HEALTH PROMOTION AND DISEASE PREVENTION **A Handbook for Teachers, Researchers, Health Professionals and Decision Makers**	
Title	**Level of Education and Health Status of Different Social Groups: Case Study Macedonia**
Module: 4.2	**ECTS: 0.5**
Author(s), degrees, institution(s)	**Lenche Mirchevska**, MD, PhD, Professor Higher Medical School – Bitola University "St Kliment Ohridski" – Bitola, Macedonia **Doncho Donev**, MD, PhD, Professor Institute of Social Medicine, Institutes, Medical Faculty, University Ss Cyril and Methodius in Skopje, Macedonia **Snezhana Mojsoska**, Graduate Ecc., MSc, Teaching Assistant The European University, Skopje, Macedonia
Address for Correspondence	**Lenche Mirchevska,** MD, PhD, Professor The Higher Medical School – Bitola The University „St Kliment Ohridski„ - Bitola Ul. „Vasko Karangelevski„ bb – Bitola 7000 Bitola, Macedonia E-mail: lmircevska@yahoo.com
Key words	Education, socioeconomic status, health, morbidity, mortality, health promotion, health education, interaction
Learning objectives	After the completed module students and professionals in public health will broaden their knowledge and understanding regarding: - the level of education and the rates of morbidity and mortality; - influence of education on the level of morbidity and mortality; - education and mechanisms for positive association with health; - health education programs and activities for health promotion in relation to the level of education.

| Abstract | The educational level is an important indicator within the socio-economical status for health evaluation and a powerful instrument in promotion of population's health. In 2000 a study conducted in R. Macedonia, in 15 municipalities with different gross national product per capita, encompassing 1129 examinees older than 18 years. The results of the conducted research showed statistically significant association of the educational level with the morbidity. Higher morbidity emerges in persons that are illiterate (78,57%) and in those who have completed only 1-3 elementary school grades (77,08%). There is also an interaction between the mortality and the educational level. Persons with lower educational level have higher mortality rate. What kind of interaction is there between the educational level and the positive health? People with lower educational level are more susceptible to diseases; they are less informed which leads to a poor health. Morbidity and mortality rates are lower in people with higher educational level, who also have high level of self-informing that augments their health awareness and culture, leading towards positive health. According to many research studies, the mechanisms that link education to positive health are the employment and self-satisfaction with the job, healthy lifestyle, psycho-social resources etc. There is a mutual negative effect between poverty and lack of education that provides skills and information needed for managing the stress situations life brings with itself. Education, employment and incomes increase the capacity of self-control, and that condition strengthen the health in relation to the environment The social support, which is most frequent in persons with higher educational level, promotes health and decreases mortality through physiological mechanisms of the environment. People with higher educational level most likely will look for preventive health care (yearly check-ups for health control, immunization and other preventive examinations) and will probably not abuse alcohol and drugs.

Preparation of various programs for applying the health education will contribute in the process of directing the individual to correct behavior that leads towards positive health, opposite the hostile influences of the social environment, which leads to bad quality in health (based on the education). |
|---|---|
| **Teaching methods** | Lectures, focus group discussion, nominal groups, case studies |
| **Specific recommendations for teachers** | Case studies – students will have possibility to conduct survey for assessing health status of various socio-economic groups in relation to the level of education, and to participate actively in realization of health education activities directed to health promotion. |
| **Assessment of Students** | The final grade should be derived from assessment of the theoretical knowledge (oral exam), contribution to the group work and final discussion, and quality of the seminar paper |

LEVEL OF EDUCATION AND HEALTH STATUS OF DIFFERENT SOCIAL GROUPS: CASE STUDY MACEDONIA

Lenche Mirchevska, Doncho Donev, Snezhana Mojsoska

Introduction

Socio-economic conditions and factors and their effect on population's health, as possible causes for emerging of health problems, are subject of intensive research in many countries worldwide.

In the mid 20th century dominated the public-health idea that the host, the environment and the agent are equally responsible for the disease occurrence. Host's factors are: age, sex, lifestyle, genetic predisposition, education, professional status, personality. The global health of the population primarily depends on the genetic and social factors, risky behaviour and health service development. The risk of disease is different in different socio-economic population's groups. People with higher socio-economic status have lower risk of disease and suffer from chronic diseases in the old age. In lower socio-economic status groups, in addition to the chronic non-infectious diseases dominate the acute infectious diseases, poverty, high mortality rate in newborns and early death (1).

Determinants of the individual's position in the social hierarchy are the education level, the profession and the incomes. The education is the most significant cause, of all other determinants (financial situation, incomes, social status, political, cultural and economical power, ethnicity, etc.), for the different health conditions in different socio-economic groups (2).

The actual economic situation in R. Macedonia unfavourably influences on the living standard. The low economic development causes a stagnation in the social development and investment in the population health.

Educational system in Macedonia and its comparison with the educational systems in other countries

Majority of the countries in the world, due to lack of information about the profession and the family income, use only one indicator – the educational level of the individual or group instead of the three indicators for socio-economic status measurement. Some authors consider the educational level as an important determinant of the populations' health condition as well. How precise will be the classification of the educational level depends on the country's socio-economic and educational system. In the biggest world educational systems that include four educational levels the complete education last approximately 12, 15, 18, 21 and more years. According to Kunst and Mackenbach in some European countries the education is classified as follows: incomplete education, elementary education, secondary lower and secondary upper education, tertiary (post secondary) education (3).

R. Macedonia's legislation classifies the education as: incomplete elementary education (and persons without education), elementary education, 3 years secondary education, 4 years secondary education, advanced school education, higher education (includes higher education, master and doctorate degree) (4). The educational system in R. Macedonia is going through reforms (9 years elementary education).

Other countries experiences on the effect of the education on the population morbidity and mortality

Studies in many countries have shown that there is a statistically significant difference (correlation) between the education and the morbidity and mortality rates. Higher socio-economic groups (with higher educational level) have lower morbidity and mortality rates and vice versa, the lower socio-economic groups (without or with lower educational level) have higher morbidity and mortality rates.

The studies in Finland show correlation between education and incapacity. In Finland, incapacity as an invalidity level is more frequent in persons with elementary and secondary education, while the persons with higher educational level are free from incapacity (3).

A recent study which analysed socio-demographic variation in the prevalence of obesity in Estonia, Lithuania and Finland on the basis of three cross-sectional surveys in 1994, 1996 and 1998, found that over the course of this period obesity increased only in Estonian males and that a significant socio-economic gradient was found only for women across the three countries and for men only in Finland. Women with lower educational levels were statistically significantly more likely to be obese. In Estonia the adjusted odds ratio comparing high to low education group was 0.44 (0.31-0.64) for women (5).

Figure 1. Percentage of the survey population with perceived general health "less than good" by level of education in the Netherlands, aged > 16, 1983-1985 and 1992-1993
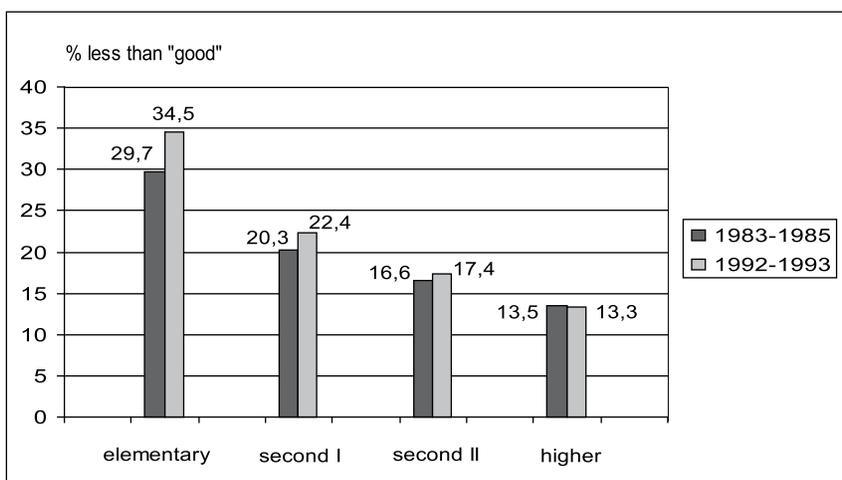
Source: Kunst A. & Mackenbach J. Measuring socioeconomic inequalities in health, fig. 15. p. 101, 1994

The studies in the Netherlands (Fig. 1) show that worse health is most frequent in people with lower educational level (elementary school). The situation is opposite within the population with completed third level (post-secondary) of education (3).

In a Greek study (1983) the perinatal mortality rate was measured. In addition to the parents' education, two more indicators were considered: the mothers' health problems and the housing quality. The results have shown correlation between the education and the perinatal mortality rate. The Greek children whose parents are with lower educational level had higher perinatal mortality rate (3).

Correlation between the education and the mortality and morbidity rates in Macedonia

Educational level is important as socio-economic status indicator as well as the population health estimator. The survey carried out in Macedonia, in 15 communities with different gross national incomes per capita, included 1129 adults over 18 in 1997 and 669 in 2007. Students from the Advanced School of Medicine in Bitola and the Interdisciplinary Studies in Public Administration participated in the questionnaire survey. The aim of the survey was to confirm the correlation between the educational level, as socio-economic status indicator, and the mortality, as the population's health estimator. An epidemiological method with retrospective research approach was applied, as well as prospective questionnaire for confirmation of the correlation between educational level and morbidity, which is also a population's health estimator. Statistical significance for accepting or rejecting the hypotheses was computed by statistical methods (correlation coefficient, linearity and Chi- square test). The results in the both surveyed periods showed statistically significant correlation between the educational level and the morbidity and mortality rate (10).

Education and the mortality rate in Macedonia

In the study conveyed in Macedonia data of the State Statistical Office were used. The mortality rate analysis showed that it correlates with the educational level.

Figure 2. Educational level and number of deaths in Macedonia (2004-2005)
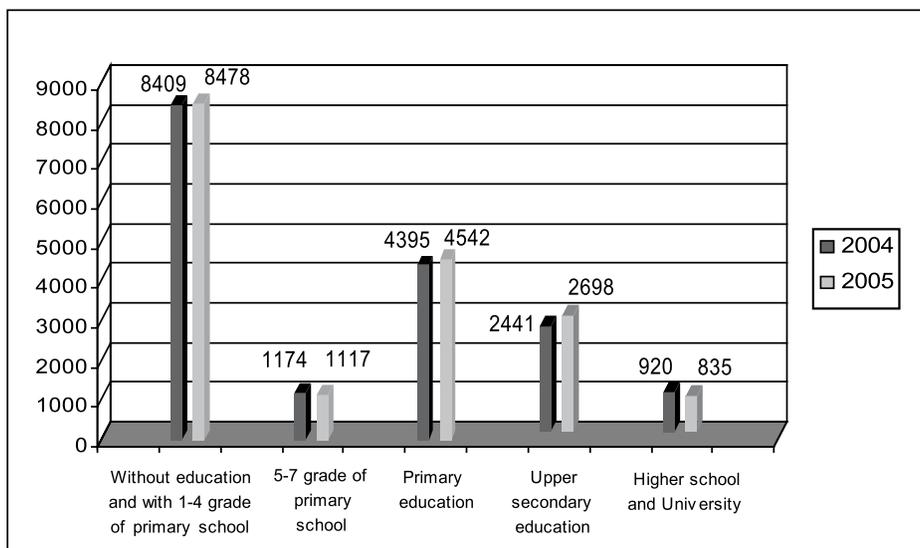
Source: *State Statistical Office of the Republic of Macedonia, Statistical review 2.4.4.12/477, 2004:25, 2.4.5.11/509 2005:25, 2.4.6.11/537, 2006:25*

According the data of the State Statistical Office the total number of deaths was 17944 in 2004 and 18406 in 2005. Figure 2 shows the educational level and the number of deaths. It can be seen that the number of deaths, 9583 or 53.4% in 2004 and 9595 or 52.1% in 2005, in the population without education and uncompleted elementary school was higher than the mortality rate in the population with high education, which was significantly lower, 5.1% in 2004 and 4.5% in 2005. According to the R. Macedonia's population structure analysis (2006 Work Power Questionnaire) the population groups with completed elementary school (33.3%) and 4 years secondary school (32.3%) were the most represented population groups in 2005. Since the groups without education and incomplete elementary school constitute only 14.5% of the population and mortality rates are high in these population groups, we can conclude that there is a correlation between the education and the mortality (6).

Education and the morbidity rate in Macedonia

The studies throughout the world, including our country, have shown that population groups with lower educational level suffer from wider spectre of diseases. They are less informed, which leads to conditions of worse health. High educational level population groups have lower morbidity rates due to the higher level of self-informing, which increases the health awareness and culture. According to many studies the mechanisms that link higher educational level with positive health are the employment and self-satisfaction with the job, healthy lifestyle, psycho-social resources, etc. Education, employment and the incomes increase the sense of self-control, which strengthens the health in relation to the environment. People with higher educational level undertake more health preventive initiatives (control check-ups at least once a year, immunization and other preventive check-ups, higher self-control regarding the risky behaviour). Social support that is more frequent in people with higher educational level promotes health in the social environment.

Survey results in Macedonia in 1997 and 2007

The results from the questionnaire survey in Macedonia in both analysed periods (1997/2007) have shown better health, lower morbidity rate, less visits to physicians in the groups with higher socio-economic status (10).

Figure 3. Structure of the self-reported modalities "good health" and „less than good health" (research 1997)
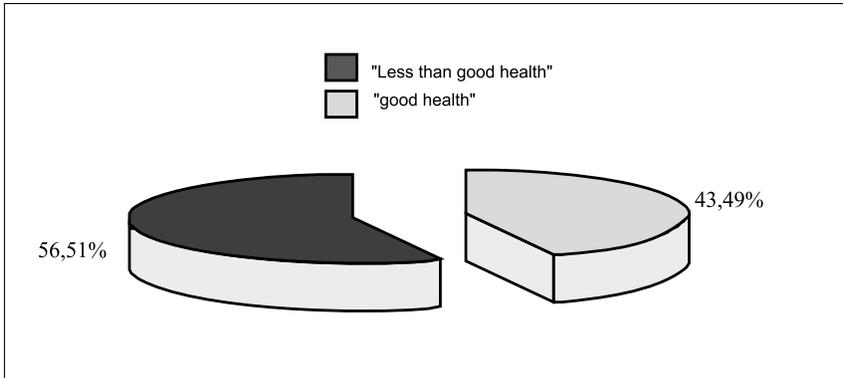
According to the modalities analysed within the questionnaire, the majority of the surveyed (56.51%) came out for bad health.

The questionnaire in 2007 (Figure 4) has revealed notable worsening of the situation in comparison to the situation 10 years ago. The 69.25% of the surveyed people visited their physicians for bad health, and only 30.8% for good health (10).

The most frequent visits to physician office in 2007 were paid by the illiterate people. The most probable reason is the worsen health as a result of the insufficient financial resources for living, harder work conditions, inadequate nutrition and bad socio-economic living conditions. Only 8.43% of the people with high education made a visit to the physician (Fig. 5), (10).

Figure 4. Structure of the self-reported modalities "good health" and "less than good health" (research 2007)
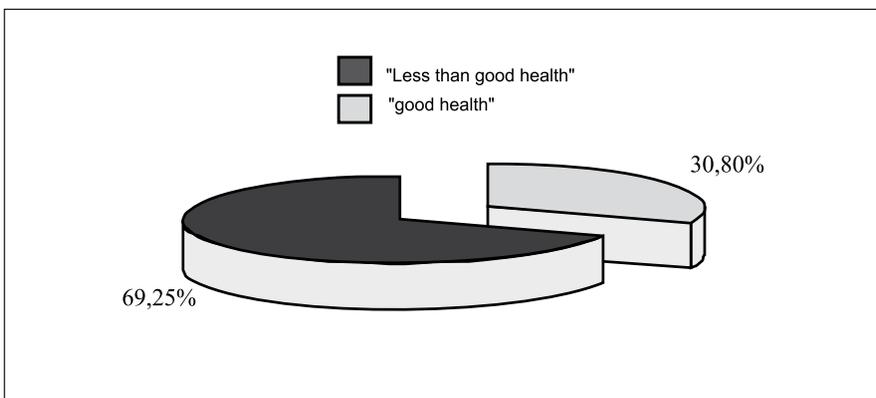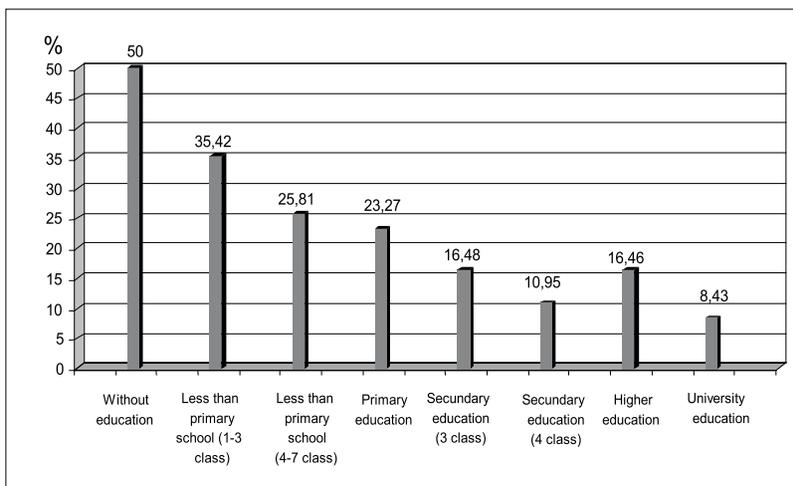
Figure 5. Structure of the visits to physicians in general medicine service, by level of education of patients (research 1997)

The estimation of the structure of patients who visited physician office (Fig. 5) was made according to the educational structure of the surveyed people (10).

The study in 2007 has also demonstrated a statistically significant difference between the doctor's visits and the educational level: $X^2=83.93175$, D.F. = 14, (p<0.01). People with lower socio-economic status regarding the education pay visits to physician offices most frequently (55.56% illiterate persons versus 4.76% persons with high education), (10).

Figure 6. Structure of the visits to physicians in general medicine service, by level of education of patients (research 2007)
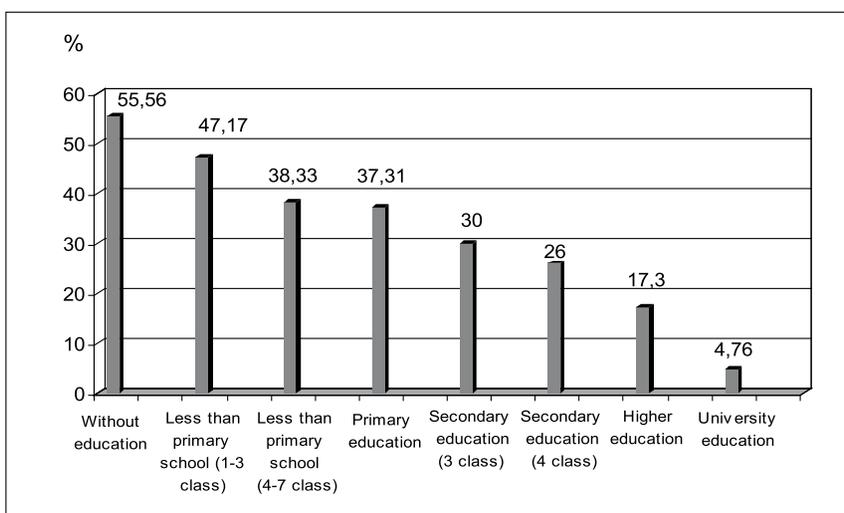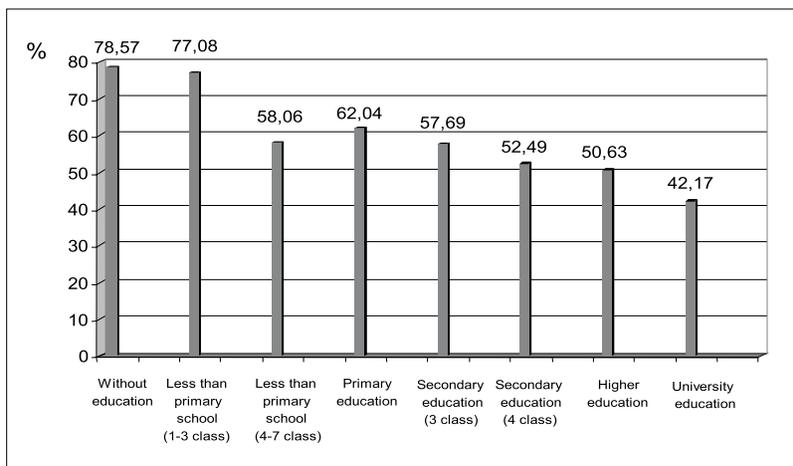
Figure 7. Structure of self-reported diseased persons according to level of education in %
(research 1997)

The results from the survey in 1997 about the structure of the diseased persons according to their educational level showed higher morbidity rate (78.57%) in lower socio-economic population groups (illiterate people) in comparison with people with higher educational level. The morbidity rate in people with higher educational level was 42.17% (upon the surveyed people's statements). Similar situation was registered in 2007, too. The level of education with statistical significance correlates with the morbidity: $X^2=152.70342$, D.F.=84, (p<0.01). The linear regression equation shows reverse association. Increasing of the educational level decreases the morbidity rate and vice versa. Higher morbidity was registered in the illiterate and people with completed 4-7 elementary school levels (10).

According to the analysis of the population's health in regard to education (1997) surveyed people with elementary and incomplete elementary school had bad health in 57.4% of all cases. Similar situation was confirmed in 2007 as well. This explains the significance of the educational level, as a socio-economic status indicator and its influence on population's health. Lower socio-economic groups (with lower educational level) have worse health and contrary, highly educated people have better health. Therefore, it can be concluded that health awareness and culture, acquired through learning and education, is very important for the health of the population.

The analysis of causes of poor health in regard to the educational level have shown that cardiovascular and respiratory diseases most frequently occur in people with secondary, elementary and uncompleted elementary school (10).

Education and mechanism for positive association with the health
The most significant mechanisms between higher educational level and good health are:
- Job position and socio-economic living conditions;
- Socio-psychological resources and conditions;
- Healthy lifestyle.

Job position and socio-economic living conditions

Most frequent indicators for this relation are: employment and unemployment, family incomes, profession and economic difficulties, work engagement and self-satisfaction with the job.

Education and employment

The employment fulfils the prerequisites for prosperity of the employee and his/her family. Unemployment could cause health worsening, poor nutrition, stress etc.

The survey of the number of realized visits to physicians' office in regard to the employment status in 2007 showed that retired persons (49.19%), bankruptcy-workers (32.14%) and unemployed (19.09%) go to physicians' office most frequently. There is a significant statistical correlation between the employment and visits to physicians' office (X^2=127.8, D.F.=14 (p<0.01). The situation in the survey of 1997 was similar. These data lead to the conclusion that retired persons compared to the pupils and students, who are the youngest and healthiest populations, due to the biological characteristics and changes in the course of ageing have higher morbidity rates and are more common visitors to the doctor's offices. The frequent visits to doctor's offices by bankruptcy-workers and unemployed may result from the stress they have experienced, poor nutrition, financial incapacity for satisfying the basic family needs etc. The above conditions could be confirmed with adequate targeted studies (10).

In the last several years the unemployment rate is decreasing. It is bigger in the male population while the unemployment rate among the female population increases (Tab. 1).

Table 1. Structure of unemployed persons in Macedonia according to gender (population over 15 years)

Year	Unemployed			Unemployed (rate)		
	Total	**Men**	**Women**	**Total**	**Men**	**Women**
2003	315868	191850	124018	36,7	37,0	36,3
2004	309286	186223	123063	37,2	36,7	37,8
2005	323934	191096	132838	37,3	36,5	38,4
2006	321274	191856	129418	36,0	35,3	37,2

Source: State Statistical Office, Statistical report 1.2.7.06, LVI Skopje, 2007: 66

Table 2. Number of unemployed persons in Macedonia according to the level of education 2003-2006

Level of Education	2003	2004	2005	2006
Total	315868	309286	323934	321274
Without Education	3679	4648	4083	5429
Incomplete primary education	16737	15745	13794	16016
Primary education	112594	97333	97773	97068
3 years of secondary education	49093	44403	49122	51397
4 years of secondary education	108408	123110	131391	122517
Higher education	7688	6126	7880	6939
*University level education	17669	17920	19892	21910

* *University level education included: University level education, Master degree and Doctorate (PH.D)*
   Source: Queschenery labour force, Statistical report, LVI 1.2.7.06, Skopje 2007:66

In regard to the education the unemployment was higher in people with completed 4 years secondary education, 122 517 persons or 38.1%, and with completed elementary school, 97 068 persons or 30.2% of the total number of unemployed in R. Macedonia in 2006 (Tab. 2).

Unemployment and the long period of waiting for employment have health and social consequences such as: postponed marriage for single persons, disordered family relations, depression and apathy, bad school performance in children of unemployed parents, incapacity for health services payments (participation), poor nutrition and incapacity for covering the education tuitions. There is an outstanding significant difference between the employment status and the morbidity (X^2=255,27, C=0,429427, D.F.=84, p<0,01),(10).

Education and family incomes

Education significantly correlates with family incomes. The lower educational level could cause certain economic difficulties. The study results have disclosed that the people with lower educational level have lower incomes and bigger economic difficulties. The unfavourable economic situation on the other hand influences the health (cause depression, hopelessness, poor and bad nutrition, tendency to smoking and alcoholism, weak immunity etc.).

Better education ensures "better and more stable" working environment, with bigger autonomy in the tasks performance and self-satisfaction with the job, since there is a diversity of work assignments resulting in higher level of creativity and organization.

The study in conducted in Macedonia (1997) showed that in the examined group with outstandingly favourable financial status (higher socio-economic groups) had excellent health (40.7%). In the population group with clear unfavourable financial situation (lower socio-economic groups) poor health was more frequent (29.7%). There is statistically significant correlation between the financial status (family incomes) and the morbidity rate (X^2=122.75, C=0,29901, D.F.=9, p<0.01), (10).

Education, work engagement and self-satisfaction

Work engagement and self-satisfaction with the job in people with lower educational level results in: greater physical burden, less safe work, monotony in the tasks completion, exclusion from the process of decision making, less subjective reward and less other people's recognition for their work, etc.

People with higher educational level have better job positions and better health as per our analysis. Higher percentage of retired persons, farmers and housewives presented with bad health condition.

Education and socio-psychological resources and conditions

The following socio-psychological resources were assessed in our survey: sense of control, social aspects of the education and social support, correlation with the sustainable development of the population, education and family planning.

Sense of control

The sense of control as control over personal life is mentioned in many studies throughout the world. It is considered that the individual with higher educational level accepts healthier lifestyle and is more effective in changing and adjusting his/her environment. In lack of control, it is not the individual but other forces from his/her environment that determine the

consequences. Education, employment and financial situation increase the sense of control necessary in every day life. The sense of self-control in regard to the environment increases the individual's and groups' initiatives, intensifies the prevention activities and promotes physiological mechanisms' regulation, a condition that leads to health improvement.

Social aspects of education and social support

The most important changes that have occurred in Macedonia over the last several years are: changes in the social structure, division into classes and impoverishing of the population, especially in the undeveloped areas, some rural communities and mountainous areas. More than 1/3 of the R. Macedonia population lives in poverty and some families face chronic hunger (23% cannot buy food). Majority of the poor people (Report from the project "Social exclusion and insecurity of the Macedonian population", Institute of Sociological, Political and Juridical Research, Skopje, 2000) has limited access to financial resources, education, health care and food (7).

Educational structure and sustainable development of the population

Educational structure is one of the most important components for sustainable development of the population. Higher education and expert qualification results in bigger work power and bigger work productivity. Education develops people's personality and humanity that contributes to the social status improvement. Positive changes in the educational structure have positive influence on the entire socio-economic development and the demographics changes in the population (natality, mortality, migration and other structural changes).

Illiteracy rate in the population aged 10 years and older in Macedonia continually drops from 5.4% in 1994 to 3.6% in 2002 (census). According to the educational structure (educational level), 36.9% of the population 15 years old and over in Macedonia have secondary education, 35.0% have elementary education, 13.8% have not completed the elementary school, 6.5% have high education, 3.2% completed advanced school, 0.2% have master and 0.1% doctorate degree. Thus, groups with elementary and uncompleted elementary education predominate with 48.8%, which is an unfavourable factor for sustainable development of the county. The studies have shown that people with lower educational level experience bigger existential insecurity (31% with complete secondary education versus 12% with high education), (7). In 2006, population group with elementary education was dominant with 33.3% from the total population, followed by the population group with four years secondary education (32.3%), uncompleted elementary education (11.1%), completed advanced school (3.0%), and at the end the population group with high education that included individuals with master and doctorate degree (7.3%), (6).

There is a significant correlation between *education and poverty*. According to the investigation of the Institute of Sociological, Political and Juridical Research-Skopje on the population distribution and sustainable development, there is a high correlation coefficient between education and poverty. The educational level of the household head (2002) and the poverty are in inverse proportion and vice versa. The probability for poverty is higher if the household head has no education or has not completed the elementary school (37.8%) in comparison to those with the advanced school (9.9%) and high education (6.2%), (7).

Figure 8. Relative poverty according to the educational level of the household head, 2003-2005 70% of median equivalent expenditures
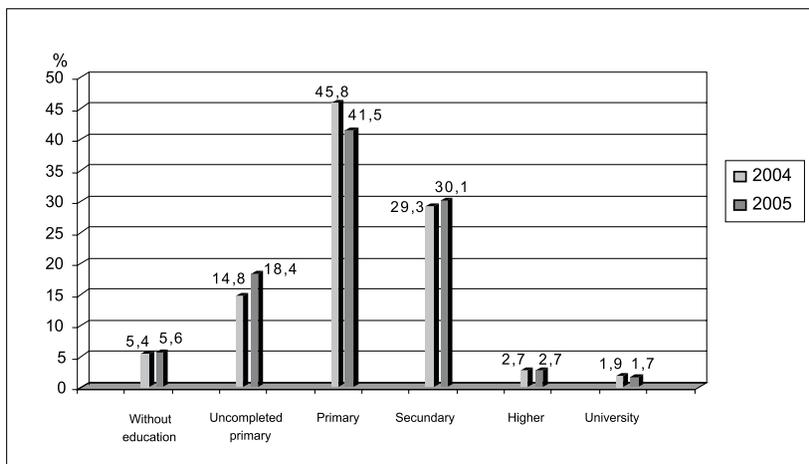
The situation in 2005 (Fig. 8) was similar to the situation in 2002. Poverty was more frequent in families where the household head was without or with uncompleted elementary school (24.0% from total). Poverty was the biggest in families where the household head had only elementary education (41.5%) in contrast to the families where the household head had a university degree (1.7%), (4).

Education and family planning

A number of studies have confirmed that education is the key factor in family planning, i.e. population growth. Those studies have revealed correlation between the education and the number of children in the family. Population groups with elementary and uncompleted elementary school had 4 and more children (28.4%). In contrast, the families with higher educational level had 1-2 children (42.6%). The Roma and Albanian families in Macedonia and other countries had higher birth rate. This is most probably a result of the higher illiteracy and lower educational level among Roma and Albanian women (7). It has been suggested that more surveys are needed to measure the extent of the influence of education and economic status to family planning and the number of children in the family in various social groups and categories of the population.

Education and healthy lifestyle

Several parameters related to education are important for healthy lifestyle, including nutrition, smoking, physical activities, alcohol abuse and number of health consequences.

Nutrition

Nutrition is significantly linked to the population's health condition. The food basket cost is about 15% and more than 50% of the total family incomes in the developed and non-developed countries, respectively. The high food basket cost in R. Macedonia ("monthly

food basket" cost is very high, approximately one average salary per four-member family) is of high concern (8). Families with lower incomes and lower educational level cannot easily provide diverse and nutritiously good food, which is a risk factor for malnutrition and poor nutrition caused diseases. Some groups are at high risk of over-nutrition, a risk factor for cardiovascular, endocrine and other diseases.

Smoking

World wide studies, including studies in our county, consider smoking, as cause of number of diseases, at the top of the list of all problems that affect health. It is thought that the people with higher educational level have higher health awareness, culture, are more informed, and are able to avoid or control smoking. If they smoke they have good prospects to decide and quit smoking. They also go on sporting more often, which positively influence on many health problems, including smoking.

Alcohol abuse

People with higher educational level are much more informed about the harmful effects of alcohol abuse and thus, they can more easily comprehend it. People with lower educational level are more susceptible to alcohol abuse. There is a statistically significant correlation between the alcohol abuse and the morbidity and mortality rates.

Health consequences

A number of studies have confirmed the correlation between higher educational level and good health. The results from the study in Macedonia have demonstrated that people with higher educational level are more informed about the role and significance of measures on diseases prevention and control (eradication). They are more likely to ask and receive preventive medical care (yearly systematic health check-ups, immunization, screening for early diagnosis and complications).

When health is in question, it is important to consider which are predominant and responsible factors determining health: low-quality social life or individual responsibility? Nevertheless, some findings claim that health determinants occur as part of the individual's behaviour (for example, smoking or alcohol abuse instead of healthy lifestyle is a personal choice). The above arguments lead to the conclusion that socio-economic resources and the personal attitude towards health are the determinants that link the education to the low-quality lifestyle, which could be a cause for health disturbance.

The study of the correlation between education and health in different test groups in R. Macedonia in both analysed periods lead to several conclusions: the educational level and the morbidity rate are in statistically significant correlation, excellent health is more frequent case in people with higher socio-economic status regarding the educational level, and poor health is a case in people with lower educational level. Thus, it could be concluded that health awareness and culture, acquired through learning and education, is very significant for the health of the population.

Conclusion

The analysis of the research data has led to general conclusion that education may play a significant role in the health-educational programme and health promotion conveyance. The organization of health-educative programmes and practical application of health-educational

activities are integral part of the health professionals' education curricular contents. Health education contents planning and programming should encompass the previously planned activities. Linkage of health problems to the socio-economic living conditions in the social environment induce including the whole community in prevention the diseases and promotion of health. This will contribute to health awareness and culture rising. Health education programmes should be based on: good knowledge of the health-educational methods, health workers expertise, monitoring of the health service and health care development, implementation of the health education in the legislative, integration of the health education in the educational institutions. Health-educational programmes should include: contents about the health education, priority health problems, demographic data and general data about the region, indicators for population's health condition estimation (birth rate, morbidity, mortality, determinants of the hygienic-epidemiological condition etc.), organisation and level of the health service development, financial resources, work methodology, application of health-educational tools, areas of actions, etc. These data contribute to: identification of the health education programme goals, programme's tasks and contents determination, teachers entitlement and working mode, personnel planning, programme participants, programme time-line schedule, programme budget planning.

An impression has been created that health-educational activity within education has not been adequately used so far. Partial inclusion of the health-educational issue in other subjects (biology, physical education and similar) gives only partial results. It is necessary to organize more efficient form for development of this activity in the educational institutions. The possibilities for students' participation in other activities conveyed in the community, should always be considered and used.

The leaders and the population, for the mutual interest, actively help in neutralization of all obstacles in the course of the programme conveyance and should support the programme (9).

References

1. Tulchinsky T, Varavikova E. The New Public Health, Academic Press, San Diego, New York, Boston, London, Sydney, Tokio, Toronto, 2000: 57-184.
2. Letica S. Health policy in crises. [In Croatian]. Naprijed, Zagreb, 1989:37.
3. Kunst A, Mackenbach J. Measuring socioeconomic inequalities in health. WHO Regional Office for Europe, Copenhagen, 1994:33-101, fig. 4,6,15.
4. State Statistical Office-Skopje. Poverty line-Report 4.1.6.50, 2006:8.
5. Klumbiene J et al. Socio-demographic and health behaviour factors associated with obesity in adult populations in Estonia, Finland and Lithuania. European Journal of Public Health, 2004;14:390-4.
6. State Statistical Office-Skopje. Labour force survey 2006. Statistical review 563, 2.4.7.10, 2007: tab. 2b.
7. Jakimovski J. Population Distribution and Sustainable Development. Institute for Sociological, Political and Juridical Research-Skopje, Skopje, 2006: 9-55.
8. Donev D.: Health Consequences of the Transition in the Republic of Macedonia, National Human Development Report 2001, UNDP, Skopje 2001:79-91.
9. Mirchevska L, Donev D, Gligorov I. Health Education. University "St. Kliment Ohridski" Bitola, Advanced School of Nursing in Bitola, Bitola 2007: 56-61.
10. Mirchevska L. Influence of some socio-economic conditions on the health condition of the population in Republic of Macedonia (doctoral dissertation). Institute for Sociological, Political and Juridical Research-Skopje, Skopje, 1997: 85-7, 177.

Recommended readings

1. Kunst A, Mackenbach J. The Size of Mortality Differences Associated with Educational Level in Nine industrialized Countries. Am J of Public Health, 1994;84(6):932-37.
2. Stelmach W et al . How income and education, control over life and life style contribute to risk factors for cardiovascular disease amongst adults in a post communist country. Public Health, 2005, 119: 498-508.
3. Stelmach W et al. How income and education contribute to risk factors for cardiovascular disease in the elderly in a former Communist country. Public Health, 2004;118:439-49.
4. Malyutina S et al. Trends in alcohol intake by education and marital status in an urban population in Russia between the mid 1980s and the mid 1990s. Alcohol and Alcoholism, 2004;39:64-9.
5. Malyutina S et al. Education, marital status, and total and cardiovascular mortality in Novosibirsk, Russia: a prospective cohort study. Annals of Epidemiology, 2004;214(4):244-9.