight (BMI>25) (Fig. 3).

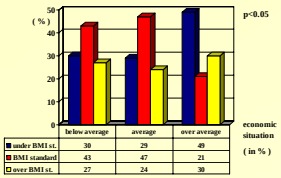

Fig. 3 BMI in relationship with subjective evaluation of a family economic situation

APPROACH OF RESPONDENTS TO THEIR HEALTH

About a half of respondents regularly underwent the preventive medical examination at practitioner and occupational physician, 76% at stomatologist and 70% of women at gynaecologist. Three quarters of respondents engaged the information about the possibilities of improving health – more women, economically non-active and ill people.

- **Medical sources of this information were preferred by women (p<0.001), older people (p<0.001), economically non-active (p<0.01), and ill respondents (p<0.001).**
- **Mass media as the sources of the protective health information were preferred by women (p<0.01) and healthy people (p<0.01).**
- **Non-medical sources (recommendations of relatives and friends) were more frequently reported by people living in a partnership (p<0.01), and by people with a higher education (p<0.05).**

HEALTH STATUS – CONTENTMENT AND PSYCHICAL WELL-BEING

For the purposes of further analyses of health status in relationship to aggregated variables the sample was divided into 3 groups: - healthy individual (no chronic disease, self-evaluation of a good health status), - ill individual without serious problems (presence of chronic disease but self-evaluation of health status as good), and - ill individual (presence of chronic disease and self-evaluation of a bad health status).

It is obvious from the Tab. 2 that ill people were significantly more discontented comparing with healthy people. Adjustment for sex, age, education, occupation, family, economic situation, density of housing discovered the significant difference also in ill persons without serious problems. Ill respondents were 5 more as likely to be in a lack of psychical well-being, also after adjustment for SES factors (Tab.3).

Tab. 2 Lack of contentment in relationship with health status
***/contentment** - satisfaction with economical situation of the family, feeling of recreation after holidays, satisfaction with amount of sleep and diet situation, seldom distressed or excited, self-evaluation of a very good physical condition, general contentment*
N of content – 383, N of discontent – 114/

	Categories of variables	N	CRUDE OR			MODEL I		
			OR	95% CI	P	OR	95%CI	P
Health status	healthy individual	279	1+			1+		
	ill without problems	176	1.17	0.65-2.12	0.601	2.13	1.05-4.31	0.036
	ill individual	140	7.47	4.32-12.92	0.000	15.39	6.77-34.99	0.000

1+ referent category
P - P >|z|
Model I – adjusted for sex, age, education, occupation, family, economic situation, density of housing.

Tab. 3 Lack of psychical well-being in relationship with health status
/serious problems, problematic relationships to other people, tend to stress, low ability of coping with stress, lack of satisfaction with the economical situation, distress, excitability, lack of contentment
N of psychical well-being - 238, N of lack of psychical well-being – 147/

	Categories of variables	N	CRUDE OR			MODEL I		
			OR	95%CI	P	OR	95%CI	P
Health status	healthy individual	279	1+			1+		
	ill without problems	176	0.94	0.56-1.60	0.832	1.38	0.74-2.57	0.308
	ill individual	140	5.76	3.18-10.42	0.000	10.70	4.47-25.60	0.000

1+ referent category
P - P >|z|
Model I – adjusted for sex, age, education, occupation, family, economic situation, density of housing.

HEALTH STATUS - PASSIVITY AND RISK BEHAVIOUR

Ill people in the sample were more passive than healthy individuals and the relationship remained significant also after adjustment for selected factors – as it is showed in Tab. 4.

Presented results in the Tab. 5 declare that risk behaviour is less frequent in ill persons than in healthy ones.

Tab. 4 Passivity in relationship with health status
/passive individual – often watch TV, leisure time spend by reading, do not leave the city during weekend and holidays, rare contacts with friends
N of passive – 106, N of active- 353/

	Categories of variables	N	CRUDE OR			MODEL I		
			OR	95%CI	P	OR	95% CI	P
Health status	healthy individual	279	1+			1+		
	ill without problems	176	1.29	0.73-2.27	0.379	1.17	0.63-2.15	0.617
	ill individual	140	3.32	1.93-5.71	0.000	2.43	1.28-4.62	0.007

1+ referent category
P - P >|z|
Model I – adjusted for sex, age, education, occupation, family, economic situation, density of housing.

Tab. 5 Risk behaviour in relationship with health status
/no physical activity - after omitting people with health reasons, drink more than 3 cups of coffee a day, smoker, without regular food, self-evaluation of own diet as unhealthy, do not visit a physician when health disorders appear, work having a temperature caused by a cold, refuse sickness benefits, no preventive medical examinations, do not limit intake of unhealthy foods
N with risk behaviours – 286, N with non-risk behaviours – 138/

	Categories of variables	N	CRUDE OR			MODEL I		
			OR	95%CI	P	OR	95% CI	P
Health status	healthy individual	279	1+			1+		
	ill without problems	176	0.49	0.30-0.80	0.004	1.16	0.62-2.19	0.639
	ill individual	140	0.25	0.14-0.46	0.000	0.43	0.19-098	0.044

1+ referent category
P - P >|z|
Model I – adjusted for sex, age, education, occupation, family, economic situation, density of housing.

ACKNOWLEDGEMENT

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CONCLUSIONS

The significant relationship between the groups of healthy and ill respondents was found in respect to all the SES factors (sex, age, education, economic activity and economical situation of family) except of marital status and density of housing. The health status improved with the level of education and economic situation and worsened with age. Better health status was identified in women and economically active people.
Ill respondents in the sample were significantly more discontent, more often in a lack of psychical well-being and more passive comparing with the group of healthy respondents. Contrary to prediction the behaviour of ill individuals was less risky comparing with healthy people, what could resulted from the changed approach to own health implied after the appearance of disease and a positive impact of health intervention.