

Education and health: theoretical considerations based on a qualitative grounded theory study

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Abstract

This study discusses the relationship between education and health based on a qualitative research. First, a review of the literature addressing the links between education and health is presented. Then, the findings from the literature are related to the results of an analysis of 31 interviews with medical experts in Austria. It is demonstrated which resources and abilities are provided by education and how these factors influence the individual health behaviour and health situation. The results suggest that men and women with less material, psychological and social resources are often considered to be found among lower educated individuals and are described as acting and being less healthy. Higher educated men and women show a higher interest in health issues and have a better understanding of their state of health. They seek for more qualitative information than lower educated individuals which helps them interpret and understand health issues in a more efficient way.

1 Introduction

Education and health are highly interlinked as much research has shown. Higher educated men and women are healthier than lower educated (e.g. Blaxter 1990; Morris 1990; Ross and Wu 1995; Brunner and Marmot 1999; Ross and Mirowsky 1999; Mackenbach 2002; Young 2004; Knesebeck et al. 2006) in terms of self-reported health, physical functioning, levels of morbidity and mortality as well as disability. Accordingly, lower educated men and women are facing higher rates of infectious diseases, chronic diseases, poorer self-reported health, shorter survival

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once ill and in general a shorter life expectancy (Morris 1990; Guralnik et al. 1993; Pappas et al. 1993; Ross and Wu 1995). Education has an effect on the material, psychological and social resources of men and women which, in turn, influence health behaviour and outcome (e.g. Ross and Wu 1995; Brunner and Marmot 1999; Ross and Mirowsky 1999; Mackenbach 2002). When it comes to health-related behaviour, risky behaviours such as smoking or poor nutrition are often connected with low levels of education. Among lower educated individuals future planning possibilities are limited, health is less valued and consequently, there is a lack of health control sensitivity. Resources like time, money, social skills and energy are crucial for beneficial health behaviour patterns and these factors are less existent among lower educated people (Blaxter 1990). Education builds cognitive, social and analytical skills, which are all required to interpret, communicate and understand health issues. Leading and maintaining a healthy life is highly connected to these resources and skills (Ross and Mirowsky 1999; Mirowsky and Ross 2003, 2005).

Considering the previous considerations, the following research deals with the following questions: What resources and skills does education provide and why or how are these resources important for leading and maintaining a healthy life? These questions should point us to some of the mechanisms which might explain the link between education and health. Based on interviews with general practitioners, gender medicine researchers, cardiologists and nurses for the elderly we gained insights about the possible connections between health and health behavioural factors including the educational level of the individuals. Since this research follows a bottom-up approach, which is fundamental for a qualitative methodology, no prior hypotheses about the connection between education and health were formulated. In fact, the sampling of the interview participants was guided along theoretical sampling strategies and these were based on the research process. As we will outline in detail in the methodology chapter, the qualitative analysis is a circular process where sampling, data collection and analysis rotate. After this process a theoretical model according to the research principles of the grounded theory methodology has been elaborated and hypotheses with respect to the underlying categories formulated.

Since the results are based on the perceptions and experiences of the interviewed experts our research offers, at first, hypotheses and ideas about the relationship between education and health. But to form a broader understanding about this relationship it is essential to map the empirical findings with previous results and debates from the literature. Our aim therefore is, first, to investigate on a theoretical basis what we know about the link between education and health. Then we are going to describe our methodological approach in detail. Afterwards, our results based on the qualitative analysis will be presented. Finally, we try to integrate the findings from the literature review with the results of the interviews to gain a broader understanding about the possible mechanisms which might explain the link between education and health.

2 Theoretical considerations

As already stated, with education one acquires material, psychological and social resources as well as skills and abilities (e.g. Ross and Wu 1995; Brunner and Marmot 1999; Ross and Mirowsky 1999; Mackenbach 2002). The aim is now to investigate how these resources and skills influence health behaviour and health situation.

Concerning the influence of education on **material resources** it can be mentioned briefly that education has positive effects on economic resources (e.g. income, wealth) (Ross and Wu 1995) and the living environment (Goldman 2001; Henry 2001). With lower income people tend to suffer from psychosocial related deprivation (Mackenbach 2002). Furthermore, they cannot purchase expensive food or health products whereas men and women with higher income are able to afford, for example, healthy eating and a healthy living environment more easily. They are also more likely to conclude health insurance contracts and to invest money in view of a healthy state in the future (Cutler 2006). Their higher economic resources are linked to better working conditions (Mulatu and Schooler 2002). But although education improves health situation because it guarantees for better economic and working conditions, its benefits are not solely due to labour market advantages. Schooling effects are mediated partly by the sense of personal control, social support and lifestyle (Ross and Mirowsky 1999; Mirowsky and Ross 2003, 2005).

Psychological resources refer to the next large set of mechanisms in understanding the link between education and health. Lower educated men and women show lower optimism (Pincus and Callahan 1995), lower self-esteem and feelings of self-worth (Pearlin and Schooler 1978; Matthews et al. 1989; Turner and Roszell 1994), lower self-efficacy beliefs (House et al. 1992; Bandura 1997), a weaker sense of control (Marmot et al. 1991; Ross and Wu 1995; Ross and Mirowsky 1999; Mirowsky and Ross 2003, 2005) and greater fatalism (Wheaton 1980; Goldman 2001). All of those factors stand in relation to low years of schooling which has negative effects on the work environment and the working conditions. High pressure at work combined with low levels of freedom of decision and low control may lead to stress and in consequence to physical illness and cardiovascular diseases (Karasek et al. 1981; Mackenbach 2002). Self-efficacy and a sense of control over one's life are important elements for future planning activities. Individuals who are in possession of those can take proactive steps in regard to health and show a stronger persistence in goal achievement (Henry 2001). It is essential to note that self-efficacy and a sense of control are prerequisites for influencing situations. Since the lower educated men and women tend not to plan for the future they are likely to opt for short-term sensual gratification which is related to unhealthy behaviour patterns like smoking and eating a lot of fat, for example (ibid.). They are more likely to forgo treatment and more likely to not visiting the doctor for prevention check-ups (Coburn and Pope

1974; Mirowsky and Wu 1995). The result is that they suffer more from multiple medical problems than higher educated persons (Henry 2001). The higher educated have the abilities to set long-term goals and a goal is needed in order to achieve it. Positive health behaviours like quitting smoking, doing exercises etc. require long-term action. A change in behaviour is often needed to gain a better health status and higher educated persons manage this change better because they realize more alternatives whereas lower educated are more likely to worry about the ability to cope with change. Their coping strategies for dealing with life are less effective (Pearlin and Schooler 1978). Besides, their life can mean a daily struggle for basic needs like food, clothes etc. (Ross and Wu 1995; Henry 2001). Unhealthy habits like all kinds of addiction and unhealthy nutrition might be a way of coping with psychosocial stress (Mackenbach 2002). In sum, more education leads to greater occupational autonomy and, in turn, to more psychological resources which are important for developing a positive self-perception and control over one's life.

Social resources should also be considered when explaining the underlying mechanisms that describe the link between education and health. Socialisation is a significant factor regarding the behaviour of men and women and also has impacts on health behaviour (Seeman and Crimmins 2001). Considering unhealthy behaviours, children of lower educated people are more likely to follow the same bad habits (like eating unhealthy food) as their parents. This is important to consider because eating habits are mainly learned behaviours during childhood (Hupkens et al. 1998). Another explanation is that the better educated have a larger social network which may support them financially, emotionally and physically (Cutler 2006). Peer effects should also be taken into account because peers can have an essential influence on ill-health behaviours like smoking, drinking etc. and in the contrary on positive health behaviours as well (Seeman and Crimmins 2001; Cutler 2006). The main conclusion here is that more educated men and women have more educated friends and/or live with better educated partners etc. (Ross and Wu 1995). "Education helps individuals to build and maintain supportive relationships and to avoid divorce and single parenthood" (Mirowsky and Ross 2003: 8). Married people are more likely to behave health-conscious than unmarried men and women because their partners force them to act healthy (Ewart 1991). Norms and habits which are objects of learned behaviour and socialisation vary between lower and higher educated groups. The social network is responsible for peer effects and the social support it provides offers more alternatives for leading a healthy life.

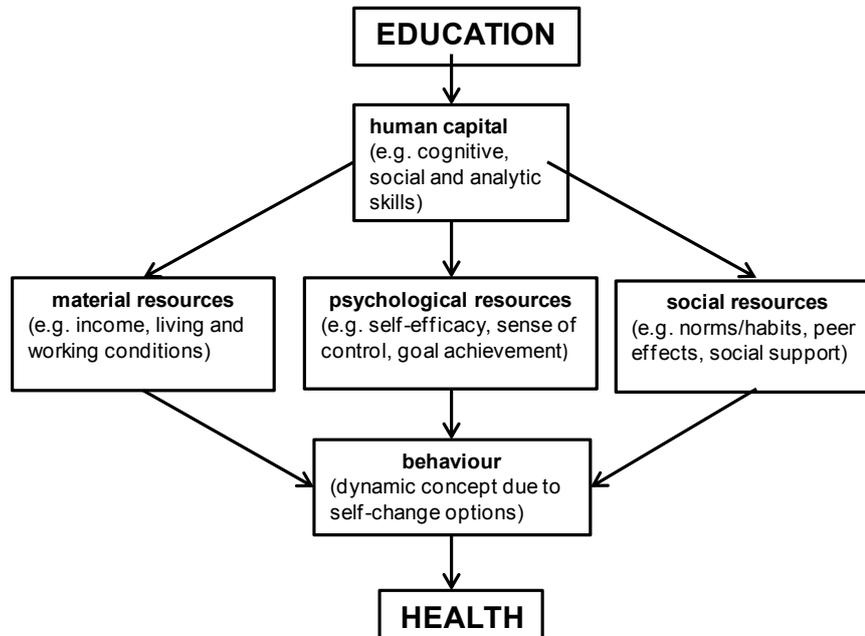
After summarising these resources as well as the possibilities and constraints they present for lower and higher educated men and women, we now concentrate on evaluating which skills education provides to gain these resources.

Schooling builds **human capital** through imparting skills, abilities and resources (Ross and Mirowsky 1999). It shapes health and well-being and it increases—as we already pointed out—a person's real and perceived control over

life. The more years of schooling, the more human capital is acquired (Becker 1964). After consulting the literature three main sets of skills can be identified: cognitive skills (e.g. flexible, rational, logical and complex thinking) (Kohn and Slomczynski 1993; Ross and Mirowsky 1999; Mirowsky and Ross 2005), social skills (e.g. communication skills, shaping of personality traits like self-directedness, orientation to hard work, self-motivation) and analytic skills (e.g. observing, interpreting) (Wheaton 1980; Ross and Mirowsky 1999; Mirowsky and Ross 2005). Skills help to meet problems with attention, thought, action and persistence and these are required competencies for evaluating health problems and for taking action to solve them (Henry 2001). Indeed, lower-class individuals exhibit a more concrete, less abstract mode of thinking (Bourdieu 1984). Schooling also promotes supportive and equitable relationships because it helps people to understand and negotiate with each other (Ross and Mirowsky 1999). They can reach mutually satisfactory arrangements which let them build and maintain supportive relationships which, in turn, are a large factor for maintaining and leading a healthy life. Education provides skills to cope with health issues and it also offers the possibility to gain health knowledge (Henry 2001). Higher educated individuals do not only have a greater health care knowledge but also a higher self-care adequacy (Kutner 1956; Baumann 1961 cit. in Young 2004). Further, more educated men and women are more sceptical when choosing a health care provider or health behaviours. Higher educated people are more interested in new things and seek for possibilities to broaden their mind. Understanding a health topic requires information assimilation (Holt 1998) and this is only possible through distinctive cognitive styles in problem solving and decision making. Therefore, in order that lower educated individuals have a chance to comprehend new information on health, doctors have to address their specific cognitive styles (Henry 2001). Unfortunately, doctors may have problems to communicate complex issues potentially because they only have a limited time span for treating each patient (*ibid.*). It was also found that information campaigns do not lead to equal knowledge in regard to higher and lower educated men and women (Cutler 2006).

Considering all these resources—material, psychological, social—and the underlying skills acquired through education it is essential to see that this link between education and health is multifaceted. This complexity involves many interrelations, interactions and of course causal relationships. The following figure (Figure 1) summarises the main findings from the literature review.

Figure 1:
Education and health: Pathways of influences



Source: Own summary based on literature review (2010)

To broaden the understanding of what we already know about the link between education and health we will present, after having explained our methodological approach in detail, our results. We will then try to connect our findings with the theoretical considerations that were presented in this section.

3 Methodological approach

In this research a qualitative approach is taken. The grounded theory was invented by Glaser and Strauss in the 1960s in Chicago. Since then it has been one of the most used methodological concepts in qualitative research (Flick 2006). Unlike in quantitative studies, the research question and corresponding hypotheses are not fixed at the beginning and subsequently tested but the structure of the research is mainly developed during the research process (Girtler 1992). During this process, categories and their connections are developed based on the coding paradigm of the grounded theory methodology (Berg and Milmeister 2008).

Qualitative research is a circular process: analysing and collecting data are not separated but very closely connected and the findings guide the sampling process (Strauss 1991). After each analysing phase, the focus may be somewhat changed

as some issues appear to be more interesting than others. Categories are verified, falsified, modified or adjusted, first ideas are developed and immediately tested (Lamnek 1995). After this step, new data are collected and the analysis starts again. This strategy allows for developing and clarifying theoretical ideas. To find similarities and differences in the data is one of the crucial elements of the grounded theory (Strauss 1991). This is done by constant comparison of the new data with the already developed concepts (Glaser and Holton 2004).

Qualitative expert interviews

Since our aim was to gain a broad understanding of morbidity and health behaviour, we conducted expert interviews with medical experts. Considering these interviews we want to figure out how doctors who work with middle-aged and elderly people every day and monitor their health conditions, illnesses, behaviours and convalescences over considerable periods of time judge the issue of gender, health and mortality. We assume that based on their many years of observations and experiences, physicians have drawn their own conclusions about the connections between education and health.

Expert interviews are a proper method for the reconstruction of complex experience and knowledge consistency and are used when the research interest has a focus on decision maxims, experiential knowledge, rules for action routines and knowledge relying on systematic problems, which can be mentioned explicitly or implicitly (Meuser and Nagel 1997). The guideline consists of open questions which stimulate narration and changes according to new findings during the research process. However, after an introductory question the topics of the interview concentrate on health behaviour, age-specific questions, morbidity, mortality, education and specifically on the gender gap in mortality. The interviews obtain knowledge on structural and systemic influences and gender specific implications.

Sampling

Throughout this study we have used theoretical sampling which was invented by Glaser and Strauss (1967) and is based on theoretical considerations which guide the sampling process during the whole research. That means that the collection of new data is oriented on analytical questions, hypotheses, correlations and categories which have been generated during the research process (Strauss 1991).

The analysed material is the reference point for considering how promising the next case will be and how relevant it will be for the ongoing research (Flick 2006). During the research process it has to be decided at what point the integration of new cases is no longer going to produce further findings. Glaser and Strauss (1967) call this the “theoretical saturation” (Glaser and Strauss 1967: 61).

Thirty one interviews mainly with general practitioners from urban and rural parts of Austria, have been conducted. Gender-medicine researchers, cardiologists

and nurses for the elderly were also in the sample. Most of the physicians have health prevention check-ups in their scope of service and two GPs also work as public health officers and court-appointed medical experts. Other specialisations of the physicians included HIV advisory service, help related to addiction problems, physical exercise counselling as well as diabetes and obesity prevention service. The working lifetime of the medical doctors was between five and thirty-one years at the time of the interview. With this sample we wanted to catch different perspectives of our issue. Throughout this study we used snowball and selective sampling to identify our participants. With the help of the website of the Ärztekammer¹ we got the contact information of the medical doctors. Through personal contact to some physicians, we also had access to interviews with them. The gender medicine researchers were selected through the website of the Medical University of Vienna². They suggested several other colleagues of them and soon we got a broad variation of different gender medicine topics. The carers of the elderly were affiliates of an aid organisation.

Analysis

When coding on the basis of the grounded theory, the statements are carefully compared with each other as well as with already existing categories in order to find similarities and differences to develop theoretical ideas (Strauss and Corbin 1996). Coding in this context means to break down the data in an analytical way. Its purpose is to give the analyst new insights by breaking through standard ways of thinking or interpreting phenomena reflected in the data (ibid.). ‘Open coding’, ‘axial coding’ and ‘selective coding’ were used.

Open coding is a process for finding the right label for a phenomenon. It helps to ask questions such as “What is it?” and “What does it represent?” about each sequence, comparing the text step by step to label similar phenomena as being equal (ibid.). Moreover, a concept is developed around the phenomenon; this is called categorising. While answering the questions, new ideas are developed or old ones are compared and modified. During the coding the important aspects are developed and get rich in content. (Hildenbrand 2000). Conventional categories like age or gender should not be categories at the beginning. They can become important during the research process but should not be seen as given (Strauss 1991).

While the aim of open coding “... is to open up the inquiry” (Strauss 1987, p. 29), during the axial coding, data are grouped in a new way to develop and create the connection between categories and subcategories (Strauss and Corbin 1996). Here the focus lies on the discovery of the structure of relation between the phenomena (Flick 2006). The aim is to develop the context around a

¹ <http://www.aekwien.or.at/997.py>

² <http://www.meduniwien.ac.at/homepage/>

phenomenon, its action and interaction strategies as well as the consequences of these strategies (Strauss and Corbin 1996).

Not all categories are equally relevant for the research question. Some categories have a greater explanatory power (Pandit 1996). At this point selective coding is used. It is an analysing step on a more abstract level and very similar to axial coding. The difference is that the core category is put in relation to the other categories and all the categories are also related to each other. This coding process is used to synchronise the data and to make the concept homogeneous (Strauss and Corbin 1996). After developing the core category and its underlying categories and dimensions, the results are formulated. It is important to note, that the results are never final. The grounded theory can be further developed through gaining more and more data. In the next chapter we now present the results of the analysis.

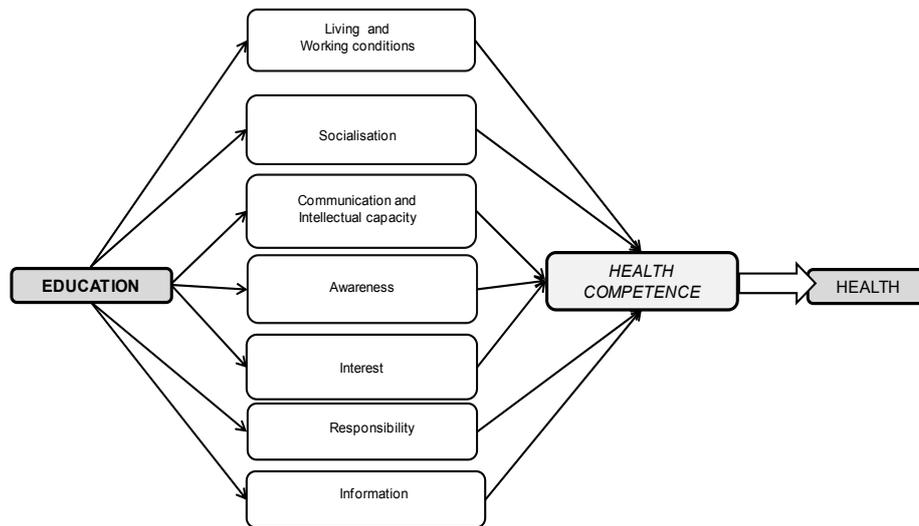
4 Results

At first, we have to point out that some interviewed experts did not perceive a different behaviour within different educational groups. However, many other considered education as a very important factor when talking about health behaviour and health situation. All categories that are described here are based on our interviews. This means that our categories present hypotheses about a possible relation between education and health based on the observations and experiences of medical experts in Vienna.

Health competence

Based on our interviews we have named our core category 'health competence' because it lies in the competence of every individual to take care and maintain their state of health. This concept is highly connected to the individual's level of education as will be shown throughout this chapter. Before describing the underlying factors the next figure (Figure 2) shows the mentioned relations.

Figure 2:
Health Competence Concept



Source: Own research results (2010)

Health competence comprises several factors that are influenced by education. These factors can also have causal relations to education but since we asked the interviewed experts if and how education influences health our analysis offers only hypotheses for the influence of education on health. The issue that health is not given per se but something that one needs to actively take care of is highly connected with the level of education.

“In general, a higher education is a prerequisite for living more consciously.” (Nr. 16, male, 69 years, general practitioner, working for 27 years)

Concerning the underlying factors which are related to education our analysis offered the following categories: living and working conditions, socialisation, communication and intellectual capacity, awareness, interest, responsibility and information. In this section the interrelationships between these elements of the health competence concept and education will be evaluated. Since health competence is needed to behave healthy it is clear that this factor is highly influencing the health outcome.

Living and working conditions

The interviewed experts stated that they consider life circumstances in relation to education and health as crucial when explaining the problems lower educated individuals have to face. Men and women with financial problems or issues regarding their living conditions often struggle while dealing with their lives. They have also more problems to care for their health because they have to concentrate on their economic survival in the first place. This affects their compliance, the access to their own body and the perception of their health complaints.

The interviewed experts stated that these patients have a lower education than patients with better material resources.

“When you have problems even to ration your money and you don’t know what you can buy, what is too expensive, where can I run up a debt and so on—so people who cannot organise their daily lives are bound to be less capable of coping with health issues as well.” (Nr. 13, female, 53 years, general practitioner, working for 20 years)

The wealthier a patient the more money they can spend on health care. If individuals do not have a solid financial background they don’t usually buy healthy food but junk food because it is cheaper. Caring for their own health or coping with health issues was perceived by the physicians as more difficult for lower educated people. They are often depressed because of their financial situation, their relationships or their social status. All factors which are important for a good state of health and for dealing effectively with health problems.

There was another observation that was made by the interviewed experts in this concern. When people are less educated and have less money to spend on health products they tend to search for temporary satisfactions like smoking cigarettes or drinking alcohol. Again, a connection between education, income and health behaviour can be observed.

“So with the, so to say, with the financial poverty or being economically disadvantaged there is always the tendency to turn to, let’s say, frustration reliefs, in other words the tendency to liquor, to smoking is greater because there’s simply not so much fun elsewhere in life. Then you turn to things which are, well, affordable.”(Nr. 15, male, 48 years, general practitioner, working for 15 years)

The physicians also pointed to another mechanism which could explain the link between education and health. Higher educated men and women have better working conditions whereas the work environment of lower educated individuals tends to be worse which also affects their state of health.

“[Higher educated persons] are not so much exposed to dangerous working conditions and do not have such a heavy work load than lower educated persons.” (Nr. 8, female, 46 years, general practitioner, working for 12 years)

Socialisation

Life circumstances and especially the family background greatly influence an individual's education. When the educational level of the parents is low the children may also have a comparative level of education; they 'inherit' the educational status of their parents, which, in turn, may have negative effects on their health behaviour.

“And I think this is passed on within the family, from generation to generation I mean, which is sort of terrible. Then the parents care less about their children getting a good education, and at school, okay, they are not very eager either, so it's very difficult to get out of this circle.” (Nr. 13, female, 53 years, general practitioner, working for 20 years)

Regarding the living and the working conditions and the factor of socialisation it was shown that these elements are related to education and in turn have an influence on health behaviour and health situation.

Communication and intellectual capacity

Communication and intellectual capacity are two other elements in our health competence model that were highly connected with the level of education. Higher educated people have superior language skills and this may also lead to a better understanding of their health issues.

“Education has an influence on how people rationalise and report issues.” (Nr. 24, female, 53 years, internist, working for 28 years)

Good communication skills are important for reporting health issues. The better symptoms are described the easier it is for the doctor to diagnose them and to find an adequate therapy.

“Speech is active, speech makes things clear. It has an important influence for the patient-physician interaction.” (Nr. 17, female, 45 years, gender medicine, working for 21 years)

The patient-physician interaction does not only depend on good communication skills. It requires that the physician has the capability to explain issues regarding health and health care. However, the patients have to comprehend these explanations and it was stated that the better the education the better the comprehension level of the patients.

“More educated patients can comprehend things more easily. First one explains something and afterwards it seems immediately clear for them.” (Nr. 20, female, 50 years, gender medicine, working for 25 years)

Some physicians stated that they use various explanation strategies to make it easier for their patients to understand them clearly. But this affords more time and since it was often reported by the doctors that they have way too less time for their patients, better educated men and women have advantages because they understand what their physicians explain more easily and faster.

“So I always find possibilities and comparisons to explain someone with insufficient education his health issues. He should then be able to understand it in general. However, I can’t know exactly if the patient is going to figure it out after leaving my office.” (Nr. 12, male, 56 years, general practitioner, working for 27 years)

Concerning individuals from groups with less education the health behaviour of migrants was also regarded by the physicians. They described that their compliance is often dreadful due to language barriers. They often cannot communicate and therefore, often do not understand health issues because they simply do not speak the language well enough.

“I have so many patients from Turkey or former Yugoslavia who do not understand simply because they do not have enough knowledge of the language.” (Nr. 15, male, 48 years, general practitioner, working for 15 years)

With the hypotheses according to this category, it can be summarised that education has an influence on how people rationalise, communicate and comprehend health issues.

Awareness

As it was shown, communication is an important factor for reporting and understanding health issues. But also the awareness level of the patients in regard to their medical problems plays an important role. It was stated that if the patient has a really bad education and no background knowledge concerning health in general, then the patient often has mythical and irrational explanations for his or her disease. These patients often do not understand why they are ill or why a certain treatment may ease their health problems.

Another distinction was made by the physicians concerning the awareness level and the state of health. They described that educated people attribute more importance to their health. Lower educated individuals rather often assume that their health is given and not something they need to take care of.

“So the higher the level of knowledge, i.e. education, the more people tend to attribute importance to health, and the lower the educational level, the more they take health for granted.” (Nr. 6, male, 45 years, general practitioner, working for 8 years)

In turn, the higher educated were described to live more health-consciously. They show a higher awareness for their body and their health situation in general.

“I mean someone who is more intelligent may perceive earlier when something is wrong and may also react sooner and better in this concern.” (Nr. 13, female, 53 years, general practitioner, working for 20 years)

More educated people often perceive faster when something is wrong with their body. Even if access to the Austrian health care system is good for all individuals, people with a lower social status visit the physician often too late because they are not as aware that something is wrong as higher educated persons. The higher educated can evaluate and as a consequence handle risks and risk factors better.

“If I think about my construction worker-patients then I have to say it always lasts long until they finally show up here and tell me about their health problems.” (Nr. 9, female, 48 years, general practitioner, working for 18 years)

Before men and women can take action they have to be aware of their problems. This is the prerequisite for changing something. Since lower educated individuals were described to have problems in being aware of health issues this difficulty may have bad consequences for their health status.

Interest

Overall, the interviewed experts perceived that men and women with higher educational levels show more interest in health and try to maintain their health status.

“Sure, a higher level of education is a crucial factor for better health behaviours. It is obvious—educated persons read more, see more, and have a wider horizon. They are also more engaged in such things.” (Nr. 16, male, 69 years, general practitioner, working for 27 years)

Not only is their interest higher they were also perceived to be more active when it comes to health care and prevention check-ups. Since they tend to have a good overview about treatments and medical possibilities they were described to be more selective in searching for the right therapy.

“Concerning the medications—they want this and that—simply because they read it in the newspaper. Needless to say, that these are then often the most expensive drugs.” (Nr. 14, female, 56 years, general practitioner, working for 27 years)

Better educated men and women are more likely to opt for more expensive treatment. However, on the other hand they are also more likely to finance these treatments out of their own pocket.

“They are by all means willing to—for example—drive one week to a health resort and pay from their own pocket. This is a possibility to stay active when it comes to improving and maintaining health.” (Nr. 12, male, 56 years, general practitioner, working for 27 years)

People with lower income and lower education can only rely on treatment that is financed through the public health care system.

Responsibility

Responsibility was perceived to be an important factor for good health behaviour. Taking over responsibility was often mentioned to be connected to one’s family status. People who live with their partner and/or children are more likely to care for their health and to take over responsibility.

“The one with family is willing to take over responsibility—for the children, for the partner—and last but not least for him probably, too.” (Nr. 6, male, 45 years, general practitioner, working for 8 years)

However, not only the family status but also the level of education was connected to taking over responsibility and being compliant in following the doctor’s advice.

“With higher education one can observe that the intake of drugs happens with more responsibility and the patients do take them more regularly and with more care.” (Nr. 15, male, 48 years, general practitioner, working for 15 years)

Men and women with a high educational level are more compliant and act more responsibly in regard to leading a healthy life. They consider their health as important and something they need to care for in daily life.

Information

Another element that was pointed out by the physicians was that information seeking and learning about health care can be found more often under the higher educated part of the population than under lower educated individuals.

“One can observe—the higher the educational level—the more widespread is the knowledge from various information channels.” (Nr. 26, female, 47 years, geriatric nurse, working for 27 years)

Therefore, the higher educated are better informed and consider seeking information about health as something important. In fact, the physicians had the opinion that continuous information can raise health awareness. Especially the media has much influence on this phenomenon. Television, internet, radio and newspapers offer much information on health. Health campaigns and information material that is located at the surgery of a general physician raises the awareness

level as well. The more individuals are confronted with health information the more they get aware of it.

“I think this is sort of general knowledge which then filters into society. They read it in the papers, then you hear it on the TV, then you hear it in the pubs, then you hear it from your girlfriend and yes, then you hear it somewhere from a doctor, you forget it again, but then you hear it from the next one and then you know it. I don't believe so much in the power of the single doctor. Instead I think it's more a question of what happens in society.” (Nr. 7, female, 50 years, general practitioner, working for 25 years)

Higher educated individuals were perceived by the interviewed experts to show higher information demands when consulting them. This can make their work often more complicated. Some medical experts stated that lower educated people rely more on the information they get from them and do not question their diagnosis in the way higher educated men and women often do because of their better background knowledge.

“When the social status is higher there is more demand for information, which by the way makes the physician's work a lot more troublesome. So because somehow the simpler people from narrow circumstances, they have more confidence and they accept therapies that you prescribe. For when a patient who really comes in with previous information, from the internet, and may know more about the details of his disease than the physician himself, that can be very troublesome.” (Nr. 4, male, 40 years, general practitioner, working for 11 years)

The way in which individuals are interested in health related issues also affects their dealing with health and illness. In this respect, it is crucial, for example, how information is offered and presented to the public. The media have an important impact on the spreading of health information. Public media often offer health promotion and are amenable for all individuals independent of their educational level. But the better the education the more high quality information individuals seek and the more interest they show for such information.

“Of course one has to read [the media] and buy them, which probably maybe some lower social strata do to a lesser extent, because certain issues that are treated in those papers or magazines, do not interest them all that much.” (Nr. 3, male, 46 years, general practitioner, working for 17 years)

Physicians described the information sources of lower educated individuals with more concern.

“Lower educated people get their knowledge somewhere from the daily newspaper, which is barely right or outdated. This is contra-productive.” (Nr. 24, female, 53 years, internist, working for 28 years)

Higher educated individuals use the media more often to inform themselves. But the patients have to be motivated to really implement the suggestions the media offers for their daily life.

“When there is no self-motivation ... to give him advice from outside is necessary, but most of the time that advice is not taken, because in theory it would be enough to read the papers or to get information elsewhere, and there one would find enough hints on how, on how one can live a healthy life.” (Nr. 5, male, 38 years, general practitioner, working for 6 years)

With this quotation it becomes clear how important the information from the media is. The more the individuals seek information and the more they hear it the better their self-motivation. Better educated people—so the idea—have more and different kinds of sources to obtain information. Consequently they adapt more easily and quicker to new ideas. This category is important because it shows that information is a powerful tool for understanding health issues. Everyone has access to health information simply by, for example, reading the newspaper. However, if and which information someone chooses is highly dependent on the educational level.

After this presentation of our results we focus on discussing them on the basis of the theoretical literature.

5 Discussion

Men and women have to gain a certain competence when dealing with health issues. Our concept ‘health competence’ comprises various factors that are influenced by education and are linked to health behaviour and health situation. The theoretical considerations presented in this paper and the ‘health competence’ concept that resulted from our analysis act as the sources for the discussion part of this paper. We try to relate and integrate these results to obtain a broader understanding about the link between education and health.

Education has an influence on material resources (Ross and Wu 1995). Low income levels may lead to deprivation and men and women cannot afford expensive food, health insurance or investments for a healthy state in the future (Mackenbach 2002; Cutler 2006). Our results further indicate that financial problems often lead to troubles when it comes to organising daily life. The literature suggests that individuals with lower levels of education and in turn a lower level of income, feel a weaker sense of control over their lives (Marmot et al. 1991; Ross and Wu 1995; Ross and Mirowsky 1999; Mirowsky and Ross 2003, 2005) which is similar to our findings. Lower educated persons with less income concentrate on their economic survival which makes it difficult for them to care for health or a healthy state in the future. With a high income one can afford healthy products and with low income men and women tend to buy

unhealthy food which has negative consequences for their health. They focus on short-term sensual gratifications which are related to unhealthy behaviours (Henry 2001). Our findings also point in this direction. Lower educated individuals search for temporary satisfactions like smoking cigarettes or drinking alcohol. Further, lower educated persons are less effective when coping with stress (Pearlin and Schooler 1978). In fact, they tend to behave unhealthy as a form of coping strategy. Moreover, persons with bad living conditions do not show up regularly at the doctor, are less likely to go to prevention check-ups and are less compliant in following medical advice. They are, in turn, more likely to be diagnosed with serious diseases. The same holds true when consulting the relevant literature (Coburn and Pope 1974; Mirowsky and Wu 1995; Henry 2001). The interviewed experts further perceived that low levels of education are related to poor working conditions. The individuals may be more exposed to dangerous hazards or suffer from a heavier workload with less autonomy. Education leads to greater occupational autonomy and this is also important for having a sense of control over one's life (Mackenbach 2002).

Education influences the amount of social resources which in turn influence health behaviour and the current health situation (Seeman and Crimmins 2001). Regarding socialisation the literature suggests that unhealthy habits (for example eating unhealthy food) are connected to a behaviour which is learned during childhood. The idea is that parents who are less educated eat more unhealthy food and also provide their children with it (Hupkens et al. 1998). The physicians mainly perceived this as a vicious circle where it is difficult to get out. They further described that persons with less education are not that eager to care about the education of their children. This has then also negative consequences for their and their children's health.

Moreover, better educated individuals have larger social networks which may support them in various ways (Cutler 2006). We cannot support this idea with our results because the interviewed experts did not perceive that the social network of poorer educated persons is smaller. What became evident during the analysis is that another important influence on health behaviour is the social support in the family (Ewart 1991). Based on our data we can explain this factor in more detail. The medical experts perceived that persons living with a partner or children are used to take over responsibility not only for themselves but also for their family members. Considering the link between responsibility and education the doctors stated that men and women with higher education act more responsible in regard to leading a healthy life. That seems to be quite an important issue when talking about health behaviour and education.

Regarding the process of acquiring education, schooling develops specific cognitive, social and analytic skills (Wheaton 1980; Kohn and Slomczynski 1993; Ross and Mirowsky 1999; Mirowsky and Ross 2005). These skills are important for evaluating and solving problems and since lower educated persons have less years of schooling their skills are not as developed as those of higher educated

individuals. Since solving health problems is essential to gain a good state of health (Henry 2001) the link between education and health becomes evident when considering this mechanism of acquiring skills through schooling. Medical doctors have to address the different needs of their patients in regard to their educational level. To explain their patients complex issues they need time and since the higher educated comprehend complex things more easily they have an advantage (Henry 2001). Schooling improves communication skills, which on the one hand help to negotiate with others and to evaluate and make use of information on the other (Ross and Mirowsky 1999). Concerning our results, the interviewed experts also stated that education builds communication skills. They depend on an adequate explanation of their patients in regard to their specific health problems to be able to formulate the right diagnosis and to offer an accurate therapy. Language barriers of migrants, often groups with lower education, are a large problem for physicians when it comes to communicating with their patients. The interviewed experts also described that the better the education the better the comprehension level of their patients. The medical experts are aware that they have to have the ability to explain complex things in a short time. Therefore, higher educated persons with good cognitive skills have an advantage in comprehending complex issues. Further, the physicians perceived that when the education and the knowledge background regarding health is very low than they often get confronted with mythical and irrational explanations of their patients who try to explain their state of health. This makes it hard to find the right diagnosis and treatment and shows that education has an influence on the awareness level of the patients. Individuals with lower education often perceive, and in consequence visit the doctor too late when something is wrong. The prerequisite for changing something is to be aware of it.

Cognitive thinking patterns also have an influence on how information is processed. Men and women with higher education have better cognitive abilities (Holt 1998). What was essential in our research was the fact that the physicians perceived that continuous information, through the media etc, can raise health awareness. The spreading of information does not have an equal influence on knowledge between different educational groups (Cutler 2006). The interviewed experts stated that the higher educated seek actively for information and that their information sources are of higher quality than that of lower educated persons. Physicians try to raise the awareness level through providing health information brochures in their surgeries. They further perceived that the self-motivation is highly responsible for the information process. Lower educated persons do not have such a high self-motivation to search for information and care for their health. Higher educated persons have a higher information demand and are more likely to criticise the diagnosis they get from their doctors. Since they show more interest and have knowledge from various information sources they tend to be more selective when searching for the right treatment. This is similar to the findings in the literature. Higher educated are considered to have a higher self-

care adequacy (Kutner 1956; Baumann 1961 cit. in Young 2004). Further, better educated men and women are more sceptical when choosing a health care provider or health behaviours. They are also more likely to opt for expensive treatment possibilities. We further found that lower educated patients rely more on the suggested therapy of their doctors. Higher educated people attribute more importance to their health and do not take it for granted whereas lower educated persons often assume that their health is given and not something they need to take care of.

After linking what we know from the literature with our empirical findings it can be summarised that the three main sets of factors are considered to act as links between education and health. Material, psychological and social resources influence health behaviour and health. Human capital builds various skills through schooling and we also found, according to our results, that these specific skills are needed to perceive, communicate and comprehend health issues. The key element 'health competence' is not something that every person has but is highly connected to education. Considering the theoretical literature, most of the hypotheses about the influences on health are supported by the experiences and perceptions of the interviewed experts. However, some of the connections were described in more detail with the help of this qualitative approach and together with the literature review we offered a deeper understanding of how education might be related to health behaviour and current health situation.

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