

WOMEN'S HEALTH STATUS IN POLAND IN THE TRANSITION TO A MARKET ECONOMY*

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Abstract

Since 1989 Poland has been experiencing large-scale social and economic changes as a result of the reforms associated with the transition to a market economy. This study uses a 1996 Health Survey of over 20,000 women to examine the impact of the new socio-economic situation and of women's multiple roles on their health at the early stage of transition. We investigated the importance of selected economic, socio-demographic and cultural determinants in explaining differences in women's health status in Poland, focusing on education level, (un)employment, living conditions, marital status, smoking and life style.

There are health inequalities between men and women in Poland based on life expectancy, chronic diseases and health self-assessment. Some of these, especially the large differences between life expectancy at the working ages, may be attributed to the difficult socio-economic situation.

The multivariate analysis of women's self-assessed health and morbidity from selected chronic diseases indicated substantial inequalities in health. Together with the behavioural and cultural risk factors recognized by medicine, such as obesity,

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lack of physical exercise and smoking, the paper shows the crucial role of economic factors in influencing Polish women's health. Women, whose financial position is poor, are more likely to assess their health as less than good, to suffer from respiratory and circulatory systems' diseases and report neurotic problems. Other factors, strongly connected with the transformation process in Poland, which contribute to health problems are lack of employment and low educational level, particularly for younger women. Women's marital and parental status are also important predictors of some categories of health problems, however, their influence varies for women of different ages. Our survey also supports the thesis that loneliness in old age, defined on the basis of living in a one-person household, may be negatively correlated with health status.

Keywords: *Women's health, Determinants of health, Poland.*

Résumé

Depuis 1989, la Pologne vit une transformation sociale et économique de grande envergure qui résulte des réformes liées à la transition vers l'économie de marché. Cette communication exploite les données d'une enquête sur la santé menée en 1996 auprès de plus de 20 000 femmes, pour étudier l'impact de la nouvelle situation socio-économique et des multiples rôles assumés par les femmes sur leur santé dans la première phase de la transition. L'auteur examine la place de certains déterminants économiques, socio-démographiques et culturels dans l'explication des différences de santé chez les femmes en Pologne ; elle concentre son analyse sur le niveau d'instruction, l'emploi et l'inactivité, les conditions de vie, la situation matrimoniale, le tabagisme et le style de vie.

On constate des différences de santé entre hommes et femmes en Pologne, en termes d'espérance de vie, de maladies chroniques et d'auto-évaluation de l'état de santé. Certaines de ces inégalités, en particulier le grand écart d'espérance de vie aux âges actifs, peuvent être imputées à la situation socio-économique difficile.

L'analyse multivariée de l'auto-évaluation de la santé des femmes et de la morbidité due à certaines maladies chroniques révèle de grandes inégalités. En plus des facteurs de risque comportementaux et culturels reconnus par la médecine, tels que l'obésité, le manque d'exercice physique et le tabagisme, l'étude montre que les facteurs économiques ont une influence décisive sur la santé des Polonaises. Les femmes qui vivent dans une situation financière difficile ont davantage tendance que les autres à estimer qu'elles ne sont pas en bonne santé, à souffrir de maladies du système respiratoire ou du système cardio-vasculaire, et à se plaindre de troubles névrotiques. Les autres facteurs, étroitement associés au processus de transformation

socio-économique, qui contribuent à l'apparition des problèmes de santé sont le manque d'offre d'emploi et la faiblesse du niveau d'instruction, particulièrement chez les jeunes femmes. La situation matrimoniale et familiale des femmes est aussi un important prédicteur de certains types de problèmes de santé, mais son influence varie selon l'âge. L'enquête corrobore la thèse selon laquelle, chez les personnes âgées, l'isolement (le fait de vivre dans un ménage composé d'une seule personne) peut être négativement associé avec l'état de santé.

Mots-clés : Pologne, Santé des femmes, Déterminants de la santé.

1. Introduction

The transformation which initiated the shift of the Polish economy into a market economy in 1989 evoked sweeping economic, social and institutional changes in the political system of Poland. The process of transition from a socialist economy to activities typical of a capitalist one brought about many social consequences, including negative ones. Social welfare services provided by the state have shrunk and employers have abandoned many social functions they used to perform. As a result, the economic position of many households has deteriorated, since this is now primarily dependent on the households' own resources – individual incomes, education and the ability of household members to function under the new socio-economic circumstances. Poland, like the other countries undergoing transformation, has experienced sweeping changes in the distribution of incomes, which have led to the growth of poverty, increasing social inequality and deterioration of living standards (CSO, 1996b; CSO, 1997b; Keane and Prasad, 2000). Privatisation resulted in liquidation of many enterprises, not only unprofitable companies, and job insecurity. These processes have reduced feelings of social security and brought about unemployment (Kolodko and Rutkowski, 1991). Changes in the conditions of participation in the labour market have affected women, in particular. Women, more often than men, have found it difficult to get a job and combine paid employment with child care and domestic responsibilities. Research during the 1990s has shown that unemployed women in Poland have relatively less chance of finding a job and longer periods of unemployment than men. This gender difference is closely con-

nected with marital status. Married men are twice as likely to find a job as married women (UNICEF, 1999).

The increasing requirements of employers, together with the underdeveloped childcare services and inflexible working hours, have added to women's difficulties in combining occupational activity with household duties. Difficulties obtaining adequate housing, together with the shock caused by the transformation changes and changed labour market requirements have resulted in major demographic changes, in particular a rapid decrease in marriages and births (Kotowska, 1998; Holzer and Kowalska, 1997). Over ten years (from 1988 to 1998) the number of marriages dropped from over 300,000 to 200,000, while the number of births decreased from 600,000 to 400,000 and the total fertility rates has been under 2.1 (below generation replacement level) since the early 1990s (CSO, 1999a).

Political and economic changes since 1989 have also been accompanied by technological and cultural transformations. The increasing democratisation of social life, lifting the bans on access to information, and the development of telecommunications have promoted diffusion of pluralism and liberalism. Over recent years feelings of independence and individualism have grown, while the influence of the Church and traditional family values have decreased.

This paper examines health status within Polish society during the period of political and social disruption, focusing on the health status of women. The first section examines the health status of women and men in Poland based on life expectancy, the occurrence of chronic diseases and self-assessed health status. Secondly, the 1996 Survey on the Health Status of the Population of Poland (CSO, 1997a) is used to analyse self-assessed health and five health conditions among women: hypertensive disease, coronary disease, ulcers of the stomach, duodenum and jejunum, chronic bronchitis and pneumonia, and neurotic disorders, focusing on how these vary according to women's social, economic, cultural and demographic characteristics.

2. Demographic and economic situation in Poland

The total population of Poland was 38,700,000 at the end of 1998, and women constituted 51.4% of this number, 62% of the population live in urban and 38% in rural areas (CSO, 1999a). The demographic

structure of Poland by age is relatively young, compared with the countries of northern or western Europe. The proportion of women according to age group is: pre-working age (0-17 years) - 24%; working age (18-59 years) - 57%; post-working age (60 years and over) - 19%.

2.1. Economic activity of the population

In November 1998, 44% of women aged 15 and over had paid jobs. The highest employment rate was among women aged 35-44, 74% were economically active as were 65% of women aged 25-34 and 45-54. The corresponding rates for men are 6% - 10% higher, depending on age group (CSO, 1999b). Most employed women combine occupational activity and housework, since Polish families usually follow a traditional pattern of housework assignment. Women prepare meals, do the washing up, clothes-washing, everyday shopping, clean the house, and take care of permanently ill or disabled members of the family. Although women receive assistance from their husbands or other family members, there are large gender differences. In 1994 on average women spent 4.3 hours daily, while men spent 53 minutes doing housework. Assignment of childcare duties is more equal. In families with small children, fathers take care of their children for 3 hours, while mothers do so for 6 hours per day (Firlit-Fesnak, 1997).

Since 1989, there has been a new category of economic activity in Poland, that of unemployed people (defined as not employed, actively seeking a job and available for work). The unemployment rate remains at over 10% and is higher for women than men. In November 1998 it fell to 12% among women and 9% among men, whereas in 1992 the rates were 16% and 12%, respectively (CSO, 1999b). Young people aged 20-24 find it most difficult to get a job, in this age group 23% of women, compared to 19% of men are unemployed. The likelihood of unemployment strongly depends on education level. It is negligible among those with higher education (3.5% for women and 2.5% for men in the 20-24 age group), but several times higher among people with secondary or lower education levels (16% for women and 10% for men with basic vocational qualifications). A comparison of employment status by marital status for working age men and women shows that a high proportion of the divorced are unemployed, especially among men (see Table 1). Unlike many western countries, marital status is unrelated to women's employment, since 60% of women who

are married, never married or divorced are in paid employment, although fewer widowed women are employed, 47%. However, there are major differences among men, with married men most likely to be in paid work and divorced and widowed men being less likely to be employed.

Table 1
Population of working age by economic activity,
sex and marital status (column %)

Sex and marital status	Economically active		Economically inactive	N
	Working	Unemployed		
<i>Women (age 20-60)</i>				
Never married	59	15	26	2,117
Married	61	10	29	12,186
Widow	47	5	48	850
Divorced/Separated	60	13	27	770
All	60	11	29	15,923
<i>Men (age 20-65)</i>				
Never married	63	19	19	3,916
Married	73	7	20	12,566
Widower	41	8	51	200
Divorced/Separated	47	20	33	420
All	69	10	21	17,102

Source: Polish Health Survey 1996.

Obtaining higher educational qualifications gives a better chance not only of finding a job, but of obtaining better-paid jobs, which are the main reason for the significant increase in the number of people studying in Poland. During the school year 1997/98 - 87% of persons aged 15-18 were in full-time education, while for the 19-24 age group it was over 34%, compared with 13% of this age group in education in 1990/91 (CSO, 1999b). Polish women are now better educated than men, for example, among those aged 19-24, the percentage of women studying was 36%, compared with 32 % of men.

2.2. Marital status of women and lone motherhood

During the 1990s the percentage of widows and divorced women grew slowly. In 1988, more than 50% of women were married, while in 1995, the percentage was lower at 44% (40% in urban areas) (CSO, 1996a). This drop has been due to postponing marriage and the significant decrease in the number of marriages. Every sixth woman aged 50-59 and every second aged 60 years and over is a widow (Kuciarska-Ciesielska and Sobieszak, 1999).

Lone mothers are relatively numerous. The total number of 10,500,000 families¹ in Poland includes 1,580,000 lone mothers with children under 25 (CSO, 1996a). The number of lone fathers with children is very much smaller and amounts to 190,000. A third of lone mothers are married, but their husbands do not live with the family because of education, their jobs or other problems, e.g. separation. Divorcees with children represent a third of lone mothers, whereas the number of widows represent 21%, and never married women represent 12% of lone mothers (CSO, 1996a).

3. Health conditioning – framework of the study

Changes in mortality which occurred in the early years of transformation in Poland and other countries of Central and Eastern Europe (CEE) have shown that major economic and social changes have influenced the health status of the population. There have been dramatic increases in mortality in all CEE countries and in the former Soviet Union, especially among working age men (e.g. Bobak, 1999; Chenet *et al.*, 1996; Kirschner, 1999; Kedelski, 1993; Tabeau, 1996; Zatonski, 1999; Zatonski, 2000).

High levels of premature mortality of men were reported for deaths from external causes, cardiac and circulatory system diseases and liver cirrhosis, particularly during the early period of the “shocks” caused by the economic changes. This has been attributed to the diffi-

1. Family is a group of people distinguished within a household on the basis of biological criteria. The following types of families are recognised: marriages without children, marriages with children, lone mothers with children, lone fathers with children.

cult socio-economic situation, which disturbed feelings of stability, associated with tremendous stress connected with the loss of jobs, income cuts, increasing inequalities, difficulties with adjustment to the new reality, increased alcohol consumption, and insufficient subsidies for the health service (Bobak, 1999; Cockerham, 2000; Holzer, 1999; Kopp *et al.*, 2000; Tabeau, 1996; Watson, 1995; Zatonski, 2000).

Trends in life expectancy in Poland are shown in Table 2. After the period of a rapid increase in survival rates for both women and men in the 1950s and 1960s, average life expectancy for women stabilised, but started decreasing for working age men by the early 1980s. The economic recession of the 1980s had an impact on mortality for both sexes. Expectation of life for women as well as men decreased in the years of crisis and social unrest in Poland, especially the early years of the systemic transformation (1989-91). Table 2 shows that the changes affected men during the ages of economic activity, but did not affect the youngest or the oldest age groups. Since 1992 expectation of life for both men and women has increased. The structural transformations also caused an increase in the number of suicides – by over 30% in the years 1989-94, which is symptomatic of the major difficulties experienced by people at that time (CSO, 1995; CSO, 1999b).

Table 2
Life expectancy e_x in Poland for men and women in years 1970-1997

Years	Men at age					Women at age				
	0	15	30	45	60	0	15	30	45	60
1970/72	66.8	54.6	40.7	27.3	15.5	73.8	61.1	46.5	32.3	19.3
1980/81	66.9	54.0	40.1	26.9	15.7	75.4	62.2	47.6	33.4	20.3
1985/86	66.9	53.6	39.5	26.3	15.3	75.3	61.8	47.2	32.9	19.9
1991	66.2	52.8	38.9	26.2	15.5	75.9	62.2	47.6	33.6	20.2
1994	67.5	53.9	39.8	26.7	15.8	76.1	62.4	47.7	33.4	20.4
1997	68.5	54.5	40.4	27.1	16.1	77.0	62.9	48.2	33.9	20.8

Source: Demographic Yearbook 1998. GUS. tabl. 103 (141).

Cardiac and circulatory system diseases dominate among the causes of death for both women and men in Poland. Mortality from cancer has been steadily growing and is the second largest cause of

death. Analysis of data for 1994 shows that elimination of circulatory system diseases and cancers in Poland would extend life expectancy for persons aged 45 by almost 9 years for both men and women (CSO, 1995; Kedelski, 1993).

An association between material and social resources and several indicators of health status for both men and women is found in western societies (e.g. Khlát *et al.*, 2000; Mackenbach *et al.*, 1997; Stronks *et al.*, 1997; Walters and McDonough, this volume; van Wijk *et al.*, 1995). Comparison between 11 countries of western Europe, based on surveys from 1985-1992 show a generally similar degree of socio-economic inequalities in health based on such factors as education, occupational activity, and income. The risks of morbidity and mortality were higher in the lower social groups (Mackenbach *et al.*, 1997). Dutch studies showed that the effect of socio-economic factors, such as education, occupational class and income level, on mortality is highly dependent on age, and were more significant for middle-aged persons than those aged over 60 (Kunst *et al.*, 1999).

The links between socio-economic factors and health indicators in Poland and other former communist countries have not yet been well described. Some information became available after 1989 which mainly concerned changes in mortality. Recent research indicates that socio-economic factors are perhaps the most powerful predictors of health outcomes in CEE. For instance, data from the Czech Republic, Hungary and Estonia and comparable results from several western countries show that the relative differences in mortality by occupation type and education in CEE are larger than in Western Europe (Bobak, 1999).

Comparative studies of self-reported ill health of men and women in Helsinki and Moscow show the possibility of different impacts of social stratification factors on health in different societies of East and West European countries (Palosuo *et al.*, 1998). In contrast to consistent associations with perceived health and morbidity among Helsinki women, education, income, occupation and social differences among Muscovite women were weaker. Similar conclusions can be drawn from analyses in seven post-communist countries: Russia, Estonia, Lithuania, Latvia, Hungary, Poland, Czech Republic (Bobak *et al.*, 2000). Education and material deprivation are important predictors of self-rated health in these countries although education differences in self-rated health are smaller than in western countries. McKeehan

(2000) examined the role of micro and macro determinants for poor physical health in Moscow. This multilevel study indicated that the distribution of social inequality at the community level affected the physical health of individuals. Physical health was associated with educational level and lack of social cohesion, as well as the relative social inequality in urban areas, related to risk of poverty, high alcohol consumption level and small apartment sizes.

The transition period has brought extremely disadvantageous changes in living conditions and lifestyle in CEE. UNICEF studies in the countries of Central and Eastern Europe and the former Soviet Union show that women and children are most affected by these changes (UNICEF, 1999). These factors influence women's health throughout their lives and have cumulative effects. Studies across 19 countries in the transition region have shown that women are at higher risk of depression and emotional difficulties than men. Depressive and post-traumatic stress disorders account for one-third of the total disabilities from mental health problems for women and only 10 percent for men; whereas for men there were higher levels of such factors as alcohol and drug addictions (40%) (World Bank, 1993).

The first all-Polish health survey of adults inhabiting rural areas, carried out in 1990, showed higher morbidity of women than men from circulatory diseases, endocrinological and neurotic disorders and osteoarthritis, and women perceived their health as poorer than men (Skretowicz, 1997). Surveys of household finances carried out by the CSO also showed gender differences in health perception by sex in 1994 and 1998. Women more often than men evaluated their health as quite poor or poor, and more often reported chronic diseases (CSO, 1999c; Zajenkowska-Kozłowska, 1996).

Epidemiological research indicates that lifestyle factors might be particularly significant determinants of premature mortality among adults in Poland. Lifestyle characteristics identified as hazard factors include tobacco and alcohol consumption, dietary habits, insufficient time for sleep, obesity and high blood pressure (UNICEF, 1994; Worach-Kardas, 2000; Zatonski, 1999). The economic crisis and financial difficulties of many families caused household changes in food purchasing and consumption behaviours in Poland. Those families who bought cheaper and lower quality food products tended to report worse health of household members (Bakken *et al.*, 1999). Tobacco consumption has stabilised at one of the highest levels in the world and

cigarettes sold in Poland contain relatively high levels of tar and nicotine (Zatonski and Przewozniak, 1996). During the transition period there has been an increase in smoking, especially among adolescent girls and boys across the region (Mazur *et al.*, 2000; BPRdSR, 1998; UNICEF, 1999). Surveys of older people living in Cracow and the factors influencing their life expectancy showed that the factors which made the risk of death decrease for women were: physical fitness, taking care of health in the past, holding life dear, and higher education level, whereas being world-weary, perceiving one's health as poor and smoking increased the risk of death (Tobiasz-Adamczyk and Szfranec, 2000).

The potential effects of women's multiple roles, combining the roles of wife, mother and employee, on women's health in Poland, has to date not been studied. According to Khlal *et al.* (2000), Arber and Cooper (2000), and Lahelma *et al.* (this volume), family type and employment status as well as other socio-economic variables are interrelated and they significantly differentiate women's health status in France, Britain and Finland. Women living in two-parent families and with children enjoyed better health compared to women living in other types of union or alone. This supports results obtained for mortality of Finnish women (Martikainen, 1995).

4. Survey design

The paper analyses data from the *Survey on the Health Status of the Population of Poland (Health Survey 1996)* which was carried out by the Polish Central Statistical Office in April 1996, according to the international recommendations of the World Health Organisation. The survey included nearly 20,000 households and interviewed 47,900 women and men aged 15 and over living in these households. The results are nationally representative and can be generalised to the whole population of women in Poland (CSO, 1997a). Analyses presented in this paper are based on a sample of 25,123 women aged 15 and over.

4.1. Variables analysed

The paper analyses selected social, economic, cultural and demographic factors including: household financial position, education of

the woman, her occupational activity, urban-rural residence, marital status, smoking, body mass index, physical activity, whether the woman lives in a one-person household and if any children under 15 live in the household. The percentage distributions of each variable for five age groups of women are shown in the Appendix Table.

The socio-economic factors included in the analysis (household financial position, education level of the woman, her occupational activity, and urban-rural residence) play a key role in the functioning of many families in Poland. Women who enjoy a comfortable financial position and a secure occupation, based on high qualifications, are likely to have a feeling of security and greater satisfaction with life. Living in a big city adds to the chance of economic well-being.

Financial position was defined on the basis of respondents' self-assessment: 1. Good – have enough money to buy everything they need without economising (or they have enough money but they economise); 2. Medium – major expenditures are a problem; 3. Bad – their money can buy the cheapest food, but no clothes, or – it can buy neither food, nor clothes. Only 13% of the women in the sample evaluated their household's financial position as good, while 29% considered it to be bad (see Appendix Table).

The financial position of respondents and their place of residence provide indirect information about the degree of difficulty of access to the health service in Poland. All Polish children under 14 and almost all adults are entitled to use the health service free of charge in public health service centres. The percentage of adults who cannot use free medical services is very low and amounts to only 3% of the total adult population. However, the current reform of the public health service and decline in the state Budget contribution to health care has resulted in higher private expenditure on health. In 1996 individual spending represented 25% of expenditure on health care. Only households with very high incomes could afford to use private clinics (Baran, 1997).

Our analysis includes marital status and focuses on women who live alone and those who live with children. In Polish society, a correlation between divorce and poor female health status was expected. Divorce is not a common phenomenon in Polish culture, and is socially disapproved. Divorcees constituted only 4% of the sample; with higher proportions in the age groups 30-44 and 45-59 - 6% (see Appendix Table). The decision to divorce is usually taken after many difficult

years, full of stress and tension. Undoubtedly, divorce can influence health, especially for women.

To examine how the social roles of women relate to their health status, the variable "number of children born by a woman" (0, 1-2, 3+) was analysed, but was not statistically significant in any of the models and therefore has been excluded from the data presented. (It should be mentioned that the survey data set did not include information on the children's ages.) Whether women lived with dependent children at home or not was measured indirectly, through a variable describing the presence of children under 15 in the household; 76% of women aged 30-44 lived with dependent children. For women aged 15-29, 60% lived with dependent children, but in many cases they are likely to be younger siblings rather than their own children. Twenty percent of older women (60 and over) were living with dependent children, mostly their grandchildren under 15.

Behavioural and cultural factors analysed include smoking, participation in sport and obesity. These variables are recognised as strongly correlated with the etiology of many disorders, especially those of the circulatory and respiratory systems. Obesity is a frequent characteristic of many women in Poland; 27% of the surveyed women were obese, which rose to about 45% of those aged 45-74 (see Appendix Table). Body mass index (BMI) was computed from body weight (in kg) divided by height (in m) squared. (1. Underweight BMI \leq 20; 2. Average body weight – BMI 20.1-27; 3. Overweight – BMI $>$ 27.) The high proportion overweight results primarily from nutritional habits and the typical Polish cuisine, which has a prevalence of fatty dishes.

Smoking is encouraged by advertising and the recent stressful socio-economic situation in Poland. It remains popular among both men and women, and also teenagers. In the survey, women aged 30-44 were most likely to be smokers (40%).

Physical activity was measured from information on women's leisure activities: 1. Intensive – running, competitive sports, or intensive training, gardening (at least 4 h a week); 2. Medium – walking, cycling, etc., at least 4 hours a week; 3. Low – reading, watching TV or other activities which do not employ exercise. Physical activity is low in all age groups except for women aged 15-29, where every third woman reported intensive exercise, and only every fifth reported low physical activity (see Appendix Table).

4.2. Statistical methods of analysis

Cox regression model was used in analysing the risk of reporting a given disease. This is a method of multivariate analysis of events, which allows estimation of the functions of hazard for the occurrence of a given event (e.g. morbidity) at a given time after including a range of independent variables, called covariates. The model is defined in the following way:

$$h(t) = [h_0(t)] \exp(\mathbf{b}_i X_i)$$

where $h_0(t)$ is the baseline hazard and depends only on time, and $\exp(\mathbf{b}_i X_i) = \exp(\mathbf{b}_1 X_1 + \dots + \mathbf{b}_k X_k)$ is the second component of the model and depends on the values of the covariates (X_i) and the regression coefficients (\mathbf{b}_i).

The hazard function $h(t)$ at time t defines how likely it is that a woman will experience an event, given that the woman has survived to that time. The hazard function is not a probability but a morbidity rate per unit of time. The interpretation of the coefficients for the categorical variables depends on the coding scheme selected. Coefficient \mathbf{b}_i for the category defined as the reference category equals 0 and $\exp(\mathbf{b}_i)$ has the value of 1. (Values of the $\exp(\mathbf{b}_i)$ were presented with the obtained results.) If the coefficients are positive for a given variable category, then $\exp(\mathbf{b}_i)$ is bigger than 1 i.e. occurrence of this category value is connected with a higher risk of the occurrence of the event under analysis (e.g. reporting a disease) compared with the reference category. For a dichotomous variable, $\exp(\mathbf{b}_i)$ is the ratio of the estimated hazards for a case with that characteristic to those without that characteristic. This is often called the "relative risk" associated with the variable.

The analysis was conducted for women in five age groups: 15-29, 30-44, 45-59, 60-74 and 75+. This was both because of age differences in morbidity of women, and because of the requirements of the method of analysis.²

2. The Cox model belongs to the group of models of proportional hazard, which employs the assumption that the ratio of hazard functions for a given variable will be constant for all time points. To verify this thesis, the cumulative survival curves and the hazard curves were made for age groups in each of the five health conditions under analysis. Shapes of the obtained curves (log-minus-log survival plot) showed,

Logistic regression was used to analyse self-assessed health by age group using a dichotomous dependent variable: "less than good health" ($Y=1$) versus "good or very good" health ($Y=0$), as a function of selected independent variables. The logistic model in terms of the log of the odds can be written as:

$$\text{Log} \{[\text{prob}(\text{event})]/[\text{prob}(\text{no event})]\} = \mathbf{b}_0 + \mathbf{b}_1 X_1 + \dots + \mathbf{b}_k X_k$$

where the term $\text{prob}(\text{event})/\text{prob}(\text{no event})$ is called the *odds*, and is a ratio of the probability of the occurrence of the event $Y=1$, divided by the probability of the event that $Y=0$.

The logistic coefficient can be interpreted in a similar way to the one in the Cox regression model with regard to the change in the odds (Hosmer and Lemeshow, 1989).

Results presented in the paper include only the variables which were significant in a given model at the 5% significance level.

5. Health status of women and men in Poland

5.1. Chronic diseases

The 1996 Health Survey in Poland covered 27 of the most frequently occurring disorders or groups of chronic diseases, which were broadly similar to the International Classification of Diseases. Data about disease prevalence was based on the subjective assessment of respondents and no medical documents or diagnoses were used. Subjective diagnoses by respondents could result in overestimation of more frequent diseases and those easier to self-diagnose and higher rates for women than men. The latter may result from the fact that men tend to be reluctant to reveal illnesses, because doing so is regarded as a sign of weakness.

More women report some kind of chronic illness than men; 68% of women aged 15 and over compared with 56% of men. The percentage reporting chronic diseases increases with advancing age. Every second woman aged 15-19 (every fourth in men) stated that they were

that the baseline hazard functions are not proportional, which required stratification into the five age groups.

affected by a chronic disease. The highest percentage of people with a chronic illness is among women aged 70-79, i.e. 95%.

The 1996 Health Survey showed that women most often suffer from diseases of the circulatory system (see Table 3). For instance, every fifth woman aged 15 and over is affected by hypertensive disease, and 12% by ischaemic heart disease. The percentage reporting diseases of the skeletal system is also very high (23%), as is rheumatism (22%) and neurotic disorders (18%). Every fifth woman is subject to chronic liver disease, allergies or endocrine disorders. Women suffer more frequently from the above mentioned diseases than men. However, men report more ulcers of the stomach, duodenum and jejunum (9% men and 6% women), and more accidents and injuries (7% of men and 4% of women). The percentage of women reporting five chronic illnesses (hypertensive disease, ischaemic heart disease, duodenal and gastric ulcers, chronic bronchitis and pneumonia, and neurotic disorders) for five age groups is shown in Table 3. A detailed multivariate analysis of these five illnesses is provided in the next section.

Table 3
Prevalence (%) of main reported health conditions
among women by age group

Health conditions	Age group					All 15 and over
	15-29	30-44	45-59	60-74	75 +	
Hypertensive disease	1.1	8.0	30.0	46.9	42.6	19.2
Ischaemic heart disease	0.5	3.5	19.2	31.2	27.0	12.1
Duodenal and gastric ulcers	1.5	7.1	9.4	7.4	5.5	6.1
Chronic bronchitis and pneumonia	1.6	3.5	8.6	13.0	14.8	6.6
Neurotic disorders	5.7	20.0	28.0	26.4	16.5	17.6
Base numbers	6,593	6,827	5,222	4,861	1,663	25,166

Source: Polish Health Survey 1996.

5.2. Health self-assessment

Self-assessment of health based on the Question "How do you assess your health status?" shows the poor health status of women in Poland. More than 60% of women aged 15 and over assessed their health status as less than good (Table 4). For men, the percentage was 10% lower. Only 7% of women and 10% of men assessed their health status as very good, while 5% and 4% respectively described their health as very poor (see Table 4). The largest group of men considered their health as good (37%), whereas the largest group of women considered their health as fair (36%). The most significant demographic factor that differentiates self assessed health is age. More than 80% of women aged 15-29 assess their health status as good or very good, which is the case for only 8% of women aged 60-74.

Table 4
Health self-assessment by sex and age group (row per cent)

Sex and age group	Very good 1	Good 2	Fair 3	Bad 4	Very bad 5	Less than good (3)+(4)+(5)	Base numbers
<i>Women</i>							
15-29	18.8	60.8	17.5	1.9	0.2	19.6	5,155
30-44	4.8	42.9	41.9	8.9	1.1	51.9	6,301
45-59	1.8	16.2	48.4	28.6	4.6	81.6	4,860
60-74	1.4	6.2	37.7	42.7	11.9	92.3	4,511
75 +	1.4	5.0	31.4	42.9	18.4	92.7	1,339
Total (15 +)	6.5	31.5	36.1	20.5	4.9	61.5	22,166
<i>Men</i>							
15-29	25.5	57.6	13.4	2.4	0.3	16.1	4,430
30-44	8.6	48.1	33.6	8.2	1.1	42.9	5,060
45-59	2.7	22.9	43.9	26	4.1	74.0	3,774
60-74	1.9	11.1	40.3	36.8	9.5	86.6	3,078
75 +	2.1	10.2	33.6	39.8	14.3	87.7	728
Total (15 +)	10.2	36.8	31.8	17.1	3.6	52.5	17,070

Source: Polish Health Survey 1996.

The health measures presented show differences in male and female morbidity in Poland. The life of many women is curtailed by illnesses and disabilities, which make performing basic activities and their social roles more difficult. However, these are not usually fatal diseases. Men are less likely to report poor self-assessed health, but their diseases are more serious and they die younger than women. These pat-

Table 5
Odds ratios of self-assessed less than good health
for women in different age groups^a

Characteristics	Age group				
	15-29	30-44	45-59	60-74	75+
<i>Household financial position</i>					
Good	1.00	1.00	1.00	1.00	1.00
Average	1.36*	2.1**	2.10**	2.16**	2.33**
Bad	2.17**	3.66**	4.00**	32.59**	3.18**
<i>Marital status</i>					
Never married	1.00	1.00			1.00
Married	1.41**	1.48**			4.06*
Widow	(na) ¹	2.25**			1.19
Divorced	1.87*	1.30			0.72
<i>Education level</i>					
Higher	1.00	1.00	1.00	1.00	1.00
Secondary	1.48*	1.38**	1.22	1.59*	2.76*
Vocational	1.43*	1.66**	1.44*	2.55**	1.8
Primary	1.2	1.92**	1.62**	2.06**	4.98**
<i>Place of residence</i>					
Town 100,000+			0.77*	0.65*	
Town 20,000-99,999			0.72*	0.69*	
Town <20,000			0.79*	0.78	
Village			1.00	1.00	
<i>Employment status</i>					
Unemployed		0.88	1.06	1.17	
Economically inactive		1.34**	2.89**	2.58**	
Employed		1.00	1.00	1.00	
<i>Smoking</i>					
Current smoker	1.55**	1.17**		0.60**	
Former smoker	1.43**	1.31**		1.21	
Never smoked	1.00	1.00		1.00	
<i>BMI</i>					
Underweight		1.01	1.35		
Average weight		1.00	1.00		

Excessive weight		1.60**	1.56**		
<i>Physical activity</i>					
Intensive	1.00	1.00	1.00	1.00	1.00
Medium	1.40*	1.06	1.13	1.13	1.49
Low	1.93**	1.33**	1.35**	1.72**	3.11**
<i>Household</i>					
Without children (age 15)		1.71**	1.41**		
With children (age 15)		1.00	1.00		
<i>One-person household</i>					
Yes	1.00				1.00
No	0.40**				0.57*
-2Log likelihood (constant)	4888.47	8110.36	4109.32	2244.61	643.14
-2Log likelihood (change in LLR)	217.05	602.26	478.32	170.39	50.49

a. Statistically significant at: * $p < 0.05$; ** $p < 0.01$.

(na)¹: due to small numbers widows were not taken into account in age group 15-29.

Source: Polish Health Survey 1996.

terms may partly reflect the more developed health consciousness of women, as women more often consult doctors than men and undergo routine medical examinations more frequently.

6. Multivariate analyses of selected health conditions and self-assessed health among women

Multivariate analyses presented in this section of the paper examine differences in health status of women in Poland and indicate how social, economic and cultural factors influence these differences. Self-assessed health for women is examined first, followed by analyses of five diseases frequently occurring among women (as shown in Table 3). It is expected that the prevalence of these diseases is connected with the socio-economic transformations and growing social inequalities in Poland.

Self-assessed health for women using the dichotomy "less than good health" versus "good or very good health" showed that the effects of educational level and financial position were statistically significant in all age groups (see Table 5). Describing their own health status as "less than good" is more frequent among women whose financial position is bad or average. The odds ratio (OR) for women assessing the financial situation of their households as "bad" increases from 2.2 for the age

group 15-29 to 4.0 in women aged 45-59, compared to the reference category “good” financial position. Better educated women, and those who live in towns are more likely to perceive their health status as good.

Table 6
Results from Cox regression models showing the effects
of selected characteristics on reporting hypertensive disease
for women in different age groups^a

Characteristics	Age group				
	15-29	30-44	45-59	60-74	75+
<i>Household financial position</i>					
Good		1.00	1.00	1.00	
Average		1.21	1.22*	1.08	
Bad		1.37*	1.39**	1.35**	
<i>Marital status</i>					
Never married			1.00	1.00	1.00
Married			1.65**	1.44**	2.06**
Widow			1.45*	1.26*	1.83**
Divorced			1.46*	1.20	1.41*
<i>Education level</i>					
Higher			1.00		1.00
Secondary			1.30*		2.07
Vocational			1.53**		4.14**
Primary			1.34**		1.98
<i>Place of residence</i>					
Town 100,000+					1.00
Town 20,000-99,999					1.08
Town <20,000					1.37**
Village					1.00
<i>Employment status</i>					
Unemployed		0.85	0.83**	(na) ²	
Economically inactive		1.76**	1.20**	1.25**	
Employed		1.00	1.00	1.00	
<i>Smoking</i>					
Current smoker		0.95	0.83**	0.77**	
Former smoker		0.74*	1.20**	1.00	
Never smoked		1.00	1.00	1.00	
<i>BMI</i>					
Underweight	1.18	0.71*	0.79	0.60**	0.84
Average weight	1.00	1.00	1.00	1.00	1.00
Excessive weight	4.99**	2.48**	1.91**	1.58**	1.31**

<i>Physical activity</i>					
Intensive			1.00		
Medium			1.24**		
Low			1.27**		
<i>Household</i>					
Without children (age 15)					
With children (age 15)					
<i>One-person household</i>					
Yes				1.00	1.00
No				0.9	0.81**
-2Log likelihood (constant)	967.6	9014.6	25,392.7	36,723.2	9965.5
-2Log likelihood (change in LLR)	32.8	162.6	295.9	232.4	51.5

a. Statistically significant at: * $p < 0.05$; ** $p < 0.01$.

(na)²: due to small numbers, unemployed persons were not taken into account in age group 60-74.

Source: Polish Health Survey 1996.

Economically inactive women more often report bad health than employed women (OR = 2.9 for age group 45-59 and OR = 2.6 for those aged 60-74). Health self-assessment, especially among younger women (under 44) and the oldest ones is associated with marital status. Married women generally reported poorer health than other women. In particular, never married women report particularly good health at all ages. Women without children in their households more often report bad health than those with children. Other factors included in the analysis, like physical activity, body mass index and smoking were also associated with women's health perception. Health was reported as better among women who took intensive physical exercise, had an average body weight and did not smoke cigarettes.

Hypertensive disease occurred in 21% of women in the study, especially in women aged 60-74, where nearly half of these women suffered from hypertension (see Table 3). This disease is the main factor associated with atherosclerosis, which is the cause of 50% of deaths from cardiac diseases in Poland. The etiology of this disease is affected by the impact of disadvantageous environmental factors. These adverse factors, among others, include: exhausting work, permanent haste, lack of relaxation, smoking, little exercise and obesity together with increasing age (Houston *et al.*, 1997).

Excessive body weight was the factor which most influenced the occurrence of hypertension, particularly among younger women but the influence of obesity decreased with age (Table 6). The hazard rate was 5.0 for obese women aged 15-29 while it fell to 1.31 at the age of 75 and over, compared with women who had normal body weight.

Table 7
Results from Cox regression models showing the effects
of selected characteristics on reporting ischaemic heart disease
for women in different age groups^a

Characteristics	Age group				
	15-29 (na)	30-44	45-59	60-74	75+
<i>Household financial position</i>					
Good		1.00	1.00	1.00	
Average		1.75*	1.27*	1.12	
Bad		3.10**	1.49**	1.37**	
<i>Marital status</i>					
Never married		1.00	1.00	1.00	1.00
Married		3.22**	1.73**	1.48**	1.82*
Widow		4.02**	1.71**	1.28*	1.29
Divorced		3.95**	1.83**	1.19	1.48
<i>Education level</i>					
Higher				1.00	
Secondary				1.02	
Vocational				1.04	
Primary				0.82*	
<i>Place of residence</i>					
Town 100,000+				1.16*	1.57**
Town 20,000-99,999				1.36**	1.34*
Town <20,000				1.15	1.72**
Village				1.00	1.00
<i>Employment status</i>					
Unemployed		0.86	0.91	(na) ²	
Economically inactive		1.51**	1.50**	1.50	
Employed		1.00	1.00	1.00	
<i>Smoking</i>					
Current smoker		0.83*	0.74**	0.20*	
Former smoker		1.33**	1.18*	0.99	
Never smoked		1.00	1.00	1.00	
<i>BMI</i>					
Underweight		1.24	1.11	0.80	

Average weight	1.00	1.00	1.00	
Excessive weight	1.41*	1.45**	1.26**	
<i>Physical activity</i>				
Intensive		1.00	1.00	
Medium		1.22*	1.21*	
Low		1.21*	1.11	
<i>Household</i>				
Without children (age 15)	1.29*			
With children (age 15)	1.00			
<i>One-person household</i>				
Yes			1.00	1.00
No			0.86*	0.79*
-2Log likelihood (constant)	3983.2	16,288.7	24,702.0	6386.7
-2Log likelihood (change in LLR)	60.8	135.1	147.9	38.3

a. Statistically significant at: * $p < 0.05$; ** $p < 0.01$.

(na): not applicable – small numbers of events in a given group.

(na)²: due to small numbers, unemployed persons were not taken into account in age group 60-74.

Source: Polish Health Survey 1996.

Other significant variables include marital status and education level. The higher the education level, the lower the risk of developing hypertensive disease, which may be connected with the medical knowledge of educated people, eating a better diet and taking more exercise. Living in a bad financial situation is particularly disadvantageous to the health status of women in terms of hypertension. There are large health differences by marital status for women aged 45 and over. Never-married women report the lowest hazard rate of developing hypertensive disease, while the rates for married women are generally higher than those of previously married women (see Table 6). The question emerges, whether the higher hazard rate for married than single women can be attributed to the disadvantageous environmental factors that married women experience, or their obesity which is connected with running the household and preparing meals for the whole family. However, the effect of marriage on health in this analysis is found after also including other variables, such as life style and obesity, in the models.

Living alone at an old age is associated with high blood pressure – the hazard rate for people living in one-person households was higher than for women living with others. However, presence of children at

home was not significantly associated with reporting hypertensive disease in any age group. Rates of hypertensive disease for smokers (compared with non-smokers) proved lower than expected, surprisingly the risk of reporting hypertensive disease was lower among smokers than for other women.

Table 8
Results from Cox regression models showing the effects
of selected characteristics on reporting duodenal and gastric ulcers
for women in different age groups^a

Characteristics	Age group				
	15-29	30-44	45-59	60-74	75+
<i>Household financial position</i>					
Good		1.00			
Average		1.27*			
Bad		1.65**			
<i>Marital status</i>					
Never married	1.00			1.00	
Married	0.62**			1.53	
Widow	(na) ¹			1.16	
Divorced	2.13*			2.16*	
<i>Education level</i>					
Higher					
Secondary					
Vocational					
Primary					
<i>Place of residence</i>					
Town 100,000+		1.30**		1.52**	1.96**
Town 20,000-99,999		1.31**		1.27	1.63*
Town <20,000		1.06		1.05	1.68*
Village		1.00		1.00	1.00
<i>Employment status</i>					
Unemployed			1.16	(na) ²	
Economically inactive			1.20*	1.76*	
Employed			1.00	1.00	
<i>Smoking</i>					
Current smoker		1.64**	1.82**	2.21**	
Former smoker		1.70**	1.84**	1.77**	
Never smoked		1.00	1.00	1.00	
<i>BMI</i>					
Underweight	1.74**	1.33**	1.91**	1.69**	
Average weight	1.00	1.00	1.00	1.00	

Excessive weight	1.35	0.63**	0.57**	0.81*	
<i>Physical activity</i>					
Intensive		1.00			
Medium		1.41**			
Low		1.13			
<i>Household</i>					
Without children (age 15)				1.43*	
With children (age 15)				1.00	
<i>One-person household</i>					
Yes			1.00		
No			1.59**		
-2Log likelihood (constant)	1626.2	8273.2	8139.4	5999.7	1340.0
-2Log likelihood (change in LLR)	17.1	100.9	121.2	102.2	29.5

a. Statistically significant at: * $p < 0.05$; ** $p < 0.01$.

(na)¹: due to small numbers, widows were not taken into account in age group 15-29.

(na)²: due to small numbers, unemployed persons were not taken into account in age group 60-74.

Source: Polish Health Survey 1996.

Ischaemic heart disease is the most frequent cause of death from cardiac disorders, and affects every fifth woman aged 45-59 and every third over 60 (see Table 3).

Hazard factors for women, identified on the basis of regression analysis, are marital status (being married, widow or divorced), poor financial situation of the family, economic inactivity, obesity and not taking physical exercise (see Table 7). Surprisingly, current smokers enjoyed better health than non-smokers. The higher risk observed in those who have given up smoking may be because they are recommended to stop smoking having been diagnosed as having ischemic heart disease. The risk of contracting the disease was higher for older women living in urban than rural areas and for those living alone than with other persons.

Attention should be drawn to the fact that among all age groups of women there were higher hazard rates for economically inactive women. This group covers not only women who do not have a job and do not seek one, but also disabled women. However, poorer health status of economically inactive women could also be attributed to the fact that they run the household or take care of children.

Duodenal and gastric ulcers are a common disorder among women in Poland. Every tenth woman aged 45-59 in the sample and more than

7% of women aged 30-44 and 60-75 suffered from such disorders (see Table 3). The following are recognised as risk factors connected with life style: smoking, alcohol consumption, and unhygienic conditions which cause inflammations.

Table 9
Results from Cox regression models showing the effects
of selected characteristics on reporting chronic bronchitis and pneumonia
for women in different age groups^a

Characteristics	Age group				
	15-29	30-44	45-59	60-74	75+ (na) ³
<i>Household financial position</i>					
Good	1.00	1.00	1.00	1.00	
Average	1.16	1.68*	1.23	1.18	
Bad	2.03*	2.03**	1.77**	1.54*	
<i>Marital status</i>					
Never married	1.00		1.00		
Married	0.22**		0.63*		
Widow	(na) ¹		0.61*		
Divorced	0.60		1.05		
<i>Education level</i>					
Higher			1.00		
Secondary			1.03		
Vocational			0.83		
Primary			0.74		
<i>Place of residence</i>					
Town 100,000+		1.32*		0.84	
Town 20,000-99,999		0.75		1.28*	
Town <20,000		0.73		1.16	
Village		1.00		1.00	
<i>Employment status</i>					
Unemployed	0.95	1.21	0.74	(na) ²	
Economically inactive	1.58*	1.42*	1.33*	1.62*	
Employed	1.00	1.00	1.00	1.00	
<i>Smoking</i>					
Current smoker			1.37*	1.48*	
Former smoker			1.00	1.36*	
Never smoked			1.00	1.00	
<i>BMI</i>					
Underweight			1.32	1.44*	
Average weight			1.00	1.00	

Excessive weight			1.43**	1.28*	
<i>Physical activity</i>					
Intensive					
Medium					
Low					
<i>Household</i>					
Without children (age 15)	0.69*	1.39*			
With children (age 15)	1.00	1.00			
<i>One-person household</i>					
Yes					
No					
-2Log likelihood (constant)	1702.5	4039.8	7399.3	10,338.4	
-2Log likelihood (change in LLR)	54.7	32.6	73.9	73.9	

a. Statistically significant at: * $p < 0.05$; ** $p < 0.01$

(na)¹: due to small numbers, widows were not taken into account in age group 15-29.

(na)²: due to small numbers, unemployed persons were not taken into account in age group 60-74.

(na)³: all variables were not significant at $p < 0.05$.

Source: Polish Health Survey 1996.

Results obtained for women in the survey confirmed the adverse impact of smoking on prevalence of stomach and duodenum ulcers. For female smokers aged 30-74, risk rates were from 1.6 to 2.2, compared with non-smokers; similar risk rates were reported by former smokers (see Table 8). A key factor associated with high rates is being divorced. The odds ratio for divorced women is 2.1 which is decisively higher than among other women, for whom the results do not differ significantly from that for never married women. Women living in big towns face a higher risk of reporting duodenal and gastric ulcers than village inhabitants. The BMI measure shows that overweight women face a lower risk of ulcer than other women. Women who are underweight are at the highest risk, since stress may lead to being underweight, as well as women who are permanently watching their body weight may suffer from tension and stress. Being underweight may be not only the cause, but also the result of stomach ulcers.

Chronic bronchitis and pneumonia. Seven per cent of the respondents suffered from chronic bronchitis or pneumonia. The occurrence of this disease increases across the age groups of women; from 2% for those aged 15-29 to 15% at age 75 and over (see Table 3).

Analysis shows that differences in morbidity from chronic bronchitis and pneumonia are largely attributed to women's style of living and financial position (see Table 9). Women, who have never smoked cigarettes and had average body weight face the lowest risk of developing chronic bronchitis. Poor financial status was accompanied by a higher risk of this health condition. Urban area of residence may be a

Table 10

Results from Cox regression models showing the effects of selected characteristics on reporting neurotic disorders for women in different age groups^a

Characteristics	Age group				
	15-29	30-44	45-59	60-74	75+
<i>Household financial position</i>					
Good	1.00	1.00	1.00	1.00	1.00
Average	1.29	1.45**	1.38**	1.14	1.29
Bad	2.20**	1.90**	2.00**	1.46**	1.58*
<i>Marital status</i>					
Never married	1.00	1.00		1.00	1.00
Married	0.78*	0.93		1.29	1.69*
Widow	(na) ¹	1.12		1.01	1.02
Divorced	1.65*	1.44**		1.57*	(na) ³
<i>Education level</i>					
Higher	1.00	1.00			
Secondary	1.90*	1.14			
Vocational	2.38**	1.25*			
Primary	3.69**	1.44**			
<i>Place of residence</i>					
Town 100,000+	1.36*			0.98	
Town 20,000-99,999	1.43*			1.18**	
Town <20,000	1.69**			1.16	
Village	1.00			1.00	
<i>Employment status</i>					
Unemployed		1.05	1.27**		
Economically inactive		1.45**	1.23**		
Employed		1.00	1.00		
<i>Smoking</i>					
Current smoker		1.36**	1.26**	1.08	
Former smoker		1.31**	1.14	1.36*	
Never smoked		1.00	1.00	1.00	
<i>BMI</i>					
Underweight		1.26*	1.38**	1.17	

Average weight		1.00	1.00	1.00	
Excessive weight		0.89	0.90	0.87*	
<i>Physical activity</i>					
Intensive	1.00	1.00			
Medium	1.37*	1.04			
Low	1.33*	1.15*			
<i>Household</i>					
Without children (age 15)					1.65**
With children (age 15)					1.00
<i>One-person household</i>					
Yes				1.00	1.00
No				0.82**	0.68**
-2Log likelihood (constant)	5990.9	22,878.4	23,946.2	21,137.5	3954.1
-2Log likelihood (change in LLR)	119.3	230.0	135.7	69.2	39.0

a. Statistically significant at: * $p < 0.05$; ** $p < 0.01$.

(na)¹: due to small numbers, widows were not taken into account in age group 15-29.

(na)³: due to small numbers, divorced persons were not taken into account in age group 75+.

Source: Polish Health Survey 1996.

secondary factor, connected with environmental pollution and working conditions. Presence of children in the household lessens the risk for women aged 30-44 but adds to the risk of reporting the disease in those aged 15-29. However, the analysed factors are of negligible importance for women over 75.³

Neurotic disorders affect one in four women aged 45-74 and 6% of those aged 15-29 (Table 3). It should be explained that the way in which the survey was carried out (with no medical verification) precludes drawing unequivocal conclusions about whether neurotic diseases as reported here are an indication of emotional problems or poor mental health.

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3. Significance of the 2Log likelihood for the estimated model for women aged 75 and over, when compared with the baseline model (explanatory variables excluded) was at the level more than 0.1.

eases as reported here are an indication of emotional problems or poor mental health.

Development of a neurotic disorder is very often deeply rooted in earlier and current life experiences, particularly in personal life or at work. The analysis showed that being currently employed is positively correlated with the mental health status of women (see Table 10). Feelings of comfort and security generated by a good financial position are strongly associated with good mental health. Achieving a higher education level is particularly strongly associated with the mental health of younger but not older women. Under the current Polish social situation, the structure of opportunities in the labour market is heavily influenced by educational attainment, which gives younger educated women the feeling of independence and self-worth. Divorce adds to the risk of nervous disorder for women in all age groups, while being married lessens it, but only for younger women. Physical exercise is associated with improved mental health status in younger women. The higher risk of neurotic disorders among smokers may be because smoking is more prevalent among women experiencing tension, stress and depression; which may also be the cause of being underweight.

7. Summary and discussion

This study has provided information on the health status of men and women in Polish society during the period of deep social, economic and political transformation, which took place in Poland in the 1990s. We have shown gender differences in health status, with men disadvantaged by particularly large discrepancies in survival during the working ages, while women report poorer self-assessed health than men at all ages.

The analyses based on women's self-assessed health and the five health conditions demonstrated connections between women's morbidity and socio-economic transformations in Poland. Along with the behavioural and cultural risk factors recognized by medicine, such as obesity, lack of physical exercise and smoking, the paper has shown the important role of socio-economic factors in influencing Polish women's health. The thesis that economic factors are of crucial significance to the health and well-being of families in Poland is supported.

Women, whose financial position is poor, more often than other women, assess their health as less than good, are more likely to suffer from respiratory and circulatory system diseases and they also report more neurotic problems. Poor financial circumstances are likely to have an adverse effect on women's health due to worse living and dwelling conditions, inadequate nutrition and recreation. These women have insufficient financial resources to maintain the household and meet basic needs of the family, while their own health care is likely to become a secondary issue.

Strongly connected with the transformation process in Poland is the level of education. Higher education level is accompanied not only by higher awareness of health and healthy lifestyle but it also determines life opportunities and position in the labour market, especially for women. A comfortable financial position, job security and high qualifications give women feelings of independence, satisfaction with life and influence positively their health status, particularly the good self-perceived health of young women. Education level is closely associated with the prevalence of all five of the individual disorders under analysis.

Since 1996, when the data were collected, Poland has been undergoing the processes of transformation and adjustment of the country's economy to meet market requirements and joining the European Union. Both advantageous and disadvantageous indicators of economic and social development have been reported in recent years in Poland. The former include, among others, consistent growth of the GDP, relatively stabilised inflation, increasing pay in the public and private sectors, increased numbers of students and persons with university education (CSO, 2000). The disadvantageous changes include a significant increase in the unemployment rate (in September 2000 the unemployment rate was 14% (CSO, 2000)); the household poverty rate remains high (CSO, 1998; Szulc, 2000) and economic differences between families in Poland are growing. More than 50% of families can afford to pay only their current bills, while 31% cannot meet even their basic financial liabilities, and only 13% of families enjoy high incomes and can afford some extra spending (TNS OBOP, 2000a; TNS OBOP, 2000b). These economic and social patterns may contribute to the deep inequalities in women's health status in Poland as reported in this paper and significantly affect their long-term health status.

Among other important factors, that influence women's health status in Poland, the role of marital status cannot be neglected, since it is associated with many other roles. The results show that never married women, as a rule, enjoy the best health status in each age group. Married women seldom perceived their health as better than women who were never married or divorced, with the exception of younger married women and the analysis of neurotic disorder. These findings for Poland differ from recent research findings in Britain, Finland, France and other Western countries, which suggest that married women have better health than single or previously married women (Arber and Cooper, 2000; Khlát *et al.*, 2000; Martikainen, 1995). However Polish women with multiple roles report relatively good health, which follows the pattern observed in other European countries. Economically active women enjoy better health than those who are unemployed or economically inactive. Presence of children in the household is associated with better perceived health among women.

Our survey also supports the thesis that loneliness in old age, defined on the basis of living in a one-person household is negatively correlated with health status. This result was obtained for persons aged 60 and over in the case of neurotic disorders and circulatory system diseases.

Results obtained for the variable 'physical activity' lead to the conclusion that intensive physical activity lessens the risk of emotional problems, especially in the case of young women, and these who are physically active perceive their health status as better than those who do not take physical exercise. However, physical activity did not differentiate the results for most of the five conditions (except for circulatory system disorders for women aged 45-59). Smoking was seen as a risk factor in relation to digestive and respiratory disorders and women's self-assessed health as less than good. The surprising finding of women smokers reporting a lower risk of circulatory system diseases requires further research.

The significance of the socio-economic and lifestyle factors under analysis varies with the age of women: they are most important in the case of middle-aged women, less important for younger women and frequently of no statistical significance in the case of older women. This suggests the value for older women of collecting retrospective data, which covered their life histories, and not only collecting information about their current job or education, which in Poland have little

effect on the health status of women aged 75 and over. In the case of young women (aged 15-29) two factors limited the usefulness of these analyses: first – the occurrence of some health conditions is relatively infrequent under age 30, and second - that young women have not yet fully developed some of their careers, e.g. marriage and occupational careers, which reduce the impact of these factors on their health.

The findings in this study provide greater understanding of the main effects of multiple roles and socio-economic position on women's health in Poland in the mid-1990s during a time of major economic transformation. The association between women's health and their economic situation, marital status and other roles, as well as life style variables, such as obesity, smoking and physical activity, are shown to vary by age group of women. These new Polish findings complement recent studies in Western countries, which have demonstrated that to better understand women's health it is necessary to conduct more detailed research on how women's health is influenced by various combinations of their multiple roles, socio-economic circumstances and the environment in which they live.

Appendix Table
Percentage distribution of variables included
for women by age groups (column %)

Characteristics	Age group					Total	Base numbers
	15-29	30-44	45-59	60-74	75+		
<i>Household financial position</i>							
Good	13.7	16.5	11.5	11.1	11.1	13.3	3,344
Average	57.5	56.4	59.6	58.7	58.5	58.0	14,544
Bad	28.8	27.1	28.8	30.2	30.4	28.7	7,206
<i>Marital status</i>							
Never married	62.2	6.5	3.5	3.5	3.8	19.7	4,947
Married	36.4	85.6	77.5	51.5	15.6	59.8	15,032
Widow	0.2	2.3	13.0	42.4	79.2	16.8	4,225
Divorced	1.2	5.5	6.0	2.7	1.4	3.7	919
<i>Education level</i>							
Higher	6.9	15.0	10.2	3.1	1.3	8.7	2,180
Secondary	29.5	36.8	26.0	12.5	6.4	25.9	6,513
Vocational	24.2	29.0	16.9	5.1	1.4	18.8	4,725
Primary	39.4	19.2	46.9	79.3	90.9	46.6	11,705

<i>Place of residence</i>							
Town 100,000+	17.6	19.4	19.9	17.8	15.9	18.5	4,652
Town 20,000-99,999	23.0	13.8	24.3	19.2	15.1	22.2	5,585
Town <20,000	14.2	14.6	13.5	12.3	10.9	13.6	3,407
Village	45.2	42.2	42.3	50.7	58.1	45.7	11,479
<i>Employment status</i>							
Unemployed	12.2	11.4	4.8	0.2	0.0	7.3	1,835
Economically inactive	52.6	18.1	43.8	89.1	98.1	51.5	12,922
Employed	35.2	70.5	51.5	10.6	1.9	41.2	10,347
<i>Smoking</i>							
Current smoker	19.0	40.3	23.8	7.0	1.7	22.3	5,606
Former smoker	7.4	14.1	13.1	8.2	4.1	10.4	2,605
Never smoked	73.5	45.5	63.1	84.8	94.2	67.3	16,912
<i>BMI</i>							
Underweight	38.7	13.5	5.7	5.4	14.3	16.9	4,255
Average weight	56.7	65.3	51.2	49.2	55.2	56.4	14,155
Excessive weight	4.6	21.1	43.1	45.4	30.5	26.7	6,703
<i>Physical activity</i>							
Intensive	31.9	25.1	23.2	14.0	4.3	23.0	5,773
Medium	48.3	39.6	36.6	32.9	21.2	38.7	9,732
Low	19.8	35.3	40.1	53.1	74.6	38.3	9,618
<i>Household</i>							
Without childr. age 15	39.5	24.3	73.4	80.1	80.8	53.0	13,318
With childr. age 15	60.5	75.7	26.6	19.9	19.2	47.0	11,805
<i>One-person household</i>							
Yes	0.9	1.5	6.2	21.0	32.6	8.1	2,047
No	99.1	98.5	93.8	79.0	67.4	91.9	23,076
Base numbers	6,572	6,814	5,214	4,859	1,664	100.0	25,123

Source: Polish Health Survey 1996.

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