

Who's left behind?

**Social dimensions of health transition and utilization of medical care in
Poland**

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DISSERTATION

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Introduction

1.1 Rationale for undertaking the research

Poles, when asked what they wish most, typically say “let’s hope we will be healthy” while the most common birthday wish is “health, most of all health, and the rest will come”. This common feeling of the importance of health in determining one’s well-being and happiness is confirmed by public opinion polls, where health is stated as the most important priority of personal life, before happiness in family life and a peaceful and dignified existence (CBOS 2008). But does a need for healthy living reflect the actual health status of the population and indicate that Poles are unhealthy? Not necessarily. Analyses of the health status of people in different European countries¹, including Poland, show that during the last several decades health status has improved significantly, although the scale of the improvement differs between countries². Although Poles are among the most healthy Central and Eastern Europeans, they are still on average less healthy than Western Europeans. At the same time the processes of health improvement are found to be unequally distributed within the population (Erasmus MC 2008). It is observed that the health status of privileged³ groups of the population improves faster than that of other social groups. As a result, health inequalities between individuals and social groups have been increasing over time (Marmot 2005, Mackenbach 2006, Drever, Whitehead 1997). Inequalities in health between social groups are substantial and – to give an example – account for a difference of between 4-6 years for males and 2-4 years for females when longevity between the highest occupational groups (highly-educated specialists) and the lowest occupational groups (primary-educated, blue-collar workers) are compared (Mackenbach 2006). It is observed that not only longevity, but also morbidity and self-assessed health status differ between social strata. For the purpose of better understanding these tendencies, numerous studies have sought to unearth the reasons behind these health inequalities in an attempt to explain them. These typically do not address (or address it in a very restricted manner) the question of biological and genetic differences that are observable at the individual level and are unchangeable; but rather aim to explain differences in health which are the result of inequalities in wealth, prestige, position in the labour market, experiences acquired during the course of the individual’s life, and the immediate environment or neighbourhood. Still, explanations of health inequalities, although very complex, do not allow for a full understanding of the phenomenon of increasing health inequalities, despite the fact that the health status of the whole population improves over time. It is often observed that poorer socio-economic groups benefit less from the improvement of overall health status.

¹ European Commission Health Indicators, http://ec.europa.eu/health-eu/health_in_the_eu/ec_health_indicators/index_en.htm

² The statement of health improvement does not refer to the situation in the former Soviet Union, where health status has not been improving and in some countries it has even worsened.

³ In terms of education or income.

Studies undertaking the subject of health inequalities are well settled in the Britain, where they began in the 1980s with *The Black Report*. Similar researches have been undertaken in other countries and the problem of health inequalities has been addressed by international organizations (including World Health Organization (WHO)⁴ and European Commission⁵) in the last few years. Still, research in Central and Eastern Europe (CEE) on health inequalities is scarce. Partly, this situation is attributable to difficulties in gathering appropriate data for measurement of health status in different socio-economic groups. The region had a very different political and economic history that impacted individual health, especially after the political transformation following 1989. Some analyses suggest that in the period of increasing inequalities in wealth, increasing poverty, unemployment and psychosocial stress related to these processes health inequalities also grew (Erasmus MC 2007). However, social and health processes differ significantly between countries of the region – health developments observed in the former Soviet Union are different than those observed in Poland and these differ from others observed in Czech Republic or Hungary. But most importantly there is a need for more in-depth analysis of health developments and health inequalities in the countries of Central and Eastern Europe.

Research on health status and health inequalities have also been undertaken in the last few years in Poland. However, these are fragmentary. Mostly studies concentrate on specific diseases or small groups of population (i.e. communities, children). Insufficient comprehensive analysis covering the whole population is attributable to lack of representative national demographic, epidemiological and socio-economic data that could be used for health inequalities analysis (Ostrowska 1999). This is especially the case for data related to social and economic inequalities and mortality. Interestingly, despite the fact that there has been no nationwide research on the size and changes of social inequalities in health, there is an awareness of existence of the problem among policy makers. It is reflected in the National Health Plan (NHP) for the years 2007-2015 adopted by the Ministry of Health in Poland with its main objective of reducing health inequalities.

1.2 Objectives of the research

In the light of the statements above it seems crucial to recognize whether indeed health inequalities in Poland exist, what their causes could be, and - depending on this - what the actions to overcome inequalities could be. This is also the first objective of the presented research: *The*

⁴ In the 1990s the WHO set the global health agenda “Health for all by the year 2000” that addressed problem of health inequalities. In August 2008 WHO Commission on Social Inequalities In Health chaired by Prof. Michael Marmot published a report *Closing the gap in a generation: Health equity through action on social determinants of health*, http://www.who.int/social_determinants/final_report/en/index.html

⁵ It is worth to mention two latest reports: *Tackling Health Inequalities in Europe. And Integrated Approach EUROTHINE (2007)* as well as *Health Inequalities Europe in Profile (2006)*. These researches describe the level of health inequalities in the European countries and between the social groups as well as analyse possible reasons of the inequalities.

first hypothesis is that, despite improvement of health of the Polish population, inequalities between socio-economic groups exist, increase over time and their causes relate to educational differences, differences in material wealth, behavioural factors and characteristics of social networking. Specifically, the research aims at answering following questions:

1. what is the size of the health improvement, what are its causes and peculiarities?
2. do educational inequalities in health exist and are they increasing over time?
3. to what extent do unfavourable material circumstances, unhealthy behaviours and lack of social ties negatively impact health?
4. if inequalities exist, are they targeted by national policies adequately addressing causes of inequalities?

It should be underlined that the research covers a period of rapid political and economic transformation from the communist regime and from centrally-planned market to democracy and a free economy which began 1989. In 2004 the transformation was at its end, and Poland joined European Union that year. These changes in the political and economic environment are crucial for understanding health improvement, and might play a role for understanding health inequalities. Before the transformation, Polish society, although poor, was more equal in terms of incomes and access to the labour market where officially no unemployment existed (ostensibly, there was over-employment). The transformation, which brought freedom and new opportunities, resulted also in poverty, increasing income disparities and labour uncertainty. These are the factors to be underlined when potential causes of inequalities are searched for. The transformation was accompanied by modification of numerous social institutions and introduction of new ones. During the first year decision makers concentrated on the introduction and regulation of the market environment and economic reforms, while in 1999 four social reforms were introduced⁶. Among them was that of the healthcare system. It was important for health as the priorities and organization of the health care system are important factors determining access to and utilization of medical care, which in turn might impact health status. Thus, the second objective of this dissertation is to identify whether access to medical care in the population is equal. An approximation of access is utilization of specific medical services. *The second hypothesis is that utilization of medical services is determined by social status exemplified by education, but its impact depends on the type of services.* Specifically, the following research questions are answered:

⁶ Regional and local administration, education and system of social security with introduction of retirement and health insurances were reformed.

1. do educational inequalities in the utilization of doctors' visits, hospitalization and dentistry exist, and are they increasing over time?
2. what are the social and economic constraints in the utilization of the mentioned types of medical services?
3. if inequalities exist, are they adequately targeted by national policies addressing the causes of inequalities?

Overall, the research allows for the identification of social processes and factors that negatively impact health and medical services utilization, especially for lower social groups, characterized by poor education, lower incomes or disadvantaged position on the labour market. And so it provides some policy recommendations and evaluates the objectives of existing national health policies in light of the results of the performed analysis.

1.3 Methodology

The analysis is based on various data sources and is preceded by a literature review on the theoretical approaches into the identification, determinants and measurement of health inequalities and previous research on inequalities in health and medical services utilization. The data used for the analysis include demographic indicators of mortality, longevity and healthy life expectancy, epidemiologic data on specific causes of mortality and survey data on the health status of the population. To address the problem of the existence and dynamics of health inequalities the measure of self-assessed health status is used and the changes in health are observed in two points in time: 1996 and 2004. This selection of survey data for the analysis into the inequalities is down to the fact that it allows for a contrast between health measures and social status measures. Similarly, the data provides information on the utilization of medical care, namely visits to doctors, dentists and hospitalization. The data comes from the two editions of the National Health Survey as cited above, which aimed to capture the situation for the whole population. Methods for the measurement of the size of inequalities in both health status and medical services utilization are selected based on their adequacy, simplicity vs. their sophistication, and the possibility of using similar analytical tools for both parameters. Selected tools which include rate ratio, rate difference, concentration curve and concentration index. Determinants of health status and medical services utilization are identified with binomial regression models. Finally, the assessment of policies targeted at improving health status and medical services utilization inequalities is based on a review of existing national policies and analysis of their objectives.

1.4 Content of the dissertation

This paper consists of eight chapters which deal with the following subjects:

- *Chapter I* discusses theoretical approaches to the issue of health inequalities and their determinants

- *Chapter II* presents the methodology for health and medical services utilization inequalities analysis
- *Chapter III* comments on changes to the health status of the Polish population, with special attention given to regional diversity of health status and its causes
- *Chapter IV* is devoted to identifying the scope of health inequalities by education
- *Chapter V* discusses possible determinants of less-than-good health other than education
- *Chapter VI* is devoted to the identification of inequalities in medical services utilization and the possible determinants of utilization of specific services
- *Chapter VII* discusses policies addressing the problem of health inequalities in Poland.

Findings from the listed chapters are summarized in *chapter VIII*, commenting on the hypothesis and answering research questions stated in paragraph 1.2. The dissertation concludes with policy recommendations on what should be done in order to address health inequalities with the appropriate tools and how to prevent their increase.

Chapter I

Social determinants of health inequalities – theoretical framework

Introduction

Health inequalities have been proven to exist and to increase despite public health efforts to improve the health status of societies and people's welfare. Inequalities have been increasing in liberal, conservative and socialist welfare regimes, in richer and poorer societies. Facing such a reality, the question is if it is possible to explain the observed processes. Thus the aim of the following chapter is *to present the framework for understanding health inequalities and, following the literature review, discuss the main theories used for explanations of health differences within society*. It seems obvious that no single determinant of health inequalities exists as it is a multidimensional phenomenon. Explanations of health inequalities are conditional on different traditions as well as the historic and economic development of a given society. Therefore this chapter aims at introducing and discussing key concepts related to the subject of inequalities in health and possible explanations for them. The proposed overview of theories and definitions is not an exhaustive one, which would be an almost impossible task due to an increasing number of publications on inequalities. Nonetheless it reflects main discussions in the field and highlights influential studies for the analysis of the scope of health differentials.

In the first paragraph, a definition of health and health inequalities is presented in order to clarify the subject of interest in further chapters. This is followed by a short review of the history of research on health inequalities in the European context. Finally, an overview of the main theories explaining the existence of health inequalities is presented following the structure as proposed by Bartley (2004). Discussion of the different explanations for health inequalities serves for a better understanding of changes in the health status and recognition of determinants of health inequalities observed in the Polish population.

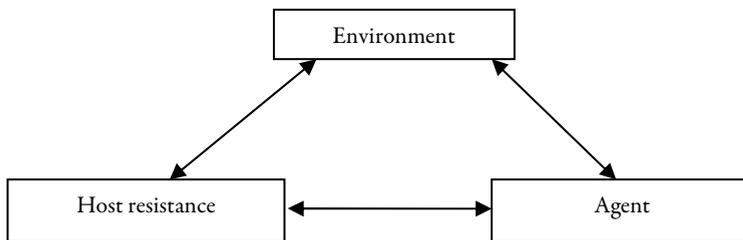
1. Health differences, inequalities or inequities?

This section is devoted to a formulation of an operational definition of "health" and the concept of "inequalities" that are used in the following chapters. The idea behind the following paragraphs is to define and critically assess the subject matter of the dissertation based on a literature review.

Epidemiologists and social scientists use the broad definition of health that relates health status to the way that the society is organized. According to the contemporary epidemiology, illness (and health) is dependent upon interaction of three factors: the host, the agent and the environment in which an individual is living (Schema 1). The two first factors reflect the fact that the health status of an individual is a result of biological and genetic characteristics, which are responsible for susceptibility to any illness as well as exposure to infections (Jędrzychowski 2002).

At the same time, sociological analysis of health highlights the third factor, which is the impact of the social environment on health. Still, this approach to illness has been criticized as being too limited (Marmot 2005). The critics say that it is not that each of the factors is responsible for occurrence of an illness by itself, but it is the interaction of all of them that is responsible for health outcomes. Moreover, due to the complexity of the process of interaction a direct cause of a given illness often remains unknown. An example of such a process of interaction provided in the literature is that of tuberculosis, which is directly caused by tubercle bacillus (an agent); however, it is observed that poverty (which undoubtedly is a factor related to the social environment) increases the risk of the tuberculosis. Different views on what allowed for the control of the spread of a plague of the tuberculosis in the XIX and early XX century in Europe reflect this dilemma. While medical men believe that the cure to the tubercle bacillus was crucial, others claim that the improvement of social conditions and eradication of extreme poverty was even more important (Marmot 2005). The truth – as usual – most likely lies in between.

Schema 1 Factors responsible for an occurrence of an illness



Source: Jędrychowski W. (2002)

Another approach to health is presented in the sociology of medicine. This understanding of health does not concentrate on causes, but emphasizes the results of being in good health, which are prerequisites for individual and social well-being. According to this definition health can be discussed in relation to three states:

- Firstly, health can be seen in opposition to illness, which is understood as pathology in normal functions of the human body and is confirmed by a physician's diagnosis
- Secondly, health is understood as a positive state of human condition and as such can be described by a set of biological characteristics
- Thirdly, health can be seen as a state of physical and mental equilibrium that leads to individual well-being and – in consequence - is a requisite for social well-being (Tobiasz-Adamczyk 2000).

Accepting the multidimensional definition of health, which emphasizes the social perspective, leads to a belief that being in good health and behaving healthily results in social well-

being. Health is here understood not only as a physical state characterized by freedom from pain and suffering, a state that can be diagnosed and treated, but also as a social capability necessary for an active life and engagement in social and economic life. From this perspective health is a continuum of states from subjective individual well-being and self-esteem, through capabilities to fulfill individual basic needs and finally it is a condition for assuring social order. The idea of capabilities necessary for any sense of achievement in an individual's life relates to the idea of Amartya Sen that is discussed later on together with the concept of health inequities. It is worth emphasizing that from this approach health is a good that has an intrinsic value from the perspective of the individual, and that it is also instrumental in social perspective being crucial to further life achievement and social position (Anand 2004).

A similar approach to health as a prerequisite for a rewarding human life is also expressed by the World Health Organization (WHO). The WHO agreed upon and accepted a multidimensional health status definition in 1946. It describes health as a “... *state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*”⁷. In this approach, assuring good health covers various activities including not only the diagnosis and treatment of disease, but also public health activities, prevention, providing adequate living conditions (i.e. sanitation), promoting healthy lifestyles and physical activity, and so on. The WHO emphasizes that good health is a crucial condition for social capital development (Leon, Walt 2004) whilst poor health has been viewed as an obstacle to the economic development of societies. On the other hand, investment in citizens' health – medical services, medical treatment, and also preventing social and health inequalities – should result in increasing labour productivity and labour activity. This broad definition is applied in the presented research. Hereafter health is understood as not only a specific good that has a value in itself, but also (because it is an extremely important factor of social well-being) something which is determined by the impact of a complex structure of genetics and environmental factors. Health is analysed as an outcome of specific social factors, including material well-being, behavioural factors and social networking; nonetheless, it is not forgotten that good health is not only an outcome of living in a healthy and friendly social group, but determines the welfare of the society.

The multidimensional definition of health is a good basis for understanding health inequalities. There are several notions used with respect to health diversifications: health differences, health inequalities and health inequities. Hereby, an attempt is made to classify these terms in a way that will be referred to in the following chapters. The proposed definitions are based on a literature review; however, it should be noted that researchers in the field do not always agree on the meaning of specific notions: for example, health differences and health inequalities are not always distinguished (Kawachi et al. 2002), and the same holds for health inequalities and inequities (Whitehead, Dahlgren 2007). To give an example, health inequalities may not be distinguished from health differences when the analysis focuses on the level of social groups, not

⁷ Preamble of the World Health Organization constitution, accepted at the International Health Conference in New York on 19 June – 22 July 1946 http://whqlibdoc.who.int/hist/official_records/2e.pdf

on the individual level. Nonetheless, when individual diversifications of health are concerned, they are caused either by genetics, or by social position and factors related to it, including psychosocial environment and behaviour and as such could be defined as two different phenomena. Another example is an approach proposed by Whitehead and Dahlgren (2007) who claim that inequalities and inequities are synonymous. The reasons – as they explain – are that (i) all systematic differences in health observed in the European countries are in fact unfair and (ii) in many languages the distinction between inequalities and inequities does not even exist. Notwithstanding, in this paper it is proposed to distinguish *differences in health status* due to biological factors (i.e. sex, age) and genetics (i.e. susceptibility to specific illnesses), *health inequalities*, which are caused by social factors (Ostrowska 1999) and *health inequities*, which refers to inequalities that are viewed as unfair (and as it is explained further on, not all inequalities or differences are inequitable).

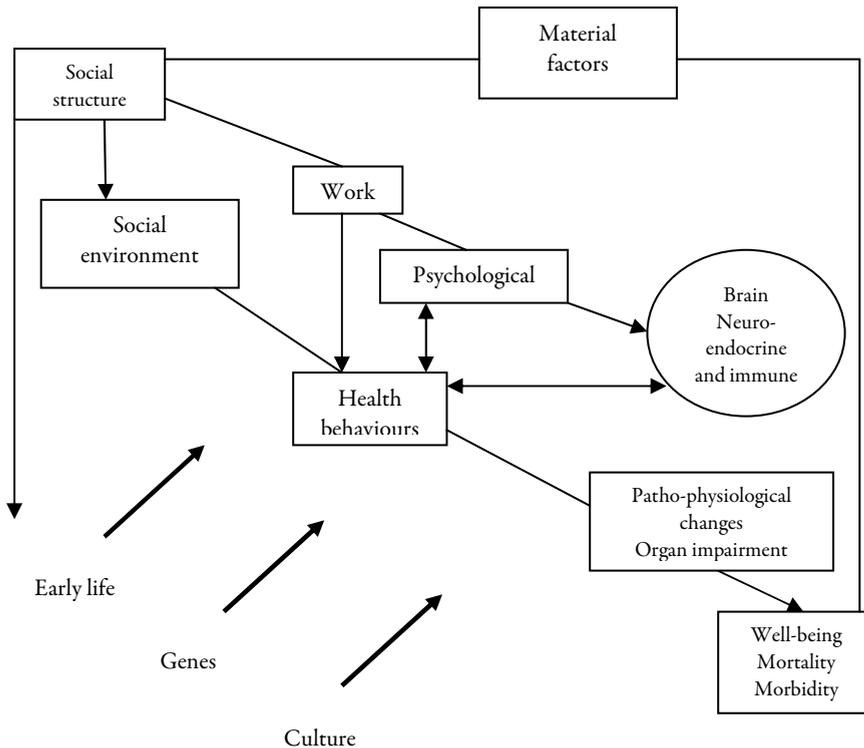
Health differences can be identified by physicians, described and in some cases cured, but they will not (or cannot) be targeted by any social policy, except health policy. Being closely related to the curative medicine, differences in health are out of the scope of the presented analysis, except for the description of changes in the health status of the total population in the chapter II. However, the distinction between differences and inequalities might become less clear when – for example – social definition of *sex* vs. *gender* is considered. Whilst sex is biologically defined by a specific chromosomes, gender is a social notion that relates to a position of women in the society and both may impact health outcomes. It is not the aim of this chapter to dig into social differences related to gender, but it is worth noticing that health status (types and frequency of morbidity), quality of life and medical services utilization patterns differ between males and females. On average in the population it is observed that females have higher chances of survival (Sen 2004), but more often suffer from long-term illnesses, including circulatory system diseases, rheumatism and similar ailments, as a result of which the quality of their lives⁸ is typically lower. These differences can be explained by a biological diversifications (susceptibility to different types of illnesses at different stages of life) on the one hand and on the other an unequal risk of occurrence of illnesses due to social position, labour market activity pattern and social networking . Males are thought to be more exposed to illnesses caused by a high level of a social pressure (i.e. pressure related to their employment). On average, they also have a lower need for social networking and social support, which has a positive impact on the health status of females who tend to keep close family ties and friendship relations (Ostrowska 1999, Tobiasz – Adamczyk 2000). Surprisingly, it has been shown that despite differences in health outcomes of the sexes, the slope of the health gradient among females and males is similar, even though they differ in social position and activities (Marmot 2005). The latter phenomena brings the discussion to the notion of health inequalities.

⁸ Measured by the indicators of Disability Adjusted Life Expectancy, Healthy Life Expectancy, Healthy Life Years. The indicators are described in more detail in the Second Chapter.

Given the simplest definition, health inequalities are perceived as *inequalities in the probability of falling ill among individuals and different groups of a society* (Crombie et al. 2005). They reflect social stratification and are differentiated in various dimensions, the most important ones being wealth, prestige, culture, environment and living conditions as well as social cohesion and social networking. The expression *health inequalities* covers the impact of natural and social environment on one's health. This influence can vary between individuals due to their capabilities, it can change during an individual's life span, and it can also be inherited via the impact of the social and economic position of one's parents. What is important, and what differentiates inequality from inequity, is that *inequality is a descriptive term, and despite the fact that it can be found to be unjust, it does not imply any moral judgments* (Kawachi et al. 2002). It is an extremely useful concept for the measurement and analysis of the diversification of health between individuals and social groups, and discussion related to the social causes of these differences. In fact, the list of causes to which health inequalities can be attributed is a long one. It includes neighbourhood, living conditions, wealth (income), education, employment well as behavioural and psychological factors. Moreover, no single cause of health inequalities can be identified, but it is an interaction of numerous factors which is responsible for a health outcome and which makes a picture of health inequalities fuzzy, but even more interesting and rather difficult to be targeted by a single policy. It is also worth noting that health inequalities are not only the inequalities between the poorest and the most wealthy (or individuals with primary education and individuals with university degree) – as they are often measured, but may reflect the whole social stratification creating a health gradient in the whole population (Marmot 2005). The analysis presented in the chapter IV refers to both approaches to the measurement of the health inequalities. The slope of inequalities between the two extreme educational groups is shown first, while the whole educational gradient in health is discussed later.

An interesting proposal of a simplified classification of the different causes of inequalities is given by Michael Marmot, whose research concentrates on recognition of the "causes of the causes" as he calls them (Schema 2). Individual health status and health inequalities are represented at the right hand side of the model. They are influenced by social stratification that is a result of the social distribution of wealth and power in the society. Social environment impacts individuals not only by positioning them in relation to the others in the society, but also by creating a life style and causing changes in health that are a result of stress that individuals are facing in everyday life. Interrelations between the listed factors are extremely complex, and so is discovering causative pathways. What is more, it is quite impossible to state which of the factors are of most importance.

Schema 2 Model of pathways of social influences on health



Source: Marmot 2004

It has already been mentioned that the main difference between inequalities and inequities is an issue of a moral judgment. The question asked when inequities are analysed is if observed differences in health are unjust. The answer is a subjective one dependent on individual judgment and as such requires a decision based upon the idea of social justice and the role of health within. A useful and simple proposal of distinguishing inequalities that are inequitable is given by Whitehead (1992) who describes inequities as “*differences that are unnecessary and avoidable, but in addition are considered unfair and unjust*”.

Still, there are many problems faced by the operational definition of inequities. First, the question of what is avoidable can be raised. Are illnesses caused by genetic factors really unavoidable? What if thanks to technological development some genetic illnesses could be successfully treated? Or some diseases (i.e. cardiovascular system diseases) could be successfully treated if recognized at the prenatal stage? Further, one can expect that such options of early intervention and treatment would be available in richer countries or for higher economic groups in society, which would as a result lead to an increase of inequalities. Another question that could

be raised is of the avoidability of some risky behaviours to health. Smoking could be a good example – is it really a freely chosen, voluntary behaviour or perhaps something where social pressure of a reference group has a leading role in the individual’s decision upon opening their first packet of cigarettes? The above examples show that although Whitehead’s definition of inequities is useful, it requires a number of small, but important decisions for policy purposes relating to what can be avoidable and what is fair (Daniels et al. 2007). An answer to the latter question could be supported by the theories of social justice, often being an inspiration for discussions on the theoretical background for health equity assessment. The most influential theories here are Rawls’ idea of ‘justice as fairness’ and Sen’s capability approach. This is despite the fact that Rawls has never directly addressed the issue of health and justice, while it has been of great importance in Sen’s debates upon justice of opportunities and human capabilities (Sen 2004).

Table 1 Whitehead’s scheme for judging the (un)fairness of socioeconomic inequalities in health

Determinants of health differentials	Potentially avoidable	Commonly viewed as unacceptable
1. Natural, biological variations	No	No
2. Health-damaging behavior is freely chosen	Yes	No
3. Transient health advantage of groups who take up health promoting behaviour first (if other groups can easily catch up)	Yes	No
4. Health damaging behaviour where choice of lifestyle is restricted by socioeconomic factors	Yes	Yes
5. Exposure to excessive health hazards in physical and social environment	Yes	Yes
6. Restricted access to essential healthcare	Yes	Yes
7. Health-related downward social mobility (sick people move down social scale)	Low income Yes	Low income Yes

Source: Mackenbach et al. 2008

Rawls in his most influential work *A Theory of Justice* proposed an idea of a social contract according to which justice should be promoted by assuring equality of basic liberties and opportunities. These are preconditions which permit individuals to operate in a manner that allows them to maximize their utilities and which enables the worst-off groups to move up the

ladder of wealth (Rawls 1994). Whilst Rawls implicitly assumes that individuals should be of equal health throughout their life-spans in order to make use of the liberties, Sen undermines his theory simply saying that individuals cannot examine their liberties and opportunities if they differ in health what is actually the case, an extreme example of which is disability. It seems impossible to disagree that Rawls gives a simplified idea of health, but his model serves a specific purpose of formulating a broader idea of justice. An interesting proposal to overcome the disagreement here on the understanding of health is given by Daniels et al. (2007) who examine the Rawlsian idea of equality of opportunity. In their opinion equality of opportunity implies equality of determinants of health (such as education, access to health care) which should lead to an equitable distribution of health. Then, they argue, occurrence of disability would be seen as a difference in opportunities⁹. Daniels et al. courageously claim that when such an argument is accepted and differences in terminology are disregarded, less differences between the two ways of thinking are expressed. Indeed, from this point of view equality of liberty and opportunities could be seen as an assurance of capabilities needed to examine freedoms and maximize individual welfare. Nonetheless, such approach to the Rawlsian idea of health seems tricky and disputable. Even if it is assumed that assurance of fair distribution of liberties and opportunities requires equalization of economic resources, it is not obvious that the key determinants of health would be addressed in a sufficient manner to assure health equality. And still, Sen's problem of assurance of fairness of distribution of liberties and opportunities when genetic differences (as expressed by Whitehead) and disabilities are in place remains unsolved.

Taking into account the above interpretations but also doubts, equality and equity of health in Rawlsian idea of social justice may seem vague. An idealistic *ex ante* assumption of health equality seems to be insufficient while the interpretation of health equality as an outcome of equal opportunities proposed by Daniels et al. raises additional questions on the determinants of health. Contrary to Rawls, Sen addresses directly the issue of health equity and social justice, arguing that good health is a precondition of the latter (Sen 2004). He sees health as one most important conditions of human life and a determinant of human capabilities. As a result, an individual has to have opportunities to achieve good health (which is understood as freedom from illnesses, handicap and premature death). In fact, Sen argues that equality should be assured not only in the distribution of health but also in a capability to achieve good health, especially when an obstacle to realize this capability arises from the social environment. Factors that are responsible for a health achievement can be identified as Marmor's "causes of the causes" as they include genetics, income distribution, life style and so on. Analysing the problem of relations between health inequalities and health inequities, Sen argues that reducing inequality does not necessary lead to an assurance of more equity. To support his idea, Sen gives an example of restricting access to care for the better-off as a policy that does not lead to an increase of equity as it impairs health achievement to all groups of the society and – as a result – decreases human capabilities. This is

⁹ Daniels, Kennedy and Kawachi respond <http://bostonreview.net/BR25.1/daniels2.html>

one of the reasons why, according to Sen, information on the extent of inequalities is not sufficient to judge upon health equity.

A lot of attention has been brought here to the issue of equity. However, before being able to set any moral judgment upon justice of health distribution, one must recognize what exactly the phenomenon of health inequalities in a given society is. Therefore, and despite the fact that it might be tempting to discuss the issue of equity of health and healthcare in Poland, **this dissertation is devoted to a recognition of health inequalities**, which should be done first. **Michael Marmot's approach to inequalities will be implemented, looking at different social causes of health diversification. In Sen's terminology the research will attempt to identify obstacles in health achievements in Poland.**

2. Social explanations of health inequalities

Overall, an explanation of the scope and reasons for health inequalities is possible only by taking a variety of factors into account. These factors – as presented in the Figure in the previous paragraph – can be classified in various ways, showing complexity of their interrelations and causative pathways (Marmot 2004, Whitehead 1997). Another approach, proposed by Bartley, is to classify the main thrust in different analyses of determinants of health inequalities (Bartley 2004). These include explanations that understate material deprivation and economic differentiation of society, behavioural explanations, psychological and social explanations, explanations related to life cycle and reproductive behaviour of individuals and finally explanations referring to the operation of the health care system (Table 2). The identified pathways of social explanations of inequalities are complementary when addressing the whole set of factors that may impact the health status of individuals and social groups.

The proposed classification of the various approaches to health inequalities analysis touches upon three main dimensions of inequality that persist in people's lives: inequalities of wealth (income, living standards), inequalities that are a result of labour market relations and working conditions (employment or the lack of employment), and prestige that is related to social position and may not be directly related to the other two dimensions already listed (Bartley 2004). When approaching the subject of health inequalities it is necessary to look at them from the perspective of each of the dimensions mentioned above as well as their combinations, and from other dimensions which determine health: behavioural or environmental. The presented concepts for an explanation of health inequalities refer to economic and social factors and disregard biological, genetic or racial (ethnic) explanations of health. These are important, but are not in the scope of an analysis of social determinants of health inequalities. The only exception could be ethnicity which has a strong social dimension; however, due to homogeneity of the Polish society this concept will not be useful in the following analysis.

Table 2 Explanation for the relationship of social inequality to health

	Explanation type				
	Material	Cultural / behavioural	Psycho-social	Life course	Political economy
Influences	Individual income determines diet, housing quality, polluted environment, dangerous work.	Differences in beliefs, norms and values mean that individual members of less advantaged social groups are less likely to drink alcohol moderately, abstain from smoking and take exercise in their leisure time.	Status, control, social support at work or at home; balance between effort and reward influence health through their impact on body functions.	Events and processes starting before birth and during childhood may influence both physical health and the ability to maintain health. Health and social circumstances influence each other over time.	Political processes and distribution of power affects provision of services, quality of the physical environment and social relationships.

Source: Bartley 2004

The next paragraphs are devoted to looking at the approach of each of the identified models that seek to explain health inequalities, giving examples of their application in the European context, with special attention to Polish research.

2.1 Wealth and health status

Undoubtedly, education¹⁰, wealth or income level are among the most important determinants of health inequalities (Black et al. 1982; Kawachi 2000; Marmot 2005; Mackenbach 2006). Social explanations of health status refer either to absolute levels of wealth or income in the society (GDP, poverty level) or relative levels of wealth or income and the scope of income diversification in the society (Marmot 2005). The dilemma between the two approaches remains

¹⁰ Bartley describes education in the context of “behavioural and cultural” model of explanations of health inequalities as it strongly determines social class and lifestyles related to it. However, as education is closely related to (in most cases determines) incomes and wealth (and as such it is next to income the most commonly used socio-economic status indicator) it is proposed to classify education among the material determinants of health.

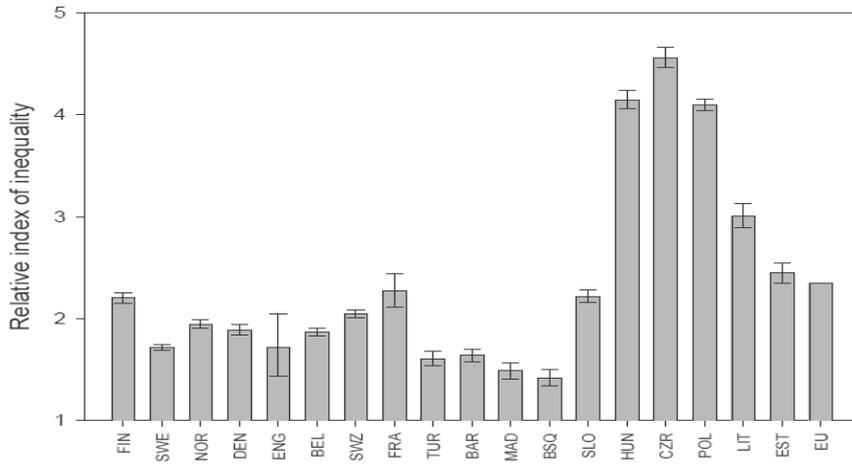
unsolved and will be discussed below. It is also not the wealth itself which is often seen as directly related to health status and health inequalities, but social position that reflects wealth together with education and lifestyle (Black et al.1982; Drever, Whitehead 1997).

Education

Education is among the most important determinants of both individual incomes and lifestyle, which both are related to health status. It is also found to be most important determinant of social class identification, especially in more egalitarian societies or societies in which income level does not reflect social position and social and economic capabilities, as it was in Poland during the communist regime.

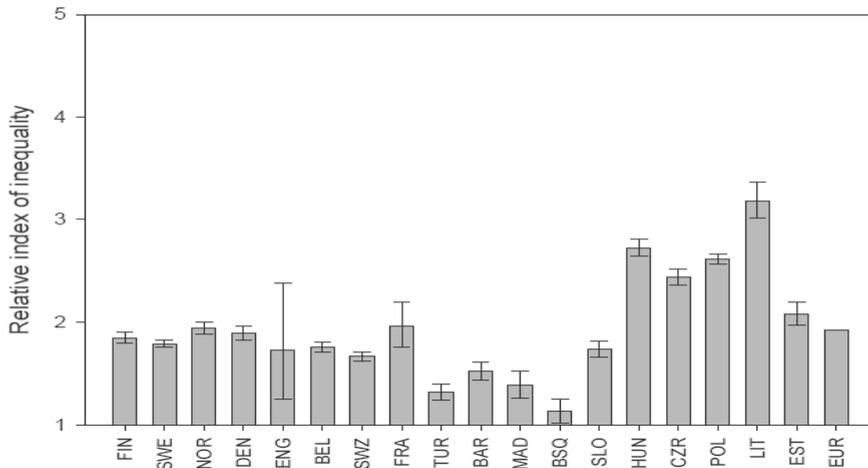
It should be underlined that education plays a special role in a life span of an individual. An attitude towards education and the actual level of education gained by an individual is strongly dependent upon social position and the education of one's parents. It could be said that education is a phenomenon that is socially inherited, not only by the fact that parents with higher education tend to invest in their children more, but also because the level of parental education affects the diet of their children and again the parental lifestyle has an impact on the educational capabilities of children and their future social position. Parents with higher education typically have better access to information and tend to take care of their children's health status better, not because they are better parents (this could be quite the opposite), but due to the fact that they might be better informed on the availability of the health care services. An important feature of education is that typically it is decided upon rather early in the life span of an individual. Individual occupation and income level depend on the level and type of education, which in turn plays a great role in setting an individual on a prestige ladder and affects which social groups an individual identifies himself/herself. Finally, individual decisions upon life style and healthy behaviour are strongly related to the level of education, as Bartley points out (2004). On average, individuals with higher education tend to have a healthier diet, be more active and less commonly smoke. As a result and as research confirms, education is one of the most important determinants of health inequalities in developed countries, even if controlling for income and occupation.

Figure 1 Inequalities in total mortality among men by level of education



Note: the Figure shows by how much men with primary education have a higher risk of mortality than men with higher education
 Source: Erasmus MC 2007

Figure 2 Inequalities in total mortality among women by level of education



Note: the Figure shows by how much women with primary education have a higher risk of mortality than women with higher education
 Source: Erasmus MC 2007

An analysis of health inequalities in 18 European countries shows that the risk of mortality is strongly influenced by education (Erasmus MC 2007). It is observed that Southern European populations are found to have smaller health inequalities by in education than average. It is also striking that health inequalities in relation to the level of education are twice as high in Eastern Europe than in Western Europe. For women health inequalities by education are also high, but differences between Eastern and Western European countries are not that sound. When looking at specific causes of death, health inequalities by education persist, with the exception of breast cancer mortality, where the direction of inequality is reversed – women with higher education have higher mortality than women with primary education. When health status self-assessment (not mortality) is analysed, health inequalities by education levels persist, but the gradient of inequalities in European countries is found to be less steep (Erasmus MC 2007).

The Figures above show that health inequalities in terms of total mortality by educational groups in Poland are significantly higher than the European average. Still, research by a Eurothine project is the only attempt so far to assess educational inequalities in health (measured by mortality level) in Poland and refers to 2002 when census data were collected. Previous research by Ostrowska (1999) showed that education is also the most important determinant of self-assessed health, more important than the level of income. In fact it is not only in Poland but also in other CEE and CIS countries that education might be a better predictor of health than incomes. This is due to the phenomenon known as a dispersion (so called *decomposition*) of factors that explain social status¹¹ (Pohoski 1983) where a high level of education was found not to be related to high incomes of individuals. Thus health status would be determined by education rather than income in these countries before the transformation period and even into the 1990s.

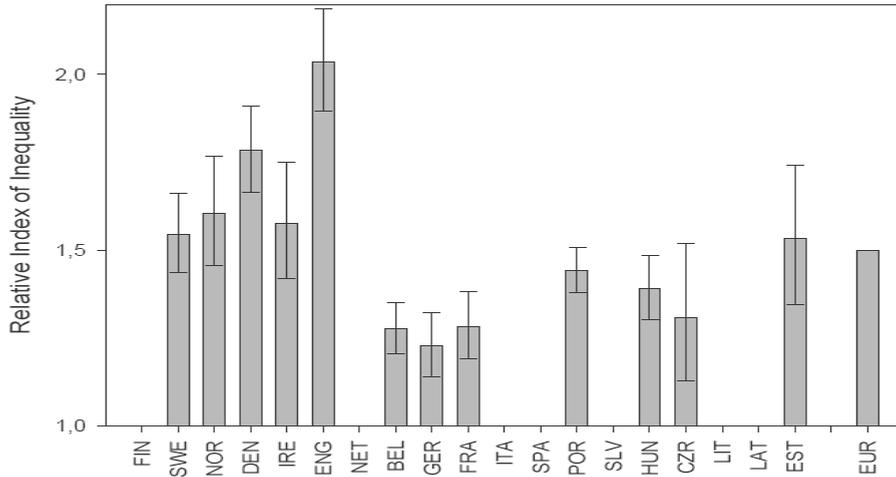
To sum up, the research on educational inequalities in Poland is scarce while the importance of education for health has been confirmed. Thus there is a need for more in-depth analysis of inequalities, using different indicators than the ones applied in the Eurothine project (Erasmus MC 2007) where the results for Poland were calculated for one measure and one health indicator, which is life expectancy. Expanding the research into other measures and health indicators and proposing more in-depth interpretations of observed educational inequalities is a task that is tackled in chapter III.

¹¹ It was observed that the ladder of prestige, education and income were not coherent in the former communist countries, i.e. at the highest positions in the ladder of prestige were ‘doctor’ and ‘university professor’, while they were at the bottom of earnings ladder. Therefore education was seen as a better predictor of social status than income.

Absolute and relative income

Individual income is the most commonly used approximation of wealth for the purpose of health inequalities analysis. Researches indicate that in all developed countries, despite their welfare (and welfare regimes), poorer individuals with lower socio-economic positions have worse health status than those from higher income groups and that the probability of health improvement increases with income (Marmot 2005; Shaw et al. 2006; Mackenbach 2006).

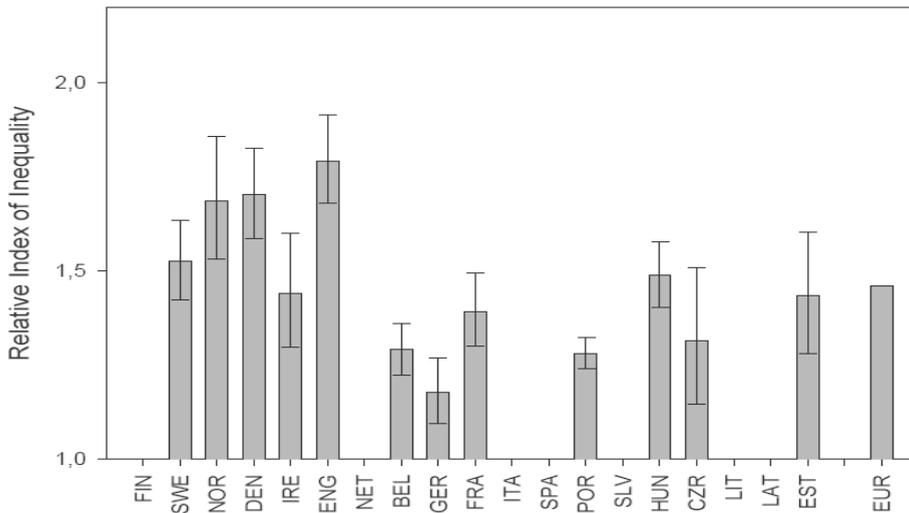
Figure 3 Inequalities in self-assessed health by income level among men



Note: the Figure shows by how much the lowest income groups have a higher probability of poor health assessment than the highest income groups

Source: Erasmus MC 2007

Figure 4 Inequalities in self-assessed health by income level among women



Note: the Figure shows by how much the lowest income groups have a higher probability of poor health assessment than the highest income groups

Source: Erasmus MC 2007

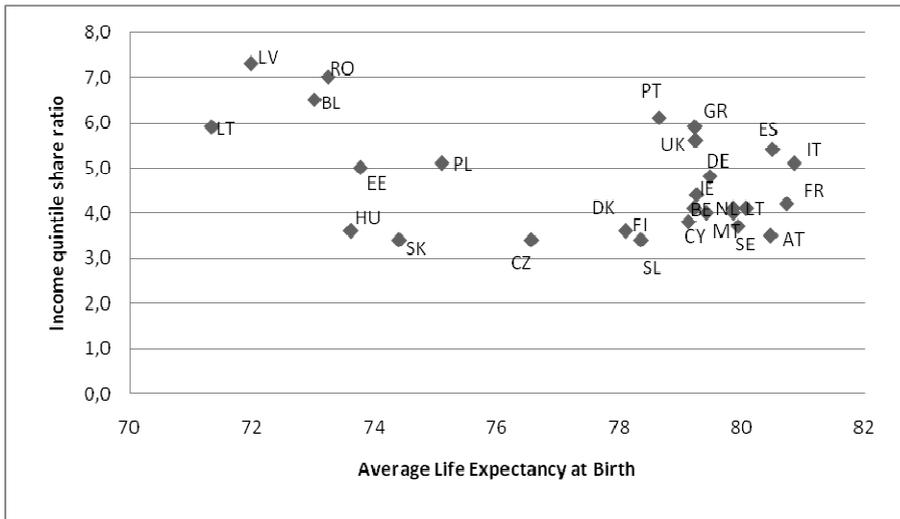
Poverty or income inequality are the two measures often used in the explanation of health inequalities, but it is not income level or the distribution of an income itself that directly causes poor health, but goods that can (or cannot) be acquired and that are related to the level of individual wealth. High income determines good living conditions (sanitation, heating, clean environment, safety) and is related to the type of work and working conditions (assurance of safety and hygiene at the workplace), healthy lifestyle, access to high quality food and finally social capital which encompasses all the listed qualities in a socially active individual. On the other hand, poor income increases the risk of illness due to unfavourable conditions of everyday life, engagement in a risky behaviour (smoking, binge drinking) and constrained access to basic goods, including healthcare. Additionally, poverty is accompanied by living under a high level of everyday stress that may increase the risk of circulatory system diseases, psychiatric disorders or suicides. Finally, poverty and poor health status often are intergenerational. Low income restricts social participation not only of adults, but of children and youngsters, which impacts their life, future achievements and health status (Shaw et al. 2006). Epidemiologists and sociologists describe such a situation as “living in conditions of a restricted choice” (Synowiec-Pilat 2000). A restricted choice refers to a situation where poor social groups may have to forgo consumption of some goods in order to gain access to basic goods. In an extreme situation they may be forced to forgo consumption of goods to meet their healthcare needs when they arise (to finance a doctor’s

consultation or medicines). Another phenomenon observed in the transition countries is that the poor often forgo costly specialist treatment despite their health needs (Golinowska, Sowa 2006).

Moving from the individual to a country-level perspective, research in the developing countries show that when the poverty level is high and access to goods is significantly restricted, then even a small increase in incomes per capita is reflected in a health improvement for the whole society (Marmot 2005). Positive health outcomes are related to the fact that even a small increase in incomes enables greater availability of goods, improves nutrition and/or sanitation. In contrast, in richer societies that enjoy on average better health status, a small increase in incomes per capita does not have an observable health effect. Kawachi (2000), Marmot (2005) and other researchers argue that in the developed societies it is not the level of income itself, but a relative position in terms of wealth or incomes to other members of the society that is a crucial factor determining the level of health inequalities. In other words, it is not poverty, but the distribution of income and perception of individual position in relation to others that matter. Although the relation between income inequalities (i.e. measured by the Gini coefficient or a first to fifth quintile ratio) and gradient in mortality has been confirmed in the US (Kawachi 2000) and partially in other developed countries, interpretations still refer to the complexity of social life, not only to the income disparities. When analyzing British data Wilkinson found that income inequality is related to health status, but gave more complex interpretations of the relation. The first interpretation is that more inequality would simply mean more poor people and this impacts health status. Secondly, income inequality may lead to unfavourable social circumstances, for example more crime that affects peoples' health. Finally, Kawachi's approach has been criticized because the impact income inequalities have might be confounded by other factors closely correlated with income (such as ethnicity in the US) (Marmot 2005). Despite the criticism, the relation between income disparities and health inequalities has been confirmed and research in the area develops.

In the light of the discussed research it is interesting to see whether a relation between income inequalities and health that was reported to be significant in the United States is also true in the European Union. Indeed, the analysis shows that a high level of income inequalities is unfavourable for the life expectancy. However, while the relation is clear for countries with high income inequalities, the slope of the relation flattens for countries with lower income inequalities where results are more dispersed. Such a result would imply that while for countries of Eastern Europe where income inequalities are higher, but also where the overall level of wealth is lower, the relation is more significant whilst in richer and less inequitable countries of Western Europe factors other than income play a greater role in improving health of the society. Poland seems to be an outlier, with high level of income inequalities but also longevity higher than in other Eastern European countries. The result supports the hypothesis explaining health improvement of the Polish society presented in more detail in chapter III which emphasizes the impact of lifestyle on health in Polish society in the last 20 years.

Figure 5 Relation between income inequalities* and life expectancy in the EU27, 2008**



*Measured by the ratio of total income received by the 20% of the population with the highest income (top quintile) to that received by the 20% of the population with the lowest income (lowest quintile).

** For Belgium, Italy and UK life expectancy is given for the year 2007.

Source: own calculations based on Eurostat¹²

Finally, when income inequalities and poverty are discussed it is worth adding a few words on the impact of the welfare state on the health distribution. In the face of Black Report findings it seems that policy targeted towards assistance to the poor and social cohesion should have a positive effect on health (Black et al. 1982). Most of the recommendations of the Black Report underline an improvement of the position of the most disadvantaged and a decrease of social inequalities as a policy that should lead to positive health outcomes. However, even in countries with well-developed welfare states (Scandinavian countries) and low income inequalities, health inequalities are found to persist (Figures 3 and 4). What is more, so far no successful nationwide policy targeting income inequalities or poverty having a positive impact on health has been identified (Sen 2004, Shaw et al. 2006, Fritzel et al. 2004).

¹² http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/data/main_tables;

<http://epp.eurostat.ec.europa.eu/portal/page/portal/population/data/database>.

Wealth and social mobility

Most of the research into the impact of income on health is static, concentrating on a social position or income level of an individual at a given point of time. However, individual social position is dynamic and in many cases it changes during a life time. One can move upwards on an income or prestige ladder compared to position of one's parents, one can also move downwards due to unfavourable circumstances or health loss. There is less research on this subject as it requires detailed information on an individual's history, including the history of the family. Still, important conclusions can be made based on the available evidence. Marmot argues that individuals who moved upwards on the social ladder during their life time did in fact have better health than their peers who stayed in the lower social group. This could be due to the fact that they adopt habits and the lifestyle of a higher social class with which they identify themselves. At the same time, individuals from the upper social classes who were ill during their childhood or are disabled tend to move downwards on social ladder, but they may preserve a healthier lifestyle and differ from their peers with similar health problems in the lower social class. To sum up, it is observed that with regard to upward and downward social mobility, the scope of health inequalities narrows as people tend to carry their health and social heritage (Marmot 2005).

2.2 Cultural and behavioural determinants of health

While education and income impact health indirectly, in the long perspective, behaviour and lifestyle of individuals are the main direct determinants of the risk of specific illnesses. Nutrition, smoking, alcohol consumption, physical activity and leisure are crucial identifiable factors explaining individual health. Naturally, lifestyle – which is described by all the factors above – is an outcome of not only certain psycho-social predispositions, but also education, wealth and social capital; it can also be explained by the impact of the social environment of an individual (Bartley 2004). An important part of lifestyle is health behaviour which is also determined by social position as well as the norms and values of the social group with which an individual identifies (Taranowicz 2002). The following paragraphs concentrate on the description of the main lifestyle factors that directly impact health status. Again, the discussion on the relations between different behaviours and health is presented in the context of available research conducted in Poland and other European countries.

Nutrition

Nutrition is the most obvious determinant of health. Poor diet and poor quality food are risk factors for numerous illnesses including cardiovascular diseases, digestive system diseases (pancreas carcinoma, colon carcinoma, stomach carcinoma, etc.), anaemia, being overweight and obesity, diabetes and osteoporosis. Poor nutrition of children can lead to poorer educational achievements and social abilities and determine their social position later in life. Nutrition trends depend upon the availability of food, tradition, fashion and the lifestyle that is accepted by the reference group important for the individual. A typical example of differences in diet attributable

to tradition, but also availability of fresh food over the year (at least in the past), is the diversity between the North and South of Europe. Consumption of olives, fruits and vegetables typical for southern Europe has a positive impact on health, while the heavier, fattier foods of northern European societies coupled with the consumption of stronger alcohols can increase the risk of cardiovascular diseases, obesity and other illnesses.

Next to the type of food consumed and its nutritional value, the number of meals and regularity of consumption impacts the health status of individuals (Taranowicz 2002). Finally, it is worth noting that nutrition is becoming a minor problem in the developed countries, while obesity and being overweight are becoming more common in lower socio-economic groups and as such they are seen to be an important health problem in the future. However, in Poland – which faces the challenge of a very high poverty rate of families with children¹³, poor nutrition is recognized as a significant social problem. Poor nutrition of children might not be not only a result of poverty, but also of poor management of food, lack of time for the preparation of meals, and a high consumption of snacks, sweets and junk food. Most importantly, poor nutrition of children has an impact on their performance at school, their social relations and future social position. Thus it is an important policy measure to mitigate poverty and the poor nutrition of the youngest.

Still, the nutrition of Poles have improved over the last twenty years. Positive trends in nutritional habits include an increase in consumption of fruits and vegetables and a decrease in the consumption of pork and animal fats in favour of poultry (Ostrowska 1999). Better availability of food (as a result of adjustments in the supply and demand of food), availability of fruits and vegetables throughout the year and media campaigns creating healthy nutritional patterns are often recognized as reasons for the change in the diet. Decrease in consumption of animal fats and increase in consumption of vegetable fats, fruits and vegetables have direct health outcomes and are cited as the main reason for a decrease in cardiovascular diseases mortality, which are the main cause of deaths in Poland (Zatoński, Willett 2005). Interestingly, research into lifestyles by Ostrowska shows that differentiation of diet in the 90s was caused to a greater extent by demographic rather than economic factors (Ostrowska 1999). In other words, Ostrowska suggests that changing diets and the acceptance of a healthy lifestyle were due to age and gender than due to education, income or neighbourhood.

Smoking

Smoking is a behaviour that has a direct negative impact on health and that is strongly related to education, which is described in more detail below. It is a common knowledge by now that smoking contributes to development of the lung cancer, bronchitis, COPD (chronic

¹³ 15.2% of families with 2 children, 28.1% of families with 3 children and 45.0% of families with 4 or more children was found to be below the relative poverty line of 50% of monthly expenditure in 2008 (GUS 2009).

obstructive pulmonary disease), increases the risk of circulatory diseases and numerous other illnesses.

Smoking is found to be unequally distributed in the society – sometimes contrary to educational inequalities - and as a result inequalities in diseases related to smoking often have a ‘reversed’ direction. It has been observed that in some societies women, especially women with a high level of education tend to smoke more than men and/or women with primary education (Bartley 2004, Erasmus MC 2007). Smoking can also be related to specific occupations (i.e. artists tend to smoke more). The ‘reversed’ character of inequalities in smoking is often explained by a trajectory of the smoking epidemic (Mackenbach 2006). According to this concept, smoking develops in the society in four stages, similarly to any other innovation. During the first stage an innovation (in this case smoking) is taken up by higher social groups, elites, which are wealthy individuals (usually men) with higher education. In the second stage innovation is taken over by lower social groups and slowly becomes very common in the whole society. Typically, women take over the innovation 10 to 20 years later than men. The spread of smoking proceeds simultaneously in two directions: from higher to lower socio-economic groups and from men to women. The next stage is characterized by a slow restriction of smoking among men and in higher social groups, and smoking becomes more common among women and in lower social groups (typically at this stage 30-45% of women smokes). The process of giving up smoking is a part of change of lifestyle by the higher social strata that in time is taken over by lower socio-economic groups. The timespan for giving up an innovation by women is longer. The process of giving up smoking by the whole society, regardless of gender, is the last stage of smoking epidemic. The trend of giving up smoking and promoting a healthy lifestyle is observable in most of the European countries. These processes are supported by social marketing and public campaigns against smoking and tax policies relating to tobacco products. The process of the cessation of smoking is, however, slow and its dynamics differ between countries. Generally, in all European countries the prevalence of smoking is observed to be higher in lower socio-economic groups, the only exception being older women in higher socio-economic groups in Southern countries who tend to smoke more than women in lower social classes (Erasmus MC 2007). Over the past 20 years smoking prevalence in European countries has also declined more among the better educated than among the lower educated. Giskes et al. (2005) explain the trend and inequalities in the cessation of smoking that have been observed since 1980s by a higher effectiveness of tobacco control policies among higher socio-economic groups.

Table 3 Combined country smoking inequalities and smoking by education level among several Western Europe countries between 1985 and 2000 (25-79 years of age*)

Education level		Age standardised prevalence of current smoking			
		1985	1990	1995	2000
Men	1 (low)	44.88	43.74	39.50	36.30
	2	40.40	38.88	35.22	35.94
	3	39.14	31.05	27.49	27.17
	4 (high)	28.87	26.60	25.71	22.56
	RII (95% CI)	2.63 (2.34-2.95)	3.17 (2.81-3.56)	3.08 (2.67-3.55)	2.67 (2.30-3.11)
Women	1 (low)	25.94	29.82	29.63	31.49
	2	24.70	25.56	24.83	24.94
	3	22.74	21.55	21.89	21.04
	4 (high)	18.83	18.62	17.67	16.61
	RII (95% CI)	1.53 (1.33-1.75)	2.21 (1.91-2.57)	2.67 (2.26-3.14)	3.16 (2.67-3.75)

*adjusted by age and country. Countries included: Norway, Sweden, Finland, UK, Germany, Italy and Spain

Source: Giskes et al. 2005

Smoking cessation is observable also in Poland; however (and similar to the above results), it is not equally distributed in the population (Ostrowska 1999, GUS 2006). Survey research indicate that changes in the smoking pattern are diversified by social position. Prevalence of smoking and number of cigarettes smoked daily decreases faster among men than among women. Also individuals in higher socio-economic groups tend to give up smoking more often (GUS 2006). Results of the analysis by Ostrowska (1999) indicate that the prevalence of smoking and number of heavy smokers is higher among lower-educated, single and poorer individuals. One of the possible explanations of heavy smoking in lower social groups is frustration and a higher level of stress related to low social status. On the other hand, cessation of smoking by higher socio-economic groups is related to promotion of health and active life style among the higher educated. Policy changes, including tax policy for tobacco products and the introduction of restrictions on smoking in public places could also support smoking cessation.

Alcohol consumption

High level of alcohol consumption is one of the most resounding social problems in the CEE and CIS countries (Marmot 2005, Golinowska et al. 2006). Being a major cause of fatal accidents, a preventable cause of cancers and other diseases such as circulatory system diseases and liver cirrhosis, it accounts for a high proportion of premature mortality in these countries (Marmot 2005, Erasmus MC 2007). According to the study by Rehm et al. (2006) alcohol accounted for approximately 17% of premature male deaths in all deaths in Poland in 2002, which is less than in Lithuania or Hungary, but twice as much as in the UK or Sweden. Overall in the EU countries, 7% of deaths and disabilities are alcohol attributable (Popova et al. 2006).

However, not only the volume of consumption, but also the quality of the alcoholic beverages and the pattern of drinking are important factors for alcohol related morbidity and – finally – mortality. There is evidence suggesting that moderate alcohol consumption combined with low levels of binge drinking has a cardioprotective effect, while occasional binge drinking (drinking of more than 60g of pure alcohol) increases the risk of the diseases listed above. Historically, three different cultures of alcohol consumption are distinguished with respect to production tradition, drinking pattern and social acceptance of drinking (Popova et al. 2007):

- The Mediterranean pattern characterized by almost daily drinking of wine and fruit brandies, often accompanied by a meal and a lack of acceptance for public drunkenness. This style is often recognized as an Italian or Greek type of alcohol consumption.
- The Central European pattern known also as a beer drinking pattern, characterized by high frequency of drinking, but no acceptance for public drunkenness. This pattern of drinking is typical for Germany or Czech Republic.
- The Northern European pattern, which traditionally is a pattern of drinking strong, spirit beverages (mainly vodka), and which is also characterized by irregular binge drinking and acceptance of public drunkenness. The last pattern is typical for Northern European countries, Poland and the former Soviet Union.

The latter alcohol consumption pattern, especially when accompanied by consumption of alcohol from an unknown source (which is often unrecorded) has an especially detrimental health effect.

Overuse of alcohol in Poland and common binge drinking even in the times of the martial law (1981-1983) and control of the alcohol production by the state was one of the main indirect reasons of premature male mortality and the health crisis in Poland in the 80s (see chapter III). The health status improved significantly in the 90s, with mortality indicators

decreasing. Naturally, the reasons for health improvement are much more complex, including dietary changes, an increase of well-being, health awareness, increasing physical activity. Yet a decrease in alcohol consumption is among them and is not of the least importance. Despite the fact that alcohol consumption significantly decreased in the 90s, it has been perceived as a very important social and health problem. Moreover, after the period of decrease, the average alcohol consumption began to increase at the beginning of the new century. According to the State Agency for Prevention of Alcohol Related Problems (PARPA), the average consumption per inhabitant in Poland¹⁴ was at the level of 6.5 units per year in the mid 90s, approach 7 in 2002 and rose to 9.2 in 2007 (PARPA 2008). The typical pattern of consumption in Poland characterized by a high level of consumption of strong alcohols (i.e. vodka) had changed during the transition period in favour of lighter alcohols: beer and wine (Ostrowska 1999, Sowa 2002). Nonetheless, in the years 2003 – 2007 consumption of strong alcohol beverages began to rise, while wine consumption was decreasing. In 2007 over half of the alcohol consumed was beer (55.8%), wine accounted to 11.6% (in 2000 it was 20%) and vodka to 32.6% (PAPRA 2008).

Consumption of alcohol in Poland is strongly diversified by age and gender (Rehm 2006, Ostrowska 1999, GUS 2006). Men tend to drink more and they drink more at once. In the life cycle the peak of consumption for men is at age of 40-60. Women, especially around their 30s, which is the age of maternity and involvement in family life, restrict alcohol consumption (GUS 2006). Educational inequalities in alcohol consumption are also found (Ostrowska 1999). Alcohol is more frequently consumed by higher socio-economic groups, but such consumption does not lead to an alcohol abuse. At the same time poverty is a factor that bolsters the development of an addiction to alcohol and increases mortality in lower educational groups (Erasmus MC 2007).

2.3 Psycho-social determinants of health

The level of stress and existence of coping strategies (or rather their lack) are important determinants of self-assessed and actual health status. Stress accompanies an individual in everyday life and by itself does not necessarily have a negative impact on health. It is a common knowledge that in some cases, such as a highly demanding job, stress can be a good motivation for action. However, a high level of stress may also lead to the occurrence or escalation of illness and a poor frame of mind. Occurrence of illness related to stress is not typical only for humans, but it is known that all animals react to stress in an unfavourable way. For animals living in a hierarchy (often examples of our cousins the monkeys are given), the necessity of fighting for position is a main reason for stress that, as a result, negatively impacts health (Marmot 2005). For humans, stress occurs in many situations related to their relative position in society, wealth or job. It is often related to difficulties in social identification processes, defining an individual position in the social structure and in relations with significant others, taking up certain roles and activities in home life and at work. Job insecurity or a low satisfaction level in one's current job may also lead to stress.

¹⁴ Measured in liters of 100% alcohol.

Occurrence of any of the above listed circumstances leads to unfavourable chemical processes that cause high blood pressure, high cholesterol level, asthma, lack of menstruation, digestive system diseases, headaches, back pains, sleeplessness and different psychiatric disorders, and so on. (Taranowicz 2002). It is not stress itself that is dangerous, but living in conditions of permanent pressure in different spheres of life that has negative impact on health (Marmot 2005).

Stress and labour

It was mentioned above that stress is often caused by labour relations. Firstly, it is important if one has a job, secondly what type of job it is, whether it brings sufficient money for comfortable living, whether it is a good social position marker (if it is a job that is held in high esteem in society), and whether the job is interesting. If job is not satisfactory in any of above dimensions, it is a good reason for a high level of frustration that accompanies an individual on daily basis. Two sets of job characteristics are found to be of special importance of occurrence of stress: a lack of adequate level of control over one's work and its demands and then characteristics related to demand and reward. Good psychosocial standing is characteristic for individuals with a high level of independence at work, who have a lot of autonomy over their decisions and control over their work. Every individual faces stressful situations, but the possibility of controlling the challenging circumstances is the capability valued the most. Lack of a locus of control is the main reason for frustration and – as a result – falling into illness, especially coronary heart disease. A Whitehall study among British civil servants showed that a low level of control also increases the risk of developing minor psychiatric disorders and is correlated to the gradient in health (Marmot 2005). Lack of autonomy and participation in decision-making processes is typical for unskilled workers and they have the highest risk of cardiovascular system diseases. It should be noticed, however, that people in this occupational group also have a low level of education and are located at the bottom of socio-economic ladder. It might, therefore, sometimes be difficult to distinguished the effect of stress from other effects related to social position on their health.

Research on the relation between health status and the quality of life of individuals reaching retirement age in Poland showed a correlation between locus of control in an individual's last job and their health status as retirees (Tobiasz-Adamczyk, Brzyski 2000). Individuals who worked in a demanding environment but had low locus of control and did not participate in decision processes were less satisfied with their employment and had worse health. Also persons with a demanding job accompanied by a high level of stress were more susceptible to long term illnesses. At the same time individuals who had demanding positions and high control over their job had an increased probability of perceiving their health status as good. Job satisfaction also depends upon appropriate rewards, corresponding to the effort that is put in the job. Rewards can take form of material benefits (income) or immaterial appreciation (gaining the recognition of your boss and coworkers, promotion). Lack of interrelation between effort and reward causes frustration and a resulting worsening of health status.

Stress and family ties

Obviously, it is not only work or labour relations that increase the risk of poor health due to the high level of stress. It is also having little control over the situation at home that is stressful for women, especially for women in lower social strata. Women who have unfavourable situations at home (low income, being single mothers or having an unemployed husband) more often report depression and heart disease. Interestingly, the relation between home circumstances and illness is not confirmed for men (Marmot 2005), who seem to set less store to their home environment than to their job. Another interesting finding, present in the literature is that marriage (or cohabitation) protects individuals from falling into diseases due to the social support (the notion of social support is explained in more detail below) and companionship it provides. It was found that despite the type of disease, individuals in stable relationships tend to be healthier than singles. Explanations for the differences between married (cohabiting) and single (including widowed and divorced) refer to differences in lifestyle, including the less healthy diet, higher consumption of cigarettes and alcohol by singles. However, Marmot also states that health differences cut across social stratification, which implies that poor families have worse health than rich families and poor single parents have worse health than rich single parents (Marmot 2005).

Stress prevention and coping strategies

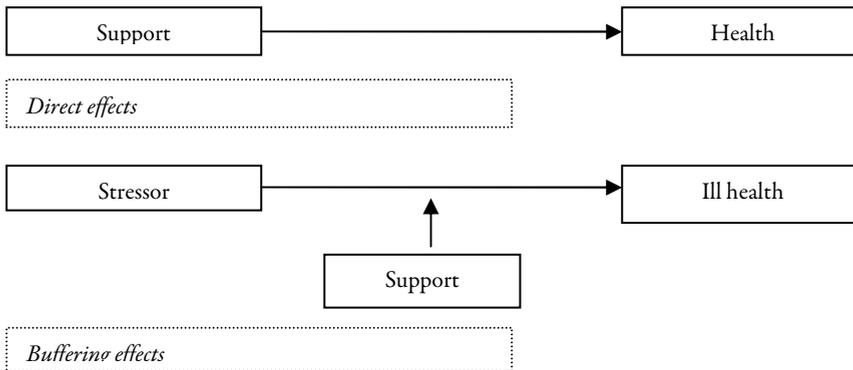
Prevention of the negative impact of a high level of stress on health is possible thanks to different coping strategies. The basic coping strategy is social networking. An individual who lives in close social networks receives support in a stressful situation from family and friends, religious organizations and belief systems, which have a protective effect on health. Another coping strategy when stress occurs could be use of different stimulators (i.e. smoking) though its beneficial effect is doubtful, not to say they are harmful. Research on social networking underlines the importance of support from family and friends in a stressful situations (Bartley 2004, Stansfeld 2006). The core of social support¹⁵ created by family and friends is the belief of an individual that he/she is cared for and belongs to a community linked by strong bonds (Stansfeld 2006).

Two types of impact that social support has on health have been identified. The first one is *direct impact* that leads to positive health outcomes as a result of received support with the occurrence of difficulties that raise the level of stress. Here social support provided to an individual gives a feeling of unity with community and reference group. The second type of social support presented in the literature is the *buffering effect* which operates indirectly and moderates the negative impact of stress on an individual. In this case an individual who faces a high level of stress does not receive support from their closest or most important significant others directly, but is aware that he/she would be supported if necessary (Schema 3). Social support may prevent

¹⁵ Social support is defined as “resources provided by other persons” that leads to an increase in self-esteem and a belief that an individual is loved and cared for (Stansfeld 2006).

someone from suffering illnesses that are caused by stress, or at least moderate the illness. In reality, it has been shown that both types of social support coexist and have a positive impact on health (Stansfeld 2006). The research has been supported by the observation that individuals with close family ties, living in religious communities and who are involved in social activities live longer.

Schema 3 Direct and buffering effects of social support

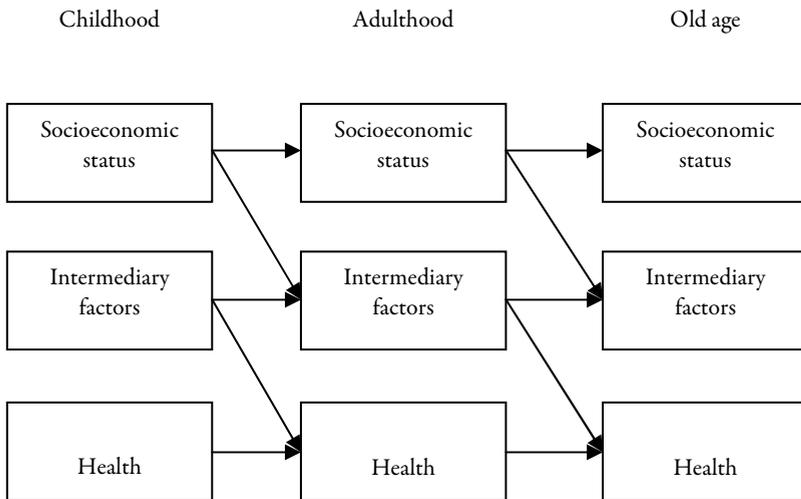


Source: Stansfeld 2006

2.4 Health from a life-course perspective

Another explanation of inequalities in health status as pointed out by Bartley underlines the fact that health is a result of processes that occur during an individual's life-course. From such a perspective, individual health is the result of biological and social processes that take place from the prenatal period, through childhood, to adulthood and old age. In this perspective a diversification of health status in society is seen as a result of an accumulation of positive and negative life experiences (Blane 2006). Such experiences cause individual health advantages or disadvantages in the future life, including chances for survival or falling into illness. It is underlined that biological processes that individuals face are strongly set in the social context and depend upon it. The final health outcome is a result of a combination of biological and social processes. The impact of environment on health is analysed either via an interpretation of the impact of single events, so called *critical periods* on health, or the sequence of a number of events that *accumulate* during a lifetime (Bartley 2004). In this second approach, the age of an individual is not seen as a crucial factor for health, but the sequence of events that impact health is important.

Schema 4 Health in life-course perspective



Source: Mackenbach et al. 2008

It is also observed that advantages or disadvantages tend to accumulate – an individual with a well-paid job and good working conditions feeds well and lives in a healthy, unpolluted environment. Such social conditions will have a positive impact on his/her health and the health of his/her children. On the other hand an individual who does not have stable employment or works in poor conditions is more likely to live in an overcrowded, polluted neighbourhood, perhaps in a poorly-heated home. As a result he/she is more prone to poor health (Blane 2006). Such social characteristics are to a large extent inherited by subsequent generations. The health status of the next generation is directly influenced by feeding in childhood, living standards, care for the children’s health and their achievements (i.e. educational achievements) which all have an impact on their chances for upward mobility.

A number of studies on the impact of critical periods or accumulated experiences on an individual’s health have been performed, typically these are long-term research projects in which a panel or a cohort is observed over a long period of time. In Great Britain, for example, studies on birth weight show that it is related to future performance and social conditions in adult life (Blane 2006). Cohort members born in 1956 were observed in their childhood and early adult life (23 years of age) at given points of time. Results indicated that children born with low birth weight¹⁶ were more likely to live in poor families, in households of manual workers and lived in poor neighbourhood, in overcrowded households. Children that were born with higher weight were more likely to live in households of professional social classes. It was also found that the relation

¹⁶Weight at birth below 2721g.

between birth weight and the social class of the family was graded through the whole birth weight distribution. Falling into financial difficulties by a family of young adults (23 years of age) was also graded in line with birth weight gradient. However, with respect to the quoted research the question of selection could be raised, namely that lower birth weight is more common in lower social classes, which to a large extent would explain the relation between low birth weight and the social situation of a family in the future.

An interesting piece of research, examining the impact of economic transformation on men health, was performed in the field of anthropology by the Polish Academy of Science. It shows that as a result of the transformation which was accompanied by change in diet and an improvement in economic and social conditions of everyday life, height and weight of young men increased in the period of 1995 – 2001 compared to the previous period (Bielicki et al. 2004). The research aimed at identifying the causes and correlates of the change of height and weight¹⁷ of young men in successive generations. Especially interesting are the results for cohorts examined in 1986, 1995 and 2001¹⁸ (Bielicki et al. 2004; Kozieł et al. 2004). The three generations were brought up in different political and economic environments, and influenced the most by the transformation of 1989. The transformation is seen as a critical period that determined (and continues to determine) the health and physical condition of young men by the impact it had on their childhood (for the cohort examined in 2001), and teenage years (for the cohort examined in 1995). Economic transformation resulted in a change of diet for children, greater availability of food and diversification of food products, a change in the financial situation of families due to rapidly increasing income inequalities accompanied by the possibility of quick promotion. The last important factor that occurred after the political and economic transformation was a demographic change characterized by a change in family size towards the nuclear family that – together with the changing economic situation of the family - has had an impact on the type of care that is provided. At the beginning of the 1980s when the first cohort was entering their teenage years, martial law was introduced in Poland and the country suffered economic crisis: access to food was restricted by legal regulations, including food rich in proteins and carbohydrates that are crucial for gaining height. In the following years, availability of food increased, especially after 1989. Results of the research show that while between 1986 and 1995 there was no increase in the average height and weight of young men, in the following period (1995 – 2001) weight and height increased. The increased is explained by changes in diet as well as social and economic environment of children (Kozieł et al. 2004). The increase in the average height and weight of young men was accompanied by higher diversity of these two measures in the examined population which is explained by increasing income inequalities that determine diet and physical activity. Research by Bielicki (1999, 2004) indicates that the gradient in height and weight of young men is also determined by socio-economic conditions, including where they live,

¹⁷ *Body Mass Index (BMI)* was the measure of physical condition. BMI is calculated as a ratio of weight to height squared.

¹⁸ The research covered 10% of the Polish population aged 18-19 and was conducted at army recruitment offices.

parental education and the number of children in families. There are significant differences in health outcomes and the fitness of the population in urban (irrespective of city size) and rural areas, although it has been observed that in the period of 1965 – 2001 these inequalities had been diminishing. In the 1960s the gradient in health followed the city size and the best health outcomes (including BMI) were seen in the biggest cities. In the 1980s the gradient changed into a simple dichotomy between urban and rural areas. Since then the differences have been getting smaller and the health status of the rural population has improved (Golinowska, Sowa 2006).

The family size, especially number of children in the family, is found to be a factor of growing importance for the health of young men. Individuals brought up in nuclear families tend to be taller than their peers from larger households. This could be explained by changes in procreation decisions of the families and investing more in fewer children. Smaller families are found to be wealthier and more often live in urban areas, so accumulation of demographic and economic factors that have a positive impact on health is observed. Another factor that diversifies height and weight of young men is parental education, especially their mothers' education. As it was also shown above in respect to different European countries and in Poland, higher education of family members is related to better health.

Research on health from a life-course perspective, though difficult in methodological terms as it requires the long-term observation of individuals, is still developing, with special attention given to disadvantages accumulated in childhood for individuals' future life and prosperity. It should be also underlined that this type of research has strong policy implications promoting activities targeted at the prevention of inequalities at the very early stages of life, improving access to education for children, and promoting the social cohesion of children from poor social environments.

2.5 Health status and the healthcare system

Last but not the least, health care systems are responsible for a creation of the health gradient, but they are also a crucial tool when trying to cope with existing health inequalities and when implementing policy targeted towards equity in health and patients' empowerment (Marmot 2007). Organization of the healthcare system and equal access to high quality services impacts the health of the population, health inequalities and – indirectly – social inequalities. In developing countries it is an critical question when the healthcare system perpetuates social inequalities by public funding of services that are more commonly used by wealthier groups of the society (Marmot 2007). On the hand, rising social inequalities may lead to an increase in health inequalities. It is a vicious circle of the interdependence of the healthcare system, social inequalities and health inequalities (Mackintosh 2004).

The healthcare system directly contributes to health inequalities if it creates institutional barriers of access to medical treatment. At least three features of the healthcare system

organization and management which determine equality of access to medical services can be distinguished:

- *Principle of equal access to medical services to all citizens as expressed by a set of legal regulations.* This principle serves as the basis for the organization of the healthcare system, setting out the rule of equality of treatment, equal access to services, patient empowerment and claims when the service is not provided. The principle assures access to medical services when a health need is expressed and despite of individual welfare. In countries of the European Union the principle is present and respected, while in developing countries its implementation is not so obvious. Naturally, legal assurance of equality of access to medical services does not imply that the services are actually as readily available to all social groups as to others, nor does it prevent the existence of health inequalities. It is rather a precondition for the organization of an equal and – in the next step – just society.
- *Funding of medical services.* Medical treatment is costly, especially when new, innovative technologies and medicines are involved. Still, medical services should be funded in a way that does not exclude some groups of a society (especially the poorer ones) from the utilization of services when they are needed. This risk occurs especially when services are funded on a private, out-of-pocket basis or when private health insurance schemes are in place, leading to a situation in which parts of the population might be excluded from access to some services if they are not affordable. This was found to be the case for specialist care in Poland where, as a result of the privatization of specialist care and dentistry, the utilization gradient of these services by income was observable with the poorer population reporting lower utilization rates (Golinowska, Sowa 2006). Marmot argues that the greater the private expenditure on health is, the larger the proportion of the population is who are faced with catastrophic health expenditure (Marmot 2007). Another risk often observed in countries with private health insurance is the lack of solidarity when insurance covers only lower risks (Mackintosh 2004). Private insurances with adverse selection or covering more expensive procedures can deter poor families from usage of medical services.
- *Equality of access to information.* Finally, information on the way that the health care system operates, rules of access to primary, secondary and tertiary care should be transparent and understandable so that the services are equally accessible across the whole population. Similarly, the information on types of treatment that is available and information on the disease development and treatment in a patient-doctor relation should be easily and equally accessible.

Another issue is that of information campaigns on the main health risks and the ways in which they can be prevented (or how health problems can be recognized early). Such public health campaigns are especially important in order to raise health awareness of the socially excluded or poorly educated.

The problem of equal and just access to the healthcare system as a measure of how to prevent health inequalities had been raised by the World Health Organization Commission on Social Determinants of Health¹⁹. The Commission brought together researchers from all over the world and drew the attention of politicians, experts and public decision makers to the problem of health inequalities and inequities in a very broad context of human development and civil society, as well as touching upon the issue of healthcare organization and funding. Most importantly, it underlined the importance of preventing health inequalities in developing countries where health provision is often insufficient, income inequalities are substantial and the exclusion of large parts of society from social security is a common problem. The Commission took the position that health is a common good which should be provided on an equitable basis to everyone, regardless of ethnicity, place of living or wealth (WHO 2008). The research conducted by the Commission proved that while a high level of private expenditure on health is related to a worse health-adjusted life expectancy, a high level of public and social insurance spending on health is related to better health-adjusted life expectancy. Taking all this evidence into account the Commission concluded that in order to diminish health inequalities the healthcare system should be universal and organized according to the equity rule. It should provide universal coverage, with a basic medical services basket available to all regardless of income level and health risk. Availability of primary care for the poor and socially excluded should take a central role within the health care system. On top of that, public health programmes and prevention strategies targeted towards the lower social classes and individuals with a high risk of falling into specific illness should be provided to the population. Policy measures towards the revitalization of primary care (with attention given to assuring health equity) all over the world were proposed by the Commission. These include setting up a primary healthcare (PHC) model in all societies, with an emphasis on universal access and empowerment of patients thanks to increasing citizens' access to information, creating an environment for social cohesion and involving the community as a priority setting for planning a policy. The Commission underlined the fact that in the face of a demographic shift and population ageing, in less developed as well as in more developed countries, public healthcare should undertake protective action on social determinants of healthy ageing. When it comes to funding of the health care system, the Commission recommended tax or insurance-based funding combined with universal coverage regardless of the individual's ability to pay and a lowering of the level of out of pocket expenditures on health. The last two recommendations of the Commission address problems of inequality of access to medical care

¹⁹ The Commission was established in 2005 to draw the public's attention to the problems of social determinants of health and support countries in research and policy tools to address the problem of health variations in a society. The Commission concluded its work in September 2008 publishing the report *Closing the gap in a generation: Health equity through action on the social determinants of health*.

between urban and rural areas and medical personnel shortages. An investment in human resources in medical care by national and international organizations on the one hand and on the other hand assurance of the distribution of the general practitioners (GPs) throughout the whole of a country and support for informal care or auxiliary services (which are often less costly but effective), were stated as necessary for the improved performance of the healthcare system, availability and quality of the services.

It should be underlined, however, that the WHO has been monitoring health all over the world for many years as well as setting health goals, an example of which was the *Health for All in 2000* policy. It contributed significantly to establishing measures and indicators for health assessment and the creation of a database with the most important health and healthcare system performance indicators (WHO Health for All Database). The work of the Commission led by Michael Marmot has been the most impressive attempt so far to come up with a strategy promoting health equity that targets not only health policy, but social policy and social arrangements as a whole. From this perspective it is a milestone in looking at health inequalities and inequities in a global perspective.

Conclusions

Following the above theoretical considerations, a framework for research on health inequalities in Poland has been constructed and it is briefly summarized below. Above theoretical considerations as outlined above, although perhaps long and sometimes wearisome, are necessary to define the scope of interest of the presented dissertation. They are also unavoidable as some of the basic notions for the presented research are often used to describe different phenomena than those intended in the following chapters (i.e. health differences, inequalities and inequities). What becomes clear from the theoretical passage above is that the subject of interest is health inequalities, which are systematic differences in the health status of the population attributable to social position and behaviours related to it; however, no attempt will be made to make moral judgments upon their existence. When inequalities in medical services are to be analysed, no judgment upon their fairness will be made. It will be a descriptive task, which is necessary as a precondition for further analysis from the point of view of equity of health or health services distribution in society.

Still, the research goes beyond a mere description of health and medical services utilization inequalities, with an attempt to recognize correlates (possible reasons) for the observed inequalities. This will be done in the framework proposed by Marmot and Bartley which is a very comprehensive one, touching upon a whole spectrum of human activities in both the short and long-term that might impact health outcomes. When one asks *why health inequalities exist and are so striking?* the answer would be: because of differences in wealth and education which exist even in the most equitable societies, due to individuals undertaking risky behaviours related to their health, because of the feeling of social isolation which might be even more pronounced in modern societies, in which social networks can be created without direct face-to-face communication,

because of the difficulties accumulated in an individual's life history, due to poor access to institutions of care, or – and most likely – due to a mixture of all of these listed causes. Almost each of the explanations proposed will be touched upon in the forthcoming research, although the scope of analysis is restricted by the data available.

First, the impact of wealth on health inequalities is analysed in its approximation to education and labour market position. Here the assumption is (as supported by Bartely, Black, Mackenbach and other researchers) that education together with income and labour market position is the main determinant and – simultaneously – a key marker of social position. Further, an attempt is made to identify behavioural reasons for health inequalities, with special attention given to smoking and alcohol consumption. The two are of great importance as their consumption has been high in Poland (as in other post-communist countries of the region) and they significantly contributed to a high mortality level in the past. The existence of social networks and their impact on health is another direction of research on health inequalities that is examined and shall be assessed by looking into information on networks within the closest family and support given by them. Finally, the issue of the availability of care within social groups is addressed when inequalities in utilization of medical care are identified. The only explanation that the research ignores is the life course perspective, not because it is seen as of minor importance – on the contrary, it is an important one that often impacts performance in spheres of life such as education or behaviour – but because it requires a very specific longitudinal data set which is not available. The result of the work will be the presentation of a comprehensive picture of health inequalities and medical services inequalities in Poland, pointing out the most important reasons for existence of these inequalities, given the interpretations proposed by Marmot and Bartely on the one hand and transformation of Polish society in post-communist times on the other.

Chapter II

Methodology for the measurement of social diversification of health status and medical services utilization

Introduction

The aim of this chapter is to provide an overview of the methodology used to analyse changes in the health status, health and medical services utilization inequalities in Poland. The first section presents an overview of the data used for the analysis. The second section discusses the measures used for the assessment of health status and health inequalities, while the third one presents indicators that are computed for the purpose of assessing the size of health inequalities in Poland. A presentation of the indicators adopted in the study is preceded by the short overview of a typology of indicators most commonly used for a health inequalities and medical services utilization inequalities analysis. The last section of this chapter concentrates on the presentation of models used for the assessment of correlates of health status, among which are behavioural and social support factors. An impact of these factors on the health status cannot be presented by a single indicator due to their complexity on the one hand and the construction of the data on the other.

1. Overview of the data used for the analysis

The research is based on various data sources, including demographic and epidemiological data as well as survey data, depending on the purpose of the analysis. Demographic and epidemiological statistics are taken from the official national statistics that are published by the Central Statistical Office (GUS)²⁰. These are computed from doctors' reports on morbidity and death certificates which are collected on regular basis and serve mainly for the purposes of determining morbidity and mortality trends as well as the creation of the basic longevity indicator, which is life expectancy. The data are published on an annual basis and allow for partial analysis of health status diversification by sex, age and region, as presented in the third chapter. Comparative data on mortality, life expectancy and healthy life expectancy in the European countries, which are also presented in this chapter, are published by Eurostat²¹.

Whilst demographic and epidemiological data are used for the analysis presented in the third chapter, the results of the research shown in the fourth and fifth chapters are based on an analysis of the survey data. The source of the data are the two National Health Surveys (NHS), conducted in 1996 and 2004, which are particularly well suited for a national analysis of health status changes as well as medical care access and use. The aim of both health surveys was to

²⁰ Life Tables (Tablice trwania życia) published by the Central Statistical Office (GUS).

²¹ European Commission Health Indicators, http://ec.europa.eu/health-eu/health_in_the_eu/ec_health_indicators/index_en.htm

recognize the health status of the population and its socio-economic differentiations. Both surveys are representative for the Polish population. They cover three main areas of interest: self-assessment of the health status, utilization of medical care and healthy behaviour. The surveys include a wide range of questions, such as: self-assessment of the health status, long-term illness, disability, demographic (age, sex) and social characteristics of the respondents (education, main source of incomes, marital status, number of household members, etc.) and behavioural questions on smoking, alcohol and drug use. Unfortunately, some variables such as income, place of living and being unemployed were not made available for the study²². The first health survey was conducted in Poland in 1996, covering the areas described above. The survey was repeated in 2004. The core of the second survey encompass the same areas as that conducted 8 years earlier, but the questionnaire was extended to include social networking issues (quality of life and support from family and friends). Each year, the survey consisted of two questionnaires: one for adults and one for children. As this research aims at describing the health status of an adult population and its changes, only the first questionnaire is used hereafter in this paper. Overall, the sample covered over 19 thousand households in 1996 and over 14.5 thousand households in 2004 (see table below).

Table 4 Comparison of the sample size in 1996 and 2004 National Health Surveys

Item	1996	2004
Number of households	19203	14567
Number of individuals	62746	42991
including:		
Adults	47924*	35248*
Children	14822	7743

* in the analysis presented in the following chapters the sample size may differ depending on the response rate for a given question

Source: GUS 2006

2. Health status and medical services utilization measurement

Health status can be measured using demographic, epidemiological or survey data, such as the ones described above. The selection of specific measures depends on the goal of the research, but also on the availability of data, its reliability and the level of detail, and each of these

²² The Central Statistical Office did not provide all of the requested data (e.g. income, labour market position, place of living) for the purpose of this research.

aspects is important for the research presented in this paper. Significant restrictions of the analysis are caused by the availability of data (i.e. not all the variables requested for the micro-analysis were made available) and the level of specification of the data (i.e. in the Polish statistical system demographic data are not connected to the socio-economic data). Overall, the most commonly used measures of health status, also presented in this research, include demographic measures of mortality and related measures of longevity, morbidity and survey-based measures of health status self-assessment, reported morbidity or long term illness, and description of activities of daily living (ADL) that an individual is able to perform. The two following sections are devoted to a more detailed presentation of the measures selected for the research on the health status of the Polish population.

2.1 Selected demographic and epidemiological measures of health status

Description of the changes of the health status of the Polish population in the last several decades (presented in the third chapter of the dissertation) is based on the mortality related data. This is due to the fact that mortality in Poland is well documented and as such is the most reliable source of data for the health status analysis. Morbidity data could provide additional information on the most common health problems as well as health inequalities in the population. However, their coverage is significantly constrained as it concentrates on infectious diseases, diseases related to social behaviour (i.e. sexually transmitted diseases) and psychiatric diseases. Such selection does not reflect the main health problems of the population, which are circulatory system morbidity and different types of cancers. Only the number of new cases per year of the latter diseases is identified, while statistics of the spread of illnesses in the population remain unknown (GUS 2006).

Taking the above facts into account, measures used for the research include:

- mortality due to different causes,
- life expectancy, which is the basic longevity indicator,
- healthy life expectancy, which reflects longevity corrected for the quality of life.

The level of mortality is the most important aggregated indicator reflecting the health status of the population and the main social, economic or territorial groups. The data for the construction of the indicator is typically collected from the doctors' reports, namely death certificates, and published on an annual basis as a part of the national statistics. The indicator is calculated as a ratio of the number of deaths in the selected age cohort compared to the size of the population in this age cohort. Often, the indicator is age or sex standardized, which allows for comparisons between different social groups, regions, countries or drawing time trends of mortality (Bartley 2004). Thus, mortality is often used the basic indicator for comparative analysis conducted by the international organizations (WHO, EC). In the research presented in the third chapter, age-standardized mortality over time and due to different causes serves as the

description of changes in health status and to identify the main health problems of the Polish population.

Information on mortality also allows for a construction of another indicator commonly used for the health status and health inequalities analysis: *the average life expectancy (LE)*. The indicator estimates the number of years that an individual is expected to live with an assumption that current mortality trends will remain unchanged during the individual's life (Eurostat 2006). As with the mortality indicator, life expectancy is well-suited for a time trend analysis, as well as comparisons between different social groups, regions and countries. Again, the indicator is used in the third chapter of the presented research and is used for the identification of health status changes over time. Also regional variations in longevity and difference between sexes are examined. Nonetheless, it is impossible to identify social diversifications of longevity (which are often analysed in other countries) due to the fact that mortality is not linked to the social variables (i.e. income level, education) in Polish public statistics.

Finally, the last group of indicators used for the assessment of the health status of the adult Polish population goes beyond quantitative information on the average number years of life that is expected and addresses the problem of the quality of life. There are a number of specific summary measures dealing with the problem of quality of life. The indicators differ depending on specific methodology of data collection and calculation and include *healthy life expectancy (HLE)*, *health adjusted life expectancy (HALE)*, and *healthy life years (HLY)*. Nonetheless, all of these indicators combine information on mortality with information on morbidity. The first one is taken from administrative data while information on morbidity typically comes from surveys. The measure that is used for the presented study is the indicator of healthy life years proposed and estimated by Eurostat²³. The indicators of life in good health are typically used for time trend analysis of the morbidity or disability of the population and comparisons of morbidity between countries. They could also serve for addressing the problem of health inequalities if estimated for different social groups. In the presented research the indicator allows for addressing the problem of the average morbidity of the population.

2.2 Selected survey measures of health status and medical services utilization

Demographic data on the health status of the Polish population are used for a descriptive analysis of health status changes over the last decades, while survey data serve the purpose of an evaluation of health inequalities. Survey data are an important complementary

²³ Healthy Life Years (HLY) is a health expectancy indicator which combines information on mortality and morbidity. The data required are the age-specific prevalence (proportions) of the population in healthy and unhealthy conditions and age-specific mortality information. A healthy condition is defined by the absence of limitations in functioning/disability. The indicator is calculated separately for males and females. The indicator is also called disability-free life expectancy (DFLE) (<http://epp.eurostat.ec.europa.eu/tgm/web/table/description.jsp>).

source of data for health status analysis, and in the case of Poland this is almost the only data that can be used for an analysis of the determinants of health status. These data sets enable an identification of social groups based on education, income or prestige indicators and provide a picture of the lifestyle of the population, including behaviours that directly impact health such as smoking and alcohol consumption. Health surveys allow for the description of the health status of the population based on various measures. These could be socio-medical measures of individual's subjective evaluation of functional abilities, morbidity and the frame of mind (Tobiasz-Adamczyk 2000). The National Health Surveys that are used for the analysis presented in the fourth and fifth chapters include three measures of health status:

- evaluation of health status based on a 5-point scale: from very bad to very good health²⁴,
- reporting long-term illness²⁵,
- evaluation of the ability to perform activities of daily living (ADL), including reading without glasses, hearing, writing, walking up and down the stairs, holding objects, eating, taking a bath and using a toilet without assistance, etc.

Whilst the third measure is typically used for evaluation of the level of disabilities or lack of self-sufficiency in the population, especially among the elderly, the first two can be used for the analysis of the health inequalities. Various studies show that the size of inequalities can be differently assessed depending on the measure used. Wagstaff et al. (1991) referring to the research by Blaxter (1989), discusses the adequacy of using each of the measures presented above for assessing health inequalities. Examining the Dutch and the Italian data, they conclude that inequalities are least pronounced for the ADL measure, and most pronounced for the self-perceived health status. Moreover, the distances between social groups as shown by different measures are similar in both countries. A study examining the health of the Irish population also indicates that the measure of self-assessed health status is the most sensitive; however, in the latter research the difference between inequalities measured using self-assessed health and chronic illness was very small (Layte, Nolan 2003).

Taking into account the above considerations, the most appropriate measure to investigate the health status of the whole population (not concentrating on either the elderly or those suffering from severe illnesses and which is available in a national survey data set) is that of self-perceived health. Despite being convenient, this measure is found to be a good approximation of the actual health status of the population as it is correlated with objective measures of the probability of death and doctors' opinions relating to individuals' health. In fact, regional analysis of the health status in Poland indicated that longevity is correlated with subjective measures from

²⁴ The question of the NHS is: "How do you evaluate your health status? - very good, - good, - fair, - poor, - very poor".

²⁵ The question of the NHS is: "Do you have any long term illness (lasting 6 months or longer)? - yes, - no".

the 2004 NHS (Sowa 2007). Still, the drawback of self-assessed health status is that it can be conditional on people's own perception of their health, individuals' expectations towards health, the impact of the psycho-social environment at the moment when the survey was taken, or a tendency to complain. These differences in people's perception of their health status are especially significant for cross-country analyses; however, they are of less importance for national analyses. Some research show that in developed countries (i.e. Sweden and Canada) differences in the perception of health status are more pronounced between age and sex groups, but less between socio-economic groups. Moreover, the bias of an individual's perception of his or her health status can be minimized when the health variable is dichotomized, concentrating on poor health only (O'Donnell et al. 2008).

Several methods of scaling the self-perceived health variable have been examined, one of them being the dichotomization of the 5 categories variable for the purpose of the identification of individuals with poor health (O'Donnell et al. 2008). Typically, poor health is defined as health assessed as worse than good (namely "fair", "poor" and "very poor"). This is also the basic measure of health used for the evaluation of health inequalities in the presented research. However, it is found that the health status of the Poles, as reported in the NHS of 1996 and 2004, had significantly improved. The share of the population reporting less than good health decreased by one fifth (11.4 percentage points), but an even greater improvement was seen in the population reporting poor and very poor health as the proportion of the latter decreased by one third (6.8 percentage points) (see chapter IV). Since the dynamics of the health status changes are high, and a significant change of the health status had happened within the selected category of less-than-good health, a second simple measure of health is proposed – namely, poor health as defined as a share of population reporting "poor" and "very poor" health. Introducing the second measure of the poor health allows one to investigate a social group that might not take part in the health status transformation. In other words, as the health status of the population improves, the question is: who is left behind on the improvement curve and are there any social or economic reasons that differentiate this group with regard to decreasing its chances for health gain?

The last group of measures are indicators of access to medical care and its use. The measures used in the study are survey-based as the available administrative data are aggregated and not linked to information on socio-economic status. The measure adopted in the study is the utilization of visits to medical doctors, hospital care and dental care in the period of 12 months preceding the survey²⁶. The analysis is constrained by the fact that further diversification between family doctor and specialist visits during the year is not possible while access to these two types of services could differ significantly as specialist care is to a large extent privatized.

²⁶ The questions of the NHS are: (i) "Have you been treated in a hospital for at least one night over the last 12 months? -yes, - no", (ii) "Have had a family doctor or a specialist visit over the last 12 months? -yes, -no".

2.3 Selected summary measures of health status and medical services utilization inequalities

The measures of mortality and morbidity described allow us to examine the health status of the population and the extent to which medical services are used. However, additional indicators are needed to evaluate the distribution of health and health services utilization between socio-economic groups. The literature broadly describes a variation of measures that can be used to quantify the size of health inequalities (Wagstaff A. et al. 1991; Mackenbach J.P., Kunst A.E. 1997; OECD 2009). The selection of an indicator should depend on the goal of the analysis and data available (Mackenbach J.P, Kunst A.E. 1997). The second condition is of special importance, as data referring to socio-economic status (SES) are often operationalized in a qualitative manner (nominal variables), while most of the sophisticated measures require quantitative data (at the very least ordinal variables). Similar problems were faced in the course of this analysis as the selection of the variable describing socio-economic status of an individual was imposed by the statistical characteristics of the data.

2.4 Social group classification

The first step in the analysis of the size of health inequalities is deciding upon the measurement of the hierarchy of social groups. In other words, by which dimension of society's stratification are health inequalities identified: prestige, wealth or other? Typically these dimensions are operationalized in the three types of measures of SES (OECD 2009):

- Educational level, measured by a hierarchical classification of completed education levels or the number of completed years of education. Typically at least four educational groups are distinguished: primary, vocational or lower secondary, upper secondary and tertiary.
- Information on occupation, which has been especially widely used in the British literature starting from the Black Report. Typically individuals are ranked by their current or last occupation into a number of hierarchical groups, including: farmers, unskilled manual workers, skilled manual workers, the self-employed and finally lower and upper non-manual workers. The International Standard Classification of occupations can be used as a reference for selecting specific groups of workers.
- Income level, which can be classified either by an individual income level or household income or equivalent income adjusted for the size of a household and its composition.

Neither income nor occupational information were made available for the presented analysis by the Central Statistical Office. Thus, the only variable that can be used as a measure of SES is education. For the purpose of statistical analysis it was recoded from a nominal type of variable, representing the level of completed education, to a ordinal variable of the number of

years of completed education. Consequently, only the size of educational inequalities in health and medical services utilization were examined. Education was selected as a basic SES measure for the very practical reason of data availability, but it is also the best measure to describe the stratification of Polish society. Reasons for this were presented in chapter I. Typically, education is highly correlated with incomes and occupation. However, in the post-communist society it has been a measure that better than income could reflect the prestige ladder of society, prestige being that which decides the well-being of individuals, their psycho-social characteristics and lifestyle. Just to give an example: a university professor is located high on a prestige ladder and on the educational ladder too, but his/her income would be below the national average. The second reason why education is a better measure of social status than income is the fact that in developing societies – and Poland is a transformation country – incomes are often misreported and underestimated in survey research (Deaton 1997).

3. Health inequalities measurement

Getting back to the problem of selection of an aggregated indicator for health inequalities measurement, it should be noticed that measures differ in two ways: (i) they present the health differences in *relative* or *absolute* value, and (ii) in the level of their complexity, namely *simple* and *sophisticated measures* are distinguished (OECD 2009, Mackenbach J.P., Kunst A.E. 1997).

Relative or absolute measures

Relative and absolute measures assess the diversification in health outcomes between selected social groups, either as a proportion (relative measures) or as a difference (absolute measure) in a specific health outcome. To give an example, a proportion of mortality of the highest socio-economic group to the lowest socio-economic groups is a relative measure (*rate ratio*), while a difference in mortality between the highest and the lowest socio-economic group is an absolute measure (*rate difference*). Typically, the measures describe the diversification of health between the two extreme socio-economic groups (Mackenbach J.P., Kunst A.E. 1997). Both, relative and absolute measures are of the great importance, and the decision as to which to apply depends on the goal of the research. Some argue that while relative measures are more commonly used for research purposes and time-trend observation of the magnitude of health problems, absolute measures are more important for the decision makers who prefer to set goals of their policies in absolute terms (OECD 2009). Nonetheless, Mackenbach et al. suggest that both measures should be used in socio-medical research.

Simple or sophisticated measures

Measures that attempt to assess the gap in the health status of the population based on a comparison of the two groups, such as rate ratio and rate difference, are called simple measures. They are easy to calculate and have a straightforward interpretation, yet they ignore information

on the complexity of social diversifications and concentrate on the most deprived (in terms of income, occupation or education) group. Moreover, they do not take into account information on the size of each of the social groups compared. This is an important feature of the index that is used for an observation of health inequalities over time as the size of social groups may change considerably between different points in time. Thus, more sophisticated measures are needed to assess health variations across all social strata, not only between extreme social groups, and which take into consideration the size of social groups. However, more advanced measures pose many restrictions on the data used for their calculation. Most of all, they require that the variable representing socio-economic status is measured on the quantifiable scale, which can be problematic, especially in the case of occupation-based indicators of social status. For this research project a nominal variable describing completed education levels also had to be transformed into an ordinal variable presenting the number of years of completed in order to fulfill the quantifiability requirement. The list of sophisticated summary measures of health inequalities includes regression-based indices either expressed in relative (i.e. *relative index of inequality*) or absolute (i.e. *slope index of inequality*) terms on the one hand and on the other hand measures calculated in a fashion similar to the Lorenz curve and Gini coefficient (*concentration index*). When assessing the reliability of different indices, Wagstaff et al. (1991) compares features of the slope index of inequality with the concentration index and other measures used for the analysis of health inequalities (also simple measures) and argues that only the first two fulfill all three requirements that a measure of inequalities should meet, and as such are the best suited for assessing health status distribution. The requirements set by Wagstaff et al. are as follows: (i) the measures should reflect social variation in health, (ii) the measures should reflect experiences of the whole population and not concentrate on two extreme social groups, (iii) the measures should be sensitive to changes in the population distribution.

However, selection of a specific index used for the analysis depends on the goal of the analysis and data availability. Taking into account the data needed for constructing a sophisticated measure of health inequalities, Mackenbach and Kunst (1997) propose that a researcher uses simple measures first and then – if possible – control obtained results with more complicated indices. Facing numerous data constraints, this reasonable recommendation is also used in a presented research.

3.1 Calculation of selected measures of inequalities in health and medical services utilization

The selection of an appropriate indicator to assess the size of health inequalities was not an easy task due to a fact that numerous measures are described in the literature (OECD 2009, Mackenbach J.P., Kunst A.E. 1997, Wagstaff et al. 1991). Finally, the selection of the measures used in this research project was made based on several criteria:

- Size of educational inequalities in health should be assessed using simple measures first and then the results should be checked with a more sophisticated measure,
- Measures should be easy to understand and interpret as the report is the first attempt to identify the size of health inequalities in Poland and its target audience – besides academics – is policy makers, who may not be familiar with the more advanced econometric techniques,
- A sophisticated indicator should be applicable to measuring the size of health inequalities and medical services utilization inequalities.

The measures that fulfill the listed criteria are two simple measures of rate ratio and rate difference and two closely related sophisticated measures, which are the concentration curve and concentration index.

Selected simple indicators are most commonly used to assess health inequalities, they are easy to compute and interpret. Hereby, **rate ratio** is calculated as a proportion of the ratio of the population with a lower level of education that reports less-than-good/poor health status to the ratio of the population with a high level of education that reports less-than-good/poor health status.

The second simple indicator used is an absolute version of the rate ratio, which is a **rate difference**. It is calculated as a difference between the ratio of the population with high a level of education that reports less-than-good/poor health and the ratio of the population with a low level of education that report less-than-good/poor health status.

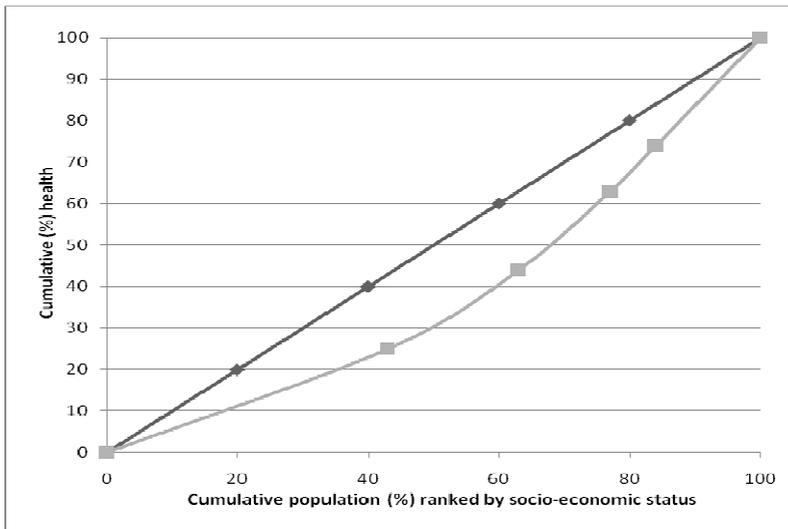
Table 5 Indicators and measures used for estimating educational inequalities in health and medical services utilization

Indicator	Type of measure	Measure
Prevalence of less-than-good health (self-assessed)	Simple measures	Rate ratio
		Rate difference
	Sophisticated measures	Concentration curve
		Concentration index
Prevalence of poor and very poor health	Simple measures	Rate ratio
		Rate difference
	Sophisticated measures	Concentration curve
		Concentration index
Utilization of doctors' visits, hospital care and dentistry	Sophisticated measures	Concentration curve
		Concentration index

Source: own compilation based on Mackenbach (1997) and Wagstaff (1991)

The sophisticated measures that fulfill the requirements listed above and as such are applied for the purpose of measuring educational inequalities in health and medical utilization are two, closely related indicators proposed by Wagstaff et al. (1991). These are the concentration curve and concentration index. The **concentration curve** is a measure that graphically presents the scope of inequalities, and is similar to the Lorentz-curve and Gini, which is the most popular measure of income inequalities (Koolman, Doorslaer, 2003). It is applicable to measure socio-economic inequalities in health, medical services utilization or expenditure. The concentration curve is based on a ranking of individuals (or groups) by their socio-economic status which is then plotted on a Figure against the cumulative health measure (mortality or morbidity), medical services utilization measure, or health expenditure measure. Both axes locate individuals with poorer outcomes of a given variable (either socio-economic status, health or medical services utilization or expenditure) at the bottom (example below).

Figure 6 An example of a health concentration curve



Source: own example based on Wagstaff et al. (1991)

The interpretation of the results obtained is as follows:

- if the concentration curve coincides with the diagonal, perfect equity in the distribution of health²⁷ against a given socio-economic variable is observed
- if the concentration curve lies below the diagonal, then inequalities in health are observed as poor health is concentrated in the lower socio-economic group.

The interpretation of the concentration curve seems to be easily understandable. However, it is worth noting that the health variable can take different forms – and this is the case in chapter IV, where the health variable does not reflect positive health outcomes, but poor health (or what Wagstaff refers to as *ill-health*). In this case, if illness is concentrated in poorer socio-economic groups, the concentration curve lies above the diagonal. Again, the further the curve lies from the diagonal, the larger the observed inequalities are (Wagstaff et al. 1991). For the purpose of the presented research, concentration curves were computed based on the aggregated data in Excel software. The method of computation of the concentration curve is described in detail by O'Donnel et al. (2008).

²⁷²⁷ Health is used as an example; the interpretation is similar for medical services utilization and health expenditure.

The last measure used, closely related to the concentration curve, is the **health concentration index**. It is defined as twice the area between the concentration curve and the diagonal. The concentration curve is used to assess the extent to which inequalities in health (medical services utilization or expenditure) can be attributable to differences in socio-economic status. The measure takes values from -1 to +1, being negative when the population's health²⁸ is concentrated among the disadvantaged (and the concentration curve lies above the diagonal) and being positive when the population's health is concentrated among the better off (and the concentration curve lies below the diagonal).

However, the presented research defines health as a different measure than "poor health" (*ill-health*), thus the values and the interpretation of the concentration index are opposite. Namely, the index has positive value when illness is concentrated among the better off (the concentration curve lies below the diagonal) and it has negative value when illness is concentrated among the worse off (the concentration curve lies above the diagonal) (Wagstaff et al. 1991).

Formally, the concentration index (C) is defined as:

$$C = 1 - 2 \int_0^1 L_h(p) dp$$

Source: O'Donnell et. al. (2008)

Specifically, in the presented research the concentration index (C) was calculated based on aggregated data in the Excel programme. The following equation was used:

$$C = \frac{2}{\mu} \text{cov}(h, r)$$

where:

h – is health/utilization variable

μ - is mean of health/utilization variable

r – is fractional rank of an individual in educational distribution

Source: O'Donnell et al. (2008)

²⁸ Again, health is used as an example; the interpretation is similar for medical services utilization and health expenditure.

The health variable as well as utilization of medical services are sensitive to the distribution of sex and age in the population, thus the health distribution needs to be standardized against the impact of demographic factors. Standardization allows for analysis of health distribution by educational changes conditional on demography. The analysed variables are standardized using the method of indirect standardization, which assumes a mean age and sex effect of the population on the variables. Specifically, the method of computation of indirect standardization in the STATA software which was followed in the analysis is described by O'Donnel et al. (2008).

To sum up, it should be noted that all the indicators described above (rate ratio, rate difference, concentration curve and concentration index) are computed and analysed for both measures of poor health, namely for reporting less-than-good health and reporting poor and very poor health. Results of the analysis are presented in the chapter IV. The concentration curve and the concentration index are also used for the analysis of educational inequalities in medical services utilization, which is presented in the chapter VI.

4. Models for exploring possible causes of health and medical services utilization differentiations

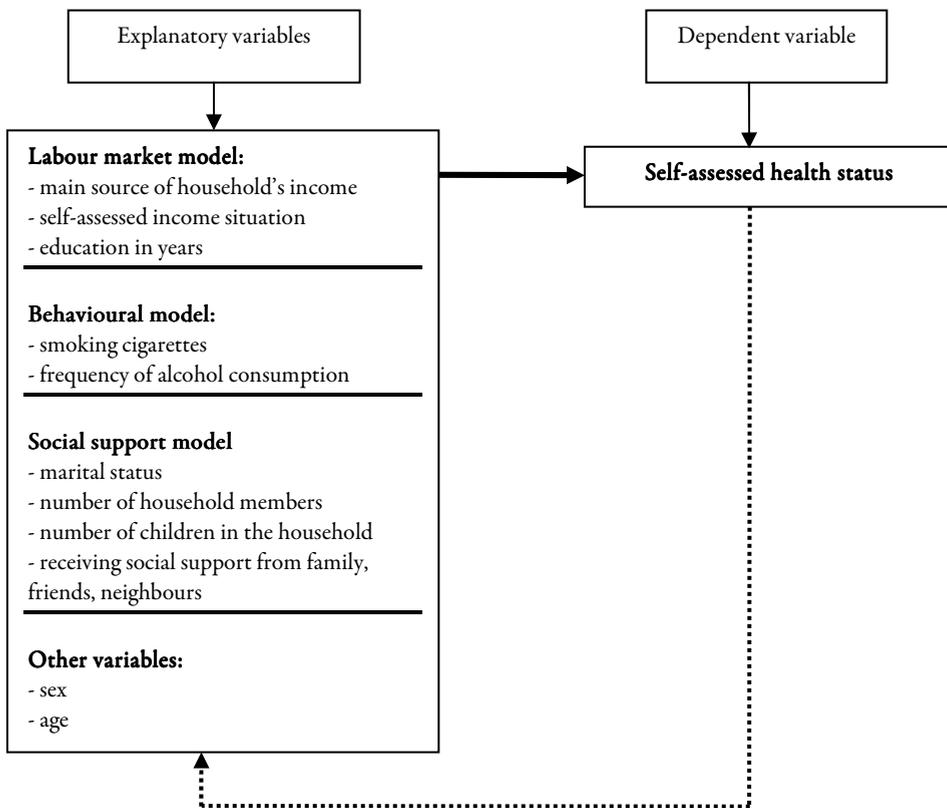
Following on from an estimation of the size of health inequalities as well as inequalities in medical services utilization in Poland, the question arises of possible causes for these differences. Hypotheses of the impact of different factors on health status are derived from the theories of determinants of health presented in the chapter I, with emphasis on economic, lifestyle and psycho-social explanations of health differentiation across social strata, whilst specific research questions are subject to data availability in the NHS of 1996 and 2004. As a result, three models of health status determinants have been tested, reflecting the above listed groups of factors that are found to be influential:

- (i) the first model concentrates on labour market position and welfare of an individual and his/her family
- (ii) the second model concentrates on two behavioural factors, directly responsible for health outcomes, which are smoking and alcohol consumption
- (iii) the third model examines the impact of social support and the existence of social networks on healthy living.

The variables representing social position on the labour market, lifestyle and social networking are nominal, thus the best suited model to depict the likelihood of the impact of each of the factors on the probability of being in poor health is binomial logit (Sowa 2007, O'Donnel et al., 2008). Each of the explanatory variables is transformed into a set of binomial variables. Self-reported health is also transformed into a binomial variable of reporting less-than-good health. In a preliminary analysis, determinants of poor and very poor health were tested; however, the results

were found to be similar for both of the health variables, thus the latter are omitted in the presentation of the final results. Specific variables that are taken under scrutiny are presented on the Scheme below. In each multivariate model there is a control for the impact of demography, thus sex and age variables are included in every model presented. Since economic factors and education have been found to be of great importance (Black et al. 1082, Marmot 2005), behavioural and psycho-social models are also controlled for in their impact on the likelihood of being in poor health. The dotted line in the bottom of Scheme 1 represents the mutual relationship between health and social status. Namely, it is not only social status that impacts health, but also that health might have an impact on life achievements and social position.

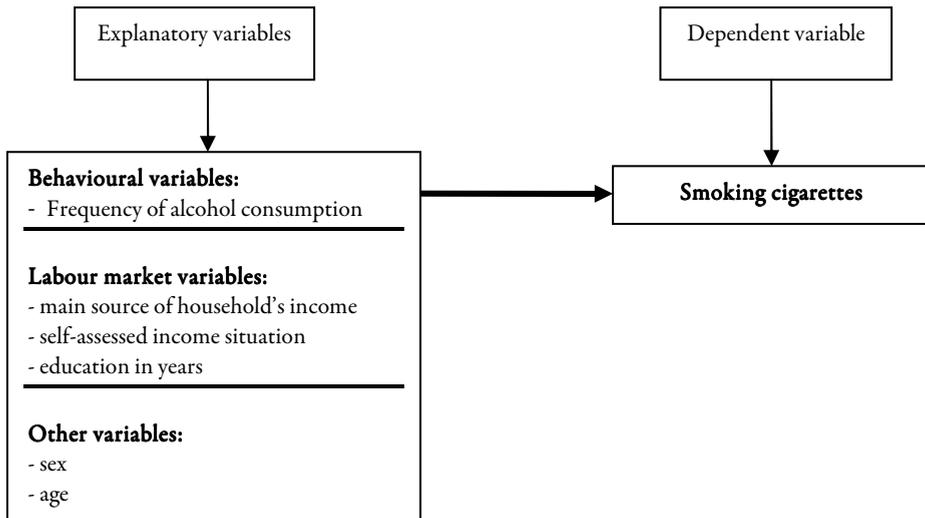
Schema 5 Models of the analysis of social determinants of self-assessed health



Source: own compilation

Another problem addressed by the analysis is the question of the determinants of an unfavourable behaviour related to health, namely smoking cigarettes. Again, logit analysis is used to depict the social and economic correlates of the risky behaviour regarding health. The explanatory variables included in the model are presented below and cover demographic variables (age, sex), economic variables (education, income) as well as the behavioural variable representing alcohol consumption, which is – next to smoking - the most health threatening behaviour. The variable describing smoking cigarettes is coded as a binomial variable of daily smoking²⁹.

Schema 6 Model of the analysis of social determinants of smoking cigarettes



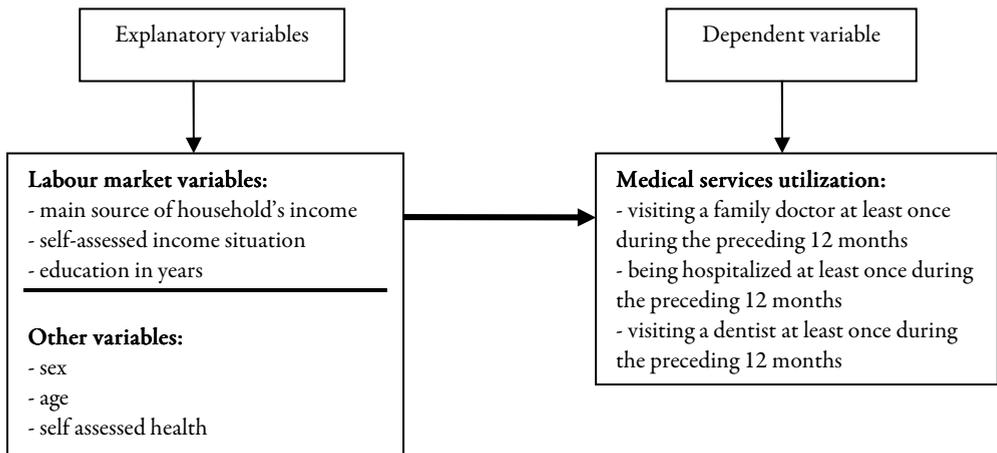
Source: own compilation

Similar methodology is also used in chapter VI to assess the possible determinants of the medical services utilization. The main determinant of the medical services utilization is obviously the health need, namely sickness. It is a reasonable assumption that healthy individuals will not seek medical consultation, thus their utilization rates would be lower. Incorporating the assumption of a rational individual the research does not address concentrates on social aspects of health service use; however, self-assessed health, together with sex and age, are included in the analysis as potential cofounders. The evidence cited so far on medical services utilization draws

²⁹ The original question of the NHS is: “Are you currently smoking cigarettes or other types of tobacco products? - yes, daily; - yes, occasionally; - no, but I smoked daily; - no, but I smoked occasionally; - no, I have never smoked.” (GUS, 2006).

special attention to economic factors, mostly low income and poor education as the main possible obstacles to visiting a doctor and taking up medical advice either due to an inability to pay for the medical service, or a lack of adequate health education as well as information on services' availability (CSDH 2008, Mielck et al. 2008). Also the main research question in this research project is if there are economic factors that have an impact on the equality of utilization of different types of medical care in Poland. The specific variables of the logit model are presented in the Scheme below.

Schema 7 Model of the analysis of economic determinants of medical services utilization



Source: own compilation

Each of the analyses is performed separately for the 1996 and 2004 surveys in order to observe if there are any significant changes in the modelled determinants of health and medical services utilization.

Conclusions

Selection of an appropriate indicator for health inequalities measurement is not an easy task due to the variability of measures proposed in the health economics and social medicine literature. There are no “better” or “worse” indicators, but indicators that better or worse fit a given research question and a given dataset. The indicators that have been proposed above aim at measuring health status and medical services utilization inequalities in a transparent way, but at the same time taking into account social complexity. Most importantly, the indicators selected allow for an answer to a basic research question: that of the size of inequalities in health in Poland and their character. Thus the concentration index and concentration curve allow for the measurement of the size of inequalities, followed further by more in-depth analysis of possible

explanatory factors lying behind any such discovered differences. Moreover, the indicators will respond to the type of data available and respect data obstacles, especially low availability of ordinal data. They also fulfill the criteria of selection explained in paragraph 3.3 of the above chapter, among which special attention is given to the ease of interpretation and the possibility of graphical presentation of the size of inequalities, something which might draw the attention of policy makers to the problem of health and medical services inequalities.

Chapter III

Health status of the Polish population

Introduction

The previous two chapters provided the theoretical and methodological framework for assessing changes in both health status and health inequalities and equity in medical services utilization. *The aim of this chapter is to analyse the development of the health status of the Polish population in the last two decades which have followed the economic and political transformation. In some cases, earlier trends are also shown to provide a broader context to the analysis.* The research is based on demographic and epidemiological indicators described in chapter II and provides a broader context for the analysis of health inequalities presented in chapter IV. Firstly, changes in longevity and mortality are discussed and the results are compared to those in other European Union countries. Additionally, the problem of the quality of life (namely living in good health) is addressed which is especially important in an ageing society that needs healthy and active individuals for as long as possible in order to assure economic sustainability. *Secondly, the problem of regional differentiation of health is raised.* According to national public statistics, health status in Poland is strongly differentiated between regions (so called voivodships). The problem of regional inequalities in health status has been viewed as important by the policy makers and as such has been addressed by the National Health Plan of 2007 – 2015 and previous public health programmes. Thus, this chapter also aims to identify the possible causes of the regional diversification of health. The hypothesis includes differences in the level of material deprivation, poor education, high unemployment and poor access to medical services as causes of poorer health in some regions.

1. Changes in health status

1.1 Longevity and mortality

Similar to other countries of Central and Eastern Europe, the Polish population suffered a worsening health status from the mid-1960s. The process of health deterioration was visible especially among male manual workers aged 40 to 60. This phenomenon of high mortality among active in the labour market males has been described as *excess mortality* (Okólski 2004) and was caused mainly by cardiovascular system diseases (including coronary heart disease, arteriosclerosis and myocardial infarction) next to cancers and mortality due to external causes, especially car accidents and suicides. The latter often could be related to the overconsumption of alcohol. Explanations of the so called *health crisis* include social factors such as permanent stress related to activities of daily living, lack of life perspectives, lack of social ties especially among men who worked and lived close to factories, but far from their families (Okólski 2004, Golinowska et al. 2006). Another cause was the displacement of entire groups of population from the territories that before 1939 were within the eastern borders of Poland and became a part of the Soviet

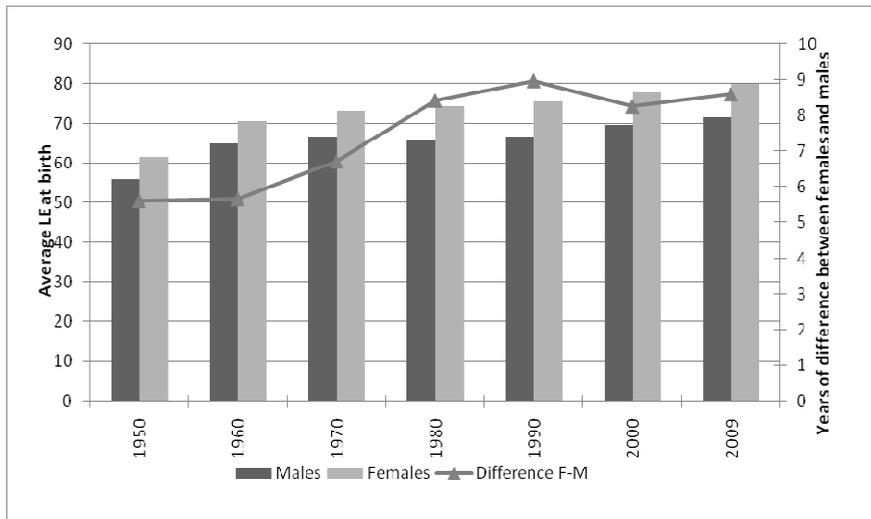
Union to the West and North of Poland in 1945. The latter territories were part of Germany before 1939. In other words the geographical borders after to Second World Word were shifted to the West and North and the population followed. In the following decades, significantly higher mortality was observed in the regions that were highly populated by displaced groups (Okólski 2004). Demographers explain this phenomenon in terms of the difficult life history of these groups during the war, but also by a feeling of alienation faced in the new environment and the anomy that followed. The displaced population is characterized by a feeling of loss for their homes and uncertainty for their future in the new environment – would they be moved again, would their property be taken away again, could they ever go back to their homes? These are some of uncertainties they faced for years.

These unfavourable demographic trends reversed alongside the economic and political transformation of the 1990s. The total population mortality rate slowly began to decrease in 1992. Overall, average life expectancy increased by 5.3 years for males and 4.9 years for females between 1991 and 2009 (GUS 2010). However, the increase was not equal between sexes. Male life expectancy increased faster than for females (3.2 years of life compared to 2.5) between 1990 and 2000 and the difference between female and male life expectancy shrank. The rapid improvement of health among males is often referred to as a *compensation of previous excess mortality* (Okólski 2004), which goes some way to explaining why the mortality of middle aged men decreased so significantly. Nonetheless, these favourable tendencies among men slowed down after the year 2000. In the new century, the trend reversed and again the difference in life expectancy between the sexes has been increasing, though not as dramatically as in the 1970s and 1980s (GUS 2010). Yet still life expectancy was improving, although this time the improvement has been was faster for females than for males (2.1 years of life and 1.7 years of life respectively) in the period of 2001 - 2009.

Overall, the longevity improvement was among the fastest in the CEE region. In 2006 life expectancy in Poland was among the highest in the region (this was only higher in the Czech Republic where it was 73.5 years or males and 79.9 for females). Still, Polish men live approximately 6 years less than men in the EU-15 while Polish women live about 2 years less than women in the EU-15. However, in a long perspective a convergence of longevity in the New Member States and EU-15 should be expected. A good example of such a process is Germany where, although longevity was greater in the former Eastern Germany than in other communist countries of the CEE in 1990, it also increased faster, reaching the female level of longevity in the Western Germany in the first decade of the new century³⁰.

³⁰ In 2004, life expectancy at birth was 81.29 years for females in the former Eastern Germany and 81.63 for females in former Western Germany, the same indicator for males was 74.69 and 76.26 respectively http://www.gbe-bund.de/gbe10/owards.prc_show_pdf?p_id=9966&p_sprache=D&p_uid=gast&p_aid=46898705&p_lfd_nr=2

Figure 7 Average life expectancy at birth in the population and difference in longevity by sex, 1950-2007



Source: GUS 2008

The increase in life expectancy of Poles is a result of a decrease in the overall adult mortality. The change was especially noticeable among middle aged men, a group that before 1990 suffered the highest mortality rate (Okólski 2004, GUS 2008).

Table 6 shows that the total mortality of the Polish population decreased by 30% between 1980 and 2008, while most of the decrease was seen after 1990 (27%). This trend was mostly shaped by a decrease in mortality related to circulatory system diseases (a primary cause of deaths) which fell by 39% between 1980 and 2008. According to the estimates by the National Institute of Hygiene the increase in longevity that took place after 1991 is a result of the decrease in mortality due to cardiovascular system diseases in more than 50% of cases for males and 60% of cases for females (Wojtyniak, et al. 2008). Still, circulatory system diseases are the largest cause of death in absolute numbers and the most visible health threat to Poles. Mortality due to this type of diseases is strongly differentiated by sex. Demographic and epidemiological data show that while the actual mortality rate is higher among women, which is mainly attributable to the longevity of females, the risk of death is higher for males if the data are standardized and differences in age structure between sexes are eliminated (Wojtyniak et al. 2008). Comparison of standardized mortality rates by age and sex indicates that while at older ages the risk of death as a result of cardiovascular system disease is similar between males and females, it is three times higher for young men (below 45 years of age) than for young women; also middle-aged men (45-60) have a higher risk of mortality than women when circulatory system diseases occur (GUS 2008).

Table 6 Standardized mortality rate by causes of death, 1980-2008

Item	Total	Circulatory system diseases	Neoplasms	External causes of death	Respiratory system diseases	Digestive system diseases	Other
1980	1183.4	597.1	201.1	81.8	64.4	64.4	174.6
1985	1195.0	627.8	210.7	79.3	64.7	38.7	173.8
1990	1137.6	604.3	216.8	83.6	45.8	35.3	151.8
1995	1071.9	545.6	220.5	77.9	36.9	35.3	155.7
2000	962.0	458.5	225.5	67.3	47.9	38.3	124.5
2005	873.2	392.6	219.7	63.2	43.6	39.3	114.8
2008	828.8	363.9	213.8	61.2	41.2	38.5	110.2
<i>Change 1980-2008 (%)</i>	-29.96	-39.06	6.32	-25.18	-36.02	-40.22	-36.88

Source: own calculations based on GUS 2008

Next to mortality caused by cardiovascular system diseases, mortality due to digestive system diseases and respiratory system diseases and external causes of death dropped significantly (40%, 36% and 25% respectively) between 1980 and 2008, and contributed to the general improvement of the health status of the population. However, while the decreasing trend for external causes of death was constant, mortality due to other causes fluctuated. When digestive system diseases are looked at, the reverse of the decreasing trend following 1999 can to a large extent be attributed to an increase in mortality due to liver cirrhosis and other alcohol related diseases of liver that constitute approximately 42% of deaths in this category (Wojtyniak et al. 2008). Again, the risk of mortality due to liver diseases is twice as high for males than for females. The mortality trend in digestive system diseases, and especially increasing mortality due to diseases of liver confirm the importance of alcohol as a determinant of health in Poland that was underlined in chapter I and it is a rationale of the analysis of the impact of alcohol consumption on health which is examined in more detail in chapter IV.

A similar pattern of changes in mortality level was observed with respect to respiratory system diseases where mortality was decreasing in early 1990s, but where the trend reversed in 1995. In the first decade of the XX century the level of mortality stabilized. The main causes of deaths due to respiratory system diseases include pneumonia and chronic pulmonary disease. Again, sex differences are observable with a higher risk of male mortality. Still, respiratory system diseases are a minor cause of deaths constituting approximately 5% of total mortality (GUS 2008).

Cancer mortality has also been fluctuating, with a peak in 2002 and a decrease afterwards. However (and what is of great importance as cancers are the second largest cause of

death after cardiovascular system diseases), the overall mortality level due to neoplasms increased over the last 30 years. Obviously there is a positive trend of decreasing mortality, especially among young people (below 44 years of age) in the last years, but over the whole period of analysis the trend has been negative. Worries related to high mortality due to cancers have been reflected in national health policy and resulted in establishing the National Programme to Overcome Cancers in 2005 (see also chapter VII).

Since trends in mortality are known, the question is what are the factors that can explain rapid changes and health status improvement? Demographers, epidemiologist, medical doctors and social scientists have discussed the impact of multiple social and economic factors on health during the transition period after 1989 (Okólski 2004, Golinowska, Sowa 2006, Zatoński, Willet 2005).

Firstly, the improvement of the economic environment and, despite growing poverty and high income inequalities, a dramatic increase in average incomes per capita would play a great role. The average salary in 2007 was more than 20 times bigger than in 1990 and GDP per capita grew by 2.4 times³¹. As a result a growing economy, life opportunities improved.

Secondly, with the economic transformation the availability of food increased which had a great impact on the quality of nutrition. Fruits and vegetables became available throughout the whole year – not only seasonally – meat became available without any restrictions and also the quality of food increased. Next to this, eating habits have been changing towards the consumption of low fat and low cholesterol products. Such changes have had a major impact on the decrease of cardiovascular system mortality (Zatoński, Willet 2005).

Change in the mood of the public was another factor that had a positive impact on health. The early 1990s were characterized by the creation of a civil society, which meant increasing social networking as well as involvement in social and economic activity – creating small enterprises, non-governmental organizations, and being involved in activities of a local community. Such phenomena accompanied by the public belief that the transformation had to be a success led to an improvement in the frame of mind of individuals. At the same time, partly as a result of increased social activity, public initiatives targeted towards the improvement of health via health promotion and behavioural changes favouring healthier lifestyles have been undertaken. These actions include promoting health by quitting smoking, decreasing in alcohol consumption, promoting physical activity and spreading information about healthy eating. A good example are some campaigns run by *Gazeta Wyborcza*, an influential daily newspaper. In 2010 it promoted jogging and physical exercises, a year before the same newspaper started an action of ‘losing weight together with employees of *Gazeta Wyborcza*’. The newspaper also initiated several public

³¹ GDP per capita increased from 6 007 USD PPP to 14 641 USD PPP annually between 1990 and 2007 (OECD 2008).

discussions which were also addressed to the health authorities on the need to improve the quality of medical services and patients' empowerment.

Finally, economic and lifestyle changes have been accompanied by an improvement in the environment, including a reduction of pollution related to overdeveloped heavy industry that was reduced in the 1990s and an improvement in safety and hygiene work conditions (Golinowska, Sowa 2005).

1.2 Quality of life

While the life expectancy of Poles, especially men, has improved in the last decades, one wonders if the quality of life followed. Living longer is hard to be called an achievement if it does not imply living in good health. In fact, the data show that a significant part of life is spent in illness and/or disability. According to the Eurostat estimates for 2006, Poles spend 80% of life in good health, while periods lost to illnesses and disability are assessed as almost 13 years for males and 18 years for females (Table 7). However, time spent in good health seems to be longer in Poland than in other CEE countries, including the Czech Republic with the highest life expectancy in the region. Moreover, healthy life years are estimated to be higher in Poland than in most of the EU-15 countries, including Austria, France, Portugal and Germany. In these countries, characterized by the highest longevity, on average one quarter of life is spent in poor health and/or disability. The countries with the lowest number of years spent in good health in Europe are the Baltic States (especially Estonia and Latvia) while the best health outcomes in that respect are observed in Nordic countries (especially Denmark and Sweden). The proportions of time spent in poor health and the differences between countries increase with age. For the 65+ population, the proportion of time spent in poor health is estimated as 22% for males and 24% for females in Denmark and 70% for males and 78% for females in Slovakia and Estonia. The differences in quality of life observed at the national level can be attributed to various factors, among them the health care services provided, the coverage of social services, rehabilitation and pressure towards social inclusion of individuals with poorer health status and disabilities, commonly acceptable behavioural habits (i.e. smoking in Southern Europe, binge drinking in Eastern and Northern Europe). To give an example, one can presume that poor health outcomes in terms of the number of years spent in poor health in the Baltic States can be partly attributed to the ethnic composition of these countries, namely a high proportion of a Russian minority being excluded from the mainstream of the society and characterized by unfavourable behavioural habits to health (i.e. high consumption of alcohol). Still, the hypothesis on the reasons of high proportion of life spent in poor health or disability in the EU countries needs to be further investigated in order to discover the significant determinants of the observed differences.

Table 7 Life expectancy corrected for years spent in good health, 2006

Country	At birth				At age 65			
	LE		HLY		LE		HLY	
	males	females	males	females	males	females	males	females
EU-27	75.84	82.01	--	--	16.84	20.34	--	--
Austria	77.19	82.82	58.4	60.8	17.32	20.71	7.0	7.5
Belgium	76.63	82.28	62.8	62.8	16.98	20.65	9.5	9.8
Bulgaria	69.20	76.32	--	--	13.17	16.29	--	--
Cyprus	78.80	82.44	64.3	63.2	17.73	19.71	9.4	7.2
Czech Republic	73.48	79.93	57.8	59.8	14.84	18.30	6.7	7.1
Denmark	76.08	80.74	67.7	67.1	16.24	19.17	12.6	14.1
Estonia	67.41	78.55	49.4	53.7	13.19	18.30	4.0	3.9
Finland	75.90	83.09	52.9	52.7	16.89	21.18	6.1	7.4
France	77.29	84.37	62.7	64.1	18.20	22.62	8.6	9.5
Germany	77.20	82.44	58.5	58.0	17.25	20.49	7.7	7.3
Greece	77.21	81.92	66.3	67.9	17.46	19.44	10.1	10.2
Hungary	69.20	77.76	54.2	57.0	13.65	17.70	5.0	5.5
Ireland	77.31	82.10	63.3	65.0	16.77	20.23	9.2	10.6
Italy	77.94*	83.82*	65.8**	67.0**	17.49*	21.55*	9.4**	9.7**
Latvia	65.43	76.32	50.5	52.1	12.69	17.28	4.4	4.2
Lithuania	65.28	77.03	52.4	56.1	13.04	17.62	5.8	5.2
Luxembourg	76.83	81.88	61.0	61.8	17.03	20.26	8.6	9.1
Malta	76.98	81.93	68.1	69.2	16.11	19.53	9.9	9.7
Netherlands	77.71	82.03	65.0	63.2	16.82	20.29	10.9	11.2
Poland	70.93	79.65	58.2	62.5	14.52	18.82	7.2	8.1
Portugal	75.53	82.28	59.6	57.6	16.58	20.22	6.8	5.9
Romania	69.21	76.18	--	--	13.62	16.47	--	--
Slovakia	70.41	78.43	54.3	54.4	13.34	17.33	4.0	3.8
Slovenia	74.45	81.96	57.6	61.0	15.85	20.05	8.3	9.5
Spain	77.74	84.40	63.7	63.3	17.88	21.99	9.9	9.4
Sweden	78.79	83.06	67.1	67.0	17.71	20.89	12.9	13.9
United Kingdom	77.08**	81.12**	63.2**	65.0**	17.02**	19.52**	10.3**	11.1**

*data for 2004, **data for 2005

LE – life expectancy, HLY – healthy life years

Source: Eurostat³²

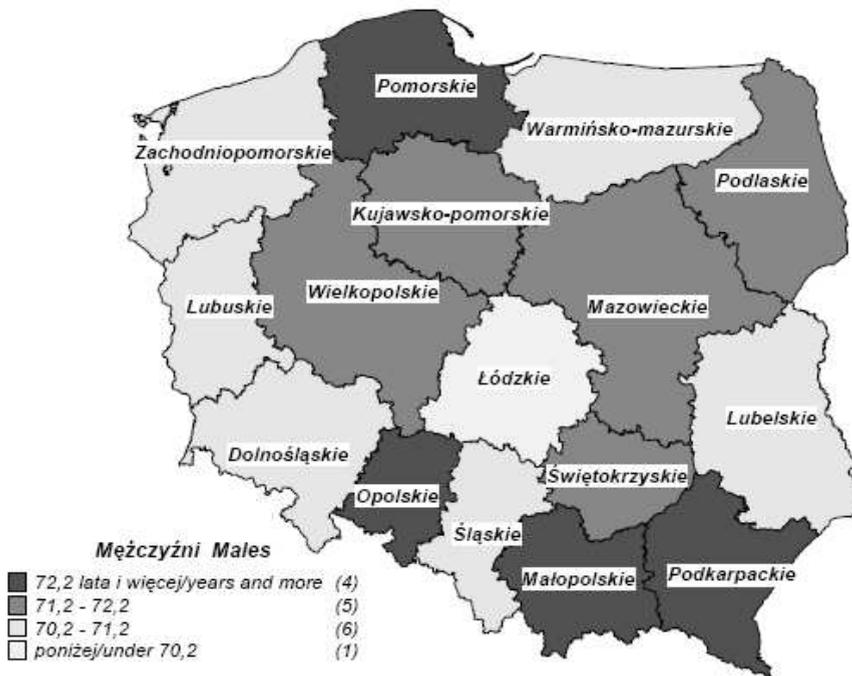
³² EC Health Indicators http://ec.europa.eu/health-eu/health_in_the_eu/ec_health_indicators/index_en.htm

Moving back to Poland, attention should be paid to a diversification in the number of years spent in poor health by sex. A greater proportion of poor health and disability during a life time is experienced by women, which is related to the fact that they simply live longer, but this does not indicate quality of life (WHO 2006). For males time spent in poor health is shorter, but their lifetime is also shorter. Similar disproportions of living in good health between sexes are observable in other European countries. On average, the difference between men and women accounts to two years of life in favour of women. Reasons for health deterioration include circulatory system diseases, psychotic disorders, cancers, and – especially among women – rheumatism and other types of skeletal illnesses. The main risk factors for the occurrence of the listed illnesses include smoking, alcohol consumption and high blood pressure among men, and smoking, high blood pressure and being overweight among women (WHO 2006).

2. Regional differentiations of longevity

An important feature of the health status of the Polish population is its territorial diversification. The maps below show an east vs. west distinction in longevity, especially among women. Generally speaking, living in Eastern Poland seems to be health-friendly. Historically, the East and West of Poland have developed differently. Eastern Poland is more rural, rather poor, more traditional, with a population that has been living there for centuries. Western Poland includes territories that were more industrialized – especially Silesia (Dolnośląskie, Opolskie and the Śląskie voivodships) – and have a more heterogeneous population. The people of Silesia were traditionally settled in the mention region, but the population of Western and Northern Poland changed in the middle of the twentieth century - many Germans that lived there were moved after 1945 to Germany with its new borders, and the demographic of the population was reshaped by migrants from Eastern Poland before 1939, which is now Ukraine and Belarus. The impact of migrations on health has been discussed before and the situation seems to be clear when one has a closer look a map the distribution of longevity by voivodships.

Figure 8 Average male life expectancy at birth by voivodship, 2009



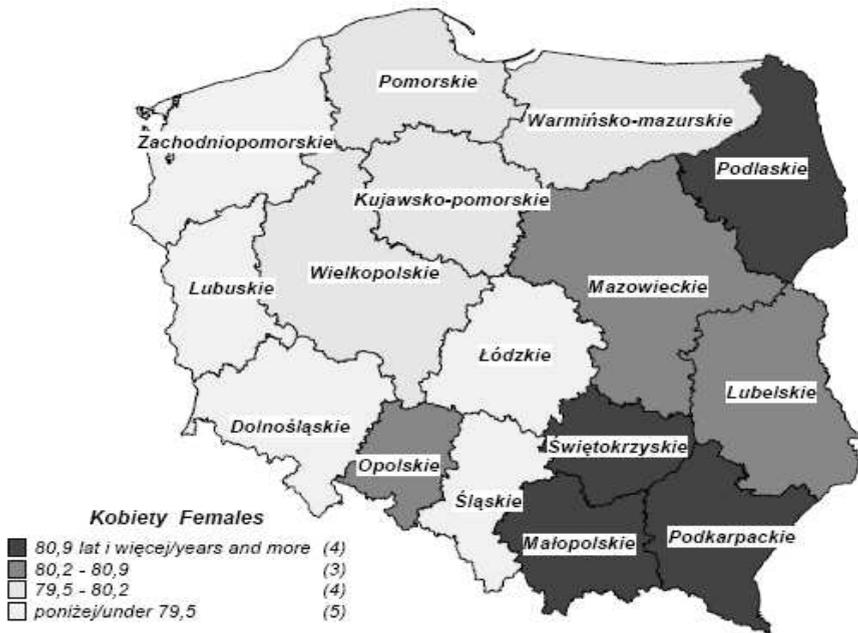
Source: GUS 2010

Western Poland was also characterized by highly nationalized agriculture (so called PGR) during the communist regime which after the transformation and collapse of PGR had a negative impact on the welfare of the region as poverty rates and unemployment were high during the transformation period there.

Overall, differences in longevity between voivodships accounted for 4 years of life for males and 2.6 years of life for females in 2009 (GUS 2010). The highest average life expectancy for the male population was in the Podkarpackie voivodship (73.2 years of life) while for females it was in the Podlaskie voivodship (81.5 years of life). Both voivodships are typically rural, traditional, and with the GDP per capita among the lowest in the country³³. The lowest average life expectancy for both sexes was noted in Łódzkie voivodship: 69.2 years of life for males 78.9 years of life for females. This voivodship is very untypical. It was heavily industrialized, with a high

³³ The GDP per capita of Podkarpackie was at the level of 68% of the national average and the GDP per capita of Podlaskie at 74% of the national average in 2007 (GUS 2009).

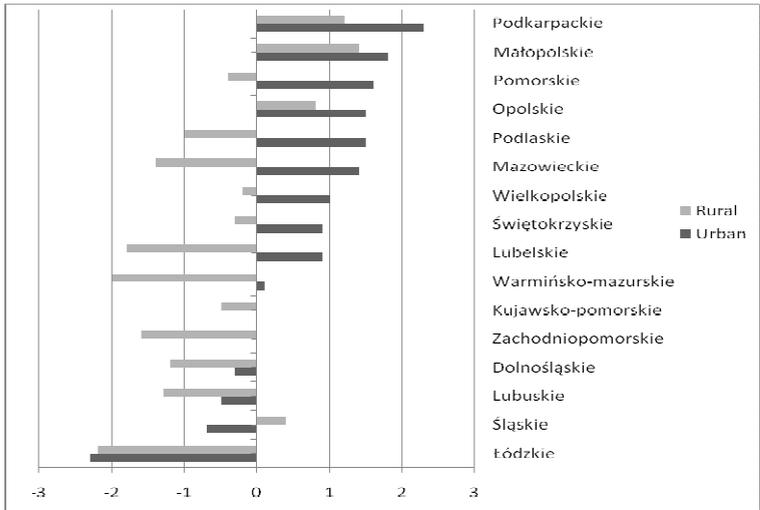
Figure 9 Average female life expectancy by voivodship, 2009



Source: GUS 2010

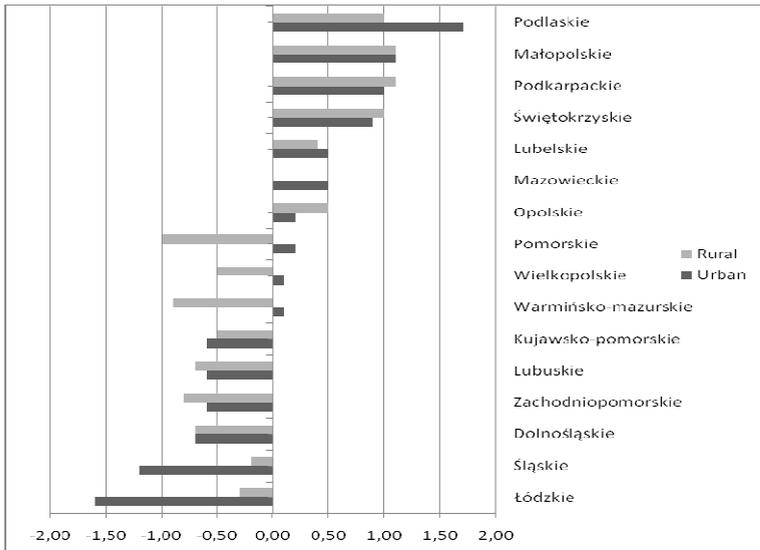
share of female workers, but it suffered during the transformation period following 1989 when most of the industry collapsed. In 2007-2008 the GDP per capita in the region was slightly below the national average (91% of the national average), the unemployment rate was moderate compared to other voivodships and the at risk poverty rate was similar to the national average (17% compared to 18% respectively), but when it comes to health status the region has been an outlier for years and reasons for poor health have not been exhaustively examined so far (GUS 2009).

Figure 10 Male life expectancy differentiation between towns and villages in voivodships in Poland compared to average male life expectancy in 2009 (71.5 years)



Source: GUS 2010

Figure 11 Female life expectancy differentiation between towns and villages in voivodships in Poland compared to average female life expectancy in 2008 (80.1 years)



Source: GUS 2010

A great differentiation of longevity between urban and rural areas is also noted. In 13 out of 16 voivodships it is more beneficial for men to live in urban rather than rural settings. Moreover, in 10 voivodships men living in towns and cities enjoy higher longevity than in the whole population on average (Figure 10). Poorer health of men in the rural population could be related to various factors, including the type of labour they are engaged in, especially difficulties related to hard manual labour on farms, lower incomes in rural areas and the typical lifestyle of rural population, especially high alcohol consumption.

Diversification in female longevity is smaller than the diversification of male longevity and sharp differences between urban and rural areas are more difficult to track. The first conclusion to be drawn is that contrary to men, women tend to live on average longer in rural settings. However, in several voivodships where the longevity of women is below average, the longevity indicator is slightly better for women living in towns than in villages. Secondly, differentiations of longevity between urban and rural areas are less pronounced for females than for males, especially in voivodships with the highest levels of female longevity.

Given the picture of the regional longevity diversification in 2008, it is interesting whether trends in changes of longevity in the past two decades can be tracked? Is it possible to identify the voivodships in which the increase in life expectancy was higher than in other regions and what could be the external, socio-economic correlates of changes?

In fact, Table 8 shows that while in every region life expectancy increased, the developments in longevity since 1990 have been unequal in various dimensions. In most of voivodships³⁴ the increase in male life expectancy was more sound than the increase in female life expectancy, something which is further reflected well in the national averages of changes in longevity and is an exemplification of the compensation of *excess mortality* of men.

Moreover, at least three groups of voivodships and trends of different developments in longevity can be established:

- The first group are voivodships with low life expectancies and the lowest increase in longevity (Łódzkie, Lubelskie,). If the trend is sustained, one can expect that longevity in these regions will still be behind other voivodships in the future.
- The second group are voivodships with the highest longevity in 2009 and moderate increases in longevity over the past two decades (Małopolskie, Podlaskie, Podkarpackie). If the trend continues, they should still have high life expectancies in the future.
- The third group constitute voivodships with average life expectancies in 2009 and a large increase in longevity over the past years (Lubuskie, Opolskie, Pomorskie, Zachodniopomorskie, Wielkopolskie). One can expect that if the high increase in longevity is sustained, they might improve their position and slowly catch up with

³⁴ The only exceptions are Łódzkie, Lubelskie and Świętokrzyskie.

regions characterized by higher life expectancies. All these regions are located in the Western Poland, thus in the future east vs. west differences in health might decrease.

Table 8 Dynamics of changes in life expectancy in voivodships*, 1990-2009

Voivodship	Males			Females		
	1990	2009	<i>Change 1990-2009</i>	1990	2009	<i>Change 1990-2009</i>
<i>Łódzkie</i>	65.3	69.2	3.9	74.5	78.9	4.4
<i>Lubelskie</i>	66.8	70.8	4.0	76.4	80.5	4.1
<i>Podlaskie</i>	67.1	71.9	4.8	76.8	81.5	4.7
<i>Świętokrzyskie</i>	66.7	71.7	5.0	76.0	81.1	5.1
<i>Małopolskie</i>	68.0	73.1	5.1	76.3	81.1	4.8
<i>Dolnośląskie</i>	65.7	70.9	5.2	74.7	79.4	4.7
<i>Podkarpackie</i>	68.0	73.2	5.2	76.4	81.1	4.7
<i>Mazowieckie</i>	66.6	71.8	5.2	75.9	80.4	4.5
<i>Śląskie</i>	65.8	71.0	5.2	74.2	79.1	4.9
<i>Warmińsko-mazurskie</i>	65.4	70.7	5.3	75.2	79.8	4.6
<i>Lubuskie</i>	65.2	70.7	5.5	74.6	79.5	4.9
<i>Kujawsko-pomorskie</i>	65.7	71.4	5.7	74.6	79.5	4.9
<i>Zachodniopomorskie</i>	65.1	71.0	5.9	74.5	79.5	5.0
<i>Opolskie</i>	66.5	72.7	6.2	74.9	80.5	5.6
<i>Wielkopolskie</i>	65.8	72.0	6.2	74.9	79.9	5.0
<i>Pomorskie</i>	66.0	72.5	6.5	74.7	80.1	5.4

* voivodships are ordered from the lowest to the highest increase in male LE

Source: own calculations based on GUS 2010

The descriptive statistics presented above show that firstly health is strongly diversified between regions and secondly the increase in longevity – although observed in each of the voivodships – is unequal. The question then is why regional differences occur? The aim of the simple exercise below is to identify whether socio-economic development of regions is – at least partly - responsible for differences in longevity. The hypotheses that are tested reflect the main trends in explaining health inequalities between individuals and social groups, namely: demographic differences, average wealth of regions, labour market performance, access to medical care and environmental pollution. The hypothesis also refers to differences in the health status of population in the regions as noted and described above. A simple analysis of the partial correlation of each of the factors represented by specific indicators provides an indication of significant relations between longevity in the regions and their social and economic characteristics.

The first hypothesis refers to demographic characteristics of regions. It is observed that mortality is differently distributed by the structure of the population, for example men in urban

areas tend to have lower risk of morality than men in rural areas, while females tend to have lower risk of mortality in rural areas than in urban ones. Thus the aim of the analysis is to confirm whether the urban-rural composition of the population of a given region is significant for the average level of longevity. Other indicators included in the analysis are the share of elderly in the region and migration to and from that voivodship. The share of elderly reflects the ageing process, but it is also related to the level of migration. In some regions, far from expansively developing cities the share of elderly is higher, these are also voivodships from which young people have migrated to get an education or better job.

Secondly, as material explanations of health inequalities point out, the average level of wealth in the region may be responsible for the health status of the population and – as a result – variations in longevity. Three indicators reflecting wealth of the population are selected for analysis:

- average GDP per capita in the voivodship which expresses performance of the economy, assuming that higher GDP is related to more opportunities for the development of the region and the society, which in turn should result in longer life for the population;
- average gross wages, which express the wealth of individuals in the population, assuming that higher average wages allow for higher availability of products and opportunities to select high quality products as well investments in lifestyle that in turn might result in better health in the long run;
- relative poverty level. The relation between poverty and health is well described in the literature and presented in the Chapter I. It has been proven that in less developed societies poverty is related to poorer health, and in developed societies it has been seen that relative deprivation is related to poorer health outcomes (Marmot 2006). Thus the question is whether accumulation of relative poverty in some regions is reflected in shorter life expectancy?

Thirdly, it is worth having at least one factor that is outside wealth, but which is highly correlated with wealth and the level of poverty. Such an indicator is the registered unemployment rate. Unemployment is among the most important determinants of individual health, having an impact on the welfare of an individual and his/her family on the one hand and their mental well-being on the other. It is also an important labour market indicator at national or regional level, depicting the state of economy. However, in the last few years the unemployment level in Poland has significantly decreased³⁵ as a result of growing GDP and the creation of new labour opportunities, often related to migration.

³⁵ The registered unemployment rate decreased from a peak of 20.6% in January-February 2004 to 8.8% in October 2008 and then began to increase in result of the economic crisis (12.7% in January 2010). The

Fourthly, access to medical services can be among the determinants of longevity. Here, two indicators are selected: the number of the population per single hospital bed in general hospitals and population per single out-patient health care unit. The hypothesis is that lower access to care of either could be related to higher mortality.

Finally, environmental factors are assessed by touching upon the problem of pollution. The level of air pollution is strongly differentiated between regions, with highly industrialized voivodships (Mazowieckie, Śląskie) being five times more polluted than typically rural regions. Naturally, high levels of environmental pollution, including air pollution which is assessed here, could negatively impact longevity.

Table 9 Results of the partial correlation analysis of the factors explaining differentiation of the average life expectancy between voivodships, 2008

Dependent variable – average life expectancy in voivodships		
Independent variables*	Coefficient	Significance
<i>Share of urban population</i>	-0,829	0,042
Share of population 65+	-0,327	0,527
Migration per 1000 population	0,482	0,332
<i>GDP per capita in relation to national average</i>	-0,742	0,092
<i>Average gross wage in relation to the national average</i>	0,744	0,090
<i>At risk poverty rate (60% of median incomes)</i>	-0,671	0,144
Registered unemployment rate	0,170	0,747
Population per 1 hospital Bed	-0,246	0,639
Population per 1 out-patient provider	-0,006	0,991
Emission of particulates air pollutants	-0,406	0,424
Emission of gas air pollutants	0,356	0,489

*each independent variable is analysed separately while impact of other variables is controlled for

Source: own estimations

analysis refers to 2008 when the unemployment rate was the lowest, still variations between voivodships were large, from 6.4% in the Wielkopolskie voivodship to 16.8% in the Warmińsko-Mazurskie voivodship.

The result of the analysis allows for confirmation of some of the hypotheses stated above indicating that the level of urbanization and wealth are important correlates of longevity. Naturally, the analysis does not determine the direction of an impact, but elaborates more exhaustively the coexistence of longevity with some of the socio-economic characteristics of the population.

As the descriptive statistics have shown, longevity is diversified by sex and urbanization level. The correlation confirms the significance of the relation, indicating that in more rural regions health outcomes are better. In fact, the results might reflect an observation that regions characterized by the highest longevity of women are among less industrialized and have the lowest share of urban population (Podkarpackie, Podlaskie and Małopolskie). In these regions male mortality is also well above average, although males seem to be better off in terms of health in urban settings (Figure 10).

What was not touched upon by the descriptive analysis is that wealth is found to be a significant factor related to longevity. Interestingly, it is not the performance of the regional economy (i.e. the GDP and the unemployment level are found to be insignificant), but individual wealth that is positively related to longevity. Life expectancy is observed to be higher in more rural regions, but these are also regions with relatively low GDP when compared to the national average. Thus the correlation between the GDP per capita and longevity is found to be negative. But the indicator representing individual wealth (average wages) is positively related to health and longevity. Thus it seems that it is not the development of the region, but increase in individual opportunities that is related to better health. Similarly, a high level of relative deprivation in the regions is negatively related to health outcomes of the population living there.

Other factors included in the model indicating access to medical care and environmental pollution were found to be insignificant as explanations of regional variations in longevity.

Conclusions

The Polish population saw a rapid improvement in its health status (measured by the demographic indicator of life expectancy) which followed the health crisis seen in the 1970s and 1980s. The health improvement was faster for males than for females, which reflects compensation of the previous *excess male mortality*. In fact, the longevity of the Polish population is now among the highest in the CEE region. The health improvement is a result of not only a changing social and economic environment with improved nutrition, but also changes in lifestyle such as incorporating healthy dietary habits, increasing physical activity and facing lower levels of stress due to external factors previously related to living in a communist regime. Still, it cannot be claimed that the level of stress is lower after the economic transformation, as new social and economic pressures surfaced, including unemployment and poverty. The direct causes of increasing life expectancy include decreasing mortality due to: cardiovascular system diseases, digestive system diseases, respiratory system diseases and external causes of deaths. The main

health problem of the population is the increasing number of deaths due to cancers in the last 30 years. High mortality due to neoplasms is also observable in other countries of the region and in the EU-15, where cancers are the major cause of mortality (Golinowska, Sowa 2006).

Longevity improvement does not imply living longer in good health as, according to the Eurostat estimates, on average Poles spend 20% of their lives in illness or disability, which especially afflicts women. Despite the fact that the proportion of life spent in poor health is high, Poles tend to be healthier than their neighbours from other countries in the region. This also holds for the elderly population of 50+ or 65+, which is important for the employment opportunities and labour market activation of the elderly in line with the Lisbon Strategy and for the cost control of the health care system in the future.

Another aspect of longevity diversification is its differentiation between regions. The highest life expectancies are observable in the rural regions of South-Eastern Poland (Podkarpackie and Malopolskie) while the shortest are in the central industrialized regions (Łódzkie voivodship) and South-Western Poland (Ślaskie, Opolskie). The analysis of trends in improvements in longevity since 1990 showed that health improves the fastest in Northern and Western Poland. Thus one might expect that in the long perspective sharp differences in longevity between the South-East and West of Poland will decrease. Worryingly, regions with poorer health have also been found to have the slowest health improvements (Łódzkie, Lubelskie). It is also observed that men tend to live longer in urban areas, which is not necessarily true for women, whose life expectancies are the highest in rural settings. The significance of the level of urbanization for life expectancies is confirmed by an analysis of the correlation, where a high urbanization level was found to be negatively related with life expectancy. Interestingly, individual wealth and relative poverty were also found to be significant correlates of longevity which underlines the role of well-being and material sustainability in health. If confirmed by other studies on relations between health and level of wealth in Poland, such a finding has important policy implications indicating that erasing poverty might have a positive impact on health.

Chapter IV

Educational inequalities in the self-assessment of health in Poland

Introduction

Whilst the previous chapter described demographic and epidemiologic changes in the population, the following two chapters concentrate on a description of the self-assessed health status and health inequalities among individuals. The research now moves from the macro and meso (regional) analysis that was presented in the previous chapter to a micro analysis of the size of health inequalities (chapter IV) and identification of their social and economic determinants (chapter V). The analysis is limited to the adult population (over 15 years of age). Children are not covered for two reasons: firstly, they are a very specific group, suffering from different types of diseases than adults; secondly, on average they tend to be in better health than adults. The analysis of adult health below shows an improvement in the subjective evaluation of health status, which to a large extent reflects the improvement in longevity.

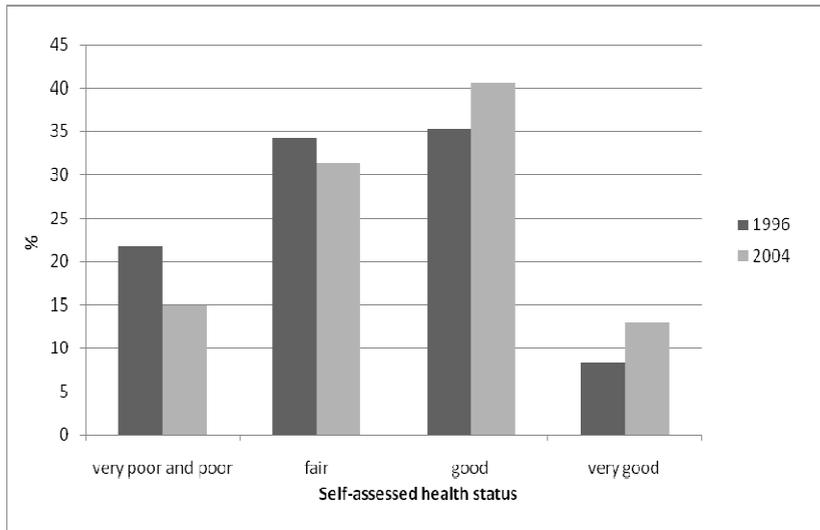
The first question addressed is that of the existence of health improvement from the subjective perspective, using the measure of self-assessed health. The period covered in the analysis is 1996 to 2004 as two health surveys were conducted then. More specifically, the data available are described in the chapter II.

The second research question is of the size of educational inequalities in health in these years. The selection of education as an indicator of social position is determined by the data availability, but it is also a crucial marker of an individual's social position in Poland. One of the reasons for this is the decomposition of factors that determine social status which was described in the chapter I, showing that education is a more significant determinant of social status than income. Research by Ostrowska (1999, 2009) also indicate that the level of education is the main explanatory factor for existence of differences in self-assessed health status and that poor education significantly increases the risk of being in poor health. The cited research does not address the question of the size of educational inequalities in health. Therefore, this analysis goes one step further, examining the size of the inequalities and their changes over time.

1. Health improvement in light of survey results

The first representative health survey in Poland was conducted in 1996 followed by a similar one in 2004. The first survey showed a very pessimistic picture of the self-assessed health status of the Poles. Over half of them reported that their health status is less than satisfactory (almost 58%) and over 21% declared poor or very poor health. However, in the next 8 years a rapid improvement in health status was observable. Proportions of the population in poorer health decreased significantly by 2004, when 46.2% of adults assessed their health as less than good and 14.9% reported suffering from poor and very poor health.

Figure 12 Self-assessed health status of adult population in 1996 and 2004



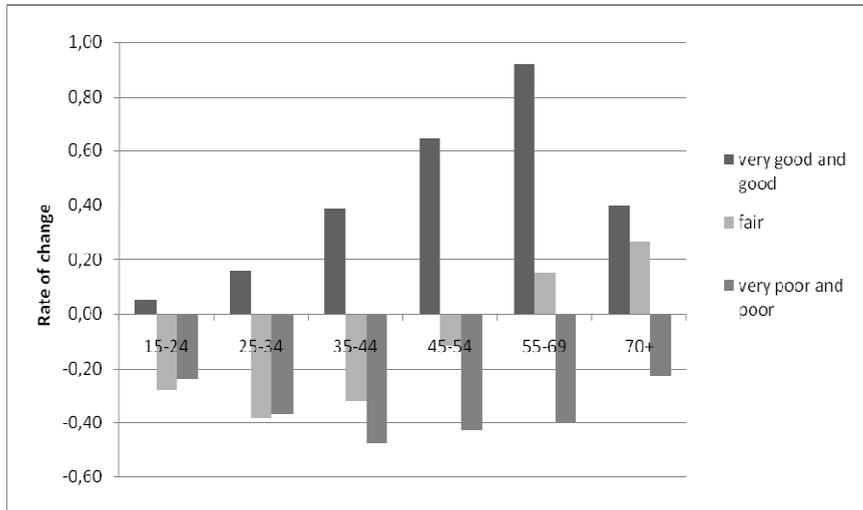
Source: own calculations

The health status improved in every age group; however, discrepancies exist between age groups in the scale of the health upswing. The greater improvements of self-assessed health status are among the middle-aged, those at pre-retirement age and also those in the first years of their retirement (up to the age of 69). Between 1996 and 2004, the frequency of reporting good and very good health increased by 90% in the age group 55-69 while the share of individuals claiming poor and very poor health in this age group decreased by 40%. Also in the younger cohorts of 35-44 and 45-54 years of age the share of individuals with good and very good health significantly increased (by 39% and 64% respectively) while the proportion of individuals with poor and very poor health decreased by over 40%. Interestingly, health status of the elderly improved too. The share of individuals in good health in the age group of 70+ increased by 40% while number of individuals with poor and very poor health decreased by slightly over 20%. Overall, above results support the hypothesis of healthier ageing and a compression of morbidity³⁶ of the Polish population in the future when compared to the benchmark of 2004. The self-assessed health status of the age cohorts that will enter retirement age in the next two decades improved faster

³⁶ There are three hypothesis with regards to future possible health status of the ageing population: compression of morbidity indicating that yearly increases in life expectancy are accompanied by decreases in unhealthy years of life; expansion of morbidity indicating that increases in life expectancy are accompanied in increases in unhealthy years of life, and dynamic equilibrium indicating that increases in the years of unhealthy life are offset by the severity of illness or disability (Manton K.G. 1982).

than other age cohorts. This would imply that an increasing share of the elderly that is predicted for 2050³⁷ will be accompanied by a health improvement. The above findings in the compression of morbidity might play a great role for cost control in the health sector in the future.

Figure 13 Dynamics of the changes in frequency of various categories in reported self-assessed health status between 1996 and 2004 by age groups



Source: own calculations

Table 10 shows that women reported poor health more frequently than men in 1996 as well as in 2004. Similar results have been noted in other countries and are explained by the observation that women have a tendency to be more self-oriented and aware of early symptoms of illnesses than men. Another cultural factor that may impact higher prevalence rates of self-assessed poor health among women is the lack of acceptance for men complaining about their health. Men are expected to be stronger and – as a result – healthier which may impact their subjective assessment of health status. On the other hand, women live longer, which does not imply healthy living as they suffer from painful long-lasting illnesses, especially rheumatism and other skeletal illnesses. This was pictured well in the previous chapter with the indicator of the healthy life years.

³⁷ According to the Eurostat projections the share of elderly (above 65 years of age) in the total population is predicted to increase from 13.4% in 2007 to 31.6% in 2050 (European Economy 2009).

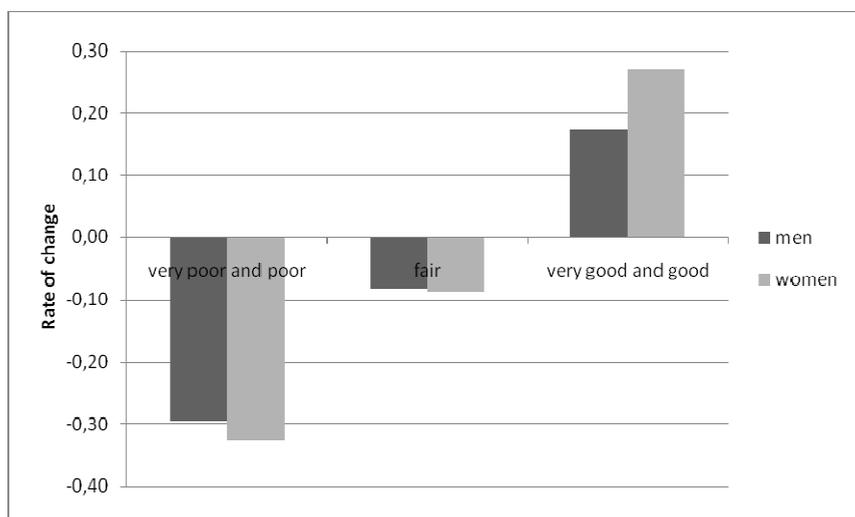
Table 10 Frequency of self-assessed health by sex, 1996 and 2004

	1996		2004	
	men	women	men	women
Very good and good	48.41	40.34	56.81	51.20
Fair	32.10	36.13	29.44	32.97
Very poor and poor	19.49	23.53	13.75	15.83
Total	100.00	100.00	100.00	100.00

Source: own calculations

As far as the dynamics of reported health status are considered, the decrease in reporting either fair or poor and very poor health is observable for both sexes, being slightly greater for women (Figure 14). Further, the results imply that health status of females improved even faster than for males as the increase in reporting very good and good health in 2004 was by almost 10 percentage points higher for women.

Figure 14 Dynamics of changes in frequency of reported health status between 1996 and 2004 by sex



Source: own calculations

To sum up, the survey results confirm a health improvement visible in the longevity trends. It was observed that health status improved for men and women and for all age groups. Whilst demographic data estimate greater longevity improvement among males, cross-sectional survey data suggest greater improvement of females' health. The latter might be explained either

by a decrease in the pessimism of females in evaluating their own health or by an improvement in their quality of life between 1996 and 2004. Recognition of the health status of the population brings us to the next question of the diversification of health status and health improvement not only by demographic factors (as above), but also by socio-economic status.

2. Education and health inequalities

The prevalence of poor health by education is measured based on two indicators: the frequency of reporting less-than-good health and the frequency of reporting poor and very poor health. Reasons for selecting the two indicators for this study were described in the chapter II in more detail. To recall briefly, the introduction of the two measures allows for a more detailed analysis of the changes in the educational inequalities in health. This is for two reasons: first of all the frequency of those reporting less-than-good health was very high, covering more than half of the population – thus some diversification of this large group is needed; secondly the prevalence of poor and very poor health status decreased most dynamically between 1996 and 2004. That is why the introduction of the second indicator allows for more in-depth analysis while investigating whether the improvement in the health status of the whole population is accompanied by an increase in the health inequalities, as it has been proved in countries of Western Europe (Erasmus MC 2007, Marmot 2005).

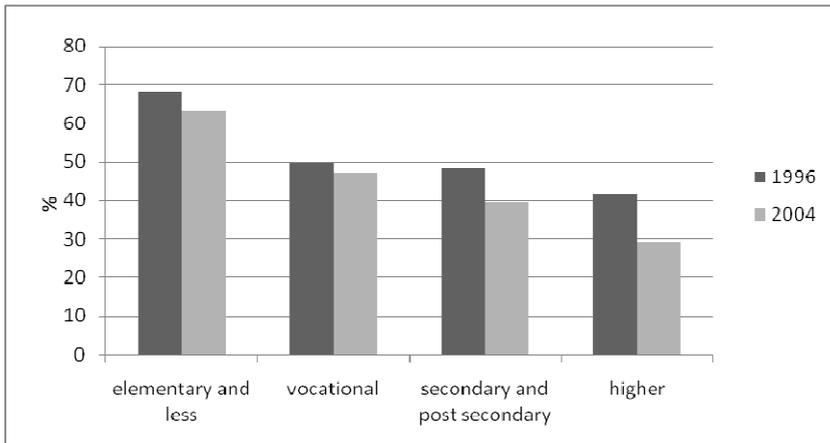
Each section of the analysis below and for the two measures of the self-assessed health status used should provide an answer to two questions:

- Are there observable inequalities in health by the level of education?
- If so, do they increase over time?

2.1 Changes in the prevalence of less-than-good health

The first step in assessing health inequalities is to look carefully at educational differences in reported health. The survey results indicate that the frequency of those reporting less-than-good health is strongly – almost linearly – related to education and it decreased in every educational group between 1996 and 2004. Nonetheless, the decrease of those reporting less-than-good health was not equal among educational groups.

Figure 15 Distribution of less-than-good health by education, 1996 and 2004

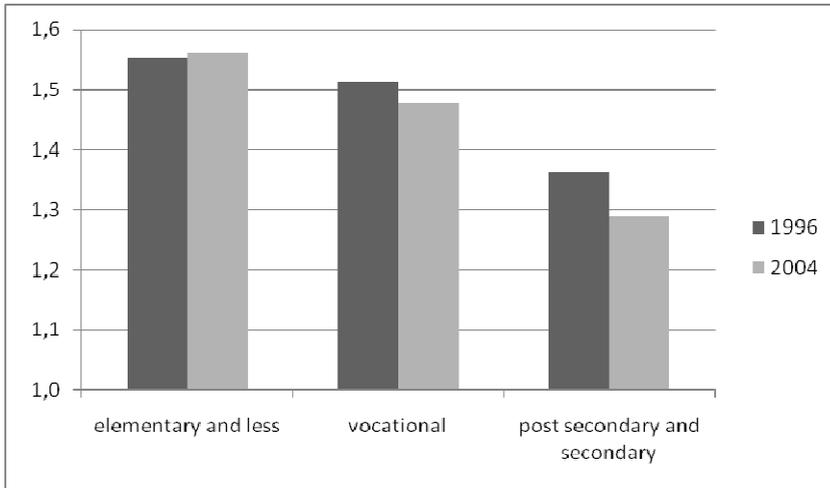


Source: own calculations

Namely, self-assessed health status improvement was strongest among the higher educated individuals (a decrease of 29.0% in those reporting less-than-good health) and weakest among those with a vocational education (a decrease of 5.7%). The changes in the frequency of less-than-good self-assessed health could imply increasing educational inequalities as the health status of the more highly educated improved faster than others. In fact rate ratio analysis indicates that the risk of being in less-than-good health decreases when the education level increases³⁸. The risk of less-than-good health status is by over 55% higher for those individuals with only an elementary education than for those with a university degree. Nonetheless the analysis shows that, standardized for age and sex, health inequalities in less-than-good self-assessed health did not increase between 1996 and 2004. When the whole distribution of individuals by education is taken into account, a slight decrease in the risk of falling into less-than-good health is observed for individuals with vocational, secondary and post-secondary education.

³⁸ The rate ratio analysis refers to relative educational inequalities. Here the prevalence of less-than-good self-assessed health for groups with different educational levels is compared to those with higher education. Methods of calculation are also explained in chapter II.

Figure 16 Relative educational inequalities in the prevalence of less-than-good self-assessed health in 1996 and 2004 (reference group – higher educated*)

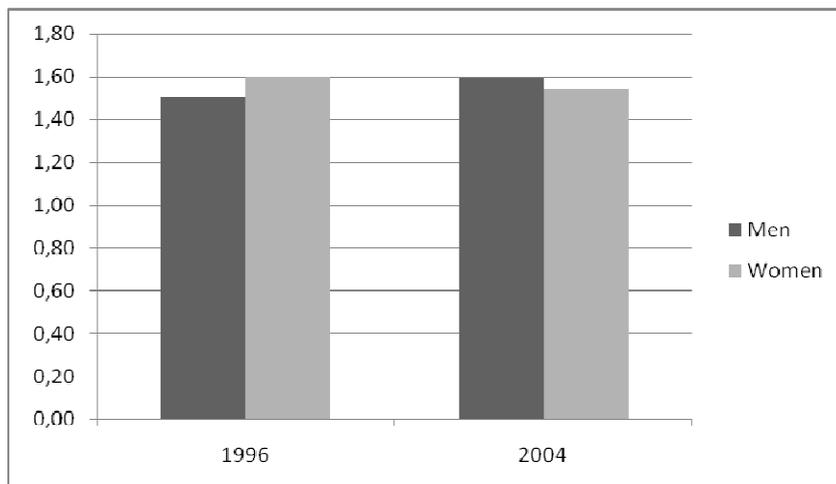


* value 1 on Y axis

Source: own calculations

Nevertheless, as Figure 17 shows, there are differences in health by extreme groups in completed education by sex between 1996 and 2004. Rate ratio analysis shows an increase in educational inequalities in assessing less-than-good self-assessed health among males with primary education (as compared to males with higher education) and a decrease in less-than-good health among women in extreme educational groups (as compared to females with higher education). Still, these differences are not large and account for about a 5 percentage point change between 1996 and 2004.

Figure 17 Relative educational inequalities in the prevalence of less-than-good self-assessed health between individuals with higher and primary education by sex in 1996 and 2004 (reference group – higher educated)



Source: own calculations

When extreme groups of completed education cohorts are compared, inequalities seemed to have increased for males and decreased for females between 1996 and 2004. The result is only partly confirmed by the absolute measure presented in Table 11 which shows a slight decrease in inequalities for both sexes which is, however, more sound among women. Still, the dynamics of the differences between 1996 and 2004 are very small and do not lead to a clear conclusion on the change of inequalities in less-than-good health over time.

Table 11 Rate difference in mean frequency of reporting less-than-good health between individuals with higher and primary education by sex in 1996 and 2004

	1996	2004	% of the 1996 level
Total population	0.215	0.191	88.97
Males	0.203	0.199	97.78
Females	0.225	0.186	82.81

Source: own calculations

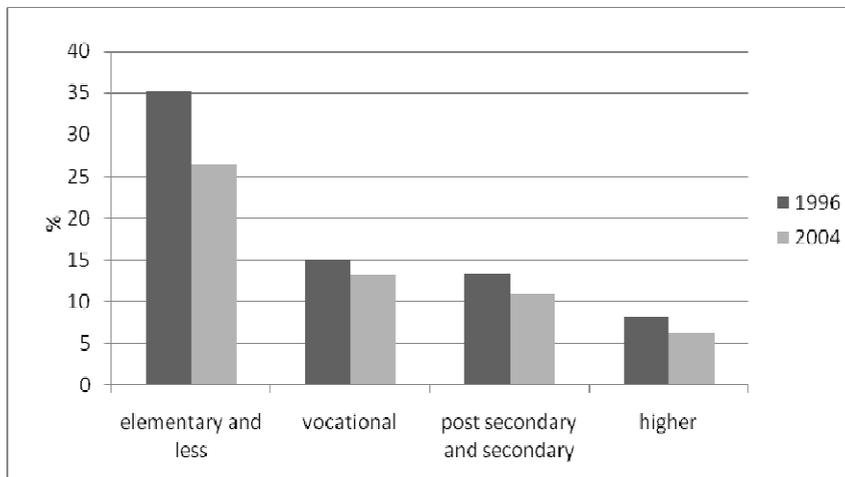
To sum up the first results, *rate ratio analysis indicates the existence of educational inequalities in less-than-good self-assessed health, but their changes over time are very small with no clear direction* if assessed with a simple measures of inequalities.

2.2 Changes in the prevalence of poor and very poor health

The incidence of reporting poor and very poor health significantly decreased between 1996 and 2004 for each age group and by sex. Therefore an indicator concentrating on the bottom end of the five-point scale of self-assessed health is used in order to assess health improvement of the Poles more adequately. This section looks at the frequency of poor and very poor self-assessed health in order to complement the previous analysis that did not show clear trends and significant changes in the level of inequalities over time.

Reporting poor and very poor health is strongly related to education. The slope of the decrease in the frequency of poor health along with increasing education is much steeper than for the frequency of less-than-good health. Again, decrease in the frequency of people reporting poor health is observable in every educational group over time, being the most marked among individuals with elementary education. The frequency of reporting poor and very poor health among the population with primary education accounted in 2004 to 75% of the 1996 rate.

Figure 18 Distribution of poor and very poor health by education between 1996 and 2004



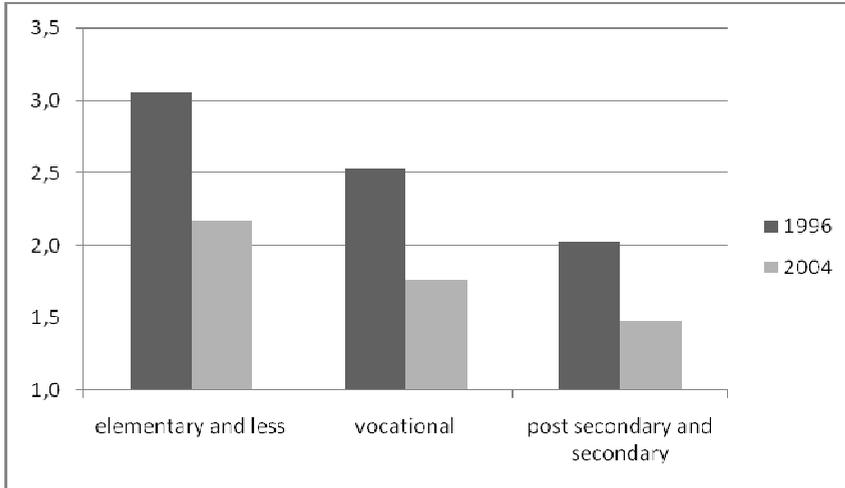
Source: own calculations

As the frequency of reporting poor and very poor sharply differentiates between educational groups, inequalities as measured by rate ratio are also extremely large. But the results indicate a sharp decrease in educational inequalities between 1996 and 2004 - the size of inequalities in any of the educational groups when compared to the individuals with higher education lowered by about half.

Additionally, sharp differences between individuals with primary and higher education are observable between sexes. First, educational inequalities were much higher in 1996 for males.

Further, a decrease in inequalities is observable in the following 8 years, with a steeper slope for males than females (a reduction of inequalities by almost 37% compared to 23% for women). As a result of the decrease, inequalities between males and females with elementary and higher education were almost the same in 2004.

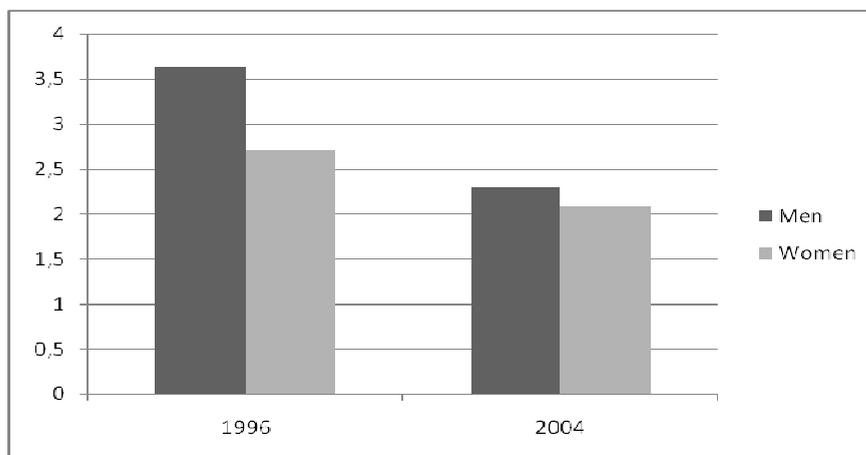
Figure 19 Relative educational inequalities in respect to the prevalence of poor and very poor health in 1996 and 2004 (reference group – higher educated*)



* value 1 on Y axis

Source: own calculations

Figure 20 Relative educational inequalities in the prevalence of poor and very poor health between individuals with higher and primary education by sex in 1996 and 2004 (reference group –higher educated)



Source: own calculations

Also the results of the rate difference presented in the Table 12 confirm a sharp decrease in educational inequalities. The decrease in inequalities is stronger for men, but the absolute difference between the sexes is less emphasized than the relative one.

Table 12 Rate difference in mean frequency of those reporting poor and very poor health between individuals with higher and primary education by sex in 1996 and 2004

	1996	2004	% of the 1996 rate
Total population	0.181	0.105	58.13
Males	0.195	0.111	57.00
Females	0.169	0.101	59.73

Source: own calculations

For the second indicator of the self-assessed health *inequalities between educational groups are much steeper than for the indicator of less-than-good health*. At the same, *inequalities in poor and very poor health between educational groups sharply decrease between 1996 and 2004*. Based on such results three observations with respect to the health improvement can be made: firstly, there was an upswing from very poor and poor health to fair or good health; secondly, the improvement of health is similar in each of the educational groups; finally, health improvement from poor to better health status is more sound among males than females in the

extreme educational groups and over the period of analysis. Thus health sharply improves among the most disadvantaged and among males.

2.3 What about an upswing in educational achievements?

Rate ratio and rate difference are the basic, simple measures of the size of health inequalities, typically used for the comparison between extreme groups representing socio-economic positions. However, these two measures are not sensitive to changes in the distribution for an indicator of the socio-economic status (e.g. education, income, labour market position), which are especially important for time comparisons. In fact, a huge shift between educational groups was observable in Poland between 1996 and 2004, which should be taken into account when analysing inequalities in health between educational groups. In 1996, only 7% of the population had higher education, while 38% reported elementary education. Eight years later the share of individuals with higher education almost doubled, while the proportion of individuals with primary education or less decreased by 10 percentage points. Changes in the size of groups representing socio-economic status could, however, have significantly influenced declarations about health status.

Table 13 Distribution of individuals by education level, 1996 and 2004

Item	1996		2004	
	Number	Proportion	Number	Proportion
Higher	3339	6.97	4705	13.43
Post-secondary and secondary	13528	28.23	11948	34.11
Vocational	12881	26.88	8811	25.15
Elementary and less³⁹	18170	37.92	9564	27.30
Total	47918	100.00	35028	100.00

Source: own calculations

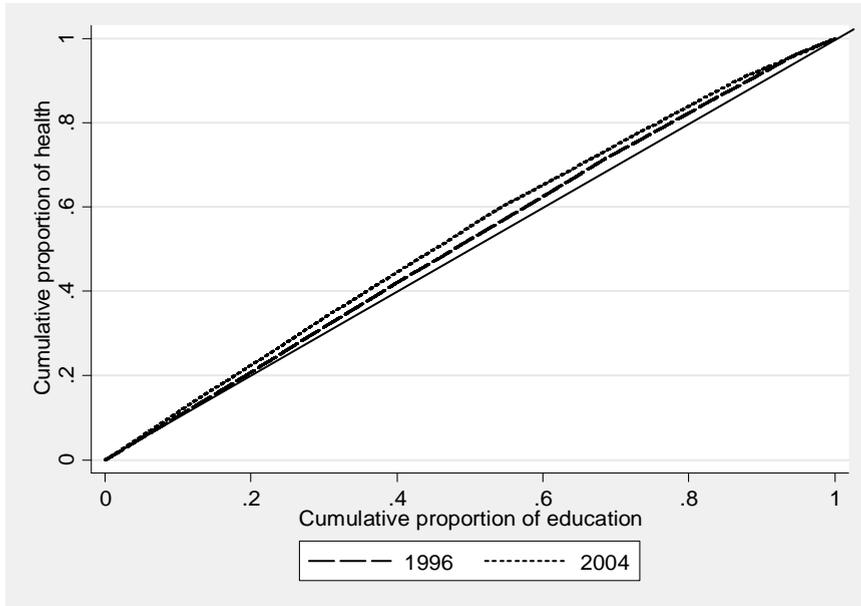
For the reasons explained in the chapter II, indicators that are sensitive to changes in the size of inequalities across socio-economic groups and that are selected for further analysis are the concentration curve and concentration index. Again, the two indicators for reporting less-than-good health and reporting poor and very poor health are used and compared with the above results in the range calculations.

The concentration curve for the indicator of less-than-good health in 2004 was further from the line of equality than in 1996, which implies that *inequalities in self-assessed health by*

³⁹ Elementary education is obligatory in Poland. It covered 8 years of education in primary school in 1996. As a result of the reform of the system of education in 1999 the number of years in primary school was shortened to 6, while the period of compulsory education was extended to gymnasium (junior-high) which covered the following 3 years of education. Thus, the presented data cover 8 years of education in 1996 and 9 years of education in 2004.

education slightly increased in the whole population. Furthermore, as the range did not suggest an increase in inequalities, it would suggest that it was the shift in the education level that resulted in the increasing health disparities. Namely, those poorly-educated individuals with poor health were left behind while the health status of growing group of the highly-educated improved faster than other groups.

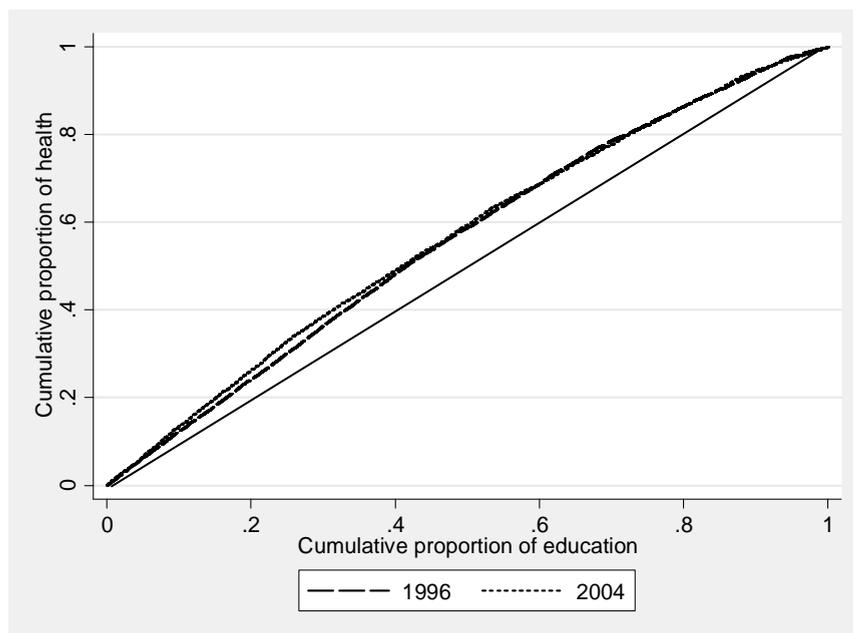
Figure 21 Concentration curve for reporting less-than-good health by education, 1996 and 2004



Source: own estimations

The process of the relative deterioration of health among the poorly-educated is also visible when the indicator of reporting poor and very poor health is observed. The description of health status improvement above shows that the frequency of reporting poor and very poor health dropped considerably; however, the concentration curve for 2004 moves inwards, crossing the curve for 1996 which means that for those on the bottom rung of educational ladder, health slightly worsened when compared to the highly-educated. At the same time the health status of individuals in the middle of the educational ladder improved compared to the highly-educated. Generally, *although inequalities seem to increase for the second indicator as well as the first, the size of the change is much smaller.*

Figure 22 Concentration curve for reporting poor and very poor health by education, 1996 and 2004



Source: own estimations

Finally, *the concentration index confirms that inequalities increased mostly for the measure of less-than-good health, while for poor and very poor health they had not grew substantially* (Table 14). Health inequalities by educational level are also more marked for women than for men, despite the measure of health applied and in both periods of time.

Table 14 Concentration index – summary

Item	Less than good health			Poor and very poor health		
	Total population	Males	Females	Total population	Males	Females
1996	-0.048	-0.044	-0.051	-0.125	-0.118	-0.129
2004	-0.076	-0.074	-0.078	-0.129	-0.124	-0.134
Rate of change	1.58	1.68	1.51	1.04	1.05	1.03

Source: own estimations

Conclusions

This chapter has addressed the question of the existence and changes in the size of health inequalities during the period of the economic transformation, which were also times of significant health improvement and many behavioural changes in society. The analysis has faced numerous data constraints notably that income data were not available. As a result of lack of income data in monetary terms or in any other form of ordinal variable, the size of health inequalities could not be measured based on income, but on education only.

Despite the drawbacks of the data availability, the micro analysis of health inequalities and determinants of health status provides us with numerous interesting findings. Most of all, education is an important factor for health inequalities. Moreover, despite the health improvement evidenced by epidemiological and subjective measures of health, educational inequalities increased between 1996 and 2004. A crucial factor for understanding the phenomenon of unequal distribution of health status in the Polish society is social mobility, and especially educational mobility. The period of 1996 – 2004 was characterized by a rapid increase of educational facilities, mostly private colleges and universities, which is reflected in a rapidly increasing proportion of the population with higher education. An upswing in the educational hierarchy is related to lifestyle changes expressed in the modification of dietary habits and social and physical activity, which have a positive impact on health. As a result, despite the decreasing proportion of the population reporting less-than-good health, inequalities between educational groups increased. Moving to a broader picture, the results can be interpreted as reflecting a slow process of the creation of a middle class, which is characterized by higher education, better health and health awareness, consumption of more luxurious goods and an acquired lifestyle, and leisure activities that stimulate positive health outcomes. On the other hand, extended to the left side of the cumulative educational axis, the concentration curve for poor and very poor self-assessed health indicates that group of the poorly-educated lags behind in this social transformation. These are poorly-educated individuals, most likely with low incomes and with low chances for an upswing in their social and economic stratification, suffer from poor health. The accumulation of disadvantages in social, economic and health disadvantages indicates the formation of an underclass in the longer-term perspective. One could consider if, in order to decrease the size of health inequalities, the marginalized should not become the target of specific measures of health and social policy.

Chapter V

Social determinants of self-assessed health status in Poland

Introduction

Since the size of inequalities is known and has been described, *further analysis aims at identifying factors that might be significant determinants of health inequalities*. The research is structured in line with the main directions of the theoretical explanations of health determinants covering material explanations, the impact of certain types of behaviour such as smoking and drinking, the impact of stress and social pressures, and social networking (as presented in chapter I).

Material explanations of health diversifications show that low incomes, which are related to poor education, dropping out from the labour market and often social exclusion, are among the most important causes of poor health and health inequalities. However, the data on the actual incomes of the population covered by the health surveys in Poland is not available. Therefore, subjective assessments of material situation are used as the variable representing income. The hypothesis that is tested is of the negative influence of poor subjective welfare status, poor education and labour market uncertainty within the family (or a household) on health.

Further explanations of the health inequalities, which were also broadly discussed in chapter I, stress the negative *impact of certain types of behaviour* on health. Among these a crucial role is played by smoking and alcohol consumption. Before investigating the impact of these behaviours on health, it is worth noticing that behavioural patterns do not necessarily follow social stratification. In most cases it is true that a healthy lifestyle is more common among higher social groups in terms of education or income, but there are exceptions which may not be marginal. Smoking was almost equally common in the whole population in Poland in the 1980s and 1990s, including those with higher education. In fact, smoking was an important part of the lifestyle of the educational elites. The common usage of tobacco could also be explained by the deprivation of Polish society under the communist regime and related to other indicators of social deprivation, including high levels of alcohol consumption and binge drinking. Only in the last years has smoking cessation been observed (GUS 2006). Taking the fact that some behavioural patterns might have changed during the transformation period (mainly due to incorporating the Western European life style) the analysis will aim not only at discovering to what extent health status is attributable to different behavioural patterns, but also to describing the changes of lifestyle. The analysis concentrates on smoking cigarettes and alcohol consumption as these are the two behavioural factors that have the most significant impact on health.

Finally, the research addresses the problem of *social ties and health*. Marmot in his essay *Status Syndrome* (2005) argues that despite the fact that it is almost impossible to determine one single cause of health inequalities, it is extremely important to pay attention not only to factors

such as education, occupation or income level of individuals, but to examine the psycho-social environment of individuals. More precisely, he points out social networking and family support as factors that have crucial impact on health. Thus, the last section of this chapter aims at examining whether a lack of family ties plays an important role in explaining the persistence of poor health and health inequalities in Poland.

1. Income and labour market: material explanations of health diversifications

Next to education, two crucial factors determining socio-economic stratification are income level and labour market position. However, the available data in the health survey are far from being perfect. The information on the labour market position is available only at the household level (the main income source of a household). Further, information on income is provided not in monetary terms, but in the form of self-assessment of the income situation of a household, which raises the problem of subjectivity in such an evaluation. Individuals may either be too optimistic or too pessimistic about their and their families' financial standing; moreover, such optimism or pessimism may be correlated to their self-assessed health status. Thus the results of the analysis should be interpreted with caution, given the data limitations. Due to the fact that there is a correlation between income status and education as well as between health status and age, the data are additionally controlled for the years of education, age and sex.

Table 15 Result of the logit analysis of the impact of main income source and self-assessed income status on reporting less-than-good health, 1996

Dependent variable: reporting less-than-good health

R²=0.2945

Variable	B	Stand. error	Significance	95% Conf. interval	
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	0.0603	0.0400	0.132	-0.0181	0.1386
Self-employment	0.0217	0.0572	0.705	-0.0905	0.1339
Agriculture	0.1318	0.0405	0.001	0.0525	0.2112
Old age pension	0.0680	0.0424	0.108	-0.0150	0.1510
Invalidity pension	0.8914	0.0530	0.000	0.7875	0.9953
Family pension	0.2069	0.0890	0.020	0.0324	0.3814
Unemployment benefit	-0.0877	0.0750	0.242	-0.2348	0.0593
Other benefits	0.0688	0.1344	0.609	-0.1947	0.3322
On maintenance	0.4992	0.2745	0.069	-0.0388	1.0371
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	0.0017	0.1512	0.991	-0.2947	0.2982
Fair	0.6926	0.1485	0.000	0.4015	0.9836
Poor	1.0806	0.1506	0.000	0.7853	1.3758
Very poor	1.2623	0.1584	0.000	0.9518	1.5727
Education in years	-0.0491	0.0048	0.000	-0.0585	-0.0396
Sex					
Ref. <i>Females</i>					
Males	-0.4214	0.0257	0.000	-0.4718	-0.3710
Age	0.9067	0.0104	0.000	0.8862	0.9271
Constance	-2.6833	0.1662	0.000	-3.0091	-2.3575

Source: own estimations

Table 16 Result of the logit analysis of the impact of main income source and self-assessed income status on reporting less-than-good health, 2004

Dependent variable: reporting less-than-good health

R²=0.2827

Variable	B	Stand. error	Significance	95% Conf. interval	
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	0.0328	0.0451	0.468	-0.0557	0.1212
Self-employment	0.0002	0.0649	0.997	-0.1270	0.1274
Agriculture	0.2618	0.0635	0.000	0.1374	0.3863
Old age pension	0.3184	0.0473	0.000	0.2256	0.4112
Invalidity pension	1.0366	0.0697	0.000	0.9000	1.1733
Family pension	0.3263	0.1056	0.002	0.1193	0.5334
Unemployment benefit	0.2024	0.1714	0.238	-0.1335	0.5383
Social assistance	0.3402	0.1587	0.032	0.0291	0.6513
On maintenance	0.4598	0.2065	0.026	0.0550	0.8645
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	0.4878	0.0820	0.000	0.3272	0.6484
Fair	0.8070	0.0821	0.000	0.6459	0.9681
Poor	1.0427	0.0840	0.000	0.8779	1.2074
Very poor	1.2168	0.0885	0.000	1.0433	1.3903
Education in years	-0.0943	0.0066	0.000	-0.1072	-0.8138
Sex					
Ref. <i>Females</i>					
Males	-0.1767	0.0312	0.000	-0.2379	-0.1155
Age	0.8102	0.0123	0.000	0.7860	0.8344
Constance	-2.7020	0.1364	0.000	-2.9693	-2.4347

Source: own estimations

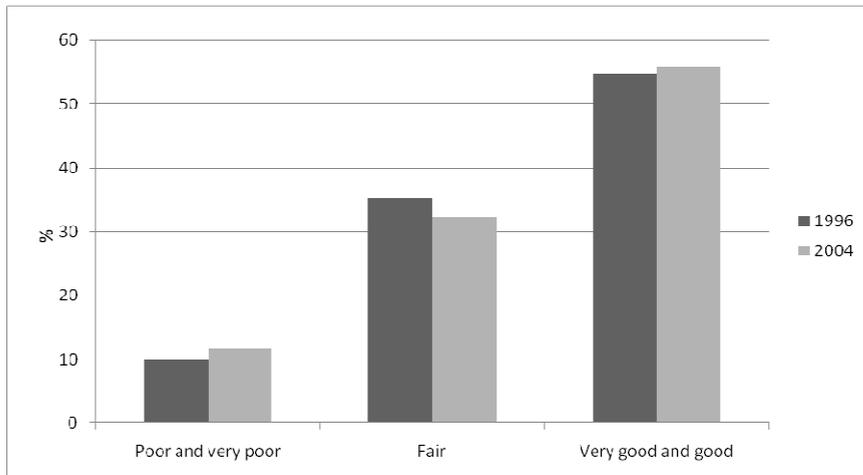
Results of the logit analysis indicate that reporting less-than-good health is strongly and significantly correlated with the financial standing of the family, even if the education of individuals is controlled for. In fact, the probability of reporting health problems increases steeply with lowering incomes when compared to the group of individuals reporting a very good material standing. However, the strength of relationship between low income and health has not changed over the years and observable differences are within the standard error. In 2004, the poorest cohort had a 1.21 higher chance of being in less-than-good health than the richest cohort, while in 1996 the variance between the two income groups was at the level of 1.26. Similarly to education, an important factor that impacts the size of inequalities could be that of income mobility. In fact, the frequency of those reporting very good incomes increased four times between 1996 and 2004,

which reflects an improving economy and the wealth of the society. Nonetheless, logit analysis which is required to analyse nominal data does not take into account the effect of change in the structure of the variables under analysis. This would only be possible using a different measure (i.e. the concentration index, as in the case of education) and the ordinary type of variable, which is monetary value of incomes. However, the latter was not provided by the Central Statistical Office for the purpose of this analysis.

The relation between the reported financial standing of a family and health is clear, with the probabilities of being in poor health increasing with lowering incomes. When the labour market position of a household's head is analysed, the relations are more complex. In both periods of analysis, poorer health is correlated with receiving most of the income benefits from the invalidity pension, the retirement pension and agriculture. For individuals living in families with these benefits as their main sources of income, the probability of being in less-than-good health is significantly higher than for the families of those employed in the public sector. Individuals from families claiming such benefits are more often elderly, ill or disabled people who on average have lower incomes and levels of consumption than people who are active on the labour market and working in the public sector (which is a reference group). Results also show that being in less-than-good or poor health is not significantly related to working in the private sector or being self-employed when compared to families of public sector employees. The sector of economy in which an individual works seems not to be influential when health outcomes are considered.

Surprisingly, and at a first sight contrary to theories explaining inequalities in health status, receiving one's main income from the unemployment benefit seems to be insignificant for reporting less-than-good health. This is in fact a result of the legal regulations and eligibility criteria for receiving an unemployment benefit. Only individuals with a working history of 18 months before losing a job and who have been unemployed for up to six months are eligible for an unemployment benefit. Thus, the long-term unemployed and marginalized are not covered in this category. As a result, the category of unemployed persons covers individuals who are young (53% are below 35 years of age and 81% are below 45 years of age) and report being healthy (Figure 23). The long-term unemployed, who could be in worse health either due to taking up more health risky behaviour such as alcohol consumption and who could be in poor health due to the psychological effects of unemployment, are most likely to receive income from the social assistance. Indeed, being on social assistance is correlated with the probability of being in poor health in 2004.

Figure 23 Frequency of reported health status among unemployed, 1996 and 2004



Source: own calculations

Finally, logit analysis confirms the previous findings that health outcomes are significantly related to sex, age and education. Males have a lower probability of being in less-than-good health than females; age increases the probability of poor health status and health deteriorates with decreasing number of years of education.

2. Health status from a behavioural perspective – smoking and alcohol consumption

The lifestyle of individuals is closely related to their social and economic status, and is also a well-known factor determining health status from early childhood to old age. The list of behavioural factors that influence the chances of survival is a very broad one and was discussed in chapter I. It includes cigarette smoking, alcohol consumption, dietary habits, physical activity and sexual behaviour. These behaviours can change over a lifespan, can be transmitted between social groups, inherited from the previous generations and are sensitive to trends and policy decisions (i.e. decisions on price level, taxation and access to cigarettes and alcohol). The impact of behaviours that are taken up during a life time accumulates during the life cycle and, together with demographic changes, play a crucial role in the incidence of illnesses and mortality (Zatoński, Didkowska 2008). The role of behavioural factors is even greater as cancers are the major cause of mortality in the EU-15 and emerge as a leading cause (after cardiovascular diseases) of death in the CEE countries, including Poland. The two types of behaviour, the prevalence of which has been very high in Poland and which have a major impact on cancer mortality, are cigarette smoking and alcohol consumption.

Smoking is a leading preventable cause of cancers, especially lung cancer, but also other types of neoplasm and long-term diseases, including chronic obstructive pulmonary disease (COPD). The latter is projected by the WHO to be the fifth leading cause of premature death worldwide by 2020 (Rabe et al. 2007). According to the estimations based on the WHO mortality data, smoking-related mortality is substantially higher for the population aged 35-64 in the CEE countries than in the EU-15. At the same time mortality that can be attributed to smoking is found to be strongly diversified between social classes (measured by years of education) (Jha et al. 2006). Moreover, smoking attributable death rates are increasing for females in the mentioned age group, which reflects socio-cultural trends in smoking and indicate that smoking-related diseases have been a growing problem in the last few years in the CEE (Zatoński, Didkowska 2008). In the CEE and Mediterranean countries, smoking prevalence rates are still high for females which, combined with the fact that diseases related to smoking can develop even 30-40 years after taking up the addiction (Ostrowska 1999), creates a threat to the health status of the population and a great burden for public health and the healthcare system in the coming years.

Next to smoking cigarettes, another behavioural factor responsible for the increasing rate of cancers and cancer mortality, the high level of cardiovascular mortality and external causes of death in Europe is alcohol consumption. It influences a development of various types of cancers, including oral cavity carcinoma, pharynx carcinoma, oesophagus, colorectal, liver and other neoplasms as well as other liver diseases (especially liver cirrhosis) and psychiatric disorders. Again, in the CEE countries the incidence of alcohol-related cancers among the middle-aged population (35-65 years of life) is significantly higher than in the EU-15 countries. Overall, it is estimated that alcohol accounts for 6.3% of all cancer deaths among males over 20 in the CEE (and 5.9% in the EU-15) and 1.9% of deaths among females above 20 years of life (and 3% in the EU-15) (Zatoński, Didkowska 2008).

These two behaviours are put under scrutiny below. Firstly, the question of the social and economic characteristics which smoking and alcohol are related to is raised. Secondly, an impact of smoking and alcohol on the subjective health status is analysed. The analysis emphasizes the dynamics of changes in the take-up rate of the two health-threatening behaviours and their impact on health in 1996 and 2004.

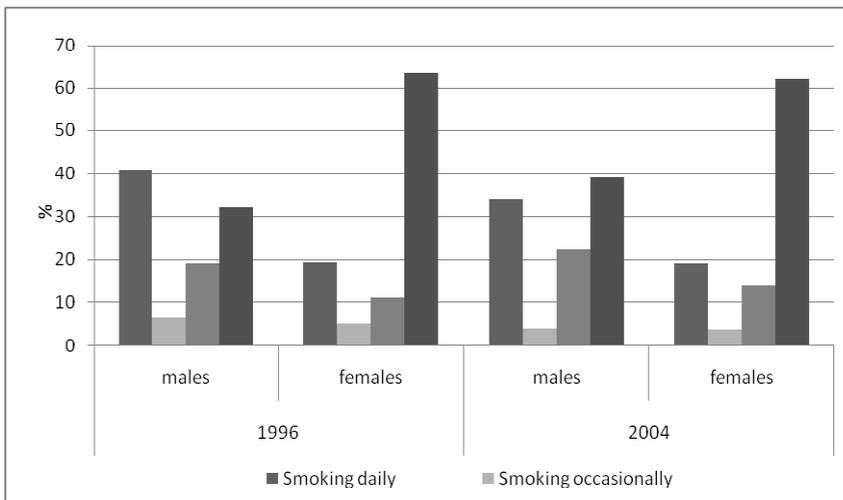
Smoking is hereafter assessed using self-reported prevalence rates. Research conducted by West and others (2007) indicates that subjective statements upon smoking may not be a fully accurate reflection of the actual smoking prevalence due to misreporting of smoking status and the failure to include non-cigarette tobacco smoking⁴⁰. This has been overcome by the fact that the question used for the analysis does refer to “any types of smoking”. Still, approximately only

⁴⁰ Results of the research show that misreporting of smoking differed between countries. In the United States underestimation of smoking prevalence was minimal, while in England and Poland it was significant, accounting to 2.8% and 4.4% respectively (West et al. 2007).

0.5% of the population smokes other-than-cigarettes types of tobacco (GUS 2006). The problem of misreporting smoking status is more difficult to cope with as the scale of misreporting in the two surveys is unknown and most likely some misreporting took place for reasons that also remain unknown. As a result, misreporting may cause some bias in the descriptive analysis and in the econometric model introduced. The same bias of misreporting holds also for alcohol usage data. Still, survey data are the most reliable for the micro analysis of factors explaining individual health vis-à-vis tobacco and alcohol consumption.

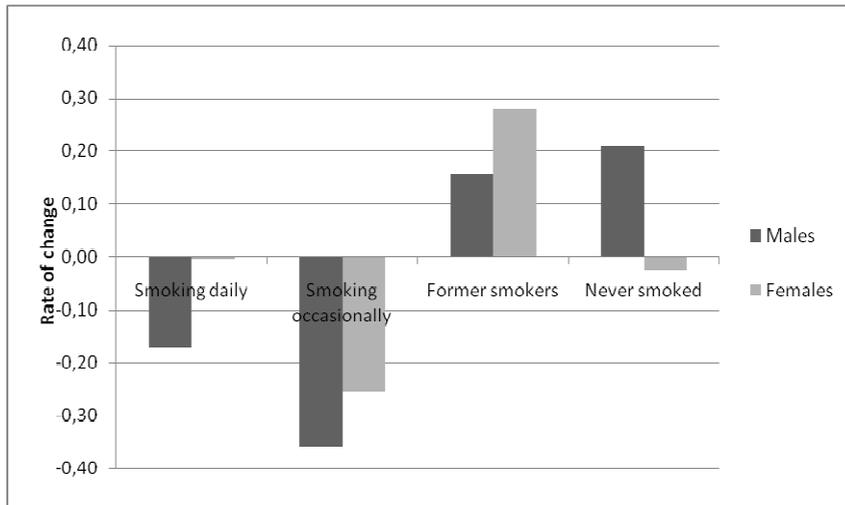
Smoking prevalence rates for individuals that report daily smoking are high, but they changed dynamically over the period of analysis. In 1996 the daily smoking prevalence rate in Poland was twice as high for men as it was for women (40.9% compared to 19.4%), but the proportion of men smoking daily decreased in the next years - in 2004 only 33.9% of men smoked daily. At the same time the share of women smoking daily had not changed. Unfortunately, as the data are cross-sectional, transitions from different states with respect to smoking (from smoking to non-smoking and the other way round) are not possible to follow. Thus it remains unknown whether the decrease in the proportion of daily smokers indicates cessation of smoking or changing habits and smoking occasionally. Overall, the analysis of the dynamics of the changes in smoking prevalence shows that there is higher proportion of males that stopped smoking either daily or occasionally than females. In fact only a drop by the rate of 25 percentage points in the proportion of women smoking occasionally is observed. Positive changes towards a healthy life-style are confirmed by the increasing proportion of men who never smoked while the proportion of women who had never smoked decreased.

Figure 24 Smoking prevalence in 1996 and 2004



Source: own calculations

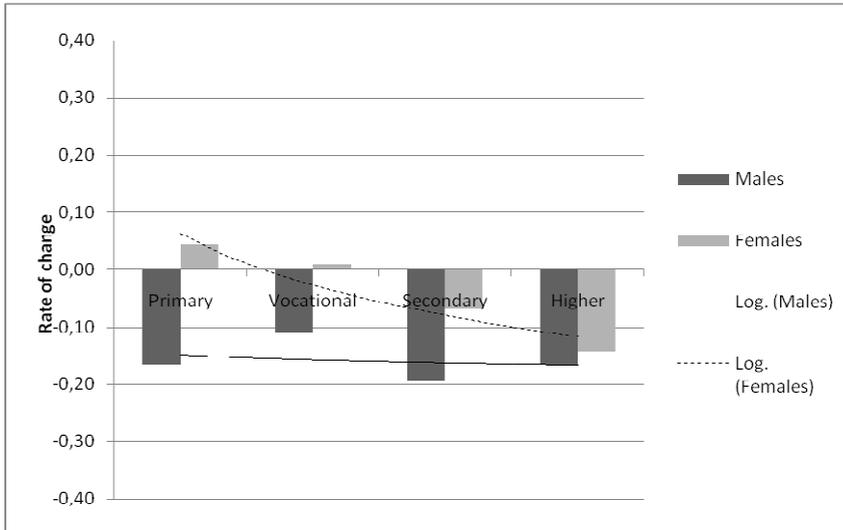
Figure 25 The dynamics of changes in smoking prevalence by sex between 1996 and 2004



Source: own calculations

A second dimension that is needed to understand the phenomena of changes in the smoking prevalence rates is education. The analysis shows that a decrease in smoking prevalence strongly varies not only by sex, but also by the education of individuals. While the rate among men of a decrease in smoking prevalence is negative and varies between 10 and 20 percentage points between different educational groups, the decrease of smoking among women is almost linearly related to education. Whilst higher educated women have a tendency not to smoke, the smoking prevalence rates still increase for lower educated women. The depicted pattern of changes in the prevalence rates fits well to the smoking pandemic theory that was described in the chapter I. Interpreting the above results within the framework of the theory indicates that Polish population has entered the third stage of the pandemic, characterized by a reduction of smoking among males, but still a high prevalence of smoking among females, and taking up the habit by the lower socio-economic groups among females. This process of changes in smoking prevalence strengthened over the period of 1996 to 2004. Similar processes are observed in the Mediterranean countries and in the other countries of the CEE (Erasmus Mc 2007). Smoking cessation was supported by the policy of increasing the prices of tobacco and restrictions in the smoking environment. While introducing such policies can - at least partly - explain smoking cessation, it does not explain the contrary trend among lower educated females.

Figure 26 The dynamics of changes in daily smoking by education and sex between 1996 and 2004



Source: own calculations

The increasing impact of education on decisions upon smoking cessation is confirmed by the logit analysis where in 1996 smoking is found to be more equitably distributed between different educational groups than in 2004. In 2004 the results show that the probability of daily smoking significantly decreases for the higher educated. The model also includes other basic dimensions of socio-economic position such as the main source of household's income and subjective assessment of well-being. The social gradient in smoking prevalence is also observable by income level; individuals with poor or very poor incomes have a significantly higher probability of daily smoking than individuals with satisfactory level of incomes. The relation between incomes and smoking is found for both years under analysis; however, in 2004 the probabilities of smoking are slightly lower among the poorer population than in 1996. This could be due to increasing prices of cigarettes⁴¹ or it could reflect smoking cessation among the lower educated. Smoking seems to be also strongly correlated with social exclusion measured by being on social assistance as – for individuals living in families receiving their main incomes from the social safety net – the probability of smoking is significantly higher than for individuals living in families of employees. On the other hand, receiving the main income from agriculture or from an old age pension significantly decreases the probability of smoking within the household. The latter is most likely related to the fact of ageing, which is negatively correlated to smoking. The elderly are

⁴¹ Poorer individuals might have shifted away from cigarettes to smoking tobacco, which is cheaper.

less likely to smoke due to their – often poor – health status. Further, smoking is much less common among elderly women.

Table 17 Result of the logit analysis of smoking cigarettes, 1996

Dependent variable: reporting daily smoking

R²=0.1284

Variable	B	Stand. error	Significance	95% Conf. interval	
Consumption of alcohol					
Ref. Alcohol once a year or less					
Alcohol more than once a month, less than 5 times a year	1.1840	0.0319	0.000	1.1214	1.2465
Alcohol 2 times a week or more, less than once a month	1.6201	0.0510	0.000	1.5202	1.7201
Alcohol 3 times a week or more	1.8976	0.0668	0.000	1.7667	2.0285
Main source of HH's income					
Ref. Position in a public sector					
Position in a private sector	0.1414	0.0385	0.000	0.0658	0.2169
Self-employment	-0.0630	0.0561	0.261	-0.1730	0.0469
Agriculture	-0.4620	0.0406	0.000	-0.5415	-0.3825
Old age pension	-0.5012	0.0399	0.000	-0.5795	-0.4231
Invalidity pension	-0.2576	0.0462	0.000	-0.3481	-0.1671
Family pension	-0.3051	0.0785	0.000	-0.4588	-0.1513
Unemployment benefit	0.5214	0.0713	0.000	0.3817	0.6612
Social assistance	0.3396	0.1264	0.007	0.0920	0.5872
Maintenance	0.1086	0.2608	0.677	-0.4025	0.6198
Self-assessment of income situation					
Ref. Very good					
Good	-0.0042	0.1480	0.977	-0.2943	0.2859
Fair	0.2848	0.1453	0.050	0.0001	0.5695
Poor	0.6612	0.1470	0.000	0.3729	0.9492
Very poor	0.9193	0.1531	0.000	0.6193	1.2193
Education in years	-0.0078	0.0047	0.096	-0.0170	0.0014
Sex					
Ref. Females					
Males	0.8301	0.0253	0.000	0.7804	0.8798
Age	-0.0219	0.0088	0.013	-0.0392	-0.0046
Constance	-2.3188	0.1621	0.000	-2.6367	-2.0010

Source: own estimations

Table 18 Result of the logit analysis of smoking cigarettes, 2004

Dependent variable: reporting daily smoking

R²=0.0718

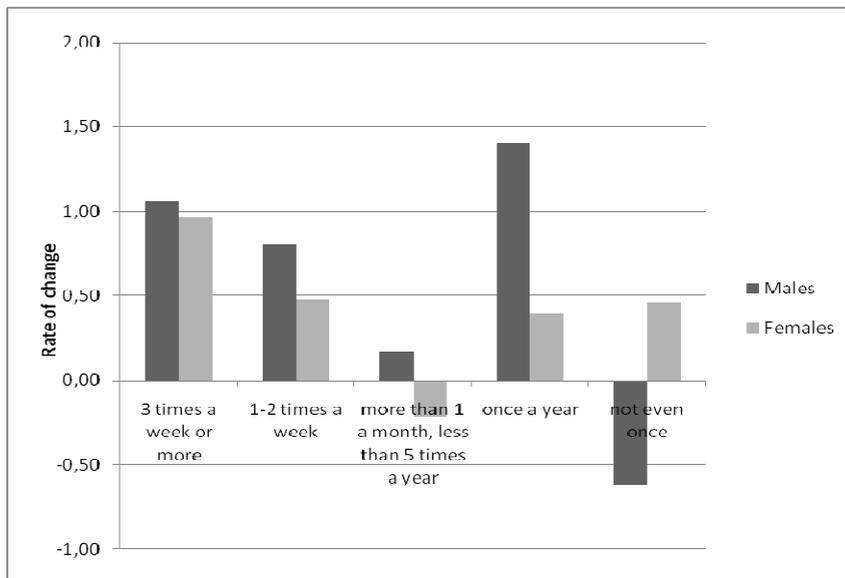
Variable	B	Stand. error	Significance	95% Conf. interval	
Consumption of alcohol					
Ref. Alcohol once a year or less					
Alcohol more than once a month, less than 5 times a year	0.9378	0.0392	0.000	0.8609	1.0146
Alcohol 2 times a week or more, less than once a month	1.1724	0.0558	0.000	1.0630	1.2818
Alcohol 3 times a week or more	1.4353	0.0667	0.000	1.3045	1.5660
Main source of HH's income					
Ref. Position in a public sector					
Position in a private sector	0.1790	0.0425	0.000	0.0957	0.2623
Self-employment	0.0555	0.0621	0.372	-0.0663	0.1772
Agriculture	-0.2998	0.0657	0.000	-0.4287	-0.1710
Old age pension	-0.2996	0.0477	0.000	-0.3932	-0.2061
Invalidity pension	0.0495	0.0627	0.430	-0.0734	0.1724
Family pension	-0.0805	0.0980	0.411	-0.2726	0.1116
Unemployment benefit	-0.0020	0.1677	0.991	-0.3306	0.3267
Social assistance	0.8229	0.1476	0.000	0.5335	1.1123
Maintenance	-0.0129	0.1714	0.940	-0.3488	0.3230
Self-assessment of income situation					
Ref. Very good					
Good	-0.0554	0.0673	0.410	-0.1873	0.0764
Fair	0.0857	0.0672	0.202	-0.0460	0.2174
Poor	0.3998	0.0684	0.000	0.2658	0.5338
Very poor	0.7695	0.0719	0.000	0.6285	0.9105
Education in years	-0.0358	0.0064	0.000	-0.0483	-0.0233
Sex					
Ref. Females					
Males	0.5327	0.0308	0.000	0.4723	0.5931
Age	-0.0166	0.0107	0.118	-0.0375	0.0042
Constance	-1.7671	0.1189	0.000	-2.0001	-1.5342

Source: own estimations

Interestingly (and something which confirms earlier results of the study on life-style and health in Poland [Ostrowska 1999]), daily smoking is strongly and positively related to alcohol

consumption in both years under analysis. The more frequently individuals drink alcohol beverages, the more likely they are to smoke; however, the strength of this relation lessens over time. Here, alcohol consumption is measured by the reported frequency of consumption, while the amount of consumed alcohol, the type or quality of the alcohol remains unknown. The results of the analysis into alcohol consumption incidence confirm the framework of consumption described in the chapter I. The frequency of drinking is found to be related to the social stratification indicating that higher educational groups are more likely to drink more often, which does not necessarily mean they drink more, and more unhealthily. In fact it is not the frequency but the type of drinking (binge drinking is found to have a more detrimental effect on health than frequent drinking of smaller quantities of alcohol).

Figure 27 The dynamics of changes in the frequency of alcohol consumption by sex between 1996 and 2004

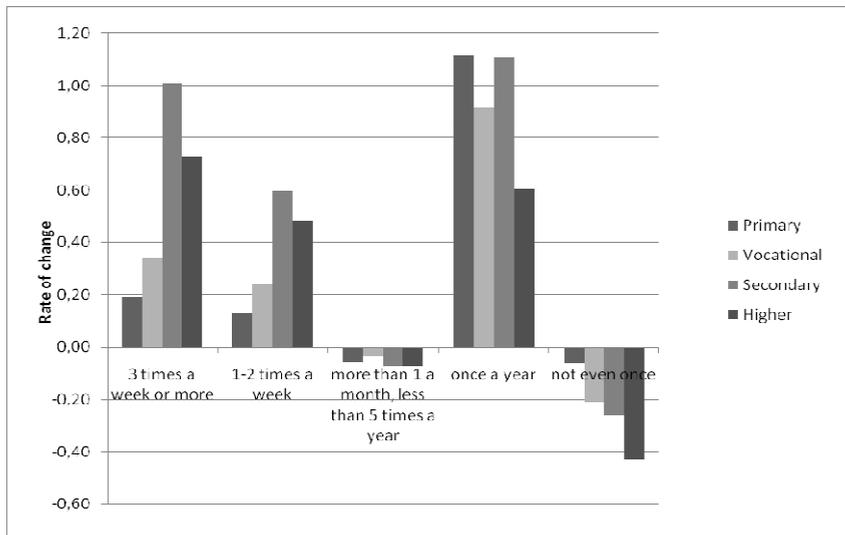


Source: own calculations

Overall, the frequency of alcohol consumption increased while the proportion of abstainers in the year preceding the survey decreased from 31.6% to 23.2%. Transformations between different frequencies of drinking are not possible to follow due to the lack panel data; however, simple cross-sectional analysis shows that the decrease in the share of abstainers was greater for males than females (in fact more women reported no alcohol consumption in the year preceding the survey in 2004 than in 1996) and was related to education. Still, the most common pattern of alcohol consumption was drinking more than 5 times a year and less than once a month. 54.4% of the population reported this style of drinking in 1996 and eight years later the

proportion was very similar (53.4%). A possible interpretation of this fact is that such a pattern of alcohol consumption is related to special occasions and celebrations and – at least in some cases – it could indicate drinking a larger quantity of alcohol that could have detrimental effects on health. At the same time, besides a strong increase in the share of individuals who drink sporadically, a sharp increase in the proportion of individuals reporting drinking once a week or more is observable. The increase is similar regardless of sex, but is differentiated by education – the steepest slope of increase is found for individuals with secondary and higher education. Most likely, this interesting result reflects an important lifestyle change from occasional consumption of higher quantities of alcohol, which is typical for Nordic and Eastern European type of binge drinking, to Mediterranean or Central European type of consumption of smaller quantities of alcohol more frequently. The results show that such a lifestyle was adopted by the higher educational groups in the last few years. In the long run, the change in alcohol consumption habits – from binge drinking to a Mediterranean type of drinking – could have a positive impact on the health of the population, decreasing the rates of alcohol-related diseases and mortality. However, if the new lifestyle is not adopted by the lower educational strata, an increase in the size of the health inequalities could be observable.

Figure 28 The dynamics of changes in the frequency of alcohol consumption by education between 1996 and 2004



Source: own calculations

The conclusions above lead to the question of a behavioural analysis of the health diversification, focusing on the impact of smoking and alcohol consumption on the population's health. Again, logit analysis was used to assess the correlation between smoking, the frequency of alcohol consumption, and self-assessed health. There were controls in the analysis for the impact of socio-economic factors (the main income source of the household, self-assessed income and education) and demographic factors (sex and age). The analysis indicates that individuals who smoke or had smoked cigarettes have a higher risk of being in poorer health than individuals who do not smoke. This holds especially for former smokers who might have made the decision to cease smoking due to their worsening health status.

Table 19 Result of the logit analysis of the impact of behavioural factors on less-than-good health, 1996

Dependent variable: reporting less than good health, $R^2=0.2973$

Variable	B	Stand. error	Significance	95% Conf. interval	
Smoking cigarettes					
Ref. <i>Never smoked</i>					
Smoke daily	0.2287	0.0318	0.000	0.1663	0.2911
Smoke occasionally	0.1407	0.0570	0.014	0.0290	0.2524
Do not smoke, but smoked daily	0.4163	0.0491	0.000	0.3199	0.5126
Do not smoke, but smoked occasionally	0.2274	0.0541	0.000	0.1213	0.3335
Consumption of alcohol					
Ref. <i>Alcohol once a year or less</i>					
Alcohol more than once a month, less than 5 times a year	-0.2602	0.0315	0.000	-0.3220	-0.1984
Alcohol 2 times a week or more, less than once a month	-0.4476	0.0743	0.000	-0.5933	-0.3019
Alcohol 3 times a week or more	-0.3317	0.0563	0.000	-0.4421	-0.2213
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	0.0598	0.0401	0.136	-0.0188	0.1383
Self-employment	0.0330	0.0575	0.566	-0.0797	0.1457
Agriculture	0.1558	0.0407	0.000	0.0761	0.2356
Old age pension	0.0653	0.0427	0.126	-0.0184	0.1491
Invalidity pension	0.8766	0.0534	0.000	0.7720	0.9811
Family pension	0.2088	0.0893	0.019	0.0337	0.3839
Unemployment benefit	-0.0963	0.0753	0.201	-0.2440	0.0513
Social assistance	0.0624	0.1348	0.643	-0.2017	0.3266
Maintenance	0.5234	0.2747	0.057	-0.0151	1.0619
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	0.0106	0.1525	0.944	-0.2882	0.3095
Fair	0.6928	0.1497	0.000	0.3993	0.9863
Poor	1.0670	0.1519	0.000	0.7693	1.3648
Very poor	1.2409	0.1597	0.000	0.9279	1.5538
Education in years	-0.0448	0.0049	0.000	-0.0545	-0.0351
Sex					
Ref. <i>Females</i>					
Males	-0.4195	0.0282	0.000	-0.4748	-0.3640
Age	0.8959	0.0105	0.000	0.8753	0.9166
Constance	-2.6366	0.1675	0.000	-2.9648	-2.3082

Source: own estimations

Table 20 Result of the logit analysis of the impact of behavioural factors on less-than-good health, 2004

Dependent variable: reporting less than good health, $R^2 = 0.2852$

Variable	B	Stand. error	Significance	95% Conf. interval	
Smoking cigarettes					
Ref. <i>Never smoked</i>					
Smoke daily	0.2199	0.0383	0.000	0.1450	0.2949
Smoke occasionally	0.2225	0.0816	0.006	0.0625	0.3826
Do not smoke, but smoked daily	0.3612	0.0483	0.000	0.2664	0.4560
Do not smoke, but smoked occasionally	0.2681	0.0645	0.000	0.1417	0.3945
Consumption of alcohol					
Ref. <i>Alcohol once a year or less</i>					
Alcohol more than once a month, less than 5 times a year	-0.3332	0.0375	0.000	-0.4067	-0.2597
Alcohol 2 times a week or more, less than once a month	-0.3885	0.0736	0.000	-0.5329	-0.2442
Alcohol 3 times a week or more	-0.3573	0.0592	0.000	-0.4734	-0.2413
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	0.0166	0.0447	0.710	-0.0710	0.1042
Self-employment	-0.0383	0.0645	0.553	-0.1647	0.0881
Agriculture	0.2643	0.0632	0.000	0.1403	0.3883
Old age pension	0.2944	0.0470	0.000	0.2023	0.3866
Invalidity pension	0.9956	0.0694	0.000	0.8595	1.1316
Family pension	0.3043	0.1047	0.004	0.0990	0.5096
Unemployment benefit	0.1854	0.1695	0.274	-0.1467	0.5175
Social assistance	0.3070	0.1582	0.052	-0.0031	0.6172
Maintenance	0.4853	0.2039	0.017	0.0857	0.8851
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	0.3252	0.0707	0.000	0.1866	0.4638
Fair	0.6390	0.0707	0.000	0.5005	0.7776
Poor	0.8585	0.0726	0.000	0.7162	1.0007
Very poor	1.0101	0.0776	0.000	0.8580	1.1622
Education in years	-0.0884	0.0067	0.000	-0.1015	-0.0753
Sex					
Ref. <i>Females</i>					
Males	-0.1720	0.0336	0.000	-0.2377	-0.1062
Age	0.7961	0.0123	0.000	0.7719	0.8203
Constance	-2.4278	0.1261	0.000	-2.6750	-2.1807

Source: own estimations

The results are very similar in both years of the analysis. When alcohol consumption is analysed, the results are quite different and provide more information on the health correlates than on the impact of the frequency of drinking on health. When compared to abstainers, individuals who drink alcohol have a lower risk of being in poor health. The result is significant and the frequency of drinking episodes is of less importance when the relation between health and drinking alcohol is investigated. The interpretation of this result points to the fact that individuals with a poorer health status simply desist or are constrained in their consumption of alcoholic beverages.

3. Social support

The existence of a social support network and a capability to gain social support in one's environment are often pointed out as the factors that can have a buffering effect on health (Marmot 2005, Ostrowska 2009). Marmot (2005) shows that in a similar social situation when an unexpected and unfavourable event occurs (e.g. a decrease in income or unemployment), the health reaction of individuals will be different depending on their level of social support. An individual with no support from relatives or friends will suffer higher stress levels, which leads to the occurrence of health problems in the long-run. Despite the fact that the buffering effect of social support has been broadly described and documented (Ostrowska 2009), the protective function of social support is not a rule. It depends on the individual's reaction to stress: while some individuals need the support of family or friends, other prefer to isolate themselves and search for a solution to the disadvantageous situation by themselves.

Social support can take different forms: from material assistance, through emotional help to the belief that support will be provided if needed. It can also be provided by various social institutions: family, friends, religious groups and neighbourhood communities. The type of social support needed will depend on the type of disadvantageous situation that occurs in one's life and the extant social networks available. Moreover, social support can be provided by various social actors simultaneously. Ostrowska (2009) indicates that two types of research question are relevant when analysing the spectrum of social support and its relation to health. The first one concentrates on the actual existence of a social support network whilst the second one focuses on the existence of a belief that support is assured if needed. This analysis looks at both of these approaches. Firstly, the existence of social support is assessed through a rough measures of family ties (namely marital status, the number of persons in the household, and the number of children in the household). Secondly, the belief in assurance of support is measured by the question: "To whom can you turn to for assistance while experiencing health problems, financial problems, emotional problems?". There are several possible answers: closest (nuclear) family; extended family; friends, colleagues and neighbours; church; other organizations and institutions; no one. Based on the information from the listed variables, the research question is whether and how a poor health status is related to a lack or insufficiency of assistance from social support networks. It

should be noted, however, that the selection of variables is constrained by the design of health surveys of 1996 and 2004. As information on the existence of social support is available only for the year 2004, the analysis is only conducted for this year. Again, logit analysis is used and there are controls for the impact of sex, age, education, labour market activity and self-assessed income situation in the results.

Contrary to the opinion and to some research (Marmot 2005) findings that marital status has a protective impact on health, the result of the analysis did not confirm such a relation. In fact, singles are found to have lower probability of being in poor health, even if controlled for by age (as typically singles are younger than married). The result holds if the analysis is limited to a population above 25 or 35 years of age, though the strength of the relation lessens. This result could be caused by the fact that the question on marital status does not provide information on cohabitation. Therefore, cohabitants could be classified as “singles”. Thus the analysis of the impact of the existence of a basic social network (family) on health is not conclusive.

The next question is of the assurance of support. Indeed, belief that one will receive some form of support in difficult situations from one's closest family (living together) or from friends is found to have a positive impact on health, decreasing the probability of being in less-than-good health when compared to individuals who believe they have no-one to turn to in times of trouble. Hereby, the misclassification of formal or informal relationships is avoided as family is defined in terms of individuals living together (GUS 2005). Interestingly, support from friends is statistically more significant than family support. Similar results were described by Ostrowska (2009) in her ecological study of the Warsaw population. Although Ostrowska asked about the existence of support networks, not the belief that assistance would be provided, friendship was still found to be the most important determinant of physical and mental health, more significant than family and church. The research argues that having a broad informal network of friends and colleagues and an active social life is a precondition of a good health, while being in poor health can be a serious constraint in establishing new social relations. Secondly, it is worth noticing that historically a wide network of friends and colleagues was an important source of many goods and help in the communist regime. Thus to a certain extent the belief that living in a broad social network of friends is a precondition to a successful and healthy life and to support in case of need could be inherited from communist times.

Table 21 Result of the logit analysis of impact of social support on less-than-good health, 2004

Dependent variable: reporting less than good health

R²= 0.2986

Variable	B	Stand. error	Significance	95% Conf. interval	
Marital status					
Ref. <i>Married</i>					
Single	-0.3379	0.0761	0.000	-0.4871	-0.1887
Widowed or divorced	-0.0312	0.0560	0.578	-0.1410	0.0786
No of person in the HH	-0.0150	0.0160	0.348	-0.0463	0.0163
No of children in the HH	-0.0849	0.0264	0.001	-0.1366	-0.0332
Social support					
Ref. <i>Lack of social support</i>					
Closest (nuclear) family	-0.1607	0.0568	0.005	-0.2721	-0.0493
Extended family	-0.0807	0.0371	0.030	-0.1534	-0.0080
Friends, colleagues, neighbours	-0.1452	0.0384	0.000	-0.2206	-0.0700
Church	0.1102	0.0649	0.089	-0.0170	0.2375
Other institutions	0.2369	0.0702	0.001	0.0994	0.3744
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	0.0450	0.0522	0.388	-0.0572	0.1473
Self-employment	0.0138	0.0726	0.850	-0.1285	0.1560
Agriculture	0.2731	0.0734	0.000	0.1293	0.4170
Old age pension	0.3665	0.0547	0.000	0.2593	0.4737
Invalidity pension	1.2634	0.0876	0.000	1.0917	1.4352
Family pension	0.3314	0.1228	0.007	0.0906	0.5723
Unemployment benefit	0.0850	0.2083	0.683	-0.3233	0.4932
Social assistance	0.1235	0.1928	0.522	-0.2544	0.5014
Maintenance	0.8952	0.4080	0.028	0.0954	1.6949
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	0.3768	0.0779	0.000	0.2242	0.5296
Fair	0.6908	0.0783	0.000	0.5373	0.8443
Poor	0.9475	0.0810	0.000	0.7887	1.1063
Very poor	1.1499	0.0880	0.000	0.9774	1.3223
Education in years	-0.1045	0.0078	0.000	-0.1198	-0.0893
Sex					
Ref. <i>Females</i>					
Males	-0.1712	0.0363	0.000	-0.2424	-0.1001
Age	0.6865	0.0239	0.000	0.6396	0.7334
Constance	-1.6324	0.1978	0.000	-2.0201	-1.2447

Source: own estimations

Conclusions

The sections above cut through a variety of possible explanations for the existence of health differentiations and inequalities, searching for an answer to the question of the social determinants of health status.

First, material deprivation – even if controlling for the correlation with education – is found to be an extremely important factor determining health. In fact, the probability of being in less-than-good health increases almost linearly depending on self-assessed incomes, with the poorest suffering the most disadvantageous health outcomes. However, as the analysis suffers from data constraints on the side of income measurement, more detailed analysis of the size of income inequalities in health is needed.

Searching for additional explanations of the differentiation in health status, behavioural and healthy lifestyle factors have been examined. It was found that the incidence of healthy lifestyle varies significantly between social strata and through time. In 1996 smoking was still equitably distributed across educational or income groups, while eight years later a healthy lifestyle had been acquired by individuals with secondary and higher education and individuals with fewer concerns about their wealth. This result, accompanied by the fact that there is an accumulation of unhealthy behaviours such as smoking and alcohol consumption in social groups of recipients on social assistance, has an indirect impact on increasing health inequalities.

Finally, the analysis showed that it is not only the accumulation of disadvantages, such as poor education, low incomes and unhealthy behaviour, that has a negative impact on health and leads to an increase in health inequalities, but also the theory of the negative impact of a lack of social support on health found its confirmation in the Polish population. Namely, a lack of buffering effect from the support of friends and family is among the reasons for health differentiation.

Chapter VI

Inequality in medical services utilization

Introduction

Most of the research dealing with the problem of health inequalities agree that substantial differences in social and economic status are reflected in and stimulate diversification of health in the population. Still, another significant component of health inequalities is access to appropriate medical services. A universal healthcare coverage policy is assured in response to the equity rule implemented in European countries. Still, assurance of access to medical care does not prevent an increase of health inequalities nor differentiation in the level of utilization of medical care (Marmot 2006; Layte, Nolan 2003).

The aim of the presented research is to recognize changes in the volume of medical care utilization and possible educational inequalities in the uptake of their utilization. Again, as with health status in the previous chapter, the utilization of the health services will be considered dynamically, comparing the utilization pattern in 1996 with that in 2004. Possible causes of inequalities (if they exist) are much broader than just educational stratification and the complexity of the phenomenon should be noticed, notably that differences in utilization may occur between social classes not only due to stratification, but also due to other causes such as the availability of different care options (public vs. private care), geographical access to medical services (centres vs. peripheries), access to information on possible treatments and how the need for treatment can be evaluated differently. Some of the possible causes, including demographic characteristics as well as income variations, are tackled below with regression analysis. The research is performed for two points in time which are characterized by different models of the management of medical services which could have resulted in different access to these services. The break point is the reform of the health care system which was introduced in 1999. Thus the analysis also addresses the question of the change in utilization and possible increase/decrease of inequalities as a result of the reform.

1. Recent health care system reforms and access to medical services

Before moving to the micro analysis of utilization patterns and their determinants, the broader context should be provided allowing for better understanding of the organizational and legal arrangements of the availability of care. This is especially important as substantial healthcare system reforms took place in 1999 and 2004 in Poland, in the middle of the period covered with analysis. The aim of the 1999 reform was to change the system of financing and management of the healthcare sector from the communist model (a centrally coordinated and tax-based funded healthcare system) to that of a health insurance based model with a high level of involvement from the different stakeholders (including regional and local self-governing bodies), and targeted towards the privatization of different types of services. The main changes introduced in the

reform of the healthcare system include performance assessment following the various institutions and mechanisms (Golinowska et al. 2002):

- The financing mechanism was changed from a tax-based to an insurance-based model with the insurance premium calculated as a share of individual earnings and which is (at least partly) tax deductible,
- Regional health insurance companies were introduced in the form of Sickness Funds responsible for the recognition of needs and provision of (contracting) medical services,
- Regional and local self-governing bodies became the owners of medical facilities at the regional and local level of management,
- General practitioner (GP) specialty was introduced and separated from other types of care; a gate-keeping function for GPs was introduced at the same time,
- New payment mechanisms (capitation and fee for service) were introduced for GPs and specialist care,

The reform led to a multidimensional decentralization of the healthcare system (territorial, financial) and was aimed at the introduction of an internal market for medical services. The latter was not successful as insurance companies did not compete between each other; rather, the activities of each of them were concentrated in their own region. When analysing the reform, Włodarczyk (2007) pointed out three main dimensions of changes: the decentralization of the funding system and management, deregulation of the ownership responsibilities of medical facilities from the state to self-governing bodies, and the expansion of doctors' responsibilities. The decentralization of financial management was aimed at increasing the efficiency of the system by creating mechanisms that would be more responsive to different regional situations and health needs. In fact, the management in some regions improved which was reflected, for example, in the introduction of data collection and information systems, something which meant that other regions were left behind. Inequalities were also created by the fact that in some of the regions financial resources were insufficient which was caused either by the false recognition of needs or poor management of the available resources. Additionally, Sickness Funds were viewed as the main decision-makers in the sector and in fact they were often the ones who dictated the terms of the contracts with medical services providers.

Further, deregulation of ownership of medical facilities was highly criticized (Golinowska et al. 2002). As a result of the reform, regional and local self-governments became owners of the medical facilities (i.e. county and voivodship hospitals, ambulatory care). However, transfer of responsibility for maintenance of hospitals and ambulatory care was not followed by transfer (i.e. monetary subsidies) or access to adequate financial resources. As a result, the infrastructure of hospitals became outdated in many cases, new investments were insufficient and

the quality of care was far from being satisfactory. Moreover, unfavourable contracts for the hospitals, dictated by the Sickness Funds and a lack of investment by the self-governing bodies, led to a situation in which medical facilities were deteriorating and hospitals were falling into debt.

The third crucial change mentioned by Włodarczyk (2007) was the expansion of the responsibilities of general practitioners. GPs were given the possibility of creating their own private practices, contracting the services out to the Sickness Fund and – in following years – the National Health Fund. They also became responsible for assuring ambulatory care – managing the budget of their own practices and recognizing the healthcare needs of the population covered by a given medical facility. The GPs were also provided with the power to decide upon the necessity of further treatment by a specialist or hospital via the introduction of a gate-keeping function. The aim of the change was to control (or rather constrain) utilization of highly specialized and costly medical services. In fact the data show that the supply of care has changed substantially and that the privatization of ownership of ambulatory care was a success although the process took several years. Still, in 2000 some 58% of the ambulatory care units were publicly owned, while in 2005 the share decreased by half and 73% of the units were privately owned. The privatization does not restrict access to medical services as most of the care is still covered by public health insurance. At the same time utilization of ambulatory care per inhabitant has been increasing and the volume of services was 6.6 services per 1 inhabitant in 2006 per year compared to a figure of 5.3 in 1999 (OECD Health Data 2009).

As a result of the described tensions within the health sector, the unequal share of responsibilities, a lack of recognition and responsiveness to health needs of the population and unstable financial management, the new government introduced a re-centralization reform in 2003. Namely, regional Sickness Funds were transformed into the centrally-managed National Health Fund (NHF) with its regional branches. The change in the structure of financial management was followed by the transfer of competences and responsibilities. The central branch of the NHF was fully responsible for needs assessment, contracting medical services and control. However, the reform was not adequately prepared: with improper data and information analysis it ignored the increasing competences of the management of medical facilities and regional Sickness Fund management capabilities, patients' rights, and the unclear separation of responsibilities between the Ministry of Health and the National Health Fund. As a result the reform was highly criticized by experts and political opponents (Golinowska et al. 2002). Finally, the reform of 2003 was found to be unconstitutional (upon the decision of the Constitutional Tribunal of January the 7th 2004). Following the decision of the Constitutional Tribunal, the reform took a new shape – respecting the criticism made by the Tribunal – and was accepted by Parliament in August 2004. According to the new legal arrangements, the National Health Fund was still in place, but the power of its regional branches increased. They – not the central NHF – were responsible for the provision, monitoring and execution of contracts.

Despite of the fact that financial management changed, some of the problems of the healthcare system have not been resolved and the reform process has not been completed.

Although decreasing, hospital debts are still high and vary significantly between regions, investments in the infrastructure of hospitals and other medical facilities are insufficient, and the basket of medical services that should be available in the publicly-funded healthcare system was introduced only in the last years, which lack for years had been a crucial obstacle to the introduction of private health insurance (MZ 2008). The healthcare system is also unprepared for the increasing health needs that most likely will occur as a result of demographic pressures and increasing demand from the ageing population. Thus, policy discussions are raised on the necessity of increasing the insurance premium or introducing some form of nursing insurance.

Access to medical services had also changed substantially as a result of the 1999 reform . The reform changed the eligibility criteria for care, introducing insurance-based eligibility criteria to the access to care, transferring some responsibilities to medical practitioners, and enabling privatization of GP and ambulatory care. Each of above changes had an impact on the availability of medical services. Furthermore, they might have had an impact on the size of inequalities with regard to access to medical services. The possible areas of inequalities in medical services utilization can be identified as follows:

- ***Problems with coverage to the whole society as a result of the introduction of insurance-based eligibility criteria.*** While the Constitution of the Republic of Poland guarantees coverage to the whole society, as a result of the introduction of health insurance some groups could be left out without access to medical services provided in the public sector. This holds especially for marginalized groups in the society, including the unemployed and recipients of social assistance. It was only in 2004 that payment of insurance premiums was legally assured by the state and respective social insurance institutions (i.e. ZUS for retired employees and self-employed and KRUS for former farmers). However, in the first years after the introduction of the reformed healthcare system, delays in payments were observable. The transition problems with regard to coverage were overcome and, according to the NHF, 98.1% of the total population was covered with health insurance in 2007 (NFZ 2008). Nowadays, the payment of an individual's insurance premium is strongly dependent upon their economic situation, which impacts the number of unemployed and social assistance recipients on the one hand and cash flow of the social insurance institutions on the other (Włodarczyk 2007).
- ***Regional inequalities as well as inequalities between urban and rural areas in access to high quality medical treatment.*** The possible causes of inequalities include differences in the specification of contracts and limits in admittance to public hospitals as a result of the strict terms of contracts, variations in medical infrastructure and access to the new medical technologies as well as the distance to hospital perhaps also playing a role, especially between rural and urban areas.
- ***Waiting times and the introduction of the gate-keeping function*** are two different phenomena; however, both stimulate the search for services in the privately-funded

sector. The introduction of gate-keeping by GPs is a mechanism allowing control over the demand for specialized but costly medical services. Still, in the reality of everyday life waiting times for a specialist service in the publicly-financed sector of the healthcare system decrease the availability of services. The NHF data show that despite an increasing supply in specialist care, waiting times are significant, but strongly differ between regions, the type of care and the type of provider (Sowa 2007). Whilst specialist care facilities organized within hospitals face increasing demand, waiting times for specialist care in local ambulatory care facilities are much shorter. It is also observed that the longest waiting times are for cardiologists, rheumatologists, orthopaedists, ophthalmologists and dentists (Health Consumer Powerhouse 2007, Centrum Systemów Informacyjnych Ochrony Zdrowia 2007). Omitting the GP and receiving services in the privately-financed sector is common as a result of the necessity of the prescription of specialist services by a GP and long waiting times. Some researches indicate that the most rapid increase in the utilization of privately-financed specialist care was observable between 1999 and 2003 (Tymowska 2006). A panel research shows that the share of individuals who received specialist care in private facilities in the year preceding the survey increased from 23% to 40% during that period. These services are financed mostly out of pocket as private insurance in Poland is marginal. The cost of a service depends on the type of service, the academic degree of the doctor and the area where the service is provided: typically, services are more costly in big towns. Acquiring specialist services via the private sector might significantly contribute to the differentiation of utilization of care between socio-economic groups, as poorer individuals might be less willing to pay for medical services. Indeed, previous researches shows that the utilization of specialist services is higher among the better educated with higher incomes (Golinowska, Sowa 2006; Centrum Systemów Informacyjnych Ochrony Zdrowia 2007).

The strategy of avoiding queues to public medical services is observable also in hospital care. At least three types of behaviours are recognized and can be distinguished: (i) avoiding the queue for receiving a necessary treatment by way of a visit to the private practice of the doctor responsible for providing the treatment, followed by treatment in a public facility, (ii) treatment in a public facility (especially hospital) is provided faster to patients who provide a small donation to the foundation that operates by this facility, (iii) often avoiding the queue for hospital services (i.e. operations or other types of costly treatment with long waiting times) is also possible thanks to direct informal payments to specialists providing care in the public hospitals. The scale of the informal payment is unknown; however, experts claim that the behaviour is not as common as a public opinion and the media believe (Tymowska 2006, MZ 2008).

- ***The high level of privatization of some types of services***, i.e. dentistry, gynaecology. Indeed, with these types of services the share of private providers when compared to the share of public providers is high. Additionally, public health insurance covers only a

small part of services provided in dentistry. These two factors significantly decrease the availability of services in the publicly-funded sector.

A valuable insight into the problem of the availability of medical care in Poland is provided by public opinion polls evaluating problems in the healthcare system. The picture of access to healthcare created by various research surveys is not alarming, although some areas of poorer availability of services can be shown. From the variety of medical care, the availability of services from a family doctor is perceived as good (90% - 92% depending on the survey), much better than for other medical services (Eurobarometer 2007, Centrum Systemów Informacyjnych Ochrony Zdrowia 2007). Some limitations in access to care provided by GPs are reported when home visits and night interventions are considered. Still, results of the Eurobarometer survey indicate that access to primary care is perceived slightly better in Poland than on average in the European Union. Poorer access is reported when specialist (including dental) care and hospital care is in question. The main barriers perceived by respondents are waiting times and insufficient supply of care (i.e. the number of hours of care provision). Poorer individuals and inhabitants of rural areas also point to distance and lack of information as barriers to specialist care (Centrum Systemów Informacyjnych Ochrony Zdrowia 2007). Also, the indicator of easy access to hospital services is worse in Poland than on average in the European Union.

However, in the light of the Eurobarometer research, what raises concern is not access to medical services, but the quality of care that is received. Poles evaluate medical services, including GP services, as being of poor quality much more frequently than other Europeans. This result could be questioned as survey results have significant limitations of international comparability (i.e. due to the “optimism” or “pessimism” of different nations or – in the case of quality of healthcare – due to different expectations that different nationalities have of medical care); still, the problem should draw attention of policy makers in the area of health.

Table 22 Subjective assessment of access and quality of medical care

Item		Share of population evaluating medical services (%)		
		GP	Dental care	Hospital
Easy access to care	Poland	90	71	69
	EU-27	88	74	76
Good quality of care	Poland	73	50	42
	EU-27	84	74	71

Source: Eurobarometer 2007

Further analysis of the utilization of healthcare services is interpreted with an awareness of the legislative regulations of access to medical care and the perceived assessment of the availability of medical services. At first, the research concentrates on changes in the utilization pattern of different types of services, which could be partly attributable to healthcare system reform. Further, the research addresses the problem of educational inequalities in the utilization of care.

2. Changes in the medical services utilization

The descriptive analysis of reported utilization demonstrates an increase in the utilization of every type of care. Whilst the proportion of the population reporting at least one hospital visit increased by 11 percentage points between 1996 and 2004, an increase in the utilization of doctors' visits (both primary and secondary care) is much steeper (Table 23). Still, more detailed insight into the type of visit would be advantageous from the perspective of the goals of the reforms described above that were aimed at increasing the volume of primary care services and decreasing the volume of secondary care and cost control. The survey data does not provide this type of information, as visits to doctors reported in 1996 and 2004 are not distinguished between primary and secondary care. However, according to the national statistics covering number of visits in the whole population, the proportion of specialist visits increased from 34.8% to 38.1% in the total number of ambulatory care visits between 2001 and 2005 (Sowa 2007). Thus, it can be assumed that the increase in the reported utilization is – at least to some extent – also related to the increase in the utilization of secondary (specialist) care.

Table 23 Reporting at least one visit in the last 12 months preceding the survey, 1996 and 2004

Item	1996		2004		<i>% of the 1996 rate</i>
	Number	Frequency	Number	Frequency	
Hospital	4304	11.22	3324	12.52	111,59
Doctors visit*	19259	49.07	18787	70.78	144,24
Dentist	9252	23.56	10613	39.98	169,69

*including GPs and specialist care

Source: own calculations

Interestingly, not only did the share of individuals that use medical facilities increase between 1996 and 2004, but also the number of visits per individual grew.

Table 24 Reported utilization of medical services by type of service in the last 12 months preceding the survey, 1996 and 2004

Item	% of number of visits					
	0	1	2-5	6-20	20+	Total
1996						
Hospital	88.78	8.81	2.34	0.07	-	100
Doctors visits*	50.93	19.67	26.39	3.01	-	100
Dentists	76.45	11.08	11.09	1.38	-	100
2004						
Hospital	87.06	9.38	3.42	0.16	0.00	100
Doctors visits*	28.95	11.88	30.30	27.52	1.39	100
Dentists	-	-	-	-	-	-

* including GPs and specialist care

Source: own calculations

Various reasons may be responsible for the observed increase in the utilization of medical services. It could be due to raised awareness of the individual's health needs, increasing access to information on possible treatment as well as increasing access to care which is provided either in the public or in the private sector.

When the distribution of medical services utilization by demographic characteristics is considered, higher utilization of every type of service among females is confirmed, which is similar to earlier findings (Golinowska et al. 2006). In fact, females used medical services more frequently than males in both periods covered with the analysis. However, when the dynamics of

increase in the medical services utilization are analysed, it is seen that the increase in utilization was higher for men than for women.

Table 25 Reported medical services utilization in the last 12 months by type of service and sex

Item	1996		2004	
	males	females	males	females
Hospital	9.32	12.69	11.59	13.20
Doctors' visits*	43.11	53.66	63.72	75.86
Dentists	20.73	25.75	35.76	43.02

* including GPs and specialist care

Source: own calculations

Utilization of medical services also increased for each age cohort and varies between different types of care. Overall, the frequency of utilization of outpatient care (excluding dentistry) and hospital care increases with age (with the exception of females of fertile age). Only for dentistry is the trend reversed; that is to say, the frequency of utilization of dental care decreases with age.

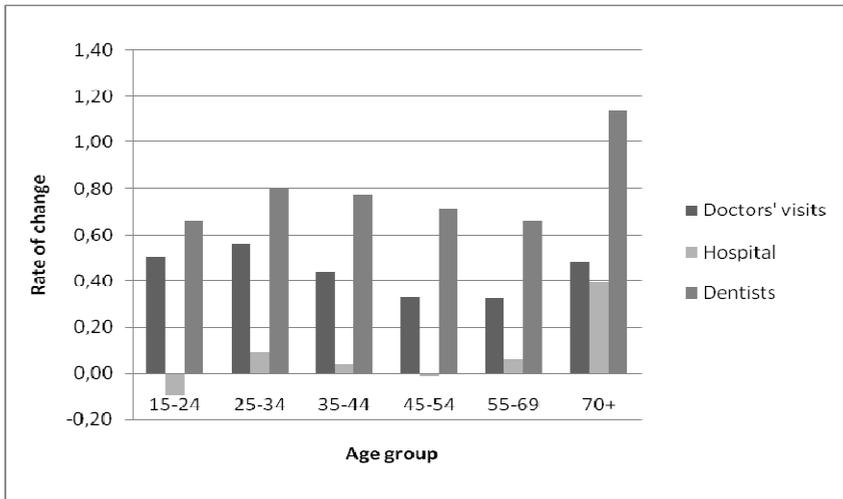
As far as the dynamics of the utilization of care are concerned, the most significant change in utilization is observed for the elderly as the volume of each type of service strongly increased for this age group. While the growth in the utilization of doctors' visits is similar to other age groups, the increase in the utilization of hospital care and dentistry is much higher for the elderly than for younger cohorts. The growth in the utilization of hospital care for this age group can be attributed to either increasing health needs of the elderly or an increase in the number of the elderly⁴², but whatever the reason for the increase it has strong policy implications. A rapid increase in the volume of care provided to the elderly, even in a short period of 8 years, would indicate growing, if not exploding, costs of expensive care for the ageing population in the future.

The increase in the utilization of dentistry services can be explained by an increase in the supply of services and lifestyle changes. Beautiful and strong teeth are a social status factor in developing countries and in a society benefiting from the economic growth, as Poland did during the 1990s and into the new century, well-kept teeth became more common, especially among the elderly in spite of the high costs of dental services, which are highly privatized. The described behavioural pattern is reflected in the high rate of the increase in the dentistry utilization rates. Obviously the use of dental care depends on age as the different types of care which are needed

⁴² The proportion of the elderly (70+) in the sample increased from 9.45% in 1996 to 11.83% in 2004 (own calculations).

change over the life span. Younger individuals more often need fillings, thus they visit dentists more frequently, but the services are less costly, while the elderly often need crowns or dentures, thus their visits are less frequent, but more costly. Still, the largest increase in the utilization of dental services was observable for the elderly (70 years of age and more); notwithstanding this fact, the frequency of the utilization of this type of care is 2.4 times lower for this age group than for the youngest adults (15-24).

Figure 29 Changes in the medical services utilization by age, 1996 and 2004

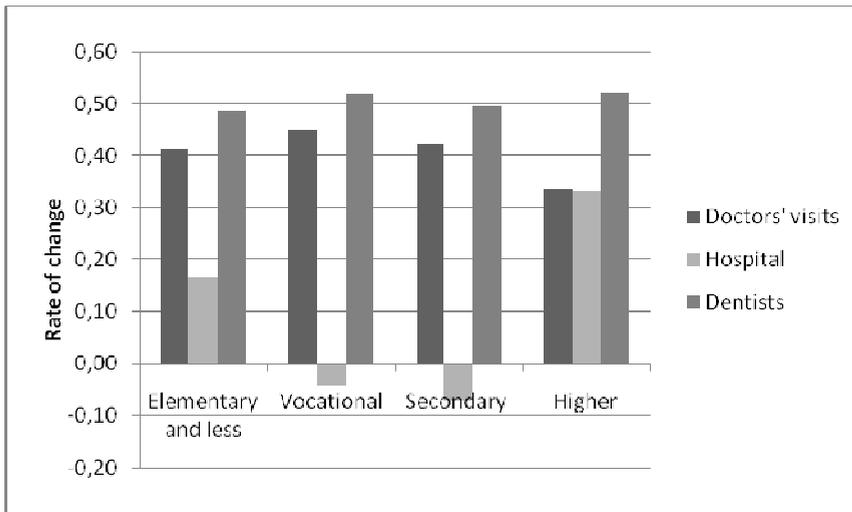


Source: own calculations

Changes in medical services utilization by educational groups are less pronounced. It is observed that the highest increase in utilization of every type of services is among higher educated, which – at least partly - could be attributable to an increasing proportion of the population having a university degree. Thus, further research that would control for changes in the dynamics of education would give more insight into the problem.

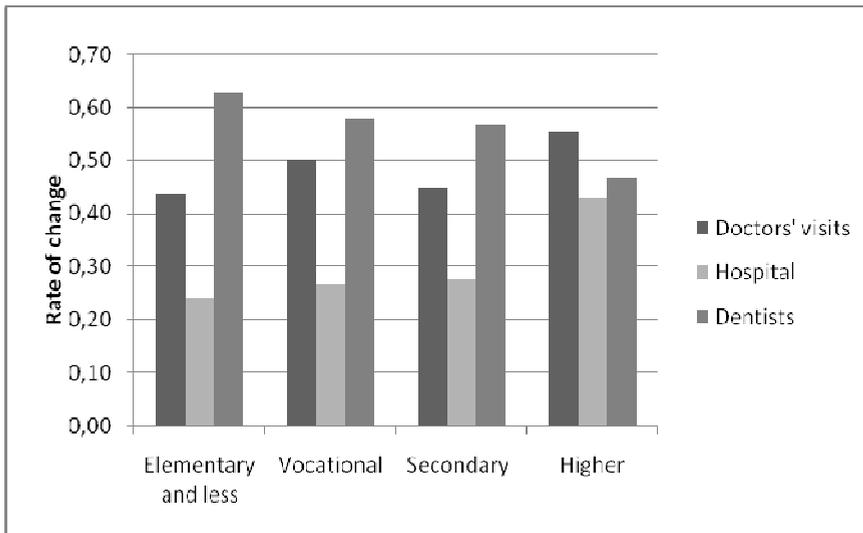
Again, the sharpest increase in utilization is noticeable for dentistry and holds for each educational group, regardless of sex. It is worth underlining that the largest growth (over 60 percentage points) is noted for men with primary education, who had the lowest utilization rate of these services in 1996 compared to other groups as distinguished by education and sex (only 15.17% compared to 37.27% of men with higher education and 17.09% of women with primary education). Despite the change, the utilization level of dental services is still the lowest for men in 2004, but it grew from 15.17% to 24.70%.

Figure 30 Changes in the medical services utilization by education, females, 1996 and 2004



Source: own calculations

Figure 31 Changes in the medical services utilization by education, males, 1996 and 2004



Source: own calculations

To sum up the findings above, it should be underlined that despite the attempts of policy makers driven by the cost control objective, *utilization of every type of medical service increased in Poland between 1996 and 2004. The most substantial increase was observed for primary and secondary care, including dentistry.* When the individual characteristics of the clients of medical care are taken into account, *the steepest increase of utilization was noted for groups that had had relatively low levels of utilization of care (males and the elderly), especially for dentistry.*

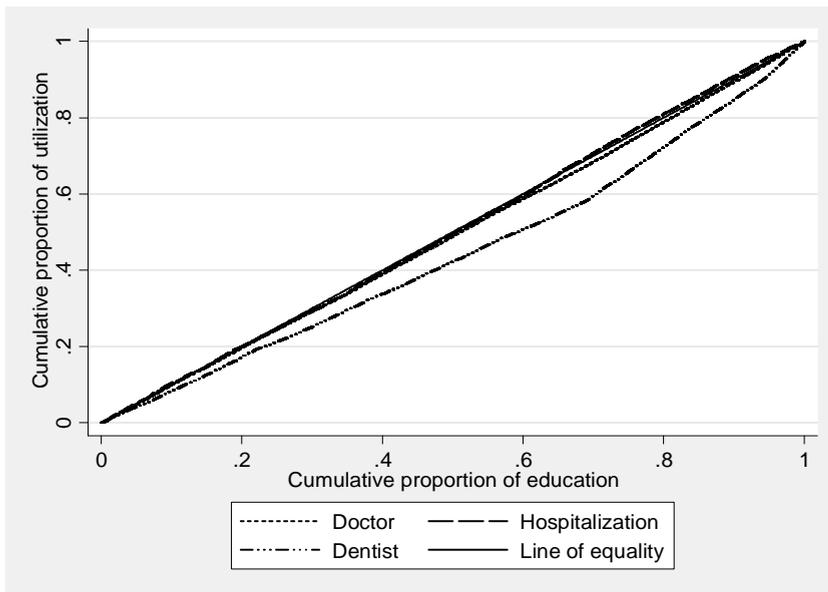
3. Educational inequalities in the utilization of medical care

Recognition of trends in the utilization of medical care and the identification of sharp differences between educational groups brings the research to the question of equality. The main concern is whether the increasing utilization of medical services is equitably distributed between educational strata. In other words, one objective of the research below is to examine whether:

- the utilization of medical services was equitably distributed in 1996 and in 2004,
- inequalities (if they existed) had not increased in the period of 1996-2004, which was also due to the introduction of the healthcare system reform changing the rules of medical services accessibility.

The pattern of utilization across the educational strata and different types of services can be captured using the concentration index, in a similar way to how the health distribution analysis was presented in chapter IV.

Figure 32 Concentration curve of utilization of different types of care, 1996

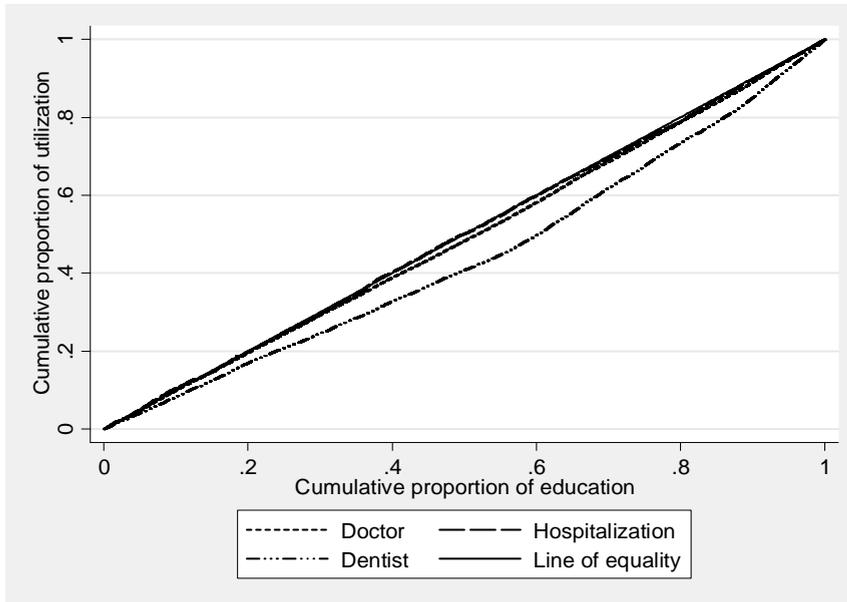


Source: own calculations

The results show that doctors' visits and hospital care were almost equally distributed in 1996. For 2004 the curve representing doctors' visits slightly shifts to the position below the diagonal of the equitable distribution of care while the curve representing utilization of hospital services cuts across the diagonal. Thus hospital care remained almost equitably distributed between educational groups, the utilization of doctors' visits, still being close to an equitable distribution of care, moved upwards. The results are controlled for the impact of age and sex, showing the clear impact of educational stratification on utilization, but when the relations include the impact of age and sex, the distribution of doctors' visits and hospitalization is even slightly "pro-poor" (Sowa 2010). Overall, the result shows that, especially with regard to tertiary care, utilization is almost undifferentiated between social strata and that the reform did not introduce substantial changes in such, thus not violating the principle of equal access to care for different social groups. Still, some doubts can be raised by the fact that secondary care is not specified and selected in the data while the distribution of specialist care might differ from the average distribution of doctors' visits presented in Figures. Access to specialist care, which is to a larger extent privatized, might be less equitably distributed and responsible for the shifting the curve below the diagonal of equality in 2004. In fact, specialist services constitute approximately

35% of the total number of services in ambulatory care while GP visits constitute approximately 53% (GUS 2008).

Figure 33 Concentration curve of utilization of different types of care, 2004



Source: own calculations

Figures 32 and 33 illustrate that the least equitably distributed care among the distinguished types of medical care are visits to dentists. Moreover, the results show that despite the sharp increase in utilization of dentistry among the elderly and males with primary education that was discovered in the descriptive analysis, inequalities between educational groups remain large. Differentiation of dentistry needs and utilization of the dentistry between educational strata was also found in the research by Ostrowska (2009) among the population of Warsaw, Poland's capital city. However, she found that while the need for care was higher among the poorly educated, utilization in this groups was much lower than among the higher educated.

It should be also noted that while primary and tertiary care is found to be almost equitably distributed in most of the OECD countries (some countries even having a “pro-poor” distribution), dentistry is found to be less equitably distributed between social strata than other types of services (Doorslaer et al. 2006). The reasons for this include the high cost of services, which are not always covered by health insurance (or covered in a very restrictive manner),

especially by the public health insurance scheme. Thus access to these types of medical services is strongly dependent upon the individual's ability to pay either via a private health insurance scheme or out of his or her own pocket.

Table 26 Concentration index of utilization of different types of care, 1996 and 2004

Item	Doctor	Hospital	Dentists
1996	0.016	0.003	0.122
2004	0.022	0.003	0.122
<i>Rate of change</i>	<i>0.38</i>	<i>0.00</i>	<i>0.00</i>

Source: own calculations

The graphically presented trends are confirmed by the summary measure, which is the concentration index. The concentration index confirms the almost equal distribution of tertiary care between educational groups, showing also a stable picture of access to care. Thus, *despite the reform, access to care remains almost equal despite the educational group one belongs to*. This is a very positive finding if the assumption is adopted that equal access to care for social strata is among the goals of the reformed healthcare system. At the same time, inequalities in doctors' visits, which were very low in 1996, had increased slightly by 2004. This is not an alarming result, but might reflect decreasing access for the poorly educated and the population with lower incomes to specialist care during the process of privatization. Still, the results are not controlled for in terms of health improvements which were shown in the previous chapter. While inequalities in the utilization of primary and tertiary care are very low, *the value of the concentration index for the more costly services of dentistry indicates much higher inequalities between educational strata*.

4. Impact of other social factors on the utilization of medical care

Individual decisions regarding the utilization of medical care are most of all dependent upon the health status of the individual, but other factors may also be of great importance. The latter include the psychological, social or economic characteristics of an individual: awareness of access to care, willingness to pay in terms of time and money for care, and an awareness of the need to screen one's individual health status. Other factors that may impact the utilization of care include: legal arrangements regulating the accessibility of care, health insurance coverage or fulfilling other eligibility criteria; social factors such as education, income, and the place of living; and the behavioural characteristics of individuals. Not all of the reasons for different patterns of utilization can be addressed by quantitative analysis as some of them are difficult to measure (e.g. psychological factors) or are not covered with the available data sets (e.g. information on the place of living, attitudes towards care). The results above suggest that education is an important factor for decisions about dentists' visits, but this has a minor effect on the utilization of services in other

outpatient and inpatient facilities. Thus, the question of the impact of other factors on the utilization of different medical services is raised. Again, logit analysis is used to examine the correlation between utilization of doctors', hospital and dentistry services by social groups (as differentiated by the main source of a household's income, self-assessment of income status of the household, sex and age). Education is controlled for in the results. The hypothesis that is tested is of the importance of low income and less profitable sources of households' income for the utilization of dentistry, decreasing the probability of utilization of this type of service. Based on above results on educational inequalities in medical care utilization, it is also expected that the economic standing of the family will be of less importance for the probability of utilization of doctors' visits and hospitals.

Overall, the results of the logit analysis show that the impact of social and economic status on utilization of ambulatory and hospital care is very limited and the explanatory value of the models is very small. A better approach is to be found when utilization of the dentists' care is analysed.

The results presented below, together with results of similar earlier research (Golinowska, Sowa 2006) suggest the most important factor responsible for the utilization of this type of care is health need (which is omitted due to the risk of endogeneity). Another general finding is that demographic variables (age and sex) have a more significant impact on the decisions related to visiting a doctor and hospital care, while the income standing of the household is important for decisions with regard to the take-up of the dentistry services. The economic position could be more important here as dentists' services are only partly covered by the public health insurance, being easily available in the private sector (private practices) and typically paid out of pocket.

Table 27 Result of the logit analysis of doctors' visits utilization, 1996

Dependent variable: visiting a doctor at least once during the year preceding the survey

R²= 0.0399

Variable	B	Stand. error	Significance	95% Conf. interval	
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	-0.1357	0.0352	0.000	-0.2047	-0.0667
Self-employment	-0.0912	0.0499	0.068	-0.1890	0.0067
Agriculture	-0.2540	0.0344	0.000	-0.3213	-0.1866
Old age pension	-0.0310	0.0329	0.346	-0.0955	0.0335
Invalidity pension	0.4849	0.0403	0.000	0.4060	0.5638
Family pension	-0.0235	0.0621	0.705	-0.1452	0.0982
Unemployment benefit	-0.4746	0.0695	0.000	-0.6108	-0.3383
Social assistance	-0.2793	0.1184	0.018	-0.5113	-0.0473
Maintenance	0.0014	0.2409	0.995	-0.4708	0.4736
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	-0.1125	0.1255	0.370	-0.3585	0.1335
Fair	0.0480	0.1232	0.697	-0.1936	0.2896
Poor	0.0638	0.1248	0.610	-0.1809	0.3084
Very poor	0.0090	0.1310	0.945	-0.2477	0.2657
Education in years	0.0193	0.0039	0.000	0.0116	0.0270
Sex					
Ref. <i>Females</i>					
Males	-0.4005	0.0210	0.000	-0.4417	-0.3593
Age	0.2218	0.0075	0.000	0.2070	0.2365
Constance	-0.8330	0.1371	0.000	-1.1017	-0.5643

Source: own estimations

Table 28 Result of the logit analysis of doctors' visits utilization, 2004

Dependent variable: visiting a doctor at least once during a year preceding the survey

R²= 0.0649

Variable	B	Stand. error	Significance	95% Conf. interval	
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	-0.0842	0.0406	0.038	-0.1638	-0.0046
Self-employment	-0.2906	0.0570	0.000	-0.4023	-0.1788
Agriculture	-0.3685	0.0572	0.000	-0.4806	-0.2564
Old age pension	0.1331	0.0461	0.004	0.0427	0.2234
Invalidity pension	0.5662	0.0685	0.000	0.4320	0.7005
Family pension	-0.0546	0.0952	0.566	-0.2413	0.1320
Unemployment benefit	-0.4575	0.1563	0.003	-0.7639	-0.1511
Social assistance	-0.4863	0.1434	0.001	-0.7673	-0.2054
Maintenance	0.1474	0.1613	0.361	-0.1686	0.4635
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	0.1607	0.0612	0.009	0.0408	0.2806
Fair	0.1570	0.0614	0.011	0.0367	0.2774
Poor	0.0428	0.0631	0.497	-0.0807	0.1664
Very poor	-0.0262	0.0676	0.699	-0.1587	0.1063
Education in years	0.0289	0.0059	0.000	0.0173	0.0405
Sex					
Ref. <i>Females</i>					
Males	-0.5684	0.0285	0.000	-0.6243	-0.5126
Age	0.2940	0.0100	0.000	0.2744	0.3137
Constance	-0.2526	0.1089	0.020	-0.4660	-0.0392

Source: own estimations

The probability of visiting a doctor increases with age. It is also higher for pensioners and individuals living in households where the main income is from invalidity. This result most likely reflects the higher health needs in the two groups. On the other hand the probability of visiting a doctor is lower in households where the main source of income is from the agriculture, which could imply poorer access to medical care in rural areas (the result is similar in both years under analysis). Unfortunately the variable representing the level of urbanization was not available in the data set. The impact of other social factors (especially income) on the take-up of doctors' visits does not create a clear pattern, which could mean that the services are almost equally available across economic strata as was indicated by the result of the concentration curve analysis.

Table 29 Result of the logit analysis of hospitalization, 1996

Dependent variable: at least one hospitalization during a year preceding the survey

R²= 0.0214

Variable	B	Stand. error	Significance	95% Conf. interval	
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	0.0112	0.0594	0.851	-0.1052	0.1275
Self-employment	-0.0985	0.0872	0.258	-0.2693	0.0723
Agriculture	0.1504	0.0550	0.006	0.0427	0.2581
Old age pension	0.0999	0.0507	0.049	0.0006	0.1992
Invalidity pension	0.5160	0.0560	0.000	0.4063	0.6257
Family pension	0.2125	0.0876	0.015	0.0408	0.3842
Unemployment benefit	0.1507	0.1053	0.152	-0.0557	0.3570
Social assistance	0.2695	0.1716	0.116	-0.0669	0.6059
Maintenance	-0.0832	0.4295	0.846	-0.9251	0.7586
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	-0.0857	0.2033	0.673	-0.4842	0.3127
Fair	-0.0149	0.1993	0.940	-0.4056	0.3758
Poor	0.1502	0.2012	0.456	-0.2443	0.5446
Very poor	0.1672	0.2089	0.423	-0.2422	0.5767
Education in years	0.0193	0.0061	0.002	0.0073	0.0312
Sex					
Ref. <i>Females</i>					
Males	-0.3109	0.0332	0.000	-0.3759	-0.2460
Age	0.1688	0.0119	0.000	0.1455	0.1922
Constance	-2.8430	0.2215	0.000	-3.2771	-2.4090

Source: own estimations

Table 30 Result of the logit analysis of hospitalization, 2004

Dependent variable: at least one hospitalization during a year preceding the survey

R²= 0.0282

Variable	B	Stand. error	Significance	95% Conf. interval	
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	0.0719	0.0608	0.237	-0.0473	0.1912
Self-employment	-0.1143	0.0904	0.206	-0.2914	0.0628
Agriculture	-0.1982	0.0922	0.032	-0.3789	-0.0174
Old age pension	0.2781	0.0596	0.000	0.1613	0.3949
Invalidity pension	0.7300	0.0735	0.000	0.5859	0.8741
Family pension	0.0841	0.1178	0.475	-0.1468	0.3150
Unemployment benefit	0.1490	0.2381	0.531	-0.3177	0.6157
Social assistance	0.3629	0.2007	0.071	-0.0304	0.7563
Maintenance	-0.2583	0.3031	0.394	-0.8524	0.3358
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	-0.1405	0.0832	0.091	-0.3035	0.0225
Fair	-0.1292	0.0832	0.120	-0.2922	0.0338
Poor	-0.0602	0.0846	0.477	-0.2259	0.1055
Very poor	-0.0497	0.0898	0.580	-0.2258	0.1263
Education in years	0.0149	0.0076	0.051	-0.0000	0.0298
Sex					
Ref. <i>Females</i>					
Males	-0.1086	0.0382	0.004	-0.1834	-0.0338
Age	0.1921	0.0141	0.000	0.1644	0.2198
Constance	-2.8294	0.1505	0.000	-3.1244	-2.5344

Source: own estimations

A similar picture is found for the correlates of hospital care utilization. Here, social factors are even of less importance, which is actually a positive sign from the perspective of the evaluation of the healthcare system, indicating equality of access to the hospital care. Hospitalization is correlated only to sex (negatively) and to age (positively), which in 2004 is also reflected in the higher probability of hospitalization for individuals living in households where the main source of income is from a pension. The negative correlation of utilization of any type of service to being male was also found in previous research on the utilization of the medical services in Poland (Golinowska, Sowa 2006) and could be related to the better self-assessed health status of men that was described in more detail in the previous chapter.

Table 31 Result of the logit analysis of dentists' visits, 1996

Dependent variable: dentists' visit at least once during the year preceding the survey

R²= 0.0615

Variable	B	Stand. error	Significance	95% Conf. interval	
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	-0.1773	0.0401	0.000	-0.3290	-0.2285
Self-employment	0.0148	0.0544	0.786	-0.0919	0.1214
Agriculture	-0.2636	0.0422	0.000	-0.3464	-0.1808
Old age pension	-0.0961	0.0412	0.020	-0.1768	-0.0154
Invalidity pension	-0.0873	0.0496	0.078	-0.1845	0.0098
Family pension	-0.3532	0.0887	0.000	-0.5270	-0.1793
Unemployment benefit	-0.3723	0.0843	0.000	-0.5377	-0.2070
Social assistance	-0.0523	0.1377	0.704	-0.3222	0.2176
Maintenance	0.0047	0.2631	0.986	-0.5110	0.5204
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	-0.2698	0.1324	0.042	-0.5292	-0.0103
Fair	-0.3949	0.1299	0.002	-0.6495	-0.1403
Poor	-0.5102	0.1324	0.000	-0.7698	-0.2507
Very poor	-0.5875	0.1421	0.000	-0.8660	-0.3091
Education in years	0.1117	0.0046	0.000	0.1027	0.1207
Sex					
Ref. <i>Females</i>					
Males	-0.2788	0.0257	0.000	-0.3290	-0.2285
Age	-0.2691	0.0092	0.000	-0.2871	-0.2511
Constance	-1.0305	0.1471	0.000	-1.3188	-0.7421

Source: own estimations

Table 32 Result of the logit analysis of dentists' visits, 2004

Dependent variable: dentists' visit at least once during a year preceding the survey

R²= 0.0999

Variable	B	Stand. error	Significance	95% Conf. interval	
Main source of HH's income					
Ref. <i>Position in a public sector</i>					
Position in a private sector	-0.1103	0.0387	0.004	-0.1862	-0.0343
Self-employment	0.1603	0.0550	0.004	0.0526	0.2680
Agriculture	-0.2353	0.0580	0.000	-0.3490	-0.1216
Old age pension	-0.1707	0.0426	0.000	-0.2542	-0.0872
Invalidity pension	-0.2432	0.0614	0.000	-0.3635	-0.1228
Family pension	-0.3856	0.0952	0.000	-0.5723	-0.1990
Unemployment benefit	0.1021	0.1597	0.523	-0.2110	0.4152
Social assistance	-0.3931	0.1651	0.017	-0.7167	-0.0694
Maintenance	0.0880	0.1616	0.586	-0.2287	0.4047
Self-assessment of income situation					
Ref. <i>Very good</i>					
Good	-0.0513	0.0579	0.376	-0.1648	0.0623
Fair	-0.1440	0.0582	0.013	-0.2581	-0.0299
Poor	-0.2636	0.0601	0.000	-0.3814	-0.1458
Very poor	-0.5379	0.0657	0.000	-0.6667	-0.4091
Education in years	0.1527	0.0056	0.000	0.1416	0.1637
Sex					
Ref. <i>Females</i>					
Males	-0.3957	0.0278	0.000	-0.4501	-0.3413
Age	-0.3093	0.0098	0.000	-0.3285	-0.2901
Constance	-0.8843	0.1032	0.000	-1.0865	-0.6820

Source: own estimations

The results of the analysis relating to the social and economic correlates of dentists' visits confirm the previously presented picture of raising inequalities in access to this type of medical care. Next to demographic factors, the likelihood of visiting a dentist is significantly related to reported income and its main source. As it was expected, lower income decreases the probability of visiting a dentist when compared to individuals living in households with a sufficient income level. Besides this, a lower probability of visiting a dentist is observable in households with incomes from non-earned sources (not only from old age and invalidity benefits, but also from family pension and social assistance) which typically indicates lower incomes when compared to households of public employees. A simply picture comes out of the analysis: one visits a dentists if he/she can afford it.

Similarly to previous results, being male is negatively correlated with the utilization of dentistry, but also older age is a factor decreasing the probability of visiting a dentist even though the descriptive analysis showed high increases in the utilization of dentistry in older age cohorts.

Summing up, research on the different correlates of the utilization of care, the basic patterns of utilization of the three distinguished types of care at the micro (individual) level can be identified. ***The typical client of outpatient services would be an elderly female, often sustained by a retirement or invalidity pension. Incomes or education play a minor role in the utilization of outpatient care.*** Likewise, ***the same characteristics would be typical for hospital patients.*** On the other hand, ***dentists' clients would again most likely be female, but younger and living in households of employees, which are also less likely to be poor households.***

Conclusions

To conclude, several trends in the utilization of the medical care in Poland have been identified. First of all, it is observed that the utilization of care in terms of the proportion of the population visiting a doctor, a hospital or a dentist at least once a year increased, as well as the mean number of visits during a year growing. The observation of increasing utilization of care is also striking due to the fact that the reform introduced in 1999 was targeted towards a decrease in the utilization of specialist and hospital care. This could be explained either by recognizing the strategies that individuals use to allow them to overcome constraints in service utilization (such as making use of the private sector to avoid queues) or by an increasing number of GP visits every time one wants to visit a specialist which is a result of gate keeping. Increasing utilization of care – especially dentistry, which is expensive but which is a very immediate & visual presentation of improvements in the wellbeing of society – could also be a sign of increasing concerns of the individual for his or her own health and raising awareness of health needs. On the other hand, growing utilization of care, also among elderly, has important implications for the efficiency of the healthcare system as it could contribute to increasing waiting times for services and increasing costs for the healthcare system. The observations above lead to the conclusions that increasing health awareness drives health needs which is reflected in increasing utilization of care. This finding suggests that the improved economic conditions combined with more attention given to care could have a positive impact on the health of the population in the future, but it could also lead to an increase in health expenditure due to rising demand for medical care, especially for more costly treatment.

The analysis showed that while hospital care and doctors' visits are almost equitable distributed across educational and income strata, access to dentistry is much less equitable and these inequalities have remained over time. In light of the results above, the recommendations of the WHO Commission on the Social Determinants of Health related to the necessity of assuring access for the poorly-educated with lower incomes to the more expensive treatment, which is often not covered by the public health insurance scheme, should be of great concern to the policy makers.

Finally, it should be noticed that the available data set did not allow for distinguishing the utilization of outpatient care over the year to the care provided by the family doctors and the care provided by specialists other than dentists. It could be the case that the services provided by family doctors are more equitably distributed, while services provided by specialists reproduce the pattern discovered for the dentistry. The latter hypothesis, together with an attempt to reproduce the behavioural pattern of the utilization of specialist care would need further research.

Chapter VII

Health inequalities in national policy

Introduction

Following the research on the size and determinants of health and medical services utilization inequalities, an interesting question is whether they have been adequately addressed in national policy debates. If so, there should be public policy strategies targeting the problems of differences in health and healthcare services utilization in place. Thus *the objective of this last chapter of the dissertation is to identify national public policy programmes targeted at health improvement as well health and medical services inequalities and to discuss their goals in the face of earlier findings*. The first step of the analysis is to identify policies or programmes that address the above problems. Further, two types of questions are asked with respect to the mentioned policies:

- Are the policy goals relevant to the health problems of Polish society?
- Do policies aim at targeting health and/or medical services utilization inequalities exist and, if so, is the policy responsive to the inequalities discovered in the previous chapters?

It should be noted however that the following discussion is not meant to evaluate the policies themselves. This task would be too complex for a single chapter of a dissertation and it is beyond the scope of inequalities analysis. In order to evaluate policy programmes it would be necessary to conduct additional research and take up specific measures to assess whether the objectives of policies have been reached. As a result, questions on the implementation, monitoring, effectiveness, efficiency and sustainability of specific policies are not asked. Hereafter, national policies are only discussed with respect to health improvements and health inequalities.

1. Policies towards health improvement and health inequalities

Several policy documents listing health improvement as an important policy objective can be found among the governmental strategies. These include:

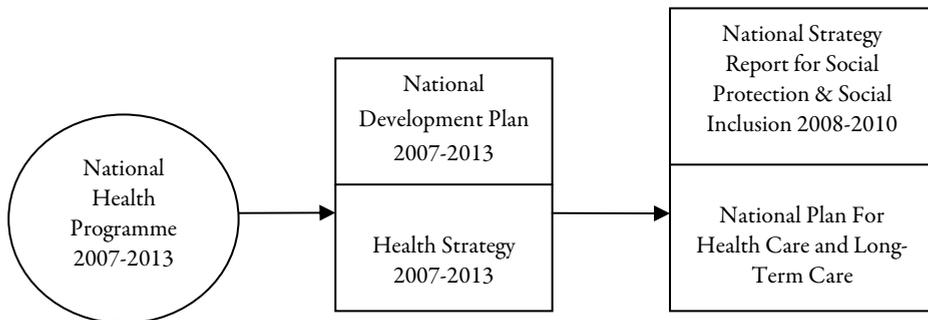
- National Plan for Health and Long-Term Care within the National Strategy Report on Social Protection and Social Inclusion 2008-2010,
- Health Strategy for Poland for the years 2007-2013,
- National Health Programme 1996-2005 and 2007-2015,
- National Health Plan and Regional Health Plans 2004-2013.

The documents differ in the rationale for their existence. Two of them are a requisites of European Commission policy, others are imposed by national regulations relating to the organization of the healthcare system and other governmental dispositions. Some of these documents concentrate on the healthcare system development, while others put much more emphasis on the health status of the population. At the same time, partially due to the fact that they are targeted to different institutions and readers, they are overlapping in the scope of their interest, especially where health is concerned.

1.1 National Plan for Health Care and Long-Term Care 2008-2010

The first document listed, the National Plan for Health Care and Long-Term Care, is a part of the National Strategy Report on Social Protection and Social Inclusion 2008-2010 prepared by the Ministry of Labour and Social Policy within the open method of coordination and submitted to the European Commission. It is an important strategy document, covering the whole social protection sector in a very comprehensive manner, aiming at social cohesion and social inclusion, equality, effective and inclusive labour market policy and good governance as objectives of the social protection sector in the EU member states⁴³. In the field of healthcare, the document summarizes the legal and financial organization of the healthcare sector, while for the strategic objectives it refers to the Health Strategy for Poland for the years 2007-2013. The latter was developed as a part of the National Development Plan for 2007-2013 and was accepted by the government in June 2005. To give the complete picture of interrelations between the policy documents it should be mentioned that some of policy objectives of the Strategy are linked to the National Health Programme 2007-2015. The picture of interrelation might seem fuzzy, but it can be presented in a simple schema:

Schema 8 National health policies



Source: own compilation

⁴³ http://ec.europa.eu/employment_social/spsi/common_objectives_en.htm

The objectives of the National Plan for Health Care stem from the Health Strategy document, which is described in more detail below, as well as from monitoring the results of the previous edition of the National Strategy Report for Social Protection and Social Inclusion (2006-2008). They also reflect well experts' and policy makers' discussions on the need to increase the efficiency of the healthcare system and the fact the health system is subject to ongoing reform. The listed objectives can be treated as a list of the long-term goals of the Ministry of Health policy and includes:

1. Preparation and implementation of legal regulation that will enable health care providers to operate in a way that enables them to increase their efficiency and ensure stable economic operation,
2. Implementation of a basket of healthcare services that are guaranteed within the public health insurance system,
3. Creation of a modern medical emergency system,
4. Introduction of new forms of the healthcare funding, especially voluntary supplementary insurance,
5. Introduction of a nursing insurance,
6. Continual improvement of the health insurance system, limiting pathologies and resulting in better financial management and supervision of the resources' use,
7. Creating a healthcare information system
8. Development of the system of evaluation of health care services quality
9. Strengthening the process of diagnosis and treatment of cancer.

The National Plan for Health Care concentrates on the organization of the system, not directly mentioning health outcomes or health inequalities; however, indirect results of the strategy would be an assurance of the health care services quality and health improvement on the one hand and equality of access and treatment on the other. When it comes to the implementation of the strategy, some activities towards reaching the objectives mentioned before have been undertaken whilst others still seem to be in the distant future. Examples of actions that became a part of political debate include:

- actions towards the privatization of hospitals so as to increase their efficiency had been proposed, but had not gone through the legislative procedure having not been accepted by the president. Thus the proposal of the new legislation is under the process of reconstruction.

- regulations for the operation of the state emergency care system were introduced (Act on the State Emergency Medical Services⁴⁴). In fact the medical emergency system started to operate in January 2007 and while feedback on the first experiences of the effectiveness of the system have been gathered, work on the improvement of the system have already been undertaken.
- the basket of guaranteed medical services was introduced in August 2009⁴⁵. The legal act introduced regulations for the qualification of medical services to a list of services that are to be financed from public health insurance and as such guaranteed to the population covered. In fact, the list as proposed by the Health Minister is very broad, excluding only 300 medical procedures such as plastic surgery, vaccinations against flu, sex change operations and in-vitro procedures. Obviously, the list has been criticized. One argument is that the process of assessment through which medical procedures should be screened is not transparent enough⁴⁶, another that the list of procedures included/excluded should be modified⁴⁷. The fact of the creation of the basket of guaranteed medical services has also been criticized for creating inequalities in access by enhancing private payments for certain services whilst the government argues that it promotes equality, guaranteeing access to basic medical procedures to every citizen covered with the health insurance. The reality seems to be even more complicated as some of the services, even though they are available free of charge according to the legal regulations, might not be available due to long waiting lists. In such situations patients who can afford private payments often decide to take up the service privately while others risk their health waiting for the service to be available in the public health sector. The result would be higher inequalities in access to, or utilization of, services that are provided to an insufficient degree by the public sector. In fact, the analysis of inequalities in utilization of specialist services presented in the fifth chapter confirms that lower socio-economic groups are excluded from these services and the implementation of the guaranteed basket of services will not change that unless the volume of available medical services in the publicly-funded sector increases.

⁴⁴ Journal of Laws No 191, item 1410 with further amendments accepted in September 2006.

⁴⁵ Journal of Laws No 118, item 989, accepted in June 2009.

⁴⁶ The process has been criticized by political opponents as being too arbitrary even though a Health Technology Assessment Agency that is responsible for recommending the procedures to be included in the basket of the guaranteed services has come to life. The Agency bases its recommendations on the assessment of the impact of the procedure on the health status of the population, health priorities, morbidity, effectiveness of the procedure, its possible negative side effects, ratio of positive health outcomes to the risk related to the procedure, ratio of costs to the health effects, and financial sustainability of the health care system (Journal of Laws No 118, item 989, paragraph 31a, no 1).

⁴⁷ A "hot topic" is whether in-vitro procedures should be included in the list of medical procedures guaranteed in public health insurance.

To sum up, the questions stated in the introduction to this chapter should be answered:

Are the objectives of the Plan relevant to the health problems of Polish society?

Although the main goal of the Plan is to improve the health of the Poles, health problems of the Polish society are addressed indirectly, the only exception being the last point targeted towards a decrease in mortality due to malignant neoplasms. The Plan should be treated rather as a document that presents a general strategy to enhance the development of the healthcare system with its main direct objective being to increase the efficiency of the healthcare system what does not necessarily translate into improving health outcomes or increasing access to medical services. Nonetheless, the objective of the development within the scope of diagnosis and treatment of cancer is of great importance from the point of view of health improvement. Cancers are the second largest cause of deaths in Poland and mortality due to cancers have been constantly increasing in recent years (Table 5, chapter III). In fact the objective of the Plan is an elaboration of the fact that a policy targeted of decreasing cancer mortality has been in place and operating since 2005. Namely, the National Programme to Overcome Cancers has been operating since that date. The Programme is targeted towards a slowdown in the increase in cancer morbidity, an increased early diagnosis of cancer, an increase in the effectiveness of treatment, promoting innovative knowledge-based oncology, and the introduction of a system of monitoring cancer treatment. This is not the place to evaluate the Programme itself, but its existence and high priority in the activities of the Ministry of Health is worth noticing, especially as almost all of the strategies targeted at health or the healthcare system refers to it.

Does the Plan aim at targeting health and medical services utilization inequalities, especially the ones recognized in the previous chapters?

The Plan does not address the issue of any type of health or medical services utilization inequalities; still, some of the objectives – if translated into activities and implemented – might have an impact on inequalities, especially inequalities in medical services utilization. This holds for the objective of introducing a basket of guaranteed healthcare services and the introduction of voluntary health insurance:

- the introduction of a basket of guaranteed healthcare services enables access to basic services to all insured, at least in the rule of law. Still, access might be restricted by waiting lists and an insufficient number of medical procedures. Additionally, equal access to basic services does not imply quality of these services.
- the introduction of voluntary health insurance might have diverse effects on equality, depending on the legal framework for the operation of health insurance and the strategy

of insurance companies. Namely, if private additional insurance plans became common, they might lead to a decrease in inequalities enabling access to medical services to groups that have problems with receiving them from public healthcare, paid for from the National Health Insurance (NHI); however, if the additional insurance plans would concentrate on “better risks”, allow for avoiding waiting lists for specialized medical procedures or become available only to wealthier groups of the society, they would lead to an increase in inequalities.

1.2 Health Strategy 2007-2013

The Health Strategy 2007-2013 came to life as an element of a strategic document – the National Development Plan which was created in 2005 by the government to present the objectives of the national policy and claim financial resources from the EU budgetary perspective 2007-2013. The Strategy was prepared mainly within the Ministry of Health which is also responsible for its implementation. It has been implemented based on the legal regulation on the National Development Plan of April 20th 2004 and after a process of negotiations with the European Commission, the objectives of the Health Strategy have been addressed by two operational programmes of the EU – the Human Capital Programme and the Infrastructure and Environment Programme which are financed by the European Union Structural Funds.

The Health Strategy covers a wide spectrum of healthcare system activities including health promotion, disease prevention, health education, assurance of access to medical facilities and finally health gains. Specifically, the Health Strategy includes the following objectives:

1. Increasing society’s healthcare safety:
 - development of the medical emergency system;
 - preventing negative health consequences from exposure to harmful physical, chemical and biological environmental factors;
 - preventing the dangers related to food safety through the implementation of biological risk assessment indicators including monitoring chemical pollution;
 - preventing negative health consequences of exposure to harmful environmental factors present in drinking water.
2. Improving the effectiveness of healthcare system operation:
 - maximizing health benefits by increasing the effectiveness and higher quality of treatment;
 - reducing information shortages in the course of shaping health policy;

- implementing regulatory elements in the sphere of healthcare services that rationalize demand;
 - optimization of the use and cost of medicinal products;
 - investing in healthcare infrastructure.
3. Adapting healthcare to the dynamics of long-term demographic trends:
- improving the health of women of reproductive age, newborns and infants;
 - improving the health of children and young people;
 - ensuring proper healthcare for employees in work environments;
 - ensuring proper healthcare for elderly people, lengthening the period during which their psychophysical performance is still high and they are capable of performing their social functions.
4. Improving the state of health of Polish society to such an extent that would make it possible to bridge the gap that exists between Poland and an average level of health in the European Union:
- execution of the updated National Health Programme for the years 2006-2015;
 - strengthening society's participation in the activities making it possible to achieve the objectives included in the National Health Programme for the years 2006-2015;
 - decreasing the number of incidences of and deaths from chronic non-infectious diseases.

Overall, the Strategy comprises information on what should be done in four areas, which is very important not only for the healthcare system performance (as in the previous case), but for the health of the population: public health and health at work, the healthcare system management, healthy ageing and health improvement. The document also underlines the relation between health status and the labour market. It expresses the belief that health improvement of society in the future will lead to a decrease in labour costs and extend the period of labour market activity of a healthy society which in turn should be reflected in economic growth. As a result of such an attitude, the Health Strategy does well in addressing the issues of ageing and related health and long-term care needs, which are of great concern for the EU (i.e. for the activities of

the Ageing Working Group that examines the effect of ageing on the public finances of the social sector) and the WHO as was expressed in the *Health 21* strategy (WHO 1999).

When it comes to the construction of the Strategy, it is linked to the National Plan for Health Care as the latter builds on it on the one hand and to the National Health Programme (NHP) on the other (namely, the draft version of the NHP created in 2006) to which the Strategy refers to. However, the objectives of the Strategy are very general and it is difficult to link them to specific actions of government. Additionally, according to the documents approved by the European Commission, only the first and some parts of the third objective have been addressed by the operational plans of Investments and Environment as well as Human Resources while the other objective overlaps with other programmes and activities. Examples of objectives and activities listed within the Strategy but targeted by other programmes include investments in water safety and the emergency system, implementation of ISO quality management financed by structural funds in 2004-2006 (the Commission on the preparation of the report *The green book of healthcare financing in Poland II*, 2009), the creation of an information system, public health actions, the creation of recreational areas for children and youth financed from the Norwegian Financing Mechanism in the period of 2007-2013, the prevention of diseases financed from the budgetary resources within the National Programme to Overcome Cancers. The fact of overlapping of different programmes that results in the Strategy is not a critique, but it is worth noticing that the Strategy refers to activities that are well beyond the EU 2007-2013 budgetary perspective and operational programmes.

Are the objectives of the Plan relevant to the health problems of the Polish society?

The Strategy addresses health improvement using various measures. It does not provide measurable objective of the health outcome that should be reached by 2013, still almost all of the objectives and activities keep the health improvement of the population as a target in mind.

Firstly, it emphasizes the importance of prevention for the health of the population via stipulating activities targeted towards the creation of healthy work and home environments. It should be noted that since the beginning of the economic transformation in 1989 a lot has been done in this area by introducing environmental friendly legal regulations in industry, especially heavy industry and investments in infrastructure (i.e. access to water pipe lines in smaller towns and rural areas). Still, further investments are needed and should have a positive impact on health in the long run.

Secondly, the strategy encourages the increasing effectiveness of medical treatment and investments in medical infrastructure. In fact, local governments that are owners of the medical facilities after the healthcare system reform of 1999 often are not able to finance investments in infrastructure to a sufficient degree. Thus efforts and support to local governments in improving facilities are needed. What is more, acquired medical instruments

and equipment should be used efficiently and distributed adequately to meet the populations' health needs.

Further objectives of the strategy are directly targeted towards the health improvement of specific groups of the society: the young, the elderly, and the severally ill with non-communicable diseases. They respond well to two observations: the fact that the population is ageing and the that non-communicable diseases (CVC and cancers) are the main killers in modern society. Thus the adequacy of the objectives is obvious.

Does the Plan aim at targeting health and medical services utilization inequalities, especially the ones recognized in the previous chapters?

Concentrating on health improvement of specific age cohorts in society, the Strategy does not address the social and economic inequalities in health within society, as defined in chapter I of the dissertation.

1.3 National Health Programmes 1996-2005 and 2007-2015

It has already been mentioned that one of the most important national strategies aimed at the improvement of health status of the Polish population is the National Health Programme (NHP), which was also referred to in the National Plan for Health Care and Health Strategy. The first edition of the NHP was implemented in the period 1996-2005. At this time the programme was a response to the problem of poor health in society, which was reflected in a high mortality rate due to CVC and external causes of deaths and – in addition - the increasing morality rate since the mid-70s of the twentieth century (Halik, Kuszewski 2007). Behavioural factors that were believed to be highly relevant and responsible for poor health included high consumption of alcohol and high smoking prevalence. The idea behind the Programme was that health improvement is possible only when complex activities of the public sector institutions towards the creation of a healthy environment and behavioural changes are undertaken. Still, the implementation of the Programme was not a high priority activity for changing governments (Halik et al. 2007). It was a period characterized by the introduction of basic reforms to the three pillars of the social sector: pensions, education and healthcare system, as well as the introduction of administrative reform in those areas in which public activities concentrated. The authors of the NHP also claim that appropriate legal arrangements were not implemented and that the Programme suffered from a lack of adequate financial resources (Halik et al. 2007). However, regional and local governments together with non-profit sector organizations took responsibility for public health activities and – as a result – implementation of the NHP at that time. Nonetheless, the monitoring of the NHP 1996-2005, which began in 1998 and was completed in 2005, stated that the objective of health improvement had been reached. The monitoring, however, concentrated only on the improvement of mortality indices, while the actual activities

implemented within the Programme had not been evaluated, which is the weakness of the evaluation. This was due to the fact that a comprehensive monitoring system was not designed and implemented together with the Programme. As it was shown in the chapter II, rapid health improvement and a decrease in mortality had been observed during the period of 1996-2005, but it could be attributed to various factors that might not be related to the NHP implementation.

Despite the fact that the NHP 1996-2005 had been recognized as a success, at the final stage of its implementation a forum of 40 experts representing institutes working in the public health field began discussions on the next edition of the Programme (Halik et al. 2007). They built on the experiences gained from the implementation of the NHP 1996-2005 and the first results of monitoring as well as similar strategies undertaken in other countries, especially in Denmark⁴⁸ and Hungary⁴⁹ in addition to WHO and EU recommendations with respect to health. Consensus on the content of the Programme was difficult to reach. The first draft of the Programme was submitted to the Ministry of Health in January 2006 (to this project Health Strategy referred to), but it was criticized for being too broad and not concentrating enough on the morbidity and mortality of the population. In other words, the Programme was criticized for interpreting health as an outcome of social and economic circumstances and addressing health with complex public health measures for understanding the impact of behavioural changes on health together with the necessity of creating a social environment that should be health friendly. The approach, recommended by the WHO strategy for the European Region as presented in the document *Health21*, was partly withdrawn as a result of such criticism. Finally, the second edition of the National Health Programme was accepted by the government on May 15th 2007.

The comparison of the objectives of the two editions of the National Health Programme grew. Whilst the first edition of the NHP only concentrated on factors that directly impact health status of the population and decrease the risk of premature mortality, the second edition of the NHP broadens its interest to operational objectives that address the health of age cohorts and underline the involvement of regional and local governments in the implementation of the strategy and link their activities to the final outcomes, which is the improvement of health of the population. The latter nicely expresses the fact that regional and local governments have been crucial for the implementation of the Programme in 1996-2005.

⁴⁸ The Danish Government Programme on Public Health and Health Promotion 1999-2008, Copenhagen 1999.

⁴⁹ 'Johan Béla' National Programme for the Decade of Health, Budapest 2003.

Table 33 Goals of the National Health Programmes 1996-2005 and 2007-2015

National Health Programme 1995-2006	National Health Programme 2007-2015
<p><i>I. Strategic goals</i></p> <p>Improvement of health and quality of life of the society by:</p> <ul style="list-style-type: none"> - creation of conditions, motivation and knowledge on healthy lifestyle and activities towards one's own and others' health - creation of healthy life, work and education environment - decrease in health differences and access to medical services 	<p><i>I. Strategic goals</i></p> <p><i>Overall goal:</i></p> <p>Improvement of health and the quality of life related to it and a decrease of health inequalities by:</p> <ul style="list-style-type: none"> - creation of pro-healthy lifestyle in society - creation of healthy life, work and education environments - activation of local self-governments and NGOs in activities improving health <p><i>Strategic health goals:</i></p> <ol style="list-style-type: none"> 1. decreasing morbidity and premature mortality due to cardiovascular diseases 2. decreasing morbidity and premature mortality due to cancers 3. decreasing the frequency of injuries and their effects 4. prevention of mental illnesses 5. decreasing skeletal disease morbidity and its long-term effects 6. decreasing morbidity and premature mortality due to lung diseases 7. increasing effectiveness of infectious disease prevention 8. decreasing social and territorial differences in the health status of the population
<p><i>II. Operational goals</i></p> <ol style="list-style-type: none"> 1. increasing the physical activity of the population 2. dietary improvements and improvement of the quality of food 3. decreasing smoking 4. decreasing alcohol consumption, changing the structure of consumption and decreasing related health damages 5. decreasing the use of psychoactive substances and decreasing related health damage 6. increasing the effectiveness of health education and public health activities 7. mental health promotion and the prevention of psychiatric disorders 	<p><i>II. Operational goals</i></p> <p>Targeted to the risk factors and public health activities:</p> <ol style="list-style-type: none"> 1. decreasing smoking 2. decreasing alcohol consumption, changing the structure of consumption and decreasing related health damage 3. dietary and the quality of food improvements, decreasing obesity 4. increasing the physical activity of the population 5. decreasing the use of the psychoactive substances and decreasing related health damages 6. decreasing exposure to unhealthy life and work environments

<ol style="list-style-type: none"> 8. decreasing the exposure to unhealthy life and work environments 9. improvement of sanitation 10. decreasing the frequency of fatal accidents, especially car accidents 11. increasing capabilities of emergency care in life threatening situations 12. increasing access to medical services 13. prevention of the negative results of premature birth and low birth weight 14. early diagnosis and adequate care in cases of ischemic heart disease 15. early diagnosis and increase in effectiveness of care in cases of cervical and breast carcinoma 16. creation of a disabled friendly environment that promotes social inclusion 17. increasing the effectiveness of infectious disease prevention 18. prevention of dental caries among children, adolescents and pregnant females 	<p>Targeted to selected groups of the population:</p> <ol style="list-style-type: none"> 7. improvement of maternity care, care for babies and children 8. support for the physical and psycho-social development of children and youth and prevention of the most common health problems 9. creation of a healthy ageing environment 10. creation of disabled-friendly environment 11. intensive prevention of dental caries among children and adolescents <p>Targeted to the health sector and territorial self-governing bodies</p> <ol style="list-style-type: none"> 12. increasing the activities of territorial self-governments and NGOs towards the health of the population 13. improvement in the quality of medical services: their effectiveness, security and social acceptability, including observance of the patients' laws 14. improvement of early diagnosis (especially in primary care) and care for persons with a high risk of cardiovascular diseases, stroke, cancers, diabetes, pulmonary system diseases, rheumatism 15. increase in efficiency of use of territorial self-governments' and health care system infrastructure for the purposes of health promotion and health education
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Source: own compilation based on NHP 1996-2005 and NHP 2007-2015

Another innovation of the NHP 2007-2015 is the fact that the authors took into consideration the existence of national programmes targeted at the most urgent health problems and that they openly refer to them. These policies include the National Programme to Overcome Cancers, the National Programme of Prevention and Curation of Cardiovascular System Diseases (POLKARD), the Program for screening of newborn babies, and the Programme of psychiatric health care. Linkage of the activities and the financing of the NHP with regard to above programmes (anchored as they are in legal regulations, accepted by the government, and planned for in the budgetary perspective) can positively impact the implementation and sustainability of the NHP.

Still, the National Health Programme 2007-2015 might not escape from the problems in its implementation that were faced in the previous decade. Firstly, it does not seem to be a high priority programme for successive governments. Although the Programme was accepted mid 2007, the first meeting of its Steering Committee was not conducted until two years later, in July

2009. By March 2010 the Committee had met three times and the meetings were mostly devoted to administrative tasks⁵⁰. Secondly, the monitoring and evaluation of the Programme seems to be insufficient as – again – it concentrates on health outcomes (which are stated in the Programme in a form measurable objectives, namely decreasing mortality brought about by specific diseases or within an age cohort) not the activities that were undertaken during the Programme's implementation and – further – to their outcomes. It should be mentioned however that the National Institute of Hygiene, with assistance of the Regional Public Health Centers, collects information on an annual basis about the activities that were undertaken by local governments with respect to the National Health Programme. Nonetheless provision of such information is voluntary and the response rate to standardized monitoring questionnaires sent by the Regional Public Health Centers to local governments varies between regions from 80% in the Łódzkie voivodship to less than 20% in Śląskie voivodship where only the municipal governments of big cities responded. Another problem is found with the type of activities implemented and reported. According to a representative of the National Institute of Hygiene, local governments tend to implement and report activities that are obligatory as set out in legal regulations. A good example is the organization of assistance to alcohol abusers and their families, which is obligatory for local governments, but which is also reported as a most frequently undertaken activity in response to the National Health Programme. Obviously it does not indicate that these activities should not be reported, but the threat is that the activities of regional and local governments will be restricted to those that are anchored in law.

Are the objectives of the Plan relevant to the health problems of the Polish society?

Both editions of the National Health Programme are among the most comprehensive national policies towards health as the overriding goal of the Programme has been the health improvement of Polish society. Further, the objectives reflect many of the most important health problems of society: high mortality due to CVC, cancers, external causes of deaths as well as environmental factors that directly impact health such as a high prevalence of alcohol consumption and smoking and low levels of physical activity. Even though the mortality indicators relating to the main causes of death have been decreasing in the last years, the health gap between Poland and countries of Western Europe is still significant which was shown in the chapter II of the dissertation. Thus further health improvement is needed and the objectives of the NHP are highly relevant to health needs of society. Nonetheless, the document lacks coherency in the way health problems are addressed. While the National Health Programme 1996-2005 was designed to address the main health problems of society directly (i.e. mortality due to different causes), the second edition was seen to take the strategy of addressing health problems indirectly, concentrating on the environment in

⁵⁰ The information on the implementation and monitoring of the NHP 2007-2015 was acquired in a telephone interview with Mr Rafał Halik from the National Institute of Hygiene. Mr Halik was a member of an editorial committee of the NHP 2007-2015 and is currently responsible for monitoring of the Programme.

which health problems arise. Still, little attention is given to this perspective – which is further described in the next point of the analysis – while the Programme continues the approach adopted back in 1995/1996.

Does the Plan aim at targeting health and medical services utilization inequalities, especially the ones recognized in the previous chapters?

The National Health Programme 2007-2015 lists *decreasing social and territorial differences in the health status of the population* as its last strategic objective and it is the only national document that takes up the issue of social inequalities in health. However, in the rationale for addressing this problem only territorial differences and differences in the health status of the sexes are discussed. Similar attention paid to the need for decreasing social and territorial differences in health was present in the draft version of the Programme as referred to in the Health Strategy, but again only territorial and sex differences were discussed and no activities were identified with respect to this objective. Thus the question – which is not answered by the strategy – is: are inequalities or only differences⁵¹ to be addressed? And if so, what type of measures should be adopted to address and assess inequalities? The answer to these questions is impossible to find within the text of the Programme. Also NHP's monitoring questionnaire does not ask questions on regional or local policies or activities that aim at reducing inequalities⁵².

Although the National Health Programme seems not to discuss the issue of inequalities in a sufficient manner, it does adopt some elements of an approach proposing action towards the risk factors of inequalities. Indeed, the first group of operational goals raises the problem of inequalities (or rather the prevention of future inequalities) in an ageing population, addressing programmes to improve the health of children and youth as well as assuring conditions for the active ageing of the elderly. This approach reflects the inspiration of the NHP which is the WHO European Region's *Health 21* policy (WHO 1999) whose goals are expressed in the WHO Health for All policy. It aims at assuring equality⁵³ and solidarity in health between countries and, at the national level, addressing policies that result in health improvement of the most vulnerable groups exposed to higher health risks. Thus, the strategy proposes a comprehensive set of policies and provides benchmark examples of actions that can be undertaken to assure solidarity for health and health equality. The areas that the authors of the strategy believe should be targeted to assure equality include:

⁵¹ As defined in the Chapter I of the dissertation.

⁵² *Sprawozdanie z realizacji celów i zadań Narodowego Programu Zdrowia [Report on the implementation of goals and tasks of the National Health Programme]*, monitoring questionnaire of the National Institute of Hygiene.

⁵³ In fact, the *Health 21* uses the term “equity” rather than equality when discussing social differences in health. Hereby, as defined in the chapter I, the term “equality” is used.

- targeting socially excluded groups such as the poor, the unemployed, ethnic minorities and the disabled,
- targeting age cohorts at each stage of the lifecycle from birth to death, with specific actions and prevention policies towards the highest health risk in a given stage of life,
- preventing and controlling the development of major diseases,
- implementing multisectoral actions to target the main socio-economic risks and behaviours that impact health,
- organizing, managing and funding of the healthcare sector to assure accessibility to medical services.

The National Health Programme 2007-2015 responds to the proposed policies targeting in accordance to its objectives different age cohorts, some of the behavioural risks and involving different agents (regions, local governments and NGOs) in increasing accessibility of prevention programmes and medical services. However, the NHP remains a policy of a single sector, which is the health sector, and does not expand to other areas of social policy. Concentrating on specific health risks, it does not expand its objectives to social groups that accumulate health and social disadvantages that create a vicious circle of interdependence. As a result of such an approach, the National Health Programme does not address social inequalities in health (i.e. income or education) that were described in the chapter II of the dissertation with specific measures or activities, except noting their possible existence and putting them on a list of priorities which are strategic objectives. In fact, one can assume that such an attitude is the result of the fact that social inequalities in health are not well recognized although policy makers are aware that some sort of social and economic inequalities exist. Therefore the Programme concentrates on sex and territorial differences which are well documented. Still, even with such a restricted approach the main drawback of the Programme is the lack of proposals for activities that could be adopted to tackle these differences.

1.4 National Health Plan 2004-2013

The National Health Plan is by far the largest document oriented solely towards health improvement, not addressing problems of the healthcare system. Compared to the National Health Programme, it is designed to concentrate on the health of the population and not on targeting environmental factors, which are in the scope of interest of the first document. Although some objectives of both documents repeat, the authors claim that there is no conflict and that the documents are complementary due to the use of different policy tools. While within the National Health Programme tools external to the healthcare system should be created (i.e. alcoholics anonymous meetings or centers for alcohol abusers and their families), the National

Health Plan concentrates on curative medicine (i.e. the treatment of diseases related to high alcohol usage). Still, although it is argued that these two documents are different in that they employ different policy tools (albeit targeting similar strategic goals), some tasks seem to overlap. An good example is care of mothers, children and the elderly where both the objectives and tools in both programmes are very similar (i.e. decreasing infant mortality rate, common vaccinations).

The existence of the National Health Plan is anchored in law to oversee the organization and funding of the healthcare system (the Act of August 27th 2004 on healthcare benefits financed from public funds⁵⁴). The Plan, together with Regional Health Plans designed by voivodships, is perceived as a major tool to create a responsive national health policy. According to the regulation, responsibility for the preparation of the National Health Plan lies within the competences of the Ministry of Health. The first edition of the Plan was discussed and prepared by a committee consisting of representatives from the Ministry, Medical Universities, the National Institute of Hygiene, and Institute of Mother and Child. The Plan is based on the diagnosis of the long-term epidemiological trends, basic health indicators, factors that cause health changes, regional health plans and the health plan of the military services. The analysis of above dimensions should allow for defining the most urgent health problems and health needs of society, to which the objectives of the Health Plan respond. The list of strategic objectives of the Plan is a broad one, organized around all the main causes of morbidity and mortality. It also incorporates a lifecycle approach to health, from the health needs of children to those of the elderly, addressing the health problems that arise with an ageing population, giving more attention to rheumatism and other diseases related to age.

Specifically, the list of strategic objectives includes:

1. Cardiovascular diseases;
 - Decrease the difference⁵⁵ in [mortality/morbidity⁵⁶] cardiovascular diseases between Poland and EU countries
2. Cancers:
 - Decrease in morbidity and/or mortality caused by cancers, especially among young and middle aged population and as a result decrease the difference [in

⁵⁴ Dz.U. No 210, item 2135 as amended.

⁵⁵ The National Health Plan uses the expression “distance” between countries or regions, however from the perspective of the dissertation and due to reasons explained in Chapter I the expression “difference” is more appropriate.

⁵⁶ Own comment. The Plan does not specify whether the difference in morbidity or mortality is concerned.

morbidity/ mortality⁵⁷] between Poland and EU countries in lung cancer, breast cancer, cervical cancer, colorectal cancer, prostatic cancer

- Improvement in quality of life and care of patients suffering from cancers at any stage of the disease's development
3. External causes of mortality, disability and health loss:
- Decrease in mortality, disability and health loss due to external accidents and in result decrease the difference [in mortality, disability and health loss⁵⁸] between Poland and EU countries
 - Decrease differences in mortality caused by external causes of death between regions
4. Lung diseases:
- Decrease in mortality due to lung diseases
 - Decrease differences in mortality due to lung diseases between regions
5. Communicable diseases:
- Growth in the dynamics of decrease in communicable disease morbidity and decrease in mortality due to communicable disease as a result of which the morbidity level will be closer to the EU countries
 - Decrease in disability due to complications related to some communicable disease, including congenital communicable diseases
 - Effective protection from epidemic of new communicable diseases (e.g. SARS), bioterrorism and minimization of possible effects of pandemic
6. Health of mothers and children:
- Growth in the dynamics of decrease in infant, child and youth mortality
 - Improvement in the health status of mothers and children

⁵⁷ As above.

⁵⁸ As above.

7. Chronic diseases of elderly:
 - Assurance of adequate medical care for the elderly
 - Extension in the period of psycho-physical fitness of elderly
8. Rheumatism and related diseases:
 - Decrease in the number of permanent complications as a result of rheumatism and related diseases
9. Psychiatric disorders:
 - Decrease in morbidity and/or disability and/or mortality due to depression, schizophrenia, stupefaction, and mental disorders related to an addiction to psychoactive substances
 - Mental health promotion as a result of which people would gain the ability to control and positively impact their health
 - Assurance of access to health care and other types of assistance in the home environment to individuals with mental disorders
10. Other sectors of health threat⁵⁹:
 - Decrease in mortality in selected counties (pol. 'powiat')
11. Effectiveness of care:
 - Increase in effectiveness of prevention and specialized medical services.

The National Health Plan, together with regional Plans, can be financed by the ministries, regional and local governments, and the national health insurance institution, the National Health Fund. However, the implementation of the Plan is linked to budgetary constraints as it strongly depends on the assurance of appropriate resources in an annual budgetary plan. Thus, similarly to the National Health Programme, its implementation may fluctuate depending on the priorities of an incumbent government and the financial resources available.

⁵⁹ "sectors of health threat" are defined as territorial units with especially high mortality.

Are the objectives of the Plan relevant to the health problems of Polish society?

The National Health Plan is by far the most comprehensive policy document setting priorities for national and regional health policy, concentrating on curative medicine. The Plan addresses all the main causes of morbidity and mortality, prioritized them in descending order of the mortality figures (objectives 1-4; Table 5, chapter III). Besides this, the Plan directs activities to important morbidity problems, including mental health diseases, which are a significant problem for any modern society due to increasing incidence of depressions, schizophrenia and other illnesses. It also responds – similarly to the National Health Programme – to the issue of ageing, setting objectives for children and youth as well as the elderly. The Plan is well settled within the healthcare system as governed by the regulation on health care benefits financed from public funds, which links the objectives stated within the regional health plans with funds and actions. According to the regulation, regional and national health plans should in fact be the basic tool to evaluate the health needs of the population. Despite the lack of reference of the National Health Plan to the National Health Programme, one could expect that some of the tools of the national health policy, namely health programmes targeted at selected groups with the most urgent diseases, are common for both programmes.

Does the Plan aim at targeting health and medical services utilization inequalities, especially the ones recognized in the previous chapters?

The authors of the Health Plan intentionally leave social inequalities in health outside their interest. The Plan is designed to concentrate on medical aspects of health and as such does not address external factors of the social environment. However, it addresses some differences in health: at the international and national/regional level it has as its objectives reducing the health gap between Poland and other EU countries on the one hand and regional differences in health on the other.

Conclusions

Overall, four national strategies targeted at improving the health of the population have been identified. All of them state the health improvement of the Polish population as the main goal, while National Health Plan is fully devoted to improvement of health targeting all of the main causes of illness and mortality. At the same time health inequalities – although present in the political debate - are not well represented in national policy. Differences in health rather than inequalities are targeted, which might be due to the fact that the first ones are more easily recognized. Dimensions of differences that are touched upon include:

- sex differences in mortality
- regional and national differences in mortality

Only the National Health Programme 2007-2015 lists a “decrease in social [...] differences in the health status” as its objective, which statement (in light of this dissertation) is synonymous to social inequalities in health, but the objective is very general and no policy measures to target inequalities are proposed. Not addressing health inequalities themselves with a broad strategy, the programmes draw a lot of attention to social determinants of health addressing the environment in which the population live (access to clear water, biological and chemical safety, safety in the work environment – Health Strategy, National Health Programme), demographic trends and ageing (care for children, young and elderly – Health Strategy, National Health Programme, National Health Plan), behavioural factors that determine health (consumption of alcohol, smoking, physical activity, dietary improvements – National Health Programme).

At the same time none of the policies directly addresses inequalities in medical services utilization, but the National Plan for Health Care proposes objectives that might have an impact on access to medical services such as the introduction of a basket of guaranteed medical services and the introduction of voluntary health insurance (Table 25).

Table 34 Comparison of objectives of four national policies addressing health improvement and inequalities.

Items	Health improvement	Social dimensions of health, ageing	Health differences	Health inequalities	Medical services utilization inequalities
National Plan for Health Care and Long Term Care	+	-	-	-	+
Health Strategy	+	+	+	-	-
National Health Programme	+	+	+	+	-
National Health Plan	+	+	+	-	-

Source: own compilation

It is clear that the policies are greatly shaped by the requirements of the European Commission and recommendations of the World Health Organization. The National Plan for Health Care and Long Term Care as well as the Health Strategy would not have come into existence if Poland had not become a member state of the European Union. These two documents represent the fact that Polish social policy, including health policy, is in line with the common social policy of the European Union and is linked to the financial arrangements of the EU. On the other hand the National Health Programme is greatly inspired by the WHO health policy which stimulated the debate on health and health inequalities, provides know-how and

benchmarking for action towards health improvement, and in which attention is given to the social determinants of health.

The last issue that should be addressed is whether the policies have a chance of being successfully implemented? The issue is a complex one, as different documents represent different levels of administrative decisions, have different legal statuses and as a result require various implementation instruments and have various sources of funding. Their organization is also not hierarchical, although influences and linkages between programmes were found. The National Plan for Health Care reflects general recommendations for health policy with legal regulations as its instruments. Some of the regulations have been implemented, others are undergoing the process of political debate. The Health Strategy refers to the political debate on the one hand and the objectives of existing Programmes (e.g. the National Health Programme) on the other, with the project funded from the Operational Programmes of the European Commission in Human Capital and Infrastructure/Environmental Programme. The fact of funding only within the two EC Programmes raises questions of the possibility of the implementation of objectives that are outside their the scope of interest. The National Health Programme and the National Health Plan are both implemented at the regional and local level, by regional and local public health centers, but their implementation strongly depends on funding opportunities. Sustainability of funding of the National Health Programme is – at least partly – assured by its linkage to the health programmes targeted at specific diseases, which are financed from the state budget. At the same time local governments are generous towards alcohol abusers in terms of the organization of assistance they provide and which they are obliged to do by law. Also the National Health Plan is by law focused on the organization of health care system, and its activities are financed by the National Health Fund. In fact their activities are closely connected to the daily activities of medical facilities. Being aware of the funding opportunities and organization of actions at the regional and local level of state administration, it is questionable whether the two Programmes go well beyond the typical activities of the regional and local governments.

Chapter VIII

Conclusions

The presented research has evaluated changes to the health status as well as health and medical services utilization inequalities that existed in Poland and within the Polish population in the mid-1990s and at the beginning of the new century. Specifically, based on the available demographic, epidemiologic and survey data and in the context of the literature on the theoretical aspects of the health differences, the study:

- identifies peculiarities and disparities in health improvement at various levels (national, regional),
- adopts methods to assess the dynamics of inequalities in health between educational groups, and discusses possible causes of these health differences and policy responses to them,
- adopts methods to identify inequalities in medical services utilization and discusses their causes.

The study has concentrated on inequalities, which are defined in the chapter I as systematic differences in health attributable to socio-economic life circumstances (Ostrowska 1999, Crombie et al. 2005, Kawachi et al. 2002). Inequalities in health are distinguished from health differences, which are caused by unavoidable genetic and other biological differences as well as from inequities, which are defined by moral judgments upon the fairness of their existence (Whitehead 1997, Daniels et al. 2006). Following the identification of inequalities, the issue of possible explanations of the causes of poor health is addressed. The analysis of the causes of poor health cuts through social and economic explanations of health inequalities as specified by Marmot (2006) and Bartley (2004) and proved by on-going research. The explanations for health disadvantages have been sought in the material situation of the family and labour market performance, behavioural factors and social networking. Obviously other theoretical approaches to explain health inequalities exist, for example the lifecycle approach in which the accumulation of advantages and disadvantages over the lifecycle and exposure to specific risks during a lifetime are seen as factors crucial for health outcome (Bartley 2004, Davey-Smith et al. 2004). However, they cannot be addressed by the analysis due to drawbacks of the data available. Only those potential causes of poor health that can be assessed with the data from the National Health Survey have been included in the analysis. The data are cross-sectional and do not follow individuals in their lifecycle; thus, discovering the patterns of individuals' decisions, changing behaviours and the risks that they are facing is impossible.

Following the remarks above on the aims and constraints of the dissertation, the next section discusses the results obtained from the perspective of the hypotheses that were stated in the Introduction.

1. Verification of hypothesis

Observations of health developments in countries of Western Europe, where inequalities in health status are found to be persistent, allowed for stating the first hypothesis that health improvement in Poland is accompanied by inequalities in health of socio-economic groups. Moreover, these inequalities increase over time and the main risk factors of their occurrence include material deprivation, distribution of unhealthy behaviours and differences in social networking. Results of analysis presented in chapter III, IV and V confirm the hypothesis.

An important context of the analysis is the fact that *an unprecedented improvement in longevity took place in Poland in the two decades following the political and economic transformation of 1989*. Increases in life expectancies are also observed in other post-communist countries of Central and Eastern Europe, but the increase in longevity in Poland is among the highest, only surpassed in the Czech Republic. Still, the dynamics of the health improvement slowed in the second decade after the political transformation, which has postponed the convergence of longevity indicators between Poland and countries of Western Europe. Another *concern might be raised by the fact that increasing longevity is accompanied by the poor quality of life* as the number of years spent in poor health and disability is high, though the proportion of life spent in poor health is similar to other countries of the region. It can be expected that the proportion of life spent in poor health is as unequally distributed between socio-economic groups as longevity (Erasmus MC 2007) or poor health (chapter IV), but this area is still left open for more specific research. It is also unknown whether improvements in longevity will lead to improvements in the quality of life and shortening the period spent in poor health. The issue is crucial from the policy perspective of the development and costs of long-term care, the healthcare system and invalidity and pension systems of the future. If individuals were to live longer but in poor health, costs of the whole social security system would soar. Discussions on possible future health developments have been raised and expressed in ideas of *compression, expansion or dynamic equilibrium* of morbidity (Manton K.G. 1982, referred to in chapter III) and are also a concern of the European Commission Ageing Working Group which projects the financial sustainability of social security systems in the future. An analysis of the past trends in self-assessed health (chapter IV) allows a hypothesis to be posited that, with a friendly environment and further economic development, the quality of life – especially of the life of elderly – should improve in Poland. This is based on the fact that the proportion of the population with poor health dropped substantially between 1996 and 2004 and health improved most dynamically among the elderly. Also cohorts that will be entering old age in the next decades have experienced health improvement during the last decades. Still, conditions for further health improvement are beyond the scope of health

policy and require investments in education and material well-being (chapter V), especially of children for whom poverty rates are among the highest in the developed countries (OECD 2009).

Challenging the issue of regional health inequalities, different areas of underdevelopment of health have been identified. Two of them seem to be of special importance: ***although the health of men has improved – thus overcoming the health crisis of the 1980s – it is still strongly diversified between rural and urban areas; regional differentiations in longevity are also substantial.*** Analysis of past trends allowed for the identification of regions in which health improves the fastest and those in which not only are longevity indicators the worst, but also the dynamics of health improvement are the lowest. At the moment the country is divided geographically with better health, especially for women, in the east of the country and poorer indicators in the west of the country. The distribution of longevity reflects the historical development of regions and the migrations that took place in the last century. Results of the trend analysis indicate that differences in health outcomes between East and West should decrease in the future, but at the same time a few regions will be left behind with the poorest health status of the population and the slowest health improvement – these include Lubelskie and Łódzkie (chapter III). The problem of regional diversifications of health is sound and eradication of regional differences in longevity is expressed in almost every national health policy (chapter VII), but in light of above results it seems obvious that more attention should be given to regions with the worse health indicators and the smallest chances for improvement. Again, the policy actions should cover not only public health activities, but also address the problem of the relative deprivation of the population as it has been identified as a correlate of poor regional longevity. Interestingly, the research confirmed point raised by Kawachi (2000) and Marmot (2005) that it is not the per capita economic growth itself that is correlated with health but the relative deprivation of the population reflecting consumption of economic development.

Moving away from the general to more specific, individual perspective, the core of the analysis confirmed the ***existence of socio-economic inequalities in health and even their increase between 1996 and 2004.*** When the health of the population was improving, despite the measure of health used (self-assessed or longevity), inequalities in self-assessed health were found not only to be large⁶⁰, but also to have increased between 1996 and 2004 (chapter IV). Inequalities between educational groups indicate that the proportion of those reporting less-than-good health relative to the share of population when stratified by years of education slightly increased, more for men than for women. But reporting less-than-good health is a broad category, hiding transformations from the very poor to the poor and from the poor to those in less-than-good health, which are crucial in a population with high proportion of people reporting very poor and poor health in the

⁶⁰ The measure of self-assessed health is not the best one for international comparisons, as it depends strongly on national tendencies to complain or other specifics of the society (chapter II), but also results of the research by Mackenbach, Kunst and others show that educational inequalities in life expectancy in Poland are large, in fact educational inequalities in longevity in the NMS, including Poland, are much larger than in the EU-15 (Erasmus MC 2007).

first health survey in 1996 and for the health improvement in the following period. Thus the other finding is that although inequalities in reporting poor and very poor health are even larger, their increase is much smaller. This indicates that despite a dynamic shift of individuals with poor self-assessed health moving to higher categories of health valuation, a marginalized group in terms of health is created. One can expect that they are deprived not only in terms of health, but also education and income and should be of special concern to health and social policy. In fact, regression analysis shows that some environmental factors are significant for health outcomes and could be targeted by health and social policy with an aim of reducing inequalities. ***Poor education and low satisfaction from income level were found to be correlated with poor health*** confirming the importance of material explanations of health that were underlined already in the 1980s in the Black report on health determinants in Great Britain (Black et al. 1982). It was also found that ***unhealthy behaviours are highly determinant upon social status, increasing the risk of poor health among lower social strata***. Moreover, behaviours have been changing over time – from more equalized types of consumption of alcohol and smoking between educational groups to a situation in which higher social strata more commonly adopt a healthy lifestyle. This could be an indicator of a creation of a middle class characterized by higher education, being wealthier, but also with higher life expectations and better health status. At the same time health disadvantages, including not only material deprivation but also unhealthy behaviours, accumulate in lower social strata. The last group of explanations of health inequalities which was addressed was social support factors. ***The results indicate that it is not necessarily living in close social ties, but believing in assistance from important others that has a positive impact on health***. Surprisingly, living in close ties with friends and colleagues and a belief in their care is of greater importance for health than close family ties. This unexpected result might reflect the importance of broader social networks, the community in which one lives, something which was extremely important during the communist regime when many social goods were only available thanks to extended social networking. The research is preliminary, but might serve as a reference for further inquiry into social networking.

To conclude on analysis of health inequalities and poor health determinants, it should be stated that education and poverty are among the most important factors that are responsible for health outcomes of the society. Both education and poverty are strongly related (chapter V) to involvement in unhealthy behaviour, which is often a direct cause of health problems or - on the other hand - stimulate a healthy lifestyle. Thus investing in access to and quality of education, including health education, and the eradication of relative poverty should in the long-run lead to health improvement and a decrease in inequalities.

The second broad hypothesis expressed in the Introduction stated that similarly to health, utilization of medical services is differentiated between socio-economic groups. ***This hypothesis has been confirmed for dentistry while the utilization of doctors' visits and hospital care is found to be almost equitably distributed*** (chapter VI). The result is not surprising in light

of previous researches where, as in other OECD countries, primary care is also found to be equally distributed, while secondary care is more unequal⁶¹ (Doorslaer van 2006; Layte, Nolan 2003).

Before commenting on the level of inequalities, it is worth noticing that the pattern of utilization of medical services has changed over the years, increasing in the volume of services. The sharpest increase in utilization was observed for dentistry. This could reflect an improvement in the wealth of the society and lifestyle changes as investing in dentists' services (which are in a very restrictive manner covered by public health insurance) is mainly paid out of pocket and thus becomes a social status factor. Still, as access to services is strongly determined by an individual's ability to pay, high educational inequalities in the utilization of dentistry are observed. Such a result indicates that access to other highly privatized services (i.e. gynecology) could also be restricted and costs could become a barrier in their utilization for poorer social groups. Thus policy makers should take into consideration the implementation of measures that would allow poorer social groups not to forsake services that are necessary. For the moment, there are signs that a black market for expensive services is created where dentistry services are provided cheaper, but not always in a proper environment (consultation room) by immigrants from Ukraine or other countries of the former Soviet Union.

At the same time doctors' visits and hospital care are distributed almost equally, which indicates that access to their services depends mostly on health needs, which is also confirmed by econometric analysis of the determinants of utilization of care. Still, the drawback of the research is that the data does not allow for separation of GPs' care from that provided by specialists. The expectation would be that while GPs' care is pro-poor distributed, utilization of specialist care would be more unequal, thus further research tackling the question of differences in utilization of different types of outpatient care is needed. An argument for more detailed analysis is also provided by the result showing that the concentration curve for doctors' visits moved in the direction of more unequal distribution in 2004 when compared to 1996. The shift could be related to the fact that the level of privatization of specialist care has increased over the years.

Overall, the research confirms that the legal regulations incorporating rules of access to universal care with obligatory public health insurance seem to be sufficient for assuring equality in access to primary and hospital care, while expensive treatment remains more unequally distributed. The question is what changes in access to care will bring about an introduction of private insurances which is planned by the Ministry of Health. An analysis of impact of possible reforms should be undertaken. Mackintosh (2004) suggests that any reforms introduced should follow principles allowing for fulfilling commitments of all types of care, not leading to the segregation of any groups in society and pooling risks, these seem to be crucial for introducing additional health insurance and assuring equality of access to services.

⁶¹ The measure of socio-economic status used was income not education. In the presented research inequalities are measured depending on education, but evaluation of income is found to be a significant determinant of utilization of dentists' visits.

2. Discussion of methods and results

Elaborating on the results of the research two issues should be raised. First, on the data constraints that decided the direction of the analysis and data improvements that are needed; second, on the peculiarities of the transformation that found its expression in the rapid changes in health status in Poland.

A thought that has been accompanying the author throughout the whole research is that the data available are highly insufficient. In most of the European countries research on health inequalities is based on mortality data combined with social status information that is available from death certificates. These data are regularly collected and changes in inequalities in health measured by mortality depending on education, income or last (before retirement) labour market position are monitored. In countries with the best statistics, trends have been followed for the past 30 years or more (Great Britain). In Poland an attempt to combine mortality information with information on social position was made by the National Institute of Hygiene for the purpose of the Eurothine project (Erasmus MC 2007) for 2002, which is the year of the last census. But this effort was undertaken only once, by NIH experts, while the Central Statistical Office does not collect information on social status necessary for the evaluation of health inequalities based on mortality. Nonetheless it would be recommended that such information is collected in order to estimate inequalities in mortality and monitor them over time – if not annually, then at least on regular basis.

The problem might be overcome by using of survey data, which was done in the dissertation. Still, these are not always sufficient because, for example, income data are not provided. In the data set provided for the presented research income could only be assessed by subjective, self-evaluation measures of the situation of the family and could not be used for the measurement of health inequalities but only as an explanatory factor of existing differences in health. As a result the analysis of the size of health inequalities between socio-economic groups was performed based on education. Selection of education as a variable defining socio-economic status is a good choice though. Firstly, this is because income tends to be misreported in countries that are undergoing a process of economic transformation (Deaton 1997) as Poland was in the 1990s. Secondly earlier research on social stratification show that before the economic transformation education was the most important indicator of social status and prestige in Poland while income was more equalized between social groups (Pohoski 1983). Research into the determinants of poor health also show that education has a greater explanatory value in Poland than income (Ostrowska 1999, 2009). Nonetheless, with the improvement of economic well-being the relation between education and income strengthens. Thus to get a complete picture of inequalities in times of transformation and changes in educational and income stratification, it is recommended educational inequalities should be looked at in relation to income inequalities in health in future research. With hope this task could be addressed in the future using SILC or the European Health Survey when implemented. An assessment of the size of health inequalities

could be made using either the methods proposed in the dissertation or methods proposed by Mackenbach and Kunst (1997).

Another issue that needs to be underlined is not of a methodological character, but it is a necessary elaboration of the findings of the presented analysis in the context of the economic and social transformation that Polish society has gone through since 1989 when the communist regime collapsed. Before the transformation the society was poor, but rather equitable in terms of income and that is why social stratification was not based on income but on education. At the same time and with the state policy promoting manual labour in heavy industry, Polish society was poorly-educated when compared to Western European countries. Another characteristic of the society before transformation was its poor health, especially male health, even though access to medical services was commonly assured through employment and participation in education (doctors' offices at schools, factories etc.). The political and economic transformation brought freedom of choice, a market economy but also rising inequalities. In the mid-2000s income inequalities in Poland were among the highest in the OECD countries (OECD 2009). This was due to greater earning opportunities, but also exploding poverty. The transformation led to increasing educational opportunities and the belief that investing in education brings returns in the future in terms of better employment and welfare. Responding to the demand, higher education became available in newly-created private universities. Changes in the attitude towards education and its availability are reflected in the doubling of the proportion of individuals with higher education in only a couple of years. When it comes to health these changes contributed to an improvement in the average health of the population (reflected in increasing longevity and more optimistic valuation of one's own health) but also to rising inequalities in health between socio-economic groups. Improvement of health status of the population has been discussed by demographers and epidemiologists and it is attributable to greater availability of healthy food (i.e. fruits and vegetables throughout the year), positive dietary habits (i.e. lower use of animal fats) and lifestyle changes including consumption of wine or beer in place of binge drinking on vodka, social movements against smoking (smoking is not fashionable anymore) or being involved in more physical activities. Obviously lifestyle changes are highly correlated with better education and incomes. Thus health inequalities are growing because not all social groups incorporate elements of a healthy lifestyle to a considerable extent or have access to the means that enable them to buy healthy products and services. One can expect that in fact health improves faster in the groups of population with higher incomes and higher education while at the lower end of the incomes spectrum a marginalized group is created with poorer health and poorer chances for its improvement due to lower access to goods as well as involvement in unhealthy behaviours.

Societal changes were accompanied by institutional reforms of the social security system, including the healthcare system, which has been transformed from being state owned to a situation in which it is accessible in different forms: payable via public insurance linked to employment, private services paid out of pocket and services bought by employers from the private providers of medical care. Although the research shows that in 2004 primary and hospital care were still easily and equitably accessible, further commercialization and privatization of

medical services might lead to an increase in inequalities for services that will mainly only be available on a private basis. The process is illustrated in the high level of inequalities in access to dentistry, which is highly privatized. The change in utilization of medical services available publicly and privately, without long waiting times but only for those who are able to pay, might in turn contribute to the growing impact of social status (especially income) on health in the long run. Simultaneously it is observed that the demand for health services is growing as health education is greater and needs are better expressed, which might lead to an increase in health expenditure in the future.

3. Policy implications

Despite the existence of strategies and programmes targeted at the issues of health, the policy response to health inequalities is less than satisfactory. While health improvement has been articulated as a policy goal since the mid-1990s, social and economic inequalities in health are targeted by the National Health Programme which was only introduced in 2007. Although it has been planned as a policy combining the social and medical aspects of health of the population, the NHP concentrates on direct health determinants (types of morbidity) and not on the social environment in which health outcomes are created and dependent on. However, the results presented above clearly show that health inequalities are becoming a more serious problem than a lack of health improvement. Thus policy should concentrate more on health inequalities and their determinants. At least two policy directions can be pointed to: regional disparities and inequalities between social groups. Obviously regional disparities in health have been stated as a policy goal for many years, but they remain one of the crucial problems. Results of presented research show that more policy actions should be targeted at the most deprived regions with the poorest health outcomes and less dynamic health improvement throughout the whole process of economic transformation. Addressing the issue of health inequalities between social groups needs action in at least three areas: health education stimulating more care and healthy living, access to education that increases individual life opportunities, and actions against poverty.

A redefinition of the policy needs more in-depth statistical information as one can assume that an inability to address indirect causes of health inequalities can be to a large extent attributed to the lack of broad research on socio-economic inequalities in health and their determinants. The Statistical Office and the Ministry of Health with its various branches collects statistical information on morbidity and mortality, but it presents blunt totals and averages without details of demographic factors and remains unlinked to the social status and social determinants of health. Thus it is unlikely that any successful national or regional policy dealing with health inequalities could be created if the target remains unknown. To create a policy against inequalities their determinants must be well described to be further operationalized in policy actions.

Another problem is that national health policy is created mainly within the health sector and as such dominated by the medical approach. An exemplification of such approach is the

criticism which a draft of the National Health Plan faced for expressing too much concern on environmental determinants of health (Halik et al. 2007). Finally, such an approach can be determined by limitations in financial resources available for health policy which can result in concentration on public health activities. While policy makers prefer to concentrate on health policy, the results of the research indicate that a broader approach is needed, combining health and social policy. This has been proven where correlates of regional disparities in health had been examined, finding relative poverty as a significant correlate of longevity diversification, but also at the individual level where it is shown that poor education and low income significantly impact health outcomes and may by a constrain in access to some types of medical care. Addressing health inequalities requires a very comprehensive combination of social and health policy measures, and thinking of policy beyond the scope of one administrative department. Mostly likely, such policies would be costly, but the return in the form of a healthy, active population and labour market would be worth it.

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Summary

The dissertation is devoted to the subject of social inequalities in the health status of the population. It has been shown by earlier research that the health behaviours and health outcomes of socio-economic groups of the population strongly differ and, what is more, these inequalities are persistent and tend to increase over time. These tendencies were confirmed in countries of Western Europe and the United States, but there is little research on the subject in countries that have undergone economic transition in the last few decades, such as Poland. Demographers indicate that the improvements in the economic and social well-being of the population have contributed to health improvements, but there is little evidence of health inequalities (WHO 2009).

The main research questions in the first part of the dissertation are related to the size of the health improvements, their causes and peculiarities. Next, educational inequalities in health are examined. Finally, the impact of how unfavourable material circumstances, unhealthy behaviours and lack of social ties negatively impact on health is discussed.

The second part of the dissertation moves from the subject of health itself to issues important for the efficiency of the health care system, namely access to medical services. Obviously, access to services and their utilization might have a health effect, which makes the two phenomena related. The research questions asked in this part of analysis are whether educational inequalities in the utilization of doctor's visits, hospitalization and dentistry exist, and – if so – how they change over time. Further social and economic constraints to the utilization of the mentioned types of medical services are identified.

Finally, the important policy question of adequate targeting the causes of inequalities in health status or medical services utilization by national policies is considered.

The research begins with a discussion of possible causes of health inequalities. It refers to the theoretical framework proposed by Marmot (2003, 2006) and Bartley (2004) in which health inequalities are seen as an outcome of various underlying life circumstances, from material well-being, a willingness to lead a healthy life-style, an individual's psycho-social environment, access to health care services and having the skills to make a proper use of them. Accepting the approach that causes of health inequalities are multidimensional, the research then goes on to look at these factors more closely in the material status of the family, in the reasons why individuals take up unhealthy behaviours such as smoking and alcohol consumption and in the impact of social networks. The selection of types of explanations of health inequalities was determined by the type of data available. Naturally some variations in people's health are attributable to biology and genetics; however, these are referred to as health differences as opposed to health inequalities and are not the subject of this investigation. The research concentrates on inequalities that might be attributable to social conditions in which individuals and groups live. Another point made here is relation to the definition of terms is how inequalities are distinguished from inequities. While

research into inequalities looks for social causes of health differences among individuals and groups, research on inequities goes a step further by evaluating whether existing inequalities are unfair. In this research the question of fairness is not asked as the task at hand is to recognize the size of inequalities and their possible determinants.

The analysis begins by showing the dynamics of the health improvement of the Polish population in the decades following the collapse of the communist regime. The health of Poles improved due to various reasons, with the main direct cause of the decrease in mortality being that of a drop in cardiovascular system diseases. Among the indirect causes of health improvement are the opportunities brought by the transformation: changes in state of mind of the society that accompanied political and economic transformation; greater availability of fresh products, especially fruits and vegetables throughout the year; dietary changes, especially decrease in consumption of animal fat; and finally behavioural changes with greater concern being shown by individuals to their health, which is reflected in taking up physical activity and decreases in smoking. These positive changes are reflected in increasing life expectancy which is among the highest in the Central and Eastern Europe (CEE) region, but well behind countries of Western Europe. Similarly, time spent in poor health and disability in Poland is shorter than in most of the CEE countries but much longer than in some Western European countries, especially in Scandinavia. The latter finding has an important implication for health policy, showing that further public health actions are needed to improve the quality of people's lives, especially with regard to the elderly who will become a dominant cohort in the next decades.

Health is not equally distributed in the population. Regional analysis of longevity shows that differences of life expectancy between regions was up to 4 years for males and 2.6 years for females in 2009. Interestingly, the highest life expectancies were seen in regions dominated by the traditional, rural populations in the East and South of Poland, while in the heavily industrialized regions (Silesia) or in regions where the population was resettled after the Second World War (Western and South-Western) worse health outcomes were found. Substantial differences are also noticeable between rural and urban populations. While on average men enjoy longer lives in urban settings, females tend to live longer in rural settings. The latter differentiation might be a lifestyle effect – men are more likely to do heavy work and be prone to unhealthy behaviours (especially the consumption of high levels of alcohol) in the rural environment while women in that environment work less hard than men which has a beneficial health effect. Moreover, the scale of the health improvement also varies between regions. Analysis of trends shows that in regions of Western Poland, where health outcomes were still poor in the 1990s, longevity has substantially improved over the past two decades. As a result differences in health status between East and West Poland might decrease over the next decade. Recognizing substantial regional health inequalities, it is difficult to track their social correlates, but the analysis indicates that among the social causes the wealth of the population and increasing individual opportunities given by higher incomes have a positive health impact.

The main research question and focus of the study is of the existence of health inequalities at the individual level. For their assessment health survey data from 1996 and 2004 are used and concentration curves and concentration indices are the main measures used to assess the size of health inequalities. Analysis shows that not only do health inequalities in less-than-good and poor health between educational groups exist but that they have also increased over time. This result is not unique because – as in all European countries despite their public health efforts to decrease inequalities or rich welfare programmes – educational or income inequalities in health status measured by longevity or self-assessed health are found to have increased over the years. Two facts lie behind the results for Poland: the first is that self-reported health has improved with a large group of individuals shifting from poor to average health status, and the second is that the structure of education has substantially changed with a higher proportion of individuals having higher education. But even controlling for the changes in educational groups, health inequalities in less-than-good health are found to be large and persistent. At the same time groups of individuals with poor and very poor self-reported health are concentrated in lower social strata, accumulating unfavourable social conditions with poorer education, less wealth and poorer access to various institutions and fewer chances for moving upwards on the social ladder. People in the lower social strata experience not only material deprivation but they also tend to live more unhealthily with higher consumption of alcohol and habitual smoking.

When the social determinants of health are examined, the existence of social networks is also found to be important. The significance of having close ties with family was not confirmed as being important for health outcomes, but a belief that assistance would come from an extended network of family and friends if the need arose was found to be significant determinant of health. So, three trends of explanations of health inequalities as proposed by Bartely (2004) were confirmed: material deprivation, unhealthy behaviours and social support are all important correlates of health status.

Since health inequalities exist, the question whether the healthcare system stimulates their existence arises. What is meant by “stimulation” of inequalities is that access to medical services is restricted to lower social strata while higher social groups do not face similar constraints. Again, education is used as a marker of social position and concentration curves/indices are the basic measures for assessing the size of inequalities. Before concluding on inequalities it is worth noting that utilization of all types of services – even costly ones such as dentistry – strongly increased between 1996 and 2004. This happened despite the fact that a reform of the healthcare system was introduced in 1999 with cost-control mechanisms of having gate-keepers in primary care. Growing utilization of all types of care, including that by the elderly, has important implications for the efficiency of the healthcare system as it could contribute to increasing waiting times for services and increasing costs for the healthcare system. Higher utilization of medical services could be attributed to increasing health awareness. Improved economic conditions combined with more attention given to care could have a positive impact on the health of the population in the future, but it could also lead to an increase in health expenditure due to a rising demand for medical care, especially for more costly treatments. Still,

medical services such as visits to doctors and hospital care are equally distributed between educational groups. Unfortunately distinguishing primary from secondary care was impossible. These findings are similar to results of analyses conducted in most of the OECD countries, but not in Poland, where primary and tertiary care were found to be equally or even pro-poor distributed (Doorslaer et al. 2006). However, results of an analysis of dentistry indicates large inequalities in utilization. They might be caused by the fact that dentistry is an expensive treatment, which is only in a very restrictive manner covered by health insurance and so costs are covered mostly out of pocket. An increase in utilization of dentistry, even in older cohorts, suggests that care for teeth is becoming a social status factor with a growing need for this type of care, but availability of services for lower social strata is not satisfactory.

To sum up, the results of the analysis of existing inequalities in health and access to medical services are contrasted with national policies towards health inequalities. An overview of strategic documents with respect to health and healthcare shows that while health improvement has been articulated as a policy goal since the mid-1990s, social and economic inequalities in health have only been targeted by the National Health Programme which was introduced in 2007. Health policies are dominated by the medical approach which means that direct causes of inequalities are addressed (illness and causes of mortality), but little attention is given to social determinants of health. At the same time national policies recognize that regional inequalities are large, but recommendations on specific actions targeting the problem are vague. The results of the presented research show which regions are more deprived with respect to health clearly indicating that more policy actions should be targeted those regions with the poorest health outcomes and less dynamic health improvement throughout the whole process of economic transformation. Addressing the issue of health inequalities between social groups needs action in at least three areas: health education stimulating more care and healthy living, access to education that increases individual life opportunities, and actions against poverty.

Finally, it should be underlined that any successful policy on health inequalities is not possible without proper data on health and the social and economic status of the population. Typically there is administrative mortality data available but it does not tie in with any socio-economic data. The only source that could combine both types of data is survey research, but as yet no analysis on the size of inequalities has been undertaken. Thus an important policy implication is related to the data collection. Namely, more data combining health, social and economic aspects are needed and tools to measure inequalities on a regular basis should be developed. These tools could be of further use for the implementation of policy measures against inequalities, as they are stated in the National Health Programme. The last important policy implication is that any policy on health inequalities should go beyond the basic activities of the Ministry of Health, being also a subject of interest for the Ministry of Education, the Ministry of Labour and for Social Policy so that a concerted effort is made against the health inequalities that have been pointed out in the previous paragraphs.

Samenvatting

Dit proefschrift is gewijd aan het onderwerp van sociale ongelijkheden in de gezondheidsstatus van de populatie. Uit eerder onderzoek is gebleken dat gezondheidsgedrag and gezondheidsresultaten van socio-economische groepen van de bevolking sterk afwijken, in feite, zijn deze ongelijkheden vasthoudend en hebben ze de neiging om groter te worden naarmate tijd verstrijkt. Bovenstaande tendensen zijn bevestigd in landen in West Europa en de Verenigde Staten, maar er is weinig onderzoek op dit onderwerp in landen die in de laatste decennia een economische transitie ondergaan, zoals in Polen het geval is. Demografen geven aan dat de verbetering van economische en sociale welzijn van de bevolking bijdraagt aan verbetering van de gezondheid, maar er is weinig bewijs van gezondheidszorg ongelijkheden (WHO 2009).

De belangrijkste onderzoeksvraag in het eerste gedeelte van het proefschrift is wat de grootte is van gezondheidszorgverbetering en wat de oorzaken en de eigenaardigheden zijn. De verschillen in onderwijs in gezondheidszorg worden bestudeerd. Als laatste, worden de negatieve invloeden van ongunstige materiele omstandigheden, ongezond gedrag and gebrek aan sociale verbondenheid op de gezondheid besproken.

Het tweede gedeelte van het proefschrift verhuist van het onderwerp gezondheidszorg naar zaken die belangrijk zijn voor de efficiency van het gezondheidszorg systeem, met name de toegang tot medische diensten. Vanzelfsprekend kan toegang tot diensten en hun toepassing invloed hebben op het effect op gezondheidszorg, wat de twee met elkaar verbindt. Hoofdvraag in dit gedeelte van de analyse is of er educatieve ongelijkheden in het gebruik van doktorsbezoeken, ziekenhuisopnames and tandheelkundige zorg bestaat, en – zo ja – hoe ze in de loop der tijd veranderen. Verdere sociale en economische beperkingen in het gebruik van de bovengenoemde vormen van gezondheidszorg worden geïdentificeerd. Er worden belangrijke vragen gesteld met betrekking tot beleid van adequate gerichte oorzaken in ongelijkheden in de gezondheidsstatus of gebruik van medische diensten, door nationaal beleid.

Het onderzoek wordt voorafgegaan door een discussie over mogelijke oorzaken van gezondheidszorgverschillen. Het verwijst naar de theoretische structuur voorgesteld door Marmot (2003, 2006) en Bartley (2004), hierin ligt ten grondslag dat gezondheidszorg verschillen een resultaat zijn van verschillende levensomstandigheden, van materieel welzijn, bereidheid tot het leven van een gezond leven, psycho-sociale omgeving en stress, tot toegang tot medische diensten en bekwaamheid hier op de juiste manier gebruik van te maken. Met instemming dat de benadering dat oorzaken van gezondheidsverschillen multidimensionaal zijn, worden ze gezocht in materiele status van de familie, het in acht nemen van ongezond gedrag zoals roken en consumptie van alcohol en de invloed van het sociale netwerk. De selectie van types uitleg van deze gezondheidszorg ongelijkheden werd bepaald door de aanwezigheid van het type gegevens. Natuurlijk zijn sommige variaties in gezondheid van mensen toe te schrijven aan biologie en genetica, deze worden echter gezien als verschillen en zijn niet onderworpen aan onderzoek. Het onderzoek concentreert zich op oneffenheden die toe te schrijven zijn aan sociale condities

waarin individuen en groepen leven. Als we dit pad volgen waarin we rederwisten over de theoretische defenities, komen ongelijkheden voort uit onrechtvaardigheden. Terwijl onderzoek naar ongelijkheden om sociale oorzaken vraagt in gezondheidszorg verschillen bij individuen en groepen, gaat onderzoek naar onrechtmatigheden een stap verder, hier wordt geevalueerd of bestaande ongelijkheden oneerlijk zijn. Hierbij wordt echter niet de vraag van eerlijkheid gesteld ervanuit gaande dat the eerste herkenning van grootte van ongelijkheden and hun mogelijke factoren nodig is en dat dit onderwerp al onderzocht is.

De analyse begint met het tonen van de dynamiek van gezondheidsverbetering van de Poolse populatie in de laatste deccenia na de val van het communistische regime. Gezondheid van Poolse mensen verbeterde om verschillende redenen, met als hoofdoorzaak de vermindering van hartziekten die leidden tot overlijden. Onder de directe oorzaken van gezondheidsverbeteringen zijn kansen die door tranformatie zijn gecreeerd: verandering in gemoedstoestand van de samenleving die de transformatie van politieke en economische verandering tweegebracht: grotere beschikbaarheid van verse producten, in het bijzonder fruit en groenten gedurende het gehele jaar, verandering in voorgeschreven dieten, voornamelijk vermindering van consumptie van dierlijke vetten and tenslotte verandering in gedrag met groter bezorgdheid over de individuele gezondheid, die reflecteren in het starten van fysieke activiteit en vermindering van roken. Deze positieve veranderingen reflecteren in verhoging van de levensverwachting die onder de hoogste in Centraal and Oost Europesche regio (CEE) valt, maar ver achter is op die van landen in West Europa. Vergelijkbaar, tijd die besteed wordt aan slechte gezondheid and invaliteit is in Polen korter dan in de meeste CEE landen, maar veel langer dan in sommige West Europesche landen, in het bijzonder de landen in Scandinavie. Dit laatste resultaat is een belangrijke toepassing voor gezondheidsbeleid, het geeft aan dat verdere ontwikkeling van openbare gezondheidszorg nodig is om de kwaliteit van het leven te verbeteren, in het bijzonder de levens van ouderen die een dominerende groep worden in de komende decennia.

Gezondheidszorg is niet gelijk verdeeld onder de bevolking. Regionale analyse van de levensduur toont aan dat verschillen in levensverwachtingen in de gecaluleerde regio's voro mannen 4 jaar en voor vrouwen 2,6 jaar was in 2009. Heel interessant is dat de hoogste levensverwachtingen worden geobserveerd in regio's die gedomineerd worden door traditionele plattelandsbevolking in oost en zuid Polen, terwijl grote industriële gebieden (Silesia) of regio's met bevolking die geremigreerd was na de tweede wereldoorlog (West en Zuid-West) slechtere gezondheidscijfers tonen. Substantiele verschillen worden ook gemeten tussen platteland en stedelijke bevolking. Terwijl mannen langer leven in stedelijke omgeving, neigen vrouwen op het platteland tot een langer leven. Dit laatste verschil zou een effect van levenswijze kunnen zijn – mannen werken harder en leven ongezonder (hoger alcoholconsumptie) in landelijke omgevingen, terwijl vrouwen in deze omgeving minder hard werken, wat de gezonheid ten goede komt. Bovendien, de standaard van verbetering in de gezondheids verschilt ook tussen de regio's. Analyse van trends geeft aan dat in de regio's van west Polen, waar in 1990 gezondheidscijfers slecht waren, de levensverwachting substantieel verbeterd is in de laaste 20 jaar. Verschillen in gezondheidsstatus tussen oost en west Polen zullen verminderen of zelfs helemaal verdwijnen in

de komende tien jaar. Herkenning van substantiele regionale gezondheidsverschillen, het is moeilijk om hun sociale correlaties te monitoren, maar de analyse geeft aan dat onder sociale oorzaken, verhoging van de rijkdom van de bevolking individuele kansen met een positief effect op gezondheid, zal verhogen.

De hoofdvraag is of er gezondheidsverschillen op individueel niveau bestaan. Hiervoor zijn dat uit de gezondheidsenquête van 1996 tot 2004 gebruikt en de concentratie curve en concentratie index zijn de hoofdmetingen om de grootte van de verschillen in gezondheid te beoordelen. De analyse toont aan dat er niet alleen verschillen in de zorg bestaan in slechte en heel slechte zorg tussen onderwijsgroepen, maar dat ze tussentijds zelfs vergroot zijn. Dit resultaat is niet uniek omdat in alle Europese landen, ondanks hun overheidsbepalingen voor de gezondheidszorg om verschillen kleiner te maken of ondanks overvloedige subsidie programma's, onderwijs of inkomensverschillen in gezondheidsstatus gemeten in levensverwachting of zelfs beoordeelde gezondheids schijnen in de loop der jaren te vermeerderen. Twee factoren zijn echter onder gemiddeld voor Polen: ten eerste, dat door individuen gerapporteerde gezondheidsg is verbeterd en een verschuiving van grote groepen individuen van slechte tot gemiddelde gezondheid is verbeterd, ten tweede dat de structuur van onderwijs substantieel veranderd is tot een grotere groep personen met hogere opleidingen. Maar desondanks blijven de veranderingen in onderwijsgroepen en hun gezondheid in minder dan goede gezondheid groot en volhoudende verschillend. Tegelijkertijd is er een groep van individuen met slechte en heel slechte gezondheidsgeconcentreerd in lage sociale strata, geaccumuleerde ongunstige sociale condities met lage geschooldheid, minder rijkdom en waarschijnlijk minder toegang tot instanties en kansen om zich omhoog te werken op de sociale ladder. Dit zijn de personen die minder geprofiteerd hebben van de transitie, ook in de gezondheid. Lage sociale stratum wordt gekenmerkt door materiele ontbering maar ze neigen ook naar een minder gezonde levensstijl, met hogere consumptie van alcohol en roken. Als sociale factoren in de gezondheid bestudeerd worden, blijkt dat het bestaan van sociale netwerken belangrijk is. De impact van het leven met dichte familiebanden heeft zich als belangrijk bevestigd voor resultaten in de gezondheidszorg, maar geloof in een uitgebreid netwerk van familie en vrienden als de nood er is, is een belangrijke factor in de gezondheid. Dus er worden door Bartely (2004) 3 trends aangeduid die de verschillen in gezondheidszorg verklaren: materiele ontberingen, ongezond gedrag en sociale ondersteuning zijn belangrijke correlaties in de gezondheids status.

Omdat er gezondheidsverschillen bestaan, rijst de vraag of het gezondheidszorgsysteem dit bestaan stimuleert. Wat er met "stimulering" of verschillen wordt bedoeld, is dat medische diensten gelimiteerd zijn tot lagere sociale groepen, terwijl hogere sociale groeperingen deze beperkingen niet ondervinden. Nogmaals, educatie wordt gebruikt als indicatie voor de sociale positie en de concentratie curve zijn basis metingen om de grootte van de verschillen te kunnen bepalen. Voordat er conclusies aan de verschillen worden verbonden, is het de moeite waard om te vermelden dat gebruik van alle soorten van diensten – zelfs de dure zoals de tandarts – sterk gestegen zijn tusen 1996 en 2004. Dit heeft plaatsgevonden ondanks dat er een reform op het gezondheidszorgsysteem is geïntroduceerd in 1999, met kostenbeheersende mechanismen van

“gate keeper” in primaire zorg. Groeiend gebruik van alle soorten zorg, ook onder ouderen, heeft belangrijke gevolgen voor de efficiency van het zorgsysteem, omdat het kan bijdragen tot verhoogde wachttijden voor diensten and verhoging van kosten in het zorgsysteem. Verhoogd gebruik van medische diensten kan toegeschreven worden aan groter bewustzijn van gezondheidsrisico's. Verbeterde economische condities gecombineerd met meer aandacht die besteed wordt aan zorg, zou een positief effect kunnen hebben op de gezondheid van de bevolking in de toekomst, maar het kan ook leiden tot verhoging van de uitgaven in de gezondheidszorg door meer vraag in medische zorg, in het bijzonder voor duurere behandelingen. Toch zijn medische diensten van doktorsbezoeken en ziekenhuiszorg gelijk verdeeld tussen de onderwijsgroepen. Helaas was het niet mogelijk om onderscheid te maken tussen primaire en secundaire zorg. Deze bevindingen komen overeen met het resultaat van een analyse in de meeste OECD landen, maar niet in Polen, waar eerste en derde graads zorg gelijk zijn of zelfs onder de armen gedistribueerd zijn (Doorslaer et al, 2006). Resultaat van de analyse van de tandartsen geeft echter grote verschillen in gebruik aan. Deze kunnen veroorzaakt zijn door het feit dat de tandartsbehandeling duur is, wat alleen beperkt door de zorgverzekering wordt vergoed en waar de meeste kosten zelf betaald moeten worden. Meer van het gebruik van de diensten van de tandarts, zelfs in oudere groepen, suggereert dat tandheeldkundige zorg een sociale status factor wordt met groeiende vraag naar dit soort zorg, maar de beschikbaarheid van de diensten voor de lage sociale klassen is niet toereikend.

Conclusie is dat resultaten van de analyses in bestaande verschillen in gezondheids en toegang to medische diensten zijn in tegenstelling tot het nationaal beleid op gezondheidsverschillen. Een lijst van strategische documenten met betrekking tot gezondheid en gezondheidszorg geeft aan dat terwijl verbetering van gezondheid is aangeduid als een beleidsdoel sinds midden negentiger jaren, sociale en economische verschillen in gezondheids als doel gestel zijn in het nationale gezondheidszorg programma dat pas in 2007 is geïntroduceerd. Beleid met betrekking tot gezondheids wordt gedomineerd door medische aanpak, dat betekent dat directe aanleiding van verschillen zijn benoemd (soorten ziektes en overlijdensoorzaken), maar er is weinig aandacht besteed aan de sociale factoren in de gezondheids. Tegelijkertijd informeert het nationaal beleid dat regionale verschillen groot zijn, maar aanbevelingen over specifieke acties die problemen moeten aanpakken vaag zijn. Resultaat van het gepresenteerde onderzoek geeft aan welke regio's meer gezondheids onthouden worden, duidelijk aangevend dat meer beleidsacties moeten worden aangegeven in regio's met de slechtste gezondheidsresultaten en de minder dynamische verbetering in het hele proces van economische transformatie. Het aanpakken van de gezondheidszorg verschillen tussen sociale groeperingen vereist acties in drie verschillende velden: gezondheidseducatie die meer zorg en gezonder leven stimuleert, toegang tot educatie die individuele levenskansen verhoogd, en acties tegen armoede.

Als laatste, het moet beklemtoond worden dat iedere succesvolle beleidsmaatregel om gezondheidsverschillen mogelijk is zonder de juiste gegevens over gezondheidszorg, sociale en economische status van de bevolking. Er zijn typische administratieve mortaliteitsgegevens voorhanden, maar deze zijn duidelijk niet in overeenstemming met enige economische data. De

enige bron die beide types van gegevens combineert is onderzoeksdata, maar hierop is geen analyse op grootte van verschillen gebaseerd die is gedaan voor de presentatie van dit onderzoek. Dus een belangrijke beleidssuggestie is gerelateerd aan data verzameling. Namelijk, hoe meer data nodig zijn die gezondheidszorg, sociale en economische aspecten combineert, hoe meer gereedschap om verschillen op regelmatige basis te meten ontwikkeld moeten worden. Deze hulpmiddelen kunnen verder gebruikt worden voor toepassing van beleidsregels tegen verschillen, zoals ze in het nationaal gezondheidszorg programma worden aangeduid. De laatste belangrijke beleidsimplicatie is dat beleid wat betreft gezondheidsverschillen verder moet gaan dan basis activiteiten van het ministry van volksgezondheid, tevens zou het een onderwerp van interesse moeten zijn voor het ministerie van Onderwijs en het ministerie van sociale zaken en werkgelegenheid over belangrijke gebieden van activiteiten tegen gezondheidszorgverschillen te omvatten die in de vorige paragraaf zijn aangeduid.

Biography

Agnieszka Sowa was born on 28 February 1976 in Warsaw. She studied at the Institute of Sociology, Warsaw University (1995-2001) and was a scholar at the Pittsburgh University where she completed Public Policy course (1998). In 2001 she defended her master thesis devoted to the problem of monitoring and control in the newly developed public employment services system in Poland. Later, she obtained her MSc in Social Protection Financing from the Maastricht University (2003).

She started her professional career as junior researcher evaluating the World Bank public employment programme. Since 2001 she has been a researcher at CASE - Center for Social and Economic Research, a think tank based in Warsaw. Her experience includes involvement in the analysis of the healthcare system and long-term care, research on labour market, poverty and social exclusion in Poland and other countries of the region. She has been also working as an external consultant for the International Labour Organization (ILO) and the Organization for Economic Co-operation and Development (OECD).

In addition to her work she began her PhD in the European Social Protection Programme at the Maastricht Graduate School of Governance (MGSoG) in September 2008. Her interest and research focused on inequalities in health and medical services utilization in Poland.

She wrote and co-authored a number of articles on various topics of social policy, lately concentrating on issues of health, healthcare and long-term care.

Currently, Agnieszka lives in Warsaw and next to her activity in CASE, she works at the Institute of Labour and Social Studies.

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