



INCLUD-ED

Literature Review Report:

**Impact of education on health**

**(youth, women, people with disabilities)**

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## 1. Executive summary

In this preliminary report we focus on how educational exclusion affects health and how inclusion into school enhances health. The target groups are youth, women and people with disabilities. Comparative literature shows that education affects health. The lack of education can be seriously detrimental to health. Namely, people with lower levels of education die younger and live more years with disability than people with higher levels of education. Each additional year of schooling reduces mortality rates by 8% (Elo and Preston, in Deaton, 2003). Adequate social and cognitive development in childhood is a necessary foundation for success in education, which has a strong influence on health. In order to postpone mortality and disability we must prevent health problems and disabilities from an early age. The literature review showed that gender is important factor in terms of health. In EU countries women live longer than men but not as healthy than men. Low educated single mothers, teenage pregnant women, unemployed and migrant women are at particular risk. Education is an important mechanism for improving women's social and economic status, which cause health problems. Namely, it is evident from the literature that socioeconomic status influences health as well, education being its main indicator, because it affects the other indicators: occupation and income. It is evident from the literature that people with low economic status have shorter life expectancy than people with higher economic status. Thus poverty affects mortality and disability as well, it is the cause and consequence of disability. Disabilities often limit access to education and employment, people with disabilities are least likely to be employed, they are often excluded from education, thus they are often socially excluded as well and their life expectancy is lower than that of people without disabilities who find employment more easily and have more access to education. Education is the only way out of vicious circle of poverty and disability, which cause social exclusion.

## 2. Introduction

This preliminary report is in the scope of Project 3, Workpackage 10 of the Included project.

It will focus on the main objective of WP10 which is to study how educational exclusion affects diverse areas of society (i.e. employment, housing, health, political participation) and what kind of educational provision contributes to overcome it. The literature review for WP10 corresponds to operational Objective 3.1 and will focus on the challenges of European knowledge based society (EKS) and the role of education in it (Annex I, p. 37). This preliminary report focuses on the relation between health and education.

Rights to education and health are human rights, granted by the Universal Declaration of Human Rights from 1948. But unfortunately it is a contemporary human condition that all people do not have access to education and health on equal footing. In this preliminary report we will focus on how educational exclusion affects health and how inclusion into school enhances health.

The term health is used descriptively, normatively as an opposition of illness. According to Stein (1997, p. 9) it is a multidimensional concept, with distinctions drawn between positive and negative health. It is a concept that is currently determined and therefore dynamic. In order to assess the health status some of the contributions rely on the subjective health measures taking into consideration the respondents' self – reported assessment of their level of health. Several articles follow the objective health measures basing upon the official statistics.

It is evident from the literature review from the comparative perspective that education affects health (Ross and Wu, 1995; Cutler and Lleras-Muney; 2006; Wößman and Schütz, 2006;

Wickrama, Conger, Lorenz, Elder, 1998; Machenbach, Sturbu, Roskam et all, 2008; Camargos, Machado and Rodrigues, 2007; Valkonen, Sihvonen and Lahelma, 1997; etc.).

Ross and Wu (1995) point out that education is associated with good health. They argue that education exerts its positive effects on health through four broad channels: by influencing work and economic conditions; by enhancing social and psychological resources; by enabling life-style and health behaviours; and directly, with no known mediators. Namely, people with more education are less likely to be unemployed, they earn more and have more fulfilling jobs. People with more education also have better social-psychological resources (social support and high sense of personal control). Besides, they are more likely to have healthier lifestyles compared to those with lower education. Better educated are less likely to smoke, are more likely to exercise, to drink moderately, and to receive preventive medical care.

Education is considered by the authors as the main indicator of socioeconomic status, because it affects occupation and income, which all have influence on health (Bossuyt et al, 2004, in: Camargos, Machado and Rodrigues, 2007; Bebbington, 1993, in: Valkonen, Sihvonen and Lahelma, 1997; Bossuyt, Gadeyne, Deboosere and van Oyen, 2004; Mirowsky and Ross, 2000; Rogot, Sorlie and Johnson, 1992; House, Kessler and Herzog, 1990; Department for International Development, 2000; etc.). Currie (2008) says that education based inequality sorts people into different positions that are associated with different risks and rewards. Location in the stratification system shapes the ongoing stressors to which people are exposed. Better education leads to jobs connected to better income. The budget constraint will be less binding in wealthier families and these families will be better able to purchase more or better quality material health inputs, such as better quality medical care and food, as well as safer toys, housing and neighbourhoods. Because the socioeconomic status has an important influence on health, we focus in the preliminary report also on that topic.

In this preliminary report we focus on the impact of educational exclusion and inclusion on the health of three vulnerable groups: youth, women and people with disabilities. Concerning the third vulnerable group people with disabilities we pay main attention to the correlation between educational attainment and prevalence of disability.

Machenbach, Sturbu, Roskam et al. (2008) also found out on the basis of the comparative study carried in 22 European countries that inequalities in health in the EU countries could be reduced by improving educational opportunities, health-related behavior and access to health care.

Ross C.E. and Wu Ch. (1995) grounded the transformative role of education in improving the health in this way **“through education, one develops capacities on many levels that increase one’s sense of personal control, mastery, and self-direction: the habits and skills of communication and analytic skills.** Because education develops one’s ability to gather and interpret information and to solve problems on many levels, it increases one’s potential to control events and outcomes in life. People with high personal control are more knowledgeable about health, are more likely to initiate preventive behavioral and report better-rated health and fewer illnesses than those with a low sense of control“ (p. 722-723).

In addition Harris and Cale (1997) state that **more educated people experience much more health education at school, since it is a part of the regular curriculum.** That is why in their review they suggest that health related education programmes can achieve positive outcomes in physiological, clinical, behavioral, cognitive and affective measures. They also insist on assimilating health objectives, within the primary and secondary school physical education curricula.

### 3. Methodology

In application of the research procedure the literature review was the central method for providing ground for qualitative assessment of the health situation of the aforementioned three groups. We reviewed the literature following the proposed guidelines and structure of the report (assessing the impact of the educational exclusion on health status of youth, women and disabled) from the exclusionary and transformative aspects.

The main resources in this article have been academic articles selected from journals on education, health, gender, youth, and disability topics. The literature was selected primarily using the key words: education, knowledge, health, gender, women, poverty, educational exclusion, disabled, disability, life expectancy, youth, dropouts. The selecting criteria was based on four criteria:

1. The selection of the European Commission Documents. The most of them have been provided on the web site <http://eur-lex.europa.eu>. The documents relating to efficiency and equity in European education and training systems were sent to us by CREA.
2. The majority of the articles are selected from the databases recommended by the project coordinator : ERIC, ACADEMIC PREMIER, JSTOR.
3. Almost all of the articles were provided in journals from the ISI web of knowledge (articles with high impact factor).
4. In providing the literature we used also central Slovenian national database COBISS. It is the library information Service, including libraries participating in the shared cataloguing system.

The contributions collected were qualitatively processed and analyzed in the separate contributions for the three target groups. They were the base for the preparation of the entire preliminary report. In reviewing the literature we used the communicative methodology including exclusionary and transformative aspects, described in the guidelines defined in the *Literature Review Guide*.



## 4. Main results of the literature review

### 4.1. The relationship between schooling and health

Almost all of the literature reviewed in this report supported the strong correlation between the health status and the education level arguing that **more years of schooling produces more health**. According to Ross and Mirowsky (1999, p. 457), the findings on the positive effect of years of education on health are consistent with the argument that years of schooling develop effective capacities that shape many of life circumstances that ultimately affect health, including paid full-time employment, fulfilling work, economic well-being, a sense of personal control and social support, and a healthy life style. Each year spent at school up to 16 is associated with better perceived health and physical condition. The argument is heavily based on human capital theory and status attainment model (Becker, 1964; Sewell and Hauser, 1976; Hyman, Wright, and Reed, 1976). Schooling provides general skills, especially cognitive skills, specific skills useful for work; it socialises people into values, behaviours and dispositions necessary for achievement. The more years of schooling the greater the cognitive development characterised by flexible, rational, and complex strategies of thinking (Nunn, Crockett and Williams, 1978; Hyman et al, 1976). Higher education teaches people to think logically and rationally, to see many sides of an issue, and to analyse and solve problems (Kohn and Slomczynski, 1993). Furthermore, higher education impairs cognitive skills necessary to continue learning out of school (Hyman and Wright, 1979). Schooling also increases specific professional skills and knowledge which may be less important than general knowledge but still may be relevant. Finally schooling shapes dispositions, behaviour and personality traits. In school people are socialised to be dependable, to use good judgment, to be self-motivated, self-confident, create more social capital and so on (Kohn and Slomczynski, 1993). The more years of schooling the greater the stock of human capital. As for the status attainment argument, years of schooling capture an individual's exposure to increasingly complex environments which lead to increased cognitive skills (Spaeth, 1976). Human capital acquired at school increases a person's real and perceived control over life. Because education develops one's ability to gather and interpret information and to solve problems on many levels, it increases one's control over events and outcomes in life. Belief in

personal control is a learned expectation that outcomes are contingent on one's choice and action. In support to this they cite the findings of authors like Seeman and Lewis (1995), Seeman, Seeman and Budros (1988) that **those people who know more about health, are more likely to initiate prevention behaviours.** They further refer to their earlier findings (1989) that education also increases likelihood of having supportive relations. They suggest that schooling may promote supportive and equitable relations because it helps partners understand and negotiate with each other. Social support decreases depression, anxiety and psychological stress which erode health. Supportive partners may also encourage exercise or discourage smoking or heavy drinking. (Ross, Mirowsky and Goldstein, 1990).

Evidence shows that education is protective of health: an additional year of education reduces mortality rate by about 8% in rich countries. Since a year of education also increases earnings by 8% on average and since income reduces mortality independently of education, education reduces mortality twice over, ones directly and ones through additional earnings. (Elo, Preston, 1996) Building on these findings Freudenberg (2007) argues that introduction of policies to prevent dropouts from schools and thus increase educational achievement could have a large effect on population's health.

Machenbach and Bakker (2003) write about some comprehensive strategies in the European countries to reduce health inequalities. They suggest that at EU level Great Britain, Netherlands and Sweden have made a significant progress in health development of entire population introducing packages of policies and interventions of a more comprehensive nature. The emphasis of those packages is on addressing the so called upstream factors like income, education and employment directed towards groups defined in terms of age, sex and ethnic origin.

## **4.2. Impact of Educational Exclusion and Inclusion on the Health of Youth**

### **4.2.1. Introduction**

Adolescent is a cultural construct that varies across settings and contexts. In terms of the future health status of countries and regions however, the period of adolescence can generally be considered the “getaway” and the period of youth the “pathway” to adult health. Attention must be paid to the health of adolescent and youth population irrespective of their size. Yet adolescents (10-19-year olds) remain largely invisible and youth (15- to 24-years) often disappear from the data screen because of the inappropriate or convenience clustering. (Currie et al, 2008). Global interest of adolescents and youth has manifested itself in the many expressions of commitment to their healthy personal, spiritual, social, mental and physical development. The 1990 saw the affirmation of worldwide commitment to these groups’ health that have been shaped within an international legal framework that has as its foundation the UN Charter and that reflects the WHO definition of health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.<sup>1</sup> (Currie et al, 2008) One implication is that the **international public health community must adopt an approach to adolescents and youth that goes beyond the health sector to elicit the active participation of all social actors, including young people themselves as agents of change.** The health education and social sectors are called upon to devise, test and make wider use of effective new approaches, including operational, social science, community – based research, clinical studies and longitudinal surveys focussed on adolescents and youth (Currie et al, 2008.) The international community has become increasingly inclined to identify adolescents as a distinct group of public health attention and as one in need of ad-hoc gender-sensitive reproductive health programmes, education, counselling and services.

At the level of European Community a number of policy documents was passed within the last decade that underline the importance of policy measures and activities focussing on combating poverty and social exclusion of children and youth. **Investment in education is the priority.**

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<sup>1</sup> <http://www.who.int/about/definition/en/print.html> (access September 10, 2008).

Religious tradition, values and culture are essential sociological and psychological phenomena that play a role as risk and protective factors for health. However the moderating influence of a safe and supportive environment and its contribution to sound mental health, the containment of violence and a sense of belonging can easily be lost for individual young people and the youth population cohort as a whole (Currie et al, 2008).

In this report scientific literature is analysed that deals with the impact of education on health of young people in terms of exclusionary and transformative effects. For the purpose of this analysis exclusionary components represent education, health related practices and policies that directly or indirectly negatively affect individual health in the period of childhood, adolescence and youth or have negative effects on health later in adulthood. And the way around, education, practices and policies that protect health of adolescent and young people are defined as transformative components. Here it has to be noted that literature in social sciences usually deals with effects of education on health in general. When it takes into consideration youth health it is mainly focused on the effect of socioeconomic background defined by educational and occupational status of parents and incomes. It is different branches of health sciences that explore effects of various dimensions of education (years in schooling, dropout, school system, school environment, school process, provision of health education, organisation and health care services at school) on health conditions of young people.

#### **4.2.2. Exclusionary aspects**

##### **4.2.2.1. Education is associated with health related behaviour of youth**

In sociology and public health, especially among those taking the view that health is socially produced, it is argued that risk behaviour is just a proximate cause of poor health and is itself a consequence of low income, education and powerlessness, discrimination and social exclusion.

In their longitudinal study on social inequalities and changes in health-related behaviours (HRB) among Slovak adolescents aged between 15 and 19, Sallona et al (2008) reviewed results of previous research and concluded that adolescence is characterised by a strong tendency to experiment with risk behaviour. The desire for novelty and the courage for experiment are much greater in adolescence than in later life. Despite it being illegal, many young people have experience with drinking alcohol before turning 18, likewise with using drugs such as marijuana (Miles et al, 2001; Royo-Bordona et al, 1999). Most adult smokers took up regular smoking in the period of adolescence (Laaksonen et al., 1999; Tschan et al., 1994). Even if most students are physically active at school, their compulsory school involvement often fails to translate itself into leisure time physical activity later (Aarnio et al, 2002; Kristjansdottir, Wilhjalmsson, 2001). Moreover, the influence of peers and youth subcultures on HRB is statistically significant (Conrad, Flay, Hill, 1992). HRB established during this period tends to be maintained into adulthood (Gordon-Larsen, Nelson, Popkin, 2004).

Previous research has consistently documented social class gradients in child and adult health (Hanson MD, Chen, 2007). Findings among adolescents are not so consistent. Previous research has shown a very strong traditional (consistent with adult behaviours) socio-economic gradients in insufficient physical activity of adolescents (Tuinstra et al, 1998; Kristjansdottir, Wilhjalmsson, 2001). Also regarding smoking by adolescents, mostly traditional socio-economic gradients were found (Hanson, Chen, 2007; Green et al, 1991), though there are few studies which report no (Tuinstra J. et al, 1998; Kristjansdottir, Wilhjalmsson, 2001; Donato et al.,1995), or a reversed socio-economic gradient (Huurre, Aro, Rahkonen, 2003; Piko, Fitzpatrick, 2006). On the other hand, no consistent socioeconomic differences in alcohol consumption have been confirmed among adolescents. The relationship between socio-economic status (SES) and alcohol consumption is usually weak (Donato et al, 1995; Huurre, Aro, Rahkonen, 2003) or reversed (compared to adult socioeconomic gradients) (Green, Macintire, 1991). Similarly in marijuana use among adolescents, mostly no or reversed socioeconomic gradients have been reported among adolescents (Tuinstra et al, 1998; Piko, Fitzpatrick, 2006).

Health education in one form or another has been a part of public education at the primary and secondary school level. Common approaches have attempted to teach sound habits related to, for example, nutrition, safety, hygiene, physical activity and more recently smoking and the use of drugs. These approaches have been justified with references to generally accepted belief in the desirability of such teaching. More recently, additional emphasis has been directed at health education for children as the links between behaviour and health have been more obvious and the **rapidly accelerated costs of treating rather than preventing sickness have been experienced**. The authors Rotham and Byrne (1981) referring to some other authors (Row and Rockwell, 1978) argued that in recent years there has been a rising of consciences with respect to the role of schooling in health education. More programmes have been operating in schools than ever before, but responsibility for these programmes is diffused and poorly articulated. Their impact in terms of attitudes, and behavioural changes is unknown and the competence of teachers to instruct in health education questionable (Kolbe, 1979).

**Reproductive health education is a key strategy for promoting safe sexual behaviour among teenagers.** In last decades new initiatives in response to AIDS and growing interest in abstinence education may have changed the prevalence, content or timing of the reproductive health education provided by schools and parents. Duberstein Lindberg, Ku, Sonenstein (2000) state for the US that even with a broad expansion of formal reproductive health education there continues to be a lack of access to education among selected groups of adolescents. **High school dropouts appear to have much less access to formal reproductive health education which tends to be provided primarily through school.** According the data of the Commission of the European Communities (2006) high school dropouts also have higher rates of cardiovascular illness, diabetes and other ailments and require an average of \$ 35,000 in annual health care costs compared with \$15,000 for college graduates. "Indeed health-related losses for the estimated 600,000 high school dropouts in the US totalled at least \$58 billions or nearly \$100,000 per student. In addition, the net present value in improving the educational achievement of all these dropouts by one grade would have been \$41.8 billion reduction in health related costs." (p. 13)

Children's perceiving ratings of their health decline with increasing age with both, physical and emotional symptoms being reported more often in the older age groups. Engagement in the positive health behaviours declines as children enter adolescence. The survey confirms previous results showing the **clear association between family affluence, positive health and health promoting behaviours**. The results also support previous studies which identified inconsistent relationships between socioeconomic status and tobacco use and alcohol consumption in adolescence. Fair or poor self-rated health is more often among older children and girls. The most striking feature of weekly smoking behaviour is the increase between ages 13 and 15. This goes also for weekly drinking, however, drinking is more common among boys (United Nations, 2003).

The rate of people aged 15 having sexual intercourse is 24% for girls and 30% for boys. On average among sexually active, 72% of girls and 81% of boys report using a condom during the last sexual intercourse (Currie C. et al, 2008).

As for physical activity among all countries and regions and all age groups girls are less active than boys and the gender gap increases with age. Eating habits are healthier for 11 years old and decrease with age (United Nations, 2003).

#### **4.2.2.2. Education significantly impacts individual health conditions**

The central tenet of research on the social determinants of health holds that, in all populations studied to date, health is distributed unevenly, following a gradient that is a function of social and economic advantage (Evans and Stoddart, 1994). The gradient does not just represent differences between people at the top and the bottom of the socioeconomic scale, but is continuous across even relatively small differences in social advantage. The gradient is

steepest in countries such as United States where there are large differences between people on measures of early childhood experiences, education, income and housing quality. It is much less steep in countries such as Sweden, where income differences are smaller and policies that promote social integration and support have been normative for decades.

As we have already stated a well known large and persistent association exists between education and health. This relationship has been observed in many countries and time periods, and for a wide variety of health measures.<sup>2</sup> The differences between the more and the less educated are significant: in 1999, the **age adjusted mortality rate of high school dropouts ages 25 to 64 was more than twice as large as the mortality rate of those with some college** (National Vital Statistics Reports, 2001, table 26). Substantial attention has been paid to these “health inequalities.” Education gradients in health are now being systematically monitored in many countries (the United States includes them as part of its Healthy People 2010 goals), and countries such as the United Kingdom have target goals of reducing health disparities – whether specifically by education or factors correlated with education<sup>3</sup> (see Commission of the European Communities, 2006).

#### 4.2.3. Transformative aspects

Cutler and Lleras-Muney (2006) using the data from the National Health Interview Survey for various years and findings of various authors report for US that individuals with higher level of education are less likely to die within 5 years, have lower morbidity for most common

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<sup>2</sup> These relationships have been extensively documented elsewhere. A few references follow. For mortality in the US see Kitagawa and Hauser (1973), Christenson and Johnson (1995), Deaton and Paxson (2001), and Elo and Preston (1996); for risk factors see Berger and Leigh (1988), Sobel and Stunkard (1989), Adler et al (1994); for diseases morbidity see Pincus, Callahan and Burkhauser (1987); for health behaviors see Sander (1995), Kenkel (1991), Meara (2001), and Leigh and Dhir (1997). Several review papers also report these associations; see for example Grossman (forthcoming)

<sup>3</sup> For a discussion of initiatives in the UK, see

<http://www.dh.gov.uk/PolicyAndGuidance/HealthAndSocialCareTopics/HealthInequalities/fs/en> (access September 9, 2008)



acute and chronic diseases; physical and mental functioning is better for the better educated; better educated are substantially less likely to report themselves in poor health, and report anxiety and depression. Finally better educated people spend fewer days in bed or not at work due to disease. The magnitude of the relationship between education and health varies across conditions, but they are generally large. While estimating education gradient over time the Cutler and Lleras-Muney (2006: 9) reveal that education gradients in mortality appear to be increasing for all, however, the differences in life expectancy between college graduates and others have become larger. They point out that it is important to discover the nature of the relationship between education and health to design effective policy measures. They offer three different possible explanations: a) poor health leads to low levels of schooling; b) increasing education improves health; c) there may be a third factor that increases both education and health.

Better educated people tend to have more numerous, supportive and informative associations with family, friends and others in their community and there is a large literature on positive health effects of social support (Berkman and Syme, 1979; Eckenrode, 1983; Gore, 1978; House, Landis and Umberson, 1988).

While the relationship of education to health has been well established, the precise pathways between them have not. There are a number of possible explanations and while they are considered separately, they are almost certainly not mutually exclusive; one pathway may predominate at one stage of the life course while another is more important at a different stage. They may also interact and influence each other. Ross and Mirowsky (1999) call attention to the fact that in exploring links between education and health most research measures education in numbers of years of schooling. They suggest that there are also other aspects of education which may have some effects on health. In addition to quantity of education they include in their analysis the selectivity of schools/colleges and credentials. Moreover, they propose to include mechanisms through which education affects adult health. Here they focus on work and economic conditions, social psychological resources or

perceived control, social support, and healthy life style. However, their analysis shows that years of education are significantly associated with perceived health and physical functioning over and above family background measured with parent's education whereas the credentials of a degree beyond years of educational attainment have no significant effect; the selectivity of the school attended, on the other hand, has a small positive association.

#### 4.2.3.1 Better Educated Parents Have Healthier Children

A number of studies have provided evidence that the health and welfare of children are linked to the education level of their parents. Wickrama, Conger, Lorenz, Elder (1998) offered three reasons supporting the influence of parents' education on children's health:

a) Less educated parents are less exposed to useful information about children's health; b) Less educated parents observe children's behavior in less flexible and positive way and they are more like to reject children for activities viewed as inappropriate; c) Higher exposure to stress and the greater vulnerability reflected by a lower level of education, negatively contribute to the psychological well being of parents. It is also stressed that lower levels of education are associated with higher levels of parental antisocial behavior and more chaotic lifestyles that is reflected in further lower health status of the children.

In addition to the evidence on education effects on health status there is also evidence indicating that parents' education not only influences their own health status but also the health of their children. According to various authors, important pathways for this effect are the use of prenatal care and smoking behaviour, among others. Similarly the general status of health of children is positively influenced by the education of their parents. There is also consistent evidence that **for daughters, the probability of teenage motherhood and the probability of giving birth outside the wedlock are decreasing with the education level of their mothers**. Some evidence suggests that the desired number of children and the efficiency of contraceptives are related to schooling (Wößman and Schütz, 2006: 6).

Brunner et al. 1996, Lynch, Kaplan and Salonen, 1997, Winkleby et al. 1992 (in Hayward and Gorman, 2004) mentioned that socioeconomic conditions and educational attainment shape preferences for the major lifestyle behaviors of smoking, drinking, diet and physical activity. Hayward and Gorman (2004) argued that childhood socioeconomic conditions and educational attainment of men influence the essential lifestyle behaviors of smoking, drinking, physical activity. They acknowledged that, there is no unique ‘super way’ by which childhood circumstances influenced the adult mortality. However, they stated that a strong correlation indicating that children who were born into disadvantaged circumstances and achieve lower educational rate have a serious of cascading lifestyle events that have negative consequences for men’s mortality.

Currie (2008) refers to Heckman’s model of capacity formation where the author focuses on the dynamic aspect of the human capital investment model, and specifically on the way that  $Q_t$  depends on  $Q_{t-1}$  (Heckman, 2007). Heckman (2007) hypothesises that the similar argument may be true of child health and that there might also be complementarities between child health and cognitive development.

Through vast overviews of empirical literature, mostly from the US, he demonstrates that education is indeed a life-cycle process that exhibits dynamic synergies, i.e., formation of skills is a life cycle process that exhibits both recursive productivity and complementarity. An investment in education at one stage rises not only directly the skills attained at that stage, but also indirectly, the productivity with which educational investments at the next stage will be transformed into even further skills. They stress that there are multiple important skills, both cognitive and non-cognitive, and that for some of these skills there are sensitive or even critical periods in person’s life cycle where investments are particularly sensitive or even crucial.

Finally **children of lower SES families are likely to have lower  $Q_0$**  because of the circumstances surrounding their births, rather than because their parents have inferior genetic endowments (Barker, 1989). In addition to parents' occupation or measure based on the area of residency, a number of studies focus on the correlation between maternal education and measures of child health.

Many authors have documented the fact that **poor children suffer more insults to their health than richer**, for example they are likely to be exposed to many chronic conditions (Case, Lubotski and Paxon, 2002; Brooks-Gun and Duncan, 1997; Newacheck and Halfon, 1998; Currie, Price and Shields, 2004).

Wickrama, Conger, Lorenz (1998) in already mentioned contribution on parental education and adolescent self-reported health have ascertained positive correlation between parents' education and adolescent physical health. Their research indicated that better educated parents demonstrate relatively less parental rejection, which influences changes in adolescent physical health. These provided evidence for a dynamic association between the quality of the parent-child relationship and adolescent physical health from early adolescence through late adolescence.

Another conclusion is that education's cumulative health advantage also operates through other pathways not examined in the study, such as greater parental knowledge how to treat and prevent illness. The findings suggest important intergenerational influences involving parents' education on individual differences in physical health that may begin as early as childhood and may extend to the adult years.

#### **4.2.3.2 Schooling as a buffer**

Schools have often been understood as settings for preventing intervention due to the fact that young people spend well over one third of their waking hours in there. The use of school curricula to promote protective attitudes and skills has met with some success in reducing health risk behaviours. There is much evidence that the school's social atmosphere affects patterns of substance use, antisocial and disruptive behaviours, as well as how well students learn. Advocates of health promotion have argued that addressing organizational processes and social relationships are likely to be effective in bringing about behavioural change.

MacCaul and colleagues (1992) investigated the basic differences between graduates and dropouts in their background characteristics. **Dropouts scored significantly higher in alcohol consumption comparing to the graduates.** But difference in alcohol consumption was a phenomenon of male dropouts. Authors seem to agree with the assertion of Pallas (1986) that the causes and consequences of dropping out are interrelated and often difficult to discern.

Nedham, Crosnoe, Muller (2004) focused on health problems as a risk factor for academic failure and on school context as a source of protective effects. They tried to identify among others potential protective factors that may counterbalance the academic risk status of health problems. They examined three aspects of the school environment that might protect physically or mentally ill students from academic course failure: the presence of health services may be related to students' health; schools with more positive, protective climate often serve as a "safety net" catching at risk students which may extend to the risk associated with physical and mental health problems. **In schools with positive student teacher relationship, teachers may be more likely to help physically and mentally ill students avoid academic course failure by offering extra support, encouragement etc.** And the size of school is, according to some previous research, associated with both students' health (Ma, 2000) and achievement (Lee and Smith, 1997).

The analysis revealed no evidence that the association between self-rated health and course failure was conditioned by school structure or climate. There was also very limited support for the contention that the association between mental health and academic failure was conditioned by school context. But the authors (Nedham, Crosnoe, Muller, 2004) found that **adolescents with high level of emotional distress experienced a greater risk of failing** at least one course at wave II if they attended schools with higher rather than lower, mean teacher-student bonding. Health insurance and parental closeness did not prove significantly associated with course failure once other factors were controlled.

Gilman et al (2008) have discovered a higher risk of smoking frequency and smoking intensity among participants without high school degrees compared with college graduated. However, after controlling for between-family variation in smoking outcomes in the sibling fixed effects analyses, evidence for an effect of education on smoking was substantially weaker. Among smokers there was no association between education and nicotine dependence. Once regular smoking behaviour was established, the initial results indicate that educational attainment has significant effect on adult smoking trajectories as indexed by pack-years, quit attempts and cessation. The results on full sample are consistent with prior studies showing the **strong protective effect of schooling on smoking behaviours**. These effects remained even after adjusting for a wide range of potential confounding factors measured prior to school entry. Moreover, studying the relationship between heavy and persistent marijuana use and high school dropout status showed a positive association (McCaffrey et al, 2008). However, while exploring which constructs were driving this result McCaffrey et al, (2008) determined that it was time-varying parental and peer influence.

Evidence indicating that some aspects of school and neighbourhood environment increase risk among adolescents for smoking and using drugs suggests that school experiences are relevant in addition to educational degree. Relevant aspects of the school environment that could contribute to the development of smoking include school smoking policies, affiliation with deviant peers, and socio-economic status. Evidence that smokers have shortened educational

careers raises the possibility of a reciprocal effect of educational achievements and smoking behaviours over time. Gilman et al (2008) also discovered that inequalities of smoking by educational attainment are major contributor to educational inequalities in mortality. The identification of lower education as an indicator of hard core smoking suggests that multiple types of tobacco control efforts will be needed including community –wide programmes, workplace and school interventions.

Follow up of certain intervention measures in US has revealed that patterns of health risk behaviours among students experiencing intervention measures differed from those in the control group. Marked health risk behaviours were reported by approximately 15% of students in the intervention school group after the intervention, compared with 20% of those in the control group, an overall reduction of one quarter (Patton et al, 2006).<sup>4</sup>

### **4.3. Impact of Educational Exclusion and Inclusion on the Health of Women**

#### **4.3.1. Introduction**

In the last decade there has been a growing interest about the connection among gender, health and education in Europe. The World Bank has emphasized the investment in women health as a key for development, particularly in the poorest countries (World Bank, 1993). Considering this document as a crucial one, several policies and strategies followed, promoting gender equality in health have been created and adopted also at the European level.

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<sup>4</sup> This difference arose from lower rates of substance use, antisocial behaviour and early initiation of sexual intercourse by students in the intervention schools. This group difference was not explained by changes in student emotional problems because these did not differ between the intervention and control groups before or after intervention.

European public health programme is based on article 52 of the Treaty establishing the European community (1992). In 1993 the Commission prepared a Communication on the framework for action in the field of public health, as the key strategy document to develop work on public health (1993). In 2002 it was replaced by new Public health programme of community action in the field of public health (2003-2008). The priority objectives of this document were: to improve information and knowledge for the development of public health; to enhance the capability of responding rapidly and in a coordinated way to threat to health; to promote health and prevent diseases through addressing health determinants across all policies and activities.

Following the objectives of this programme several initiatives (documents, regulations) on health issue have been produced, the most important of which are: A report on women and health care published before the adoption of the Framework for action (1990), the State of women's health in the European community (1997) and Hautala Report on women's health status (1999). Also a number of more specific actions affecting women's health have been undertaken by the European Institutions such as: Report from the Commission on the implementation of Council Directive 96/34/EC, Report on osteoporosis in the European Community: Action Plan (1998), Report on the implementation of Council Directive 92/85EEC, (1992) on the introduction of measures to encourage improvements in the health safety at work of pregnant women-workers and workers who have recently given birth or are breastfeeding (1999), a Community-wide Framework strategy on gender equality 2001-2005 (2000), Report on Breast cancer in the European Union (2003) etc.

Almost all of the mentioned documents stress the role of education providing key competences and knowledge required by women in achieving higher level of health and well being.



According to Doyal (2000) international organisations and national governments have prepared and adopted quite a lot of gender action plans, which include health related objectives. The majority of them have focused on reproductive issues; however she points to the necessity of integrating gender concerns into all aspects of health care, stressing the ways in which gender equity could be more effectively promoted within the context of public health policies in the EU. She argued that socially constructed inequalities or gender differences between males and females play a central role in determining whether individuals are able to realize their potential for a long and a healthy life. Also when highlighting the gender issues of those programmes and initiatives in the education system, **she believes that the efficiency could be achieved only if educational system focuses not just on women's issue but on wider question of gender itself, gender equality and social cohesion and its implementations for health (2000).**

Education seems to be positively associated with social cohesion and lower inequality. In line with the document Efficiency and equality in European education and training systems (2006) education has considerable effects on the general health status of an individual (preventing to work on hazardous employments, providing better health behavior and lifestyle, contributing to a personal well being in terms of reduced pain, lower expenditures on medical care and is associated with higher wages and earnings). It is emphasized, that the education of women is not only connected to her own health, but to the health of her children as well.

Regarding the topic on efficiency and equity it is stressed in the document that educational opportunities that are reached by school systems vary considerably across countries. Therefore some suggestions on increasing equity and efficiency in the field of education have been proposed.

In improving of equity level among EU countries, the document 'Policies and strategies to promote social equity in health' (2007), is often cited. This document indicates that the

general pattern of health improvement has been different in West and East Europe. While life expectancy increased in West European countries, Eastern Europe experienced the opposite trend. According to the document inequalities in health between women in different socio-economic groups are in European countries usually less than the corresponding differences among men. **Group at particular risk among women is the group of young mothers having low level of education.** (Göran, D., M. Whitehead, 2007)

Educational systems of the EU countries are treated as the main determinants of the public health, of promoting health in general and reducing social inequalities in particular. “Facts about the main determinants of health should constitute an integrated part of the curriculum not only in biology, but also in social and political sciences. Socio-economic roots of poor health are as important to understand as the role of life style and genetic factors. Without the broader perspective on health development it is difficult to understand and support in sustainable development in terms of health” (2007, p. 32).

According to the Communication from the Commission to the Council: Efficiency and Equity in European education and training systems (2006) education and training policies in the European countries have a significant positive impact on economic and social outcomes, but inequalities in education and training also have huge hidden costs which are rarely shown in public accounting systems, including health – care and public assistance as well.

It comes out that while building strategies for promoting equity via education in health it is not possible to create a recipe on how to promote equity in health in every country since each country in Europe has specific patterns of inequalities in health and very different policy – making structures. In the final part of this document we should point out some valuable components that need to be considered, while formulating specific policies.

### 4.3.2. Clarification of the key concepts

The review examines the relationship between gender-based inequalities in health and the level of education. As gender is both a biological and social concept, the researchers hypothesize that, in addition to biological factors, differences in health status between men and women are determined by different exposure to socioeconomic status, particularly education as its' main predictor. Following the directions of the literature guide instead of using the concept (notion) of gender we use mainly the expression of women. Usually the word woman is used for an adult female human (Wikipedia). However in this context we use it to identify a female human, regardless of age.

The definition of women's health offered at the Fourth World Conference on women in Beijing includes three basic features:

- Consideration on health as a product of cultural, social and psychological factors as well as biology;
- Viewing women's health from a lifespan and multirole perspective;
- Recognition that extension of the concept of health beyond the absence of disease requires health promotion and health maintenance strategies by the individual, the health community, and the society. (Ricanati, Tracker, 2007).

Most of the contributions in the following review demonstrate a positive association between education and health of women.

### 4.3.3. Exclusionary aspects

Despite overall improvements in the health, socioeconomic inequalities in health are a persistent feature in the most European countries, not excluding the women population. Since the educational level is the key determinant of one's position in the stratification system conditioning the socioeconomic status, it could be resumed that the size of health inequalities according to education varies among countries (Kneesebeck, Verde, Dragano, 2006).

Analyzing the policy developments on health inequalities Machenbach and Bakker (2003) argue that the European countries are in widely different phase of awareness of, and willingness to take action inequalities in health.

Similarly Göran and Whitehead (2007) discovered that the general improvements of health status in the West caused considerable inequalities in health between different socio-economic and occupational groups. The less privileged groups in terms of health are equally men and women with limited education and low incomes. Inequalities in health between women from different socio-economic groups are usually less than the differences among men. Recent trends in certain diseases among women however indicated that health divide among women is increasing. Women with lower educational level, employed in industry as manufacturing industries are in Sweden two to three times as prone to prolonged illness as those women in scientific or technical occupation.

In regard to the question of health inequalities in the European space, a group of authors (Mackenbach, Stirbu, Roskam, Schaap, Menvielle, Leinsalu and Kunst, 2008) offered some significant findings. Their research indicated relative high inequalities in the rate of death from any cause according to education level. The relative index of inequality is greater for both men and women in all countries, indicating that, throughout Europe, **mortality is higher**

**among those with less education.** The magnitude of inequalities varies substantially among countries. For example in Sweden, England and Wales the mortality among those with the least education is less than twice than among those with the most education. On the other hand, in Hungary, Czech Republic and Poland the rate of mortality differs more than four between the lower and the upper ends of education. The smallest inequalities for both men and women are found in Spain, while the largest inequalities are found in the Czech Republic and Lithuania. In Europe as a whole, persons with less education have higher rates of death from all causes except breast cancer. Inequalities in the rate of death from cardiovascular disease account for 33% of education-related inequalities in the rate of death from any cause among men and 50% of those among women. The study also indicated that smoking and obesity as factors damaging the health are more common among people of lower education level; education-related inequalities in smoking are larger among men, and education related inequalities in obesity are larger among women.

It is unexpected that inequality in health for men and women has been increasing in Western, Central and Eastern European Countries, even though mortality rates are declining. In predicting the health of both sexes according Krieger, Williams and Moss (1997) the level of completed education is the most important indicator. Some serious illnesses of younger people occurred, since they accept more frequently hazardous jobs than highly educated and have lower paying jobs offering lower living standard. This conclusion is valid for female population, too; the understanding of determinants of women's health is related to women's economic position and social roles in the society.

Analyzing the interaction between gender and social class Matthews, Manor, Power (1999) tried to answer the question, whether are there social inequalities in health in regard to the gender differences. They discovered that in general, there were few gender differences in health, although results varied by socio-cultural influences. Using educational qualifications they found out that, the magnitude of inequality was greater for men at the age 33 for limiting

long-standing illness, and for poor-related health at the age 23 and for psychological distress at the age 33 inequalities were greater for women.

Statistics on the life expectancy in the European countries indicate that **in almost all European countries the life expectancy of women is higher than the one of men.**

Macintyre and Hunt (1997) on the basis of the previously reviewed literature (Emslie, 1997, Emslie, Hunt & Machintyre, 1997, Marmot et al, 1991) argue that till the end of industrial revolution women's life expectancy was shorter than the life expectancy of men. During the latter part of the nineteenth century it was first equalled and now women in most industrialized countries expect to live six years longer on average than man. **However, the women have poorer health than man.** They estimate that women rate their health less positively, report more physical and psychosocial symptoms, consult physicians more frequently, have more hospital stays etc. These problems are often attributed to the inferior social, educational and economic status of women which may lead to poorer health.

Denton, Prus, Walters (2004) have similar attitude as Macintyre and Hunt (1997). They claimed that women generally experienced poorer health than men, despite their lower rates of mortality. Women report higher level of depression, psychiatric disorders and variety of chronic illnesses. They linked women's health problems to reduced access to the material and social conditions of life as well as to their different reaction to the material, behavioral and psychosocial conditions that foster health. Education together with income, occupational status and employment status is an important predictor of health status.

With regard to the lower life expectancy of man, a group of British authors (Smith G.D, Hart C., MacKinnon P., Gillis Ch., Watt G., Blaue D., Hawtorne V., 1998) decided to observe the factors influencing the mortality risk of men. They discovered that both occupational social class and level of education are strongly associated with the mortality of man. Occupational social class of men is more frequently associated with overall and non-cardiovascular

mortality, while educational measure is more strongly associated with cardiovascular than with other causes of death.

However, men still live longer than women in some countries, notably in less developed ones. According to Sen (1999) the female ratio in Asia and North Africa can be as low as 0.95 (Egypt), 0.94 (Bangladesh, China, West Asia), 0.93 (India) and even 0.90 (Pakistan). World-wide, each year over 585.000 women die from causes related to childbirth, and at least 30 million more suffer childbirth-related morbidities (UNICEF, 1996). On the basis of the disadvantaged position of the women in the developing countries Stein proposed **a notion of ‘third world women’**, a perspective that viewed them as coherent group with identical interests and desires, regardless of class, ethnic or racial location. Being ‘third world women’ means being ignorant, poor, uneducated, domestic, family oriented, victimized (1997). Stein stressed also that women in the developing countries are in deprived situation with regard to the educational access and the literacy level. More than half of the women in the developing countries are illiterate, which is an important indicator of their inferior status in society.

Seufert-Barr (2008) continued that huge **gaps exist in women’s education and literacy, especially among caretakers and providers for whom the ability to read and write can improve their situation.** The author argued that the health situation of women is fashioned according to gender-biased models. Many women suffering from poor health are found to lack knowledge, information, skills and access to essential health services.

Doyal (2001) argued that despite the recent progress, around half a million women die each year as a direct consequence of pregnancy and childbirth. She stressed, however, that biological influences are only one part of the complex of factors shaping the health of women and men. **Socially constructed gender differences are also important in determining whether individuals can realize their potential for a long and healthy life.** Gender inequalities in income and wealth make women especially vulnerable to poverty. Also

women's access to services is often limited and causes to be deprived of basic health care in many parts of the world. There is evidence that women are treated by some doctors less valuable than men. She proposed that offering the opportunities for better education of women and men should improve their own health status and make them more responsible for the health of their partners.

Also the evidence from Kuwait shows that socially constructed differences between men and women interact with biological differences and they both interfere with health status. Among Kuwaiti college students, females reported health problems more often. Alansari (2006) thinks that the entire climate in society creates feelings of lack of self esteem, exclusion and marginalization causes biological changes which cause physical and psychological infirmity. Females living in such circumstances are at risk of hormonal imbalances, nervous breakdown and immune system failure. However, the author is also skeptical towards the influence that education has in improving the health status of higher educated. He argues that educational curriculum in Kuwait includes only the teaching of the biological aspects of gender while the cognitive behavioral, and health perspectives are rarely considered.

#### **4.3.3.1. Impact of Childhood Education on Gender Adult Health Status**

Krieger, Chen, Selby (2001) assessed the life course influences on health by evaluating the impact of the social class in childhood on a broader set of indicators of women's health status. Among the other conclusions was that low education was associated with lower general health status, increased risk of being short, overweight, and having a first pregnancy at the age of 20. Other health features of less educated and socially deprived women are poor self-related health, lower physical activities, that rarely occurred among highly educate professional childhood class origins.



When analyzing the relation on gender, education and health, the inverse influence (the health has on the education) can be noticed as well. Hammarstorm and Janlert (2005) **focused on the role of the health in young age related to social position of women in the adult period of life**. They discovered that the low health status in the younger age is associated with stigmatization and discrimination related to education, employment and health care. They also emphasized that women are in that respect particularly in discriminated position, since some of the so called healthy expectations such as overweight, early maturation are higher for women and lower for men.

#### **4.3.3.2. Mothers' Education and its Influence on the Health Status of Their Children**

Zill (1996) also argues that many of the health problems that affect today's children are exacerbated by high-risk behaviors of parents. Several kinds of adult behavior that can have detrimental effects on health and development of children have been found to be more common among high school noncompleters than among parents with more schooling. The author also claims that limited maternal education was associated with lower literacy and higher problem behavior in preschoolers. **Mothers having low literacy skills often can not give adequate supervision that leads to unintentional child injuries, harsh punishment, failed to get children immunized etc.**

In addition Schultz (1996) says that young women having low education and literacy skills do not expect good careers connected with high literacy skill, have low self-esteem and do not expect family support in raising the children. They feel incapable to conduct certain behavior and health problems of their children.

**Low education is according to Mirowski (2005) often connected with teenage pregnancy.** The author views early parenthood, as poor start in life since early motherhood interferes with

educational attainment and predisposes women to single parenthood, unemployment and poverty. He also argues that medical complications reflect social disadvantage more than intrinsic biological risk, young women smoke cigarettes or take drugs during pregnancy more often than older women, have parental care rarely etc. That is why many complications of pregnancy are more common for mothers under the age of 20 compared to mothers in their 20s and 30s.

#### **4.3.4. Transformative aspects**

During the last two decades clear progress was made in development of policies and interventions reducing the educationally conditioned gender inequalities in health.

Gabhainn and Kelleher (2000) offered a significant example of the interactive effect between school health education and gender analyzing the Irish approach to school based health education. The idea followed the health promoting school concept in Europe focusing on a holistic view of the school as a setting for health promotion through introduction of a health curriculum. The purpose of the programme was to empower young people through equipping them with a variety of skills for choosing healthy behavioral options. The evaluation of the programme indicated differential effect on the females and males. Females who had received the life skill programme reported higher levels of well being, fewer symptoms and more positive behaviors than males. The findings illustrated the necessity of considering gender in the evaluation processes.

For Stein (1997) education or literacy of women proved to be an important predictor of health. She elaborates the relationships between equity, education and empowerment to provide evidence of the positive role of empowerment in health. She argues that education and empowerment can be linked through the psychological and behavioral changes

contributing to: increased sense of control, confidence, competence, changed behaviors, increased access to resources etc. In this way education entered into the health through the backdoor. This is why in improving the health status of women, their children and families Stein supports intensive health education, literacy campaigns, non-formal education initiatives and empowermental strategies.

Sen (1999) argues that higher **educational level is particularly important in reduction of fertility rates** in less developed areas. Reduction of birthrates has often followed the enhancement of women's status and power. He also states that education makes the horizon of vision wider and helps to disseminate the knowledge of family planning. The example of Kerala, the most socially advanced state in India showed that high level of female education has been particularly influential in bringing about a significant decline in birthrate.

Miers (2002) suggests 'gender sensitive' approach involving a reflective awareness of the ways in which men and women experience their health. She argues that for **many women in the contemporary society, education has played a central role in changing women's experience of the public world, through improving the access to employment**. On the other hand, men lose their power to perform social roles, which is often the reason for men's reluctance to perceive them as ill and to accept social dependency. Miers (2002) proposes gender sensitive care for understanding the particular care needs of individual men and women through an understanding of regularities in health. It involves a synthesis of experience, conceptualization, reflection and experimentation that produces higher levels of learning.

Tabi (2002) presented the so called educational career youth development model (ECYDM) directed to reduce teenage pregnancy and to pursue higher education and professional careers. The key normative position for this model is that programmes should be designed to help disadvantaged or at-risk women with opportunities to attain educational and career aspirations

in order to delay an early parenthood. The foundation of this model were the findings of Barnes 1987, Comer 1989, Dore & Dumois 1990, Crane 1991, Coulton & Pandey 1992, Aday 1993, Hill et al. 1993, Resnick et al 1996) arguing that early parenthood is a complex problem rooted in a set of identifiable demographic and social factors that require certain interventions. It has also been documented in the literature that adolescents who become pregnant are often minorities from low income, single parent families and inner city urban communities. The authors stressed that lack of adequate resources and support systems available to help young people achieve their education and career goals for their problems (Alan Guttmacher Institute, 1994; Barnes, 1987; Brewster et al, 1993, Brooks-Gunn et al. 1993; Brewster. 1994; Kirby, 1997 and Tabi, 2002).

Teenage pregnancy and early parenthood as was earlier described by Mirowski (2005) are associated with many complications that influence poor health of parents and their children. Desired short term outcomes of the programme, that was suggested by the author are to improve academic grades, to improve school attendance, and to improve orientation to education and career goals. Desired long term outcomes are to delay pregnancy, graduation from high school, and attendance of college. The evaluation of this programme has not been carried out yet. However, the author pointed out that the desired outcomes could be achieved only through a holistic perspective to address identified high-risk behaviors in the community that affect young women's growth and development.

Göran and Whitehead (2007) offer a good example showing the positive impact of prenatal plus services to very young mothers, mostly black, single and poor. The so called 'plus' element included prenatal health education, and social support to maintain self esteem. An evaluation of the programme indicated much better health results by women receiving not just basic medical care, but educational support services as well.

Zill (1996) paid particular attention to low-education young mothers. He argued that mothers with higher levels of education may be more likely to practice good health habits themselves and to insure that their children's surroundings are safe and supportive. He thinks that education system and community organisations should provide young people who have school problems alternative pathways and thus to reduce the number of babies born to low education parents. He also stressed that health care providers should be proactive, teaching mothers being low educated how to promote their children's growth and health. He saw an important instrument in raising the functional literacy level of young parents with limited education since higher literacy level ties instructions to the real-life challenges and problems that these adults are facing daily.

#### **4.4. Impact of educational exclusion and inclusion on the health of persons with disabilities**

##### **4.4.1 Introduction**

In the past century human life expectancy has increased more than in all previous human history, yet the maximum human life span has not increased commensurately, if at all (Fries 1980, Preston 1977, in: House, Kessler, Herzog et al.). The comparative data show that the trends in increase in life expectancy and a decline in mortality rates are present in advanced industrial economies (Sen, 1999). According to the White paper Together for Health (European Commission, 2007) by 2050 the number of people in the EU aged 65+ will grow by 70% and the 80+ age group will grow by 170%. In this document it is written that major inequities in health exist globally, as well as between and within member states, in spite of the fact that overall EU population is ageing, life expectancy at birth for women varies by 9 years between EU countries and 13 years for men. Another question is how many years are we expected to live in health, the so called health expectancy and how many years are we expected to live with disabilities, the so called disability life expectancy (cf. to Camargos,

Machado and Rodrigues, 2007). Crimmings et al, 1994 (in Camargos, Machado and Rodrigues, 2007) define disability life expectancy as living with difficulty in doing or inability to do simple tasks of daily life. In the following subchapter we will try to answer the question what is the connection between educational levels and the prevalence of disabilities.

The article of Camargos, Machado and Rodrigues (2007) deals with this question. The authors use the Sullivan method to estimate life expectancies decomposed by the presence or absence of functional disability. The sample was the population of São Paulo, Brasil. However, the data on the prevalence of functional disability was combined with information on mortality of the population for the year 2000. The research focused on the elderly. It was an attempt to estimate life expectancy with functional disability by age, sex and educational attainment. The results of the SABE project (Health, Well-being, and Aging in Latin America and the Caribbean) were included in this research, which provided the estimations of the prevalence of functional disability by age, sex and educational level based on the activities of daily living in São Paulo. In São Paulo home interviews were conducted with a sample of 2143 elderly persons between January 2000 and March 2001. The SABE questionnaire included the following activities of daily life: dressing, bathing, eating, lying down on the bed and getting up from it, using the toilet and walking across the room. Regarding education two educational groups were used: less than five years of schooling and five years or more. The aforementioned authors write that health problems of older persons as for example disability, are a result of number of their past experiences, such as health care, housing conditions, hygiene practices and education. We could add genetic factor to that.

#### 4.4.2. Exclusionary aspects

##### 4.4.2.1. Educational attainment and disability

The results showed that **persons with lower educational attainment had a higher prevalence of disability**. If we compare the data between men and women of the same

educational attainment, we can see that men showed a lower prevalence of disability, the exception were those of higher educational attainment in the age groups 70-74 and 80-84. At age 60 the life expectancy was 17.6 among males and 22.2 among females. Therefore the difference between sexes was approximately 5 years at age 60, however this difference decreased with age as it reached only one year at age 85. Women were thus expected to live more years with and without disability. The percentage of disability life expectancy decreased with increasing educational attainment at every age especially for men. »At age 60, for men with low educational attainment, men could expect to live 81% of their remaining time in good health; this percentage increased to 91% for men with high educational attainment. These figures were 57% and 81% for men at age 85, respectively. For women they were, respectively 72% and 83% at age 60, and 41% and 61% at age 85« (Camargos, Machado and Rodrigues: 2007, p. 458). When the authors explain the differences in life expectancies by age, they refer to Berquó who writes about the differential mortality by sex. The results of the study in Brazil showed that elderly women could expect a higher life expectancy and they also could expect to live a higher number of years disability-free. But the results also showed that women at each age were expected to live more years with disability than men. The authors explain this by the fact that women tend to declare a higher number of morbidities relative to men and that they are more self-conscious about their health status. Perls et al., 2002 (in: Camargos, Machado and Rodrigues: 2007) add to that the explanation that higher mortality rates for men at younger ages lead to a selection in old years, therefore those men who survive to the oldest ages could be the strongest ones. So the women who survive to the oldest ages are considered more frail than men at the same age.

Among other authors who also used Sullivan's method are Valkonen, Sihvonen and Lahelma (1997). Their study focuses on health expectancy by level of education and gender in the late 1980s in Finland. According to the authors the use of health expectancy as a measure of a population's health is very frequent approach among the researchers. Health expectancy research combines data on mortality and morbidity as it was mentioned in the study on Brazil. In their research Valkonen, Sihvonen and Lahelma (1997) divide the life expectancy for each educational level into life expectancy in various states of health: years lived without disability

or in good health, with long-term disability or in poor health, and in institutional care. In their research they apply the results of the 1985 census of Finland and 1986 Survey on Living Conditions in Finland by Statistics Finland. The latter included different variables measuring disability or ill health. The variables from this survey are used in the study presented: limiting long-standing illness, functional disability, and poor self-perceived health. They were considered as indicators of disability. The results showed that Finnish men at age 25 with secondary education live 2.9 years more than men with basic education and men with higher education live 6.3 years longer than men with basic education. At the same time men with higher education have a disability-free life expectancy 13.1 years longer than men with basic education. It is interesting that men with higher education usually do not perceive their health as poor or very poor. The results for women show that their life expectancy at age 25 is 7.6 years longer than that of men. Similarly as are the results for men, the life expectancy of less educated women is shorter than the life expectancy of higher educated women, however, the differences between educational levels are smaller than those characteristic for men. The authors also notice that women with secondary education have a shorter disability life expectancy than women with basic education and women with higher education have shorter disability life expectancy than women with secondary education. The results confirm the results of the aforementioned study on Brasil, namely that the disability life expectancy of women is longer than that of men, due to the higher prevalence of disability and longer life expectancy among women.

#### **4.4.2.2. Socioeconomic status and disability**

Many authors write about the connection of socioeconomic status to life expectancy. Camargos, Machado and Rodrigues, 2007 refer to Bossuyt et al, 2004 who stated that life expectancy does not differ only by health status, but also differs by socioeconomic level. Education is by most authors considered as the main indicator of socioeconomic status, however, some authors take into consideration also occupational status and employment status, and some also race and ethnicity. Bebbington's study (1993), in Valkonen, Sihvonen



and Lahelma (1997) mentions that **men in the top occupational class had a longer life expectancy and longer disability-free life expectancy, but a shorter disability life expectancy than men in the bottom occupational class.**

Another research using Sullivan's method and analysing the influence of socio-economic status on health was written by Bossuyt, Gadeyne, Deboosere and van Oyen (2004). It focused on the socio-economic inequalities in health expectancy in Belgium. The authors argue that an individual's position within social hierarchy is mainly determined by occupation, income and education and each has its own specific influence on health. In their research they applied the data from the Belgian 1991 Census and the National Register to draw up life tables by socio-economic status, as well from the National Health Interview Survey from 1997 which provided morbidity data. Besides, they interviewed 10,221 people from 4664 households. In the analysis they determined the social-economic position by the highest level of education achieved. They measured health expectancy which was perceived health. By using the Sullivan's method they calculated health expectancy on the basis of the current probability of death and prevalence of poor perceived health of the sample population by age, sex and educational attainment. The results showed that people with lower education have lower life expectancy than those with higher educational level, namely life expectancy increases with increasing level of education. At 25 years of age, life expectancy for men is 49.6 and 55.9 for women. The results also showed that: »Lower education leads to fewer years in good perceived health. Also, those with lower qualifications can expect to live more absolute years in poor perceived health in their shorter lives than those with higher qualifications« (Bossuyt, Gadeyne, Deboosere and van Oyen, 2004: 7). The authors' results confirm the results of the previous studies that people with lower socio-economic position do not live as long as those with higher socio-economic position and spend more years of their shorter years in poor perceived health (with disabilities). Some other research on the influence of socio-economic status on health mentioned by Valkonen, Sihvonen and Lahelma (1997) confirms these results that **people with lower socio-economic status live shorter lives and that they have more disabilities** (Wilkins and Adams 1983, van den Bos and van den Maas (1993), Boshizen et al. (1994).

The study which focuses on French population between 1980-1991 also writes about the social inequalities in disability-free life expectancy (Cambois, Robine, Hayward, 2001). It is based on the experience of French adult men in three major occupational classes: managers (skilled, nonmanual occupations requiring high level of education and training, as for example managers, administrators, teachers, professionals, intellectual occupations, engineers...) manual workers («blue-collar» occupations requiring a lower level of education such as skilled and unskilled workers, household workers, farm laborers), and an intermediary occupational group (more heterogenous occupational classes such as farmers, craftsmen, trade workers, shop owners, clerks, entrepreneurs). The aforementioned research also applied the Sullivan's method. In order to get the data on disability prevalence it used the results of the French Health and Medical Care Survey and in order to get the data on mortality it used the results the INSEE (French National Institute of Economic and Statistical Studies). The results showed that disability is least prevalent among managers and most prevalent among manual workers. Manual workers are not expected only to live more years with disabilities, but also to have the shortest life expectancy. We can also notice that between 1980 and 1991 the prevalence of disability declined sharply in the total male population over age of 35. Disability life-expectancy decreased over a decade, because the increase in disability-free life expectancy was uniformly larger than in life expectancy. Disability free life-expectancy increased significantly in all occupational groups for men age 35 and 60. The authors explain that large disparities in life expectancy and disability-free life expectancy among the elderly originate in occupational positions at young ages. They mention other authors (Khu and Ben-Shlomo, 1997; Mare, 1990; Marmot and Shipley, 1996; Moore and Hayward, 1990; Pavalko, Eder, and Clipp, 1993 and Ross and Wu, 1995) who connect old-age mortality and morbidity with socioeconomic conditions earlier in the life cycle.

The study of Mirowsky and Ross (2000) also focuses on socioeconomic conditions and subjective life expectancy. According to their opinion subjective life expectancy measures well-being in terms parallel to basic demographic concepts and measures. It is an answer to the question to what age do you expect to live. They took into consideration three aspects of

socioeconomic status: education, employment and occupation and economic well-being, because they all have effects on health and may shape subjective life expectancy. Regarding the employment they mention previous research by Ross and Mirowsky, 1995 and Turner, 1995 who found out that full-time employment slows the rate of physical deterioration with age, while unemployment, homemaking and retirement accelerate it. It is worth noticing that the health of people with disabilities who are unable to work deteriorates the most. **Poverty, which is an inability to meet basic needs (food, shelter, clothing, care) can have devastating effect on health.** In their analysis the authors used 1995 survey ASOC (Aging, Status and the Sense of Control). The results show that each additional year of education increases subjective life expectancy by about 0.7 per cent. Higher education or being married to a student increases subjective life expectancy by 2.5 years, while unemployment due to disability decreases it by 3.3 years. Experiencing economic hardship in the past years decreases subjective life expectancy by 8.5 years. The effect is not so strong anymore with time, namely subjective life expectancy decreases by 4.1 years due to long-past economic hardship. The results therefore suggest that socioeconomic status influences subjective life expectancy as well as educational attainment. People who have lower education and who experienced economic hardship have lower subjective life expectancy, the reason lies in eroded current health and in undermined self-confidence.

The study of Rogot, Sorlie and Johnson (1992) also focuses on the influence of socioeconomic status on life expectancy. The results were similar to the aforementioned studies. The authors focus on life expectancy by employment status, income, and education in the national longitudinal mortality study (NMLS). The sample consists of 822,347 white persons, which was drawn from the Current Population Surveys between March 1979 and December 1980. The results showed that the relationship between schooling and average life expectancy is a direct one – as schooling increases, life expectancy increases. Those males with the lowest education can expect to live 6 years less at age 25 than those with the highest level of education, at age 45 they can expect to live 5 years less and 3.3 years at age 65. For women, the differences were slightly smaller, 5 years at age 25, 4.4 years at age 45, and 2.4 years at age 65. The relationship between income and life expectancy is also a direct one – as

income increases, life expectancy increases. For males the difference in life expectancy between the highest income and the lowest one is 10 years at age 25, 8 years at age 45, and 4 years at age 65. It is interesting that the corresponding differences for females are rather smaller, 4 years at ages 25 and 45 and 1 year at age 65. The largest differences were between different employment statuses. The difference between those in the labour force and those who were unable to work was 20 years for men and 29 years for women at age 25. The category unable to work mainly consists of people with disabilities. For this category of unable to work due to disability women had lower life expectancy than men. According to the study education and life expectancy are strongly related, but not as strongly as the association between life expectancy and income or employment status.

Another study connecting the influence of socioeconomic status on health is that of House, Kessler and Herzog (1990). It applies the data from the Americans' Changing Lives (ACL) survey, the sample includes those at age 25 and older who live in 48 American states. Another set of data comes from the interviews with 3,617 respondents. They were conducted between May and October 1986. According to the study "income partially mediates the effects of education, but has substantial additive effects and interactions with age even net of the parallel effects of education" (House, Kessler and Herzog, p. 390). The authors found out that age, education and income have significant gross and net effects on health, while race, sex, and marital status have smaller gross effects. Therefore when we predict or reduce morbidity and disability we need to consider both age and socioeconomic status. Those with incomes of less than 20,000 USD who live at or near poverty levels are in worse health than those whose income reaches 20,000 USD and over. The health of less educated (0-8 or 9-11 years) is worse than the health of those with the highest education (16+ years). The relation of the prevalence of chronic conditions to age varies by socioeconomic status. **Morbidity and disability prior to age 75 is concentrated in the lower socioeconomic strata.** The analysis shows that we can notice the postponement of morbidity and disability in the highest socioeconomic strata and the absence of such a postponement in the lower socioeconomic strata. In the upper socioeconomic stratum the percentage of those with functional disability

rises to 5% at ages 65 to 74 and 9% at ages 75+, in the lowest socioeconomic stratum it rises to 29% at ages 55 to 64 and over 40% at ages 75+.

The study of DFID (Department for International Development, 2000) entitled Disability, Poverty and Development focuses on the connection of poverty and disability. It states that disability »is the outcome of complex interactions between the functional limitations arising from a person's physical, intellectual, or mental condition and the social and physical environment« (p. 2). According to the study poverty is both cause and consequence of disability. Poverty and disability reinforce each other, thus they increase the vulnerability and exclusion of poor persons with disabilities. **Disabilities limit the chances of attending school, of employment, of enjoying family life and participating in the society on equal footing.** In developing world children are often disabled as a result of malnutrition, due to limited health service, poor hygiene and bad sanitation. Disability increases poverty due to socioeconomic exclusion, not just of a person with disabilities, but of a whole his/her family. Children with disabilities are more likely to have higher mortality, be poor, neglected and malnourished. The fact that many people with disabilities who do not have access to education can not find employment drives them more deeply into poverty. People with disabilities are usually among the poorest of the poor and their literacy rates are considerably lower than the literacy rates of the rest of the population. The study mentions UNESCO studies which suggested **that only 1-2% of children with disabilities in developing countries have access to education.** Lewis and Sygall (1997) stated that boys with disabilities attend school more frequently than girls with disabilities (in DFID, 2000). DFID's study writes that in the developing world 50% of disabilities are preventable and directly linked to poverty. The society bears large costs of disability, however, the burden is usually unequally shared, because most of the burden falls on family members, in developing world these are usually mothers or female relatives. If women are poor, it is likely they will become poorer, if they care for a child with disability, because caring takes time away from their daily struggle to make a living.

Another study regarding the prevalence of disability is provided by Crimmins, Saito and Ingegeri (1989) who researched the population in the USA. Their research question was »Are Americans living longer healthy lives as well as longer lives?«. The Sullivan's method was applied again. They used the mortality data from the decennial life tables of the United States (US Dept. of HEW, 1975 and 1985) and US Bureau of the Census, 1973, 1984) for the prevalence of disability. The results show that for almost all age-sex groups the years with long-term disability have increased between 1970 and 1980. Life expectancy increases at age 65 were concentrated in the disabled states. Females have higher life expectancy and higher disability-free life expectancy, but live more years with disabilities and they spend more time in institutions. The answer to the research question posed therefore is that Americans do live longer lives, but the additions of life expectancy between 1970 and 1980 were concentrated in the years with disability, so the Americans were not living longer healthy lives.

The positive association between socioeconomic status and health is mainly due to the effects of socioeconomic status on health, not vica versa (Doornbos and Kromhout, 1990; Fox, Goldblatt, and Jones, 1985; Power, Manor, and Fogelman, 1990; Wilkinson, 1986, in Ross and Wu, 1995).

#### **4.4.3. Transformative aspects**

The aforementioned studies confirmed that the higher the level of education, the higher the life expectancy and disability-free life expectancy. It has therefore been emphasized by authors that the improvements in education for disadvantaged promote better health (Camargos, Machado and Rodrigues, 2007). The aforementioned authors claim that **investments in health care and advances in medicine can contribute to a decrease in prevalence rates of disability**. Thus mortality rates can decrease and people can live more disability-free years.

Kunst and Mackenbach (1994, in Bossuyt, Gadeyne, Deboosere and van Oyen, 2004) also emphasize that »educational level also enhances access to information and the level of proficiency in benefiting from new knowledge, thus providing a direct positive influence on health« (p. 9).

In order to reduce the social inequalities in health, we should also develop policies for the young. Namely, the causes for premature mortality are correlated at young ages with work conditions, socioeconomic resources and behaviour and habits that protect or endanger health, as well as with health care system, social organization, and the environment (Cambois, Robine, Hayward, 2001). **In order to enhance healthy ageing we must prevent health problems and disabilities from an early age and promote health throughout the life span** (European Commission, 2007).

Crimmings, Saito and Ingegeri (1989) claim that health planners should take the results of life expectancy research into consideration, because the future prolongments of life expectancy might be accompanied by increased demands on the health care system as more years of life are spent with a disability. Planning for future health care needs should thus take into consideration trends in disability and mortality. It is important to understand that “the mechanisms that have generated socioeconomic differences in the relation of age to health at least up to age 75 could provide a basis for substantially improving health and perhaps reducing health-care expenditures by increasingly postponing morbidity and functional limitations into the last years of the human life span” (House, Kessler, Herzog, 1990: 401). According to the authors this would happen if we reach fewer deleterious health behaviours, more adequate patterns of social relationships, reduction in occupational health hazards, better access to primary and preventive health care).

**Education seems to be the only way out of the vicious circle of poverty and disability, which cause social exclusion.** Therefore empowerment of persons with disabilities is needed

so that they can participate in the society on equal footing. According to DFID's study (2000) the preconditions for full participation of persons with disabilities are awareness-raising, medical care, rehabilitation and support services and the target areas for equal participation are accessibility, education, employment, income maintenance and social security, family life and personal integrity, culture, recreation and sports, and religion. Inclusive education where persons with disabilities are included in the mainstream schooling systems is recommended by many authors and EU documents as beneficial for persons with disabilities. According to DFID's study (2000) »benefits are likely to be greater when services for people with disabilities are provided within existing social, educational, health and labour structures in society, and where procedures are established to permit effective participation of persons with disabilities in decision-making processes« (p. 12). Despite frequent emphasis of the authors on the importance and beneficial effects of inclusive education, I could not find any study which would focus on the effects of inclusive education or exclusion from it on the health of persons with disabilities.

Another important improvement in health of EU citizens would be reached if, upper secondary school would become compulsory as Slovenian Liberal Democratic Party suggested in its programme for the parliamentary elections in September 2008 (cf. to European Commission, 2007). Wößmann and Schütz (2006) refer to McMahon (2002, 2004) who claims that comparative data reveal that higher secondary enrolment rates are significantly related to lower homicide rates, as well as to lower property crime. In rural areas higher secondary employment rates reduce rural poverty. Compulsory upper secondary education would contribute to more healthy ageing and to the prevention of disabilities, because people would live longer and more years without disabilities. Namely, as Elo and Preston estimate (in Deaton, 2003) a year of extra education reduces mortality rates by about 8 percent as it has already been mentioned. Compulsory upper secondary school would thus not be beneficial only for individuals, but also for societies, because economic productivity and well-being would increase (cf. European Commission, 2007, Commission of the European Communities, 2006).



## **5. Discussion and conclusions**

As Ross and Wu (1995) point out, even at the same income levels, poorly educated people experience greater hardship than the well educated. The effects of poverty and lack of education are synergistic in economic terms; each makes the other worse. The evidence therefore suggests that lack of education can be seriously detrimental to health.

Cutler, Deaton and Lleras-Muney (2006) propose that gradients in health arise or increase when there is knowledge and technology available to prevent or treat diseases because there is a universal demand for better health and those with more education and better other resources are likely to use new knowledge and new technologies more rapidly and more effectively. But this implies that in the absence of policies that specifically address health inequalities, increases in medical innovations will result in larger not smaller gradients. The authors argue that this theory is consistent with the evidence that health is improving for all education groups but more for the better educated.

Adverse effects of health and education may be registered as well. Children who are poorly nourished or are frequently sick may miss school or/and may be lethargic when attending school. Birth defects of vision, hearing, speaking may create problems in learning. Additional evidence from adults suggests that chronic poor health leads to less human capital development. Other background factors such as parents education, amount of time spent with children, income, community characteristics are all considered important in influencing cognitive development (Wolfe, 1985).

Research on the social determinants of health indicates that one of the best ways to improve the health of the whole population is to focus policies on optimizing both early childhood development and education. As has been argued, in one critical sense, they are the same thing;

adequate social and cognitive development in childhood is a necessary foundation for success in education, which in turn is closely and positively linked to health status.

The use of school curricula to promote protective attitudes and skills has met with some success in reducing health risk behaviours. There is much evidence that the school's social atmosphere affects patterns of substance use, antisocial and disruptive behaviours, as well as how well students learn. Advocates of health promotion have argued that addressing organizational processes and social relationships are likely to be effective in bringing about behavioural change.

The literature review showed that gender is important factor in terms of health. In the history the elaboration of the women's health evaluated comparatively with their social status in society. Until the beginning of the industrial revolution women's health status was equated with reproductive health, today women's health encompasses many aspects of the social and biological fields. Almost all of the contributions reviewed confirmed that good health is associated with more education (formal and non-formal), directly or indirectly. They also proved that in EU countries the average pattern of the life expectancy supports longer lives of women, but better health status of men. In terms of health women at particular risk are single mothers, teenage pregnant women, unemployed and migrant women; the most of them are low educated. Particularly in unsatisfied conditions are women in some East European countries. According to Göran and Whitehead (1991) the least privileged groups in these countries experienced the greatest reduction of their possibilities to leave life in the context of a general decline in terms of social, educational and health development.

The situation of women in the developing countries is much worse. The emphasis within the development debates has shifted from economic growth as primary objective of society, to human – centred sustainable development, concerning the quality of life and hence to health improvement. As Stein (1997) said 'third world women' is a singular monolithic subject,

much more coherent group with identical interests and desires, regardless of class, ethnic or racial location in a world defined only by power and oppression relations. Empowerment of those women is related to both equity and education for women and these in turn are related to health.

There are also some positive examples of the policies, programmes, initiatives, where through appropriate educational and other measures and mechanisms, either on local, regional, national or international level several health improvements have been achieved. They have been described through the transformative aspects of this review. They strengthen positive association between education and women's health, some incorporating the health status of men, too. Several examples of good practices, programmes and initiatives have been exposed. They proved that in contrast to the third world women the EU women are less unique group and that their health status is often conditioned by various characteristics, such as social background, employment and economic status, age etc. The good practices in the transformative part of this report showed that policy interventions, local and national initiatives can be fruitful in bettering their health status and well being in general.

Because of the heterogeneity of the European space separate strategies have to be worked out, building on the possibilities and features of each individual country. However, there are some common points which are valuable when formulating the health developments, initiatives, strategies for women:

- In the most European countries women have longer life expectancy than man, but they experience poorer health. Women have more physical and psychosocial problems and have more hospital stays (Macintyre S. & Hunt K., 1997, Denton M., Prus S., Walters V., 2004). Education is an important mechanism for improving women's social and economic status, which cause health problems. That is why it must be ensured that

women and men have equal access to the educational resources in order to realize their potential for better health.

- Women's capacity to give birth can influence their wellbeing. If they can not control their own fertility, or have insufficient sources and knowledge in the time of pregnancy and childbirth, they will be unable in achieving better health. Medical complications during and after the time of pregnancy are the most frequent by women having low education level and being socially disadvantaged. (Sen, 1999, Seufert-Barr 2008, Doyal, 2001)
- 'Third world women' deserve particular attention in improving their health status. The number of women who die every year as a consequence of pregnancy and childbirth is high, 'third world women' are predominantly poor, family oriented, victimized and have lower educational access and literacy level than men. That makes impossible to achieve longer and healthy life (Stein,1997). In reducing the fertility rates and improving the health status of women and their children as well, better access to educational possibilities and providers, literacy campaigns, and empowermental strategies must become a priority for women in those countries.
- In planning the health reforms low-educated mothers need a special attention. Low literacy skills and lack of knowledge are often associated with more rejection of children, higher exposure to stress, greater vulnerability, more punishments and less protection of children (Wickrama, Conger, Lorenz , Elder 1998; Zill, 1996; Schultz, 1996). Educational systems should provide alternative possibilities to reduce the number of children born to low educated parents.
- It is a fact that the promotion of gender equality in health is an important issue of the EU and wider. We have reviewed several topics focusing on women's (disadvantaged) position in society that affect their health status. Education was viewed as an important instrument for improvement of gender status. However the notion of gender is a complex issue and is more than just a synonym for women. We discussed that men are in privileged position regarding the access to a wide variety of resources. However, according to Doyal (2006) the nature of 'masculinity' could be damaging to men's health, too. Men are more likely to engage in risky behavior, to choose more often hazardous jobs, they are more prone to drink, smoke and practice unhealthy

habits. Therefore to help man to free themselves from unhealthy behavior is a challenge too. That is why educational programmes should not focus exclusively on women's health problems but on wider question on gender and its implications on health.

The literature review shows that in the previous century as well as in the new millennium, we can notice trends in the increase in life expectancy and a decline in mortality rates in developed countries. As regards the connection of educational attainment and the prevalence of disability, the results show that persons with lower educational attainment have a higher prevalence of disability and people with higher education have longer disability-free life expectancy (Camargos, Machado and Rodrigues, 2007; Valkonen, Sihvonen, Lahelema, 1997 et al). The studies in the literature review proved that socioeconomic status affects health, education being the main indicator of socioeconomic status. People in the top occupational classes with more income have longer life expectancy and longer disability-free life expectancy than people in the bottom occupational classes. Poverty is thus the cause and the consequence of disability. Disabilities often limit access to employment and education, as well as participating in society on equal footing (cf. Department for International Development, 2000). We can notice the postponement of morbidity and disability in the highest socioeconomic strata, however, there is a lack of such postponement in the lower socioeconomic strata (Kessler and Herzog, 1990).

In order to postpone mortality and disability, we need investments in health care, we need to promote health from an early age. If secondary school became compulsory, this would contribute to the health of the populations as people would live longer and with less disabilities.



**CITIZENS AND GOVERNANCE  
IN THE KNOWLEDGE-BASED SOCIETY**

## 6. Literature

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