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Inequalities in life expectancy by education and socioeconomic transition in Lithuania

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Key words: education; life expectancy; inequalities; Lithuania.

Summary. *Objective.* To present changes in life expectancy of males and females by the level of educational achievement and describe different aspects of inequalities in life expectancy over the decade of socioeconomic transition in Lithuania.

Material and methods. This analysis is based on routine mortality statistics and census data for 1989 and 2001 for the entire country. The study included the population more than 25 years of age.

Results. Increasing inequalities in life expectancy by education have occurred due to increasing life expectancy amongst persons with higher educational achievements, and conversely, a declining life expectancy in groups with low levels of education. Cardiovascular diseases were responsible for the greatest number of years lost in life expectancy by all educational categories both in males and females. The numbers of years lost due to cardiovascular diseases decreased in majority of educational categories, particularly in lower secondary educational group. The increase in the years of life expectancy lost was observed due to external causes of death, the higher education being associated with the lower numbers of years lost, especially in females. The greatest impact on the difference in life expectancy between males with university and primary education was caused by external causes both in 1989 and 2001, while the major contribution to the educational differences in life expectancy of females was made by cardiovascular diseases.

Conclusions. Favorable forecast of declining health inequalities by education in Lithuania can hardly be expected in the nearest future. Collective efforts and constructive actions should address the health problems of the least privileged groups in terms of education, as well as promotional efforts directed at young people to complete their education and guarantee of equal opportunities for education.

Introduction

Tackling social inequities in health is of particular importance in countries that are undergoing social, economic, and political transition. In these countries, rapid political and economic changes greatly influence social, demographic, and health situations. Since the 1990s, the Government of Lithuania enacted a series of reforms relevant to both the national economy and the health system. Only since that time researchers and the public-at-large could gain access to information, held at statistical bureaus, and systematic research on health inequalities could begin. Several studies revealed inequalities in mortality and life expectancy by level of education, based on data contained in the 1989 Census (1, 2). The most recent census was conducted in 2001. Dramatic changes

occurred in the political, social, and economic situation of Lithuania during the years between these two censuses, which were reflected in growing differences in mortality by different educational groups of the country (3).

Educational attainment is a composite socioeconomic variable, reflecting a number of influences on health status and mortality. It is closely associated with occupation and income (4, 5). In countries such as Lithuania, where economies are undergoing intense transition, society tends to be rather sensitive to questions concerning socioeconomic status; therefore, accumulation of reliable data on income or occupational status is problematic. Such characteristics change rapidly and are not willingly reported on a candid basis. However, measures based on education can be

used reliably, because the information is contained in national data banks and tends to remain stable throughout the course of an individual's life.

The aim of this article is to present changes in life expectancy of males and females by the level of educational achievement and describe different aspects of inequalities in life expectancy over the decade of socioeconomic transition in Lithuania.

Material and methods

The analysis for this study involved the entire country. Population size was rather stable throughout the period under investigation, totaling 3.67 million inhabitants in 1989 and 3.48 million in 2001. Information on deaths was obtained from the National Database of Lithuania. Records from the 1989 and 2001 Censuses provided the sex and age distributions of the population, which were stratified, according to level of achieved education. The study included exclusively the population more than 25 years of age, because it was likely that the younger age groups had not yet completed their educations, and thus the data on younger groups would not be reliable. Both the 1989 and 2001 Censuses used the Lithuanian classification of educational diplomas to define the level of achieved education. Since this classification of educational levels differed slightly between these two census periods, the educational groups of 1989 were adjusted to those of 2001 for this study, and mortality rates were recalculated by education for 1989, according to the new classification system. This study employed four major levels of achieved education, as follows: (i) primary or no education group – up to 4 years of school and no diploma of graduation or no education; (ii) lower secondary education group (so-termed for this analysis) – 11–12 years of school; (iii) incomplete university with no graduation diploma, upper secondary or college; and (iiii) university education group – graduates with diplomas or degrees from an institute or university.

The life tables by level of education were calculated, and 95% confidence intervals of life expectancy were estimated. The number of years of life lost in life expectancy due to the major causes of death: cardiovascular diseases – International Classification of Diseases (ICD-9) codes 390-459, cancer – codes 140-209, and external causes – E800-E999, by the different educational groups of males and females was investigated, using estimates and parameters of the life tables. Analysis of components was applied in order to assess the contribution of the different age groups and the major causes of death to the differences

in life expectancy by level of education. The method devised by Pollard was used (6).

Results

Level of education figures for the Lithuanian population changed in 2001 in comparison to 1989. The proportion of the population with primary or no education significantly decreased for both males and females from 25% and 35%, respectively, in 1989 to 14% and 20% in 2001. The proportion of persons with secondary and university educations increased. The most significant increases in the university-educated population occurred amongst the age groups of more than 40 years in males and more than 35 in females. In the meantime, the overall proportion of persons with a primary education declined due to a sharp reduction of such persons in age groups of more than 40 years. In general, a considerable improvement in the educational level of the population occurred during the period of socioeconomic transition. Nonetheless, unfavorable changes were noted in the younger groups, aged 25–29 years. For these age groups, the proportion of persons with a primary or lower education increased from 0.8% to 2.4% of males and 0.6% to 1.1% of females. During this period, a decline in the proportion of university-educated people occurred in the younger age groups, especially amongst the age group of 30–34 years.

The life expectancy of males by educational categories is presented in Table 1. Up to the age of 65 years, total life expectancy of males decreased statistically significantly in 2001, as compared to 1989. Nevertheless, life expectancy of males with university education increased considerably in the age groups of 30–65. At that time, life expectancy of lower educational groups of males declined, particularly in the groups of the lowest education. Life expectancy of males with a university education exceeded that of the group with primary education in both periods of investigation. However, this difference increased notably in 2001 as compared to 1989. The greatest increase was observed at age 25 to 40. Although, as age increased, the differences in life expectancy by the level of education decreased; differences remained statistically significant up to 80 years of age.

Differences between the total life expectancy of Lithuanian males and life expectancy for university and primary or lower educational categories are shown in Figure 1. The life expectancy of males with a university education was longer than the Lithuanian average for all age groups to 70 years in 1989 and to 85 years in 2001. Males with primary education had shorter than the total life expectancy to 45 years of

Table 1. Life expectancy and 95% confidence intervals of Lithuanian males by level of education in 1989 and 2001

Age (years)	Years	Life expectancy in years (95% confidence intervals)						Difference university-primary
		Total	University education	Incomplete university, upper secondary and colleges	Lower secondary education	Primary or lower education		
25	1989	44.11 (43.90-44.31)	49.62 (48.76-50.48)	46.07 (45.49-46.65)	41.47 (40.76-42.18)	37.90 (36.16-39.64)	11.72*	
	2001	42.90 (42.70-43.10)	51.02 (50.44-51.60)	44.35 (43.99-44.70)	36.69 (36.12-37.26)	34.27 (32.70-35.85)	16.75*	
30	1989	39.64 (39.44-39.84)	44.76 (43.90-45.62)	41.63 (41.04-42.22)	37.54 (36.88-38.21)	36.58 (35.35-37.80)	8.18*	
	2001	38.52 (38.33-38.71)	46.27 (45.70-46.83)	39.95 (39.60-40.30)	32.44 (31.88-33.01)	30.47 (28.92-32.01)	15.80*	
35	1989	35.32 (35.13-35.52)	40.01 (39.14-40.87)	37.34 (36.75-37.94)	34.17 (33.55-34.78)	33.76 (32.98-34.54)	6.25*	
	2001	34.28 (34.10-34.47)	41.50 (40.94-42.07)	35.71 (35.36-36.06)	28.71 (28.17-29.24)	27.45 (26.08-28.83)	14.05*	
40	1989	31.12 (30.93-31.30)	35.31 (34.44-36.17)	33.14 (32.54-33.74)	30.62 (30.02-31.23)	30.44 (30.02-30.86)	4.87*	
	2001	30.09 (29.91-30.27)	36.84 (36.28-37.39)	31.51 (31.16-31.85)	25.27 (24.79-25.76)	24.50 (23.36-25.64)	12.34*	
45	1989	27.12 (26.94-27.30)	30.81 (29.95-31.67)	29.15 (28.54-29.77)	27.04 (26.43-27.65)	26.84 (26.56-27.12)	3.97*	
	2001	26.14 (25.97-26.32)	32.36 (31.81-32.91)	27.52 (27.17-27.87)	22.71 (22.30-23.12)	22.25 (21.40-23.11)	10.11*	
50	1989	23.47 (23.30-23.64)	26.41 (25.54-27.28)	25.46 (24.83-26.08)	23.74 (23.10-24.37)	23.29 (23.06-23.51)	3.12*	
	2001	22.51 (22.34-22.67)	28.14 (27.60-28.68)	23.82 (23.47-24.18)	20.15 (19.80-20.49)	20.37 (19.85-20.90)	7.77*	
55	1989	19.88 (19.72-20.05)	22.29 (21.41-23.18)	21.84 (21.19-22.48)	20.68 (20.02-21.35)	19.67 (19.47-19.87)	2.62*	
	2001	19.26 (19.11-19.42)	24.24 (23.70-24.77)	20.56 (20.19-20.92)	17.54 (17.22-17.85)	18.11 (17.81-18.40)	6.13*	
60	1989	16.63 (16.47-16.79)	18.49 (17.58-19.40)	18.56 (17.89-19.23)	18.14 (17.42-18.86)	16.32 (16.14-16.51)	2.17*	
	2001	16.26 (16.12-16.40)	20.23 (19.71-20.76)	17.62 (17.25-17.99)	14.77 (14.47-15.08)	15.42 (15.20-15.64)	4.81*	
65	1989	13.61 (13.46-13.77)	14.94 (13.99-15.89)	15.64 (14.92-16.36)	15.51 (14.73-16.30)	13.43 (13.25-13.60)	1.51*	
	2001	13.46 (13.32-13.59)	16.68 (16.15-17.21)	14.84 (14.45-15.22)	12.08 (11.77-12.38)	12.88 (12.70-13.05)	3.80*	
70	1989	11.07 (10.92-11.22)	11.95 (10.95-12.95)	13.29 (12.50-14.08)	13.62 (12.74-14.50)	10.98 (10.82-11.14)	0.97	
	2001	10.86 (10.73-10.99)	13.27 (12.74-13.80)	12.35 (11.95-12.76)	9.48 (9.17-9.80)	10.37 (10.21-10.53)	2.90*	
75	1989	8.70 (8.58-8.83)	10.95 (10.10-11.79)	13.07 (12.35-13.79)	12.49 (11.68-13.29)	8.39 (8.26-8.51)	2.56*	
	2001	8.49 (8.36-8.62)	10.30 (9.75-10.86)	10.31 (9.87-10.75)	7.26 (6.93-7.59)	7.97 (7.82-8.13)	2.33*	
80	1989	6.41 (6.31-6.51)	9.17 (8.52-9.82)	11.63 (10.99-12.27)	11.67 (10.98-12.37)	6.00 (5.90-6.10)	3.17*	
	2001	6.57 (6.44-6.69)	7.67 (7.13-8.22)	8.73 (8.25-9.20)	5.42 (5.09-5.75)	6.04 (5.89-6.18)	1.63*	

*Difference is statistically significant, $P < 0.05$.

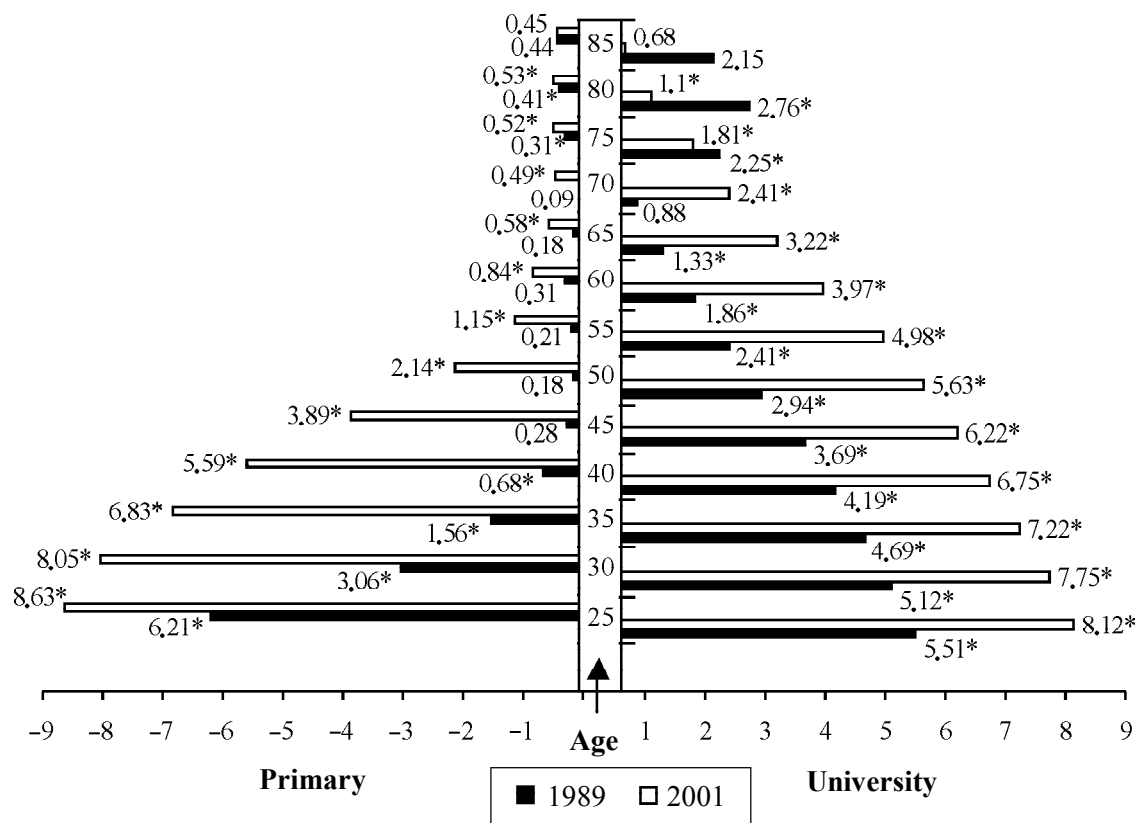


Fig. 1. Difference between total life expectancy of Lithuanian males and life expectancy by different educational categories in 1989 and 2001

*Difference from life expectancy of Lithuanian population is statistically significant, $P < 0.05$.

age in 1989, while in 2001 – to 85 years.

The total life expectancy of females increased statistically significantly up the age of 80 in 2001 as compared to 1989 (Table 2). The same tendencies were observed in the groups of university, incomplete university, upper secondary and college education. Nevertheless, in the lower educational categories, life expectancy declined remarkably. The most marked differences between university and primary educational groups were observed in younger age groups. Those differences were much greater in 2001 than in 1989 in all age groups.

Differences between total life expectancy of Lithuanian females and life expectancy of university and primary or lower educational categories were similar to those observed in males, though not so pronounced (Fig. 2). However, the growth of differences in 2001, compared to 1989, was also notable.

Cardiovascular diseases were responsible for the greatest number of years lost in life expectancy by all educational categories in both 1989 and 2001 for males and females (Table 3). The numbers of years of life lost due to cardiovascular diseases decreased in majority of educational categories both in males and

females, particularly in lower secondary educational group. Changes in numbers of years lost due to cancer were not so uniform, generally declining in males. The most uniform increase in the years of life lost was observed due to external causes of death. Here, the higher education was associated with the lower numbers of years of life lost, especially in females.

Analysis of components suggested the changes in contribution of the different age groups and the major causes of death to differences in life expectancy by the level of education over the period under investigation (Table 4). Educational differences in mortality at age 25–44 were responsible for 70.4% of the inequalities in life expectancy in males and 71.8% in females in 1989, while in 2001, 51.5% of inequalities in males and 46.5% in females were determined by educational disparities in mortality at age of 45 years and older. The greatest impact on the difference in life expectancy between males with university and primary education was caused by external causes both in 1989 and 2001 (34.4% and 36.1% respectively), while the major contribution was to the educational differences in life expectancy of females made by cardiovascular diseases (44.9% in 1989 and 41.9% in 2001).

Table 2. Life expectancy and 95% confidence intervals of Lithuanian females by level of education in 1989 and 2001

Age (years)	Years	Life expectancy in years (95% confidence intervals)							Difference university-primary
		Total	University education	Incomplete university, upper secondary and colleges	Lower secondary education	Primary or lower education			
25	1989	52.86 (52.69–53.03)	54.33 (53.04–55.63)	55.05 (54.37–55.72)	58.58 (57.41–59.76)	50.02 (48.43–51.61)	4.31*		
	2001	53.62 (53.45–53.79)	59.40 (58.72–60.07)	66.27 (65.59–66.95)	47.61 (46.85–48.36)	44.20 (41.97–46.44)	15.20*		
30	1989	48.06 (47.90–48.23)	49.46 (48.16–50.76)	50.25 (49.57–50.93)	54.22 (53.11–55.33)	46.03 (44.75–47.31)	3.43*		
	2001	48.78 (48.62–48.94)	54.47 (53.80–55.15)	61.45 (60.77–62.13)	2.89 (42.14–43.64)	39.67 (37.47–41.87)	14.80*		
35	1989	43.29 (43.12–43.45)	44.63 (43.34–45.93)	45.48 (44.80–46.16)	49.90 (48.82–50.97)	42.40 (41.70–43.11)	2.23*		
	2001	44.00 (43.84–44.16)	49.55 (48.88–50.22)	56.73 (56.05–57.41)	38.44 (37.73–39.15)	35.13 (32.99–37.26)	14.42*		
40	1989	38.60 (38.44–38.76)	39.80 (38.50–41.10)	40.81 (40.13–41.49)	45.53 (44.46–46.59)	37.94 (37.58–38.30)	1.86*		
	2001	39.33 (39.17–39.48)	44.76 (44.09–45.44)	52.12 (51.44–52.80)	34.43 (33.83–35.04)	33.36 (31.76–34.97)	11.40*		
45	1989	34.06 (33.91–34.21)	35.07 (33.77–36.38)	36.28 (35.60–36.97)	41.30 (40.23–42.37)	33.79 (33.58–34.00)	1.28		
	2001	34.75 (34.60–34.90)	40.02 (39.34–40.69)	47.69 (47.00–48.37)	30.68 (30.21–31.14)	30.56 (29.37–31.75)	9.46*		
50	1989	29.63 (29.48–29.77)	30.43 (29.11–31.74)	31.86 (31.16–32.55)	37.20 (36.12–38.29)	29.33 (29.16–29.51)	1.10		
	2001	30.35 (30.21–30.49)	35.34 (34.67–36.01)	43.47 (42.78–44.16)	27.17 (26.82–27.52)	28.45 (27.95–28.94)	6.89*		
55	1989	25.28 (25.14–25.42)	25.92 (24.59–27.25)	27.55 (26.85–28.25)	33.15 (32.05–34.26)	25.01 (24.85–25.17)	0.91		
	2001	26.12 (25.99–26.25)	30.78 (30.11–31.45)	39.55 (38.85–40.25)	23.48 (23.18–23.77)	24.87 (24.63–25.10)	5.91*		
60	1989	21.12 (20.99–21.26)	21.58 (20.22–22.94)	23.29 (22.57–24.00)	29.54 (28.41–30.67)	20.86 (20.72–21.01)	0.72		
	2001	22.01 (21.89–22.13)	26.44 (25.77–27.11)	35.80 (35.09–36.51)	19.54 (19.27–19.81)	20.93 (20.76–21.10)	5.51*		
65	1989	17.17 (17.04–17.29)	17.50 (16.10–18.90)	19.27 (18.54–20.00)	25.96 (24.79–27.14)	16.95 (16.81–17.08)	0.55		
	2001	17.97 (17.86–18.08)	22.27 (21.60–22.94)	32.21 (31.49–32.94)	15.45 (15.19–15.71)	17.09 (16.96–17.22)	5.18*		
70	1989	13.60 (13.49–13.72)	13.85 (12.38–15.32)	16.02 (15.26–16.78)	22.89 (21.67–24.11)	13.45 (13.33–13.57)	0.40		
	2001	14.14 (14.04–14.24)	18.13 (17.46–18.81)	29.25 (28.51–29.99)	11.59 (11.35–11.82)	13.28 (13.16–13.39)	4.85*		
75	1989	10.47 (10.37–10.56)	12.87 (11.65–14.09)	14.67 (14.03–15.31)	21.54 (20.46–22.63)	10.19 (10.09–10.29)	2.68*		
	2001	10.69 (10.60–10.79)	14.26 (13.58–14.94)	26.95 (26.19–27.71)	8.00 (7.78–8.22)	9.88 (9.78–9.98)	4.38*		
80	1989	7.83 (7.75–7.90)	11.09 (10.10–12.08)	12.70 (12.17–13.23)	20.43 (19.51–21.35)	7.52 (7.44–7.60)	3.57*		
	2001	7.82 (7.73–7.90)	10.78 (10.10–11.46)	26.43 (25.68–27.18)	4.96 (4.76–5.16)	6.95 (6.87–7.04)	3.83*		

*Difference is statistically significant, $P < 0.05$.

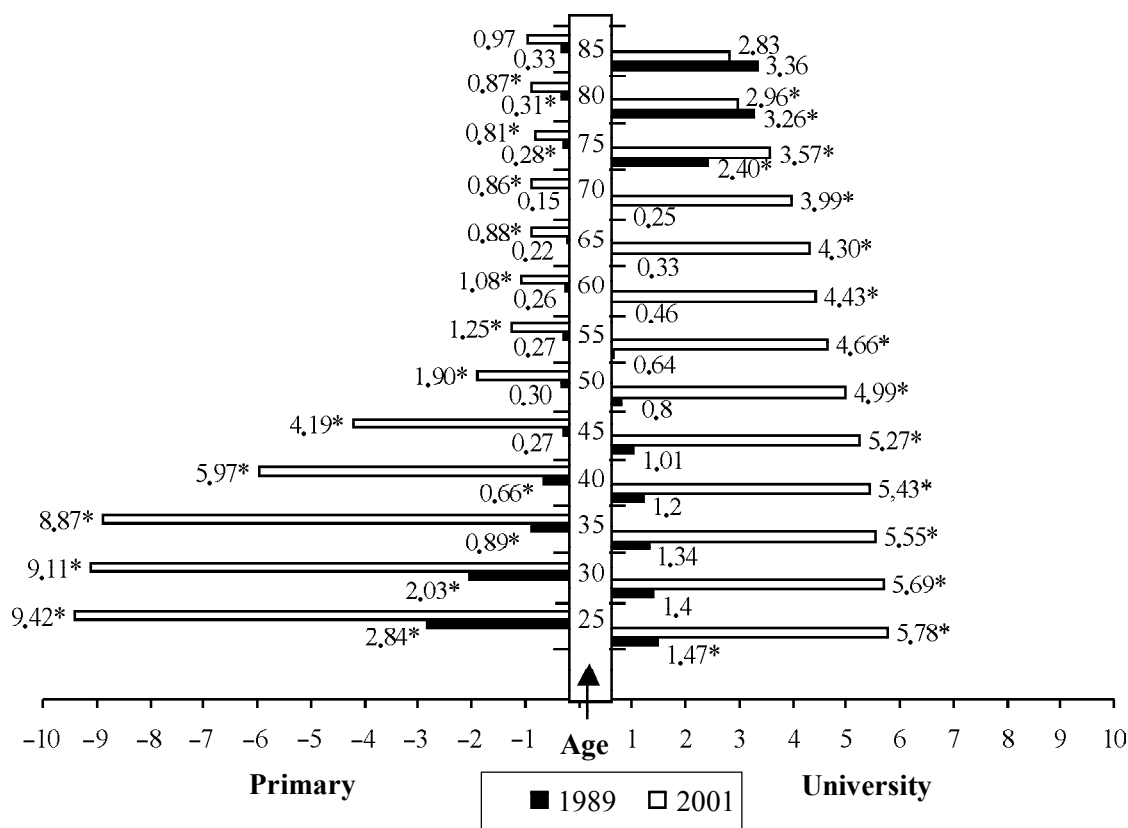


Fig. 2. Difference between total life expectancy of Lithuanian females and life expectancy by different educational categories in 1989 and 2001

*Difference from life expectancy of Lithuanian population is statistically significant, $P < 0.05$.

Table 3. Number of years of life expectancy lost due to the major causes of death by level of education in 1989 and 2001

Level of education	Years	Cardiovascular diseases		Cancer		External causes	
		males	females	males	females	males	females
University	1989	8.59	8.74	3.41	3.74	1.15	0.54
	2001	7.42	5.88	3.23	3.67	1.97	0.61
Incomplete university, upper secondary, colleges	1989	10.03	9.25	4.30	3.68	3.06	0.97
	2001	8.62	8.34	3.71	6.85	3.89	1.67
Lower secondary	1989	9.77	10.16	3.93	4.47	5.13	1.53
	2001	5.89	6.66	2.61	2.90	6.12	2.18
Primary or lower	1989	8.33	8.72	2.54	2.25	4.43	0.75
	2001	7.03	8.79	2.41	3.18	5.75	2.71

Discussion

This study has several limitations. First, one of the key issues is the quality of death certification. There was no access to autopsy reports or hospital case notes to validate diagnoses for this study. Despite such a shortcoming, previous studies on the validity and reliability of mortality statistics in Lithuania by the

same researchers demonstrated that unreliable death certificates cause only small discrepancies in death rates (7). Second, an important limitation of studies on social inequities in health in Lithuania is that such studies can only be performed during the time of a population census, which provides sex and age distributions of the population, stratified according to

Table 4. Contribution of the major causes of death and age to the differences in life expectancy of university and primary or lower educational groups (analysis of components)

Criterion	1989				2001			
	Years		%		Years		%	
	males	females	males	females	males	females	males	females
Diseases:								
Cardiovascular diseases	3.02	1.9	26.8	44.9	3.87	6.28	24.0	41.9
Cancer	0.67	0.69	5.9	16.3	1.52	2.00	9.4	13.3
External causes	3.88	0.19	34.4	4.4	5.83	3.02	36.1	20.2
Other causes	3.72	1.46	32.9	34.4	4.92	3.67	30.5	24.6
Age groups								
25–44	7.96	3.03	70.4	71.7	7.84	6.52	48.5	43.5
45+	3.32	1.19	29.6	28.3	8.30	8.45	51.5	46.5

social indicators – for example, the level of education. There was a slight change in the education classification system in 2001, which differed from the one used in the 1989 Census. Nevertheless, the educational groups of 2001 were adapted to those of 1989 for this study, and mortality rates were recalculated by education for 1989, according to the new classification system. Third limitation concerns the inability to link individual data on deaths to individual data from censuses. This may lead to a numerator-denominator bias. Such a bias results from the fact that the level of education classification varies systematically. The knowledge that the probability of bias can be minimized, using aggregated categories (8), led to the aggregation of the data for this study into three broad educational categories. The comparison presented was mainly between the two most diverse groups by level of education – primary or no education and university education.

This analysis covered a unique period of socioeconomic transition in the country. Over the last decade of the 20th century, the Lithuanian population has experienced considerable fluctuations in mortality (9). This is thought to be largely the result of economic and social changes, relatively low living standards, and insufficient financing of health and social services. During the beginning of socioeconomic changes and the period of major economic instability (1990–1994), education was not directly associated with higher income or better social position. This negatively influenced the attitudes of the younger members of the population towards educational achievements, which resulted in a reduction in the level of education achieved amongst the population, aged 25–34 years. In 1993/1994, some 4.4% of Lithuanian children, aged 7–15 years, did not attend secondary schools, mainly due to the ambivalent opinion of society towards edu-

cation and the consequent downturn in the perceived value of education. The major official reasons for not attending secondary schools, according to a sociological survey of families, were poor health, disability, poverty, and financial constraints. A considerable proportion of persons, who did not attend school, returned to school after the government of Lithuania strengthened regulations relevant to employment of children and adolescents (10). In the meantime, young adults, especially those who were living in cities, acknowledged the value of education even during the period of social and economic instability; therefore, the general level of education increased considerably during the last decade. It can only be hoped that attitudes towards education will change positively amongst adolescents, and educational success will be understood as a factor, increasing the likelihood for future success in life.

The social, cultural, and psychological climate that characterizes the transition period in the country is an important point for consideration, when attempting to interpret the results of this study. During periods of economic instability, persons with a low education are at a distinct disadvantage in competing with others for scarce jobs and better incomes and tend to be less flexible in adapting to the times. Consequences in living standards and health are more severe. Once the economy is booming, more jobs are available, and the lower educated are more likely to realize decent incomes and better housing.

This research confirmed classical associations reported in many studies from other countries that a level of education is directly related to better health within the population (11, 12). Obviously, the health of the educated population improved during the decade of socioeconomic transition; whereas, it continued to

deteriorate amongst those persons, having the lowest level of education. Similar findings were reported in the survey on health inequalities in Estonia, which demonstrated growing educational inequalities in mortality (13). In Russia, educational differences in mortality also widened by 15–20% over the period of 1990–1994 (8). In Denmark, during the past 25 years, the difference in death rates between people with low and high educational level increased by two-thirds for men and was doubled for women (14), and the social gradient in terms of health expectancy was even greater than that in terms of life expectancy (15).

Explanations of educational inequalities in health can be elaborated at several levels; models of such, emphasizing cultural, economic, material, and psychosocial factors, have all been substantiated (13, 16). According to the conceptual framework, described by Graham (17), three major factors can be hypothesized to mediate the effect of education on mortality. These are i) health-related behaviors, such as alcohol use, smoking, and diet; ii) access to, use of, and quality of health services; and iii) material living standards, including working and housing conditions.

The higher mortality amongst the lower educated population might be associated with certain types of behavior. Alcohol is increasingly recognized as an important factor in the burden of premature mortality in Central and Eastern Europe (18). There is now considerable evidence that marked improvements in life expectancy in the former Soviet Union, which occurred during the imposition of Gorbachev's anti-alcohol campaign in 1985, can be attributed to the reduction in the traditionally very high rates of alcohol-related deaths (19, 20). Growth of alcoholism is one of the most painful social problems in Lithuania. The proportion of persons, drinking strong alcoholic beverages at least once a week, was the highest in 2000, compared to previous years, both for males and females (33.9% and 11.5%, respectively), (21). Binge drinking was more common among less educated women (22). The changes in life expectancy by education were driven largely by increase in the burden of external causes mortality. The major external causes of death in Lithuania are suicides and traffic accidents, which are also strongly associated with the consumption of alcohol.

The prevalence of smoking increased during the last decade of 20th century, particularly amongst females and members of the youngest age groups. In the meantime, nutritional habits changed in a positive direction. Lithuanian studies on health behavior reported a considerably lower proportion of alcohol

consumption and smoking, and healthier nutrition amongst persons with higher education than amongst those with primary or no education (21). Because smoking, alcohol, and diet are important causes of premature mortality, these differences are likely to have contributed to such inequalities in mortality by level of education.

On the other hand, educational inequalities may affect health through individual perceptions of place in social hierarchy producing negative emotions such as stress and distrust that are translated into poorer health. Perceptions of relative position and negative emotions are translated into antisocial behaviors such as homicides, traffic accidents, reduced civic participation, which result in less social capital and social cohesion within the community (16).

The possible role of psychosocial factors has been extensively discussed in literature (23). It is not surprising that health behaviors, as well as health outcomes, are strongly related to social conditions. Structurally determined lifestyles, as opposed to freely chosen lifestyles amongst lower educated and less privileged groups, deserve particular attention. Such evidence reinforces the need for combining structural changes with health education efforts, when trying to influence lifestyle factors.

There is some indirect evidence on social inequalities in accessibility and use of health care services in Lithuania, related mainly to the place of residence. However, reliable studies in this area have only recently been initiated.

Reduction of socioeconomic inequalities in health is a recognized priority in the development of health policies by the Government of Lithuania. Nonetheless, social and economic differentiation in society is increasing, and a large proportion of inequities in health is related to social inequalities. Rapid development of a country is inevitably associated with an initial increase in inequalities in health. It is becoming increasingly clear that effective health promotion activities can no longer ignore social contextual factors and have to intervene on as many levels as possible.

Conclusions

Our research suggested that inequalities in life expectancy of different educational groups increased considerably throughout the decade of the most intense socioeconomic transition in Lithuania. Educational inequality remains a key determinant of population health. It became apparent that groups, most advantaged in terms of education, benefited considerably in terms of the increasing life expectancy reported, while

the life expectancy of persons with the lowest level of education is declining. Huge and increasing educational differentials found in life expectancy by the level of education point at the most vulnerable group in society – low educated young and middle-aged population, especially males. The negative trends predict an unfavorable forecast of the development of the society in the near future due to the pattern of education amongst the younger members of the

population, coupled with an increasing mortality amongst persons with the lowest education. The major goal of social policy should be aimed at reducing inequalities in education by guarantee of equal opportunities for education and promotional efforts directed at young people to complete their education. Constructive actions should be developed to address the health problems of the least privileged groups in terms of education.

Skirtingo išsilavinimo žmonių vidutinės numatomos gyvenimo trukmės netolygumai bei socialiniai ir ekonominiai pokyčiai Lietuvoje

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Raktažodžiai: išsilavinimas, vidutinė numatoma gyvenimo trukmė, netolygumai, Lietuva.

Santrauka. *Darbo tikslas.* Įvertinti skirtingo išsilavinimo vyrų ir moterų vidutinės numatomos gyvenimo trukmės pokyčius ir įvairius vidutinės numatomos gyvenimo trukmės netolygumų skirtingo išsilavinimo grupėse aspektus socialinių ir ekonominių pokyčių laikotarpiu Lietuvoje.

Tyrimo medžiaga ir metodai. Analizei naudoti 1989 ir 2001 metų Lietuvos gyventojų mirtingumo ir surašymų duomenys (apie 25 metų ir vyresnius gyventojus).

Rezultatai. Nustatyti didėjantys vidutinės numatomos gyvenimo trukmės netolygumai skirtingo išsilavinimo grupėse, kuriuos nulėmė gyventojų turinčių aukštesnį išsilavinimą, ilgėjanti vidutinė numatoma gyvenimo trukmė bei trumpėjanti žemesnio išsilavinimo gyventojų gyvenimo trukmė. Daugiausia vidutinės numatomos gyvenimo trukmės metų įvairaus išsilavinimo žmonės prarado dėl mirčių nuo širdies ir kraujagyslių ligų, kurių įtaka per tyrimo laikotarpį sumažėjo, labiausiai žemesniojo išsilavinimo grupėse. Dėl išorinių mirties priežasčių prarandamų gyvenimo metų skaičius išaugo. Aukštesnis išsilavinimas susijęs su mažesniu dėl išorinių mirties priežasčių prarandamų vidutinės numatomos gyvenimo trukmės metų skaičiumi, ypač moterų grupėje. Didžiausios įtakos aukščiausio ir žemiausio išsilavinimo vyrų vidutinės numatomos gyvenimo trukmės skirtumams ir 1989 m., ir 2001 m. turėjo išorinės mirties priežastys, o moterų – širdies ir kraujagyslių ligos.

Išvados. Taigi sunku tikėtis skirtingo išsilavinimo žmonių sveikatos netolygumų sumažėjimo. Gyventojų skatinimas siekti aukštesnio išsilavinimo, lygių išsimokslinimo galimybių užtikrinimas ir didesnis dėmesys žemiausią išsilavinimą turinčių gyventojų sveikatos gerinimui turėtų tapti valstybės prioritetu.

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