

## GENDER AND AGE-SPECIFIC DYNAMICS OF SUICIDES IN THE BALTIC STATES DURING THE TRANSITION PERIOD

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**Abstract.** A strong age-specific differentiation in the dynamics of suicide risk in all age groups observed during the transition period in the three Baltic states has been established. Considering that the dynamics of suicide risk had regular cyclic character, it could be suggested that the factor of cyclical character is external. The pooled rates of the three Baltic countries show rising trends of suicide rates among the youngest and 45–75 year old men, but not in the age group of 25–34. For women there is a clear rise in 15–24 age group and fall among 25–34 year olds, while the other age groups lack clear trends. The lack of valid description on macro processes that took place in the Baltic countries over the transition period enables to draw only a few possible correlations between suicides and social determinants, like alcohol misuse, unemployment, change in society from collectivist to an individualist type of behaviour and family discord. The age group of 25–34 year-olds with an innovative attitude and appropriate education was quite successful on the labour market at the start of the reforms and could manage in new conditions, while persons belonging to older generations faced stressful difficulties in maintaining their quite stable and often successful careers. The growth of relative suicide risk in the youngest age group (15–24) may be caused by hardships in entering the labour market due to a lack of competition advantages, inadequate education and work experience.

**Keywords:** suicide, trends, gender, age groups, transition, Baltic states

### 1. Introduction

The restoration of independence in the Baltic states – Estonia, Latvia and Lithuania – in the early 1990s can be considered a “velvet revolution” – a social revolution without violence. By now these three states are considered ripe enough to join the European Union. Rapid development during such a short period is a

great achievement, but also complicated the experience for the inhabitants. Cornia and Panicià have characterised this development in the former socialist countries as “one of the most unexpected and unexplained population crises of this century” (Cornia and Panicià 2000:3).

The population in Latvia and Estonia decreased in the 1990s due to both negative net migration and natural increase (natural increase declined by 1999 in Estonia and Latvia to  $-4.1$  and  $-5.5$  versus  $2.8$  and  $2.2$  in 1985, respectively). In Lithuania the population has been more stable but the natural increase has still become negative, falling to  $-1.0$  by 1999, having been  $5.4$  in 1985 (Eesti, Läti ja Leedu... 1996, Eesti statistika aastaraamat 2001, Latvijas statistikas gadagrāmata 2000, Lietuvos statistikos metraštis 2001). The mortality crisis during transition has shown sharp age-specific and gender differences.

The curve of External Causes of Deaths (Värnik et al. 2001), as well as the curve of suicides in the Baltic states (Värnik et al. 2000) had during 1970–1984 a stable slightly upward trend. The curve became S-shaped with fall-rise-fall in the reform period since 1985. Fluctuations in the trends were more pronounced among males than females. Age and gender specifics of suicide mortality in the Baltic and Slavic republics of the former USSR was studied by Wasserman-Värnik group for the years 1984–1990 (Värnik and Wasserman 1992, Värnik et al. 1998), no follow-up was performed later.

Men’s higher suicide risk is a well-known fact and as a rule suicide rates tend to grow in a steady order in respect of age. The same can be said about previous findings in the Baltic countries and the Slav republics of the former Soviet (Värnik et al. 1998). A significant age-related problem is a more rapid growth of the suicide rate in the younger age groups in comparison with the older age groups.

*Aim of the study.* This study examines age- and gender-specific suicide rates during the transition period, their similarities and differences in the Baltic countries. Our aim is to shed light to peculiarities considering that the reception of the reforms by different age groups depended on their different resources of social and intellectual capital.

## 2. Data, study period and study design

Our analysis is based on official suicide statistics collected by the statistical offices in Estonia, Latvia and Lithuania for 1981–1999. The validity of Soviet suicide statistics has proved to be satisfactory for carrying out research in this field (Wasserman and Värnik 1998a, Leon and Chenet 1997, Rancans et al. 2001, Kalediene 1999, Gailiene et al. 1995). During the years of independence statistical routines have been harmonized with international requirements, whereas there was no need to make major changes in the death statistics (Värnik et al. 2001).

The main variables to be analyzed include the age-specific suicide rate examined separately in the case of men and women (the number of suicides per 100,000 inhabitants of the age group considered). The standard 10-year age groups

start at 15 years and end with the age group of 75 years and over. The suicide rates during the period studied are characterized according to its mean level and by the time correlation. The trend of suicide risk by the age groups and gender is also characterized graphically; the trend curves chosen by the method of least squares are added.

Ratios of suicide rates were used for comparing age groups taking one certain age group as a basis. This enables to exclude from the time trend the possible joint external effect for all age groups and better reveal the specifics of concrete age groups. In order to make the ratio's scale more uniform and convenient the relations are treated as logged ratios which are characterised by means. For revealing ratios' time trend we present correlations in time.

A question arises which age group should be taken as a basis for computing the ratio. Pampel and Williamson (2001), using a very similar approach, have taken for basis a group that is closest to the age group with the highest suicide rate (65–74) as the oldest age group is considered too heterogeneous by the authors. In this work we use as the basis for comparison the oldest age group: 75 years and older. The oldest age group, open from one end, proves to be rather uniform background group in the Baltic countries where the average life expectancy is relatively short.

The analysis was derived by SPSS and Statistica.

### 3. Results

#### 3.1. Time trend of suicide rates by age groups

Examining the different age groups it turns out that in men's older age groups (45–54, 55–64, 65–74) the suicide rate is rising during the whole period with the time correlation coefficient of 0.4–0.6 in Latvia and Estonia and 0.7–0.8 in Lithuania. The time trend could not be observed in men's age group of 25–34 years, 35–44 years and in the oldest age group. In the youngest group (15–24) a rising trend can be seen in Latvia and Lithuania, but not in Estonia.

The picture is less clear among women. With the exclusion of Latvia, the linear trend of suicide rate of 25–34 year old women is falling. In Latvia it was declining in the two oldest groups (65–74 and 75 and older).

Considering the pooled rates of the three countries we see rising trends of suicide rates among the youngest and 45–75 year old men age groups but not in the age group of 25–44. For women there is a clear rise in the youngest group and fall among 25–34 year olds, while the other age groups lack clear trends (Table 1).

Figure 1 presents the age-specific mean rates with approximate linear trends growing on age scale. In addition to a bigger risk level of the oldest age group, a competing peak in the group of 45–54-year olds, particularly among men, can be observed.

Table 1. Means and time correlation of suicide rates in 1981–1999 in Estonia, Latvia and Lithuania by gender (pooled data)

	Suicide rate		Logged relative suicide rate on background of the oldest age group	
	Mean	Time correlation coefficient	Mean	Time correlation coefficient
Male	56.3	0.47*		
15–24 years	31.7	0.47*	-1.10	0.32*
25–34 years	62.0	0.06	-0.41	-0.10
35–44 years	88.1	0.22	-0.07	0.09
45–54 years	103.9	0.50*	0.09	0.34*
55–64 years	87.1	0.59*	-0.09	0.44*
65–74 years	76.0	0.52*	-0.21	0.29*
75 years and older	93.8	0.10	–	–
Female	13.4	0.05		
15–24 years	6.7	0.29*	-1.61	0.32*
25–34 years	9.4	-0.44*	-1.30	-0.28*
35–44 years	14.8	0.16	-0.81	0.20
45–54 years	20.9	0.17	-0.46	0.23
55–64 years	19.8	0.10	-0.51	0.19
65–74 years	22.5	-0.18	-0.39	-0.14
75 years and older	33.3	-0.20	–	–

\*– significance level 5

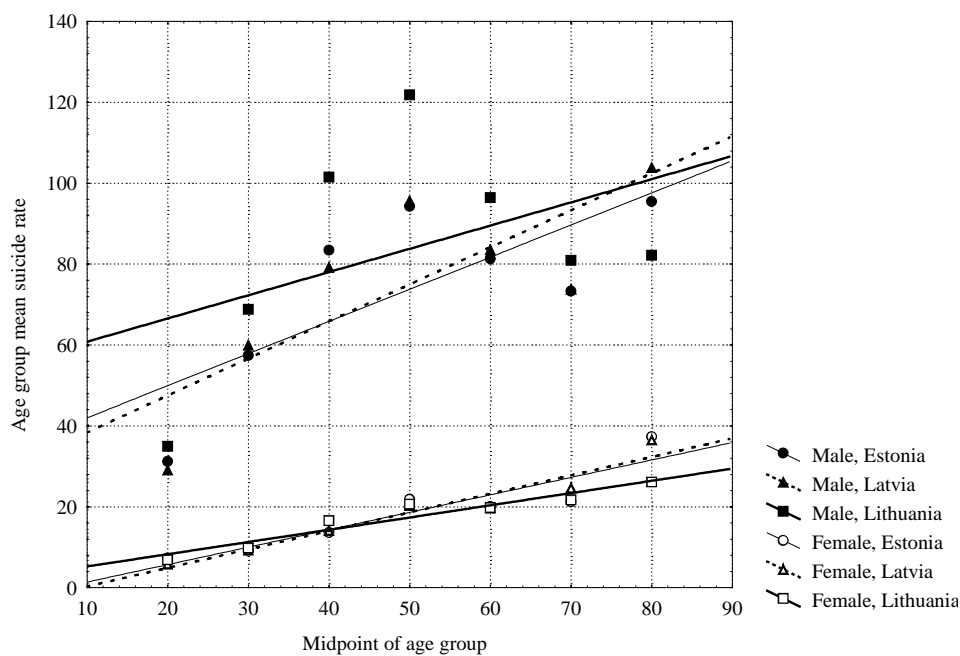


Figure 1. Age dynamics and linear age trend of the mean suicide rate in 1981–1999 in Estonia, Latvia and Lithuania by gender

### 3.2. The dynamics of relative suicide risk

In Figure 2 the character of changes of age-specific suicide risk is shown by means of logged ratios. It turns out that unlike the cyclical changes in suicide rates over the considered period, ratios of the rates are quite stable or in some cases can be characterized by a linear trend.

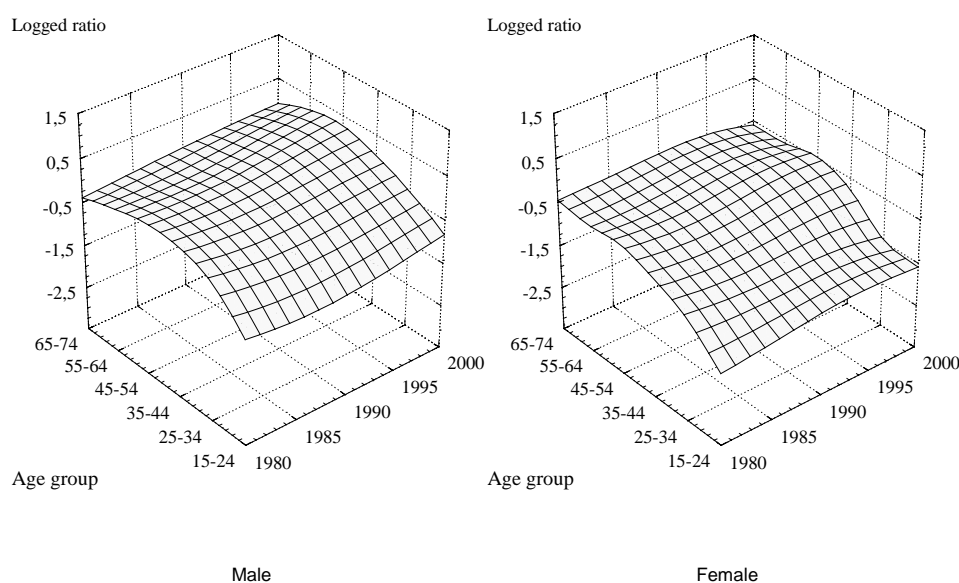


Figure 2. Time trends fitted by least squares of logged ratios of suicide rates on the basis of the age group 75 years and older; pooled data of Estonia, Latvia and Lithuania in 1981–1999

Table 1 presents the means over study period and time correlation coefficients of logged ratios of age-specific suicide rates against the background of the rate in the oldest age group. Interpreting Table 1 it is necessary to stress that the meaning of the correlation coefficient becomes clear in observing it together with the ratio's sign. As a rule, logged ratios in concrete age groups have the same sign as the mean logged ratio. The positive trend of negative ratios indicates that the ratio is increasing and nearing 0 that means the suicide risk of the current age group approaches the suicide risk of the background age group. The positive time trend of positive ratios shows the opposite – “receding”.

In our study the youngest male age group and age groups of 55–74 years became during the study period closer in time to the oldest age group. The male age group of 45–54 years has mainly positive logged ratios of increasing trend, i.e. “receding” from the oldest group. Female youngest age group becomes more similar to the oldest group in time, but the age group 25–34 – more different.

In Estonia it became clear that among men in the age groups 25–34 and 35–44 the suicide rates differentiate over time from those of 45–54 years olds. This occurs chiefly at the expense of the rise of the suicide rate among the 45–54 years olds. In Estonia women's suicide risk is most rapidly falling in the age group 25–34 in comparison with the oldest group.

In Latvia in the youngest as well as in the older age groups (beginning with 45-year-olds), the suicide risk is nearing that of the oldest age group.

Among Lithuanian women differences between the younger and older age groups increase due to a fall of the suicide risk among 25–34 olds, whereas in the oldest age group the suicide coefficient is growing. Among Lithuanian men a growth of the suicide risk in the age group 45–54 is of key importance. The suicide risk of 25–34 year old men in Lithuania declined compared with the older age groups.

#### **4. Discussion**

Studying the age factor in its dynamics in the time-trend of the suicide rate, the well-known interaction problem arises because of the merge of three time aspects: the age of the suicident, his or her cohort background (time of birth) and the time of committing suicide, which makes their convincing differentiation by formal methods logically difficult (Snowdon and Hunt 2002, see also Tsuang et al. 1995: 46). As analytical versions all three circumstances remain actual as risk factors.

A strong age-specific differentiation in dynamics of suicide risk during transition period has been confirmed, i.e. the interaction of real time of committing suicide and age occurs. The suicide trends in the three Baltic states have more common than different features.

As a common feature in all three countries we can see a relatively better position of 25–34 year-old people in comparison with the older age groups while the youngest age group (15–24) exhibits a trend approaching that of the older age groups. Another common trend is a growing suicide rate over the study period occurring with different speed with regard to gender, country and the age group. Considering that the dynamics of suicide risk has regular cyclic character in all age groups observed, it could be concluded that the factor of cyclical character is external.

An explanation of the changes in the three Baltic countries needs a reliable description on macro-processes that took place in these countries over that period and in-depth analysis of suicide cases. However, the latter has rarely been employed even in welfare states and a uniform socio-statistical description of macro processes in the Baltic states over the considered period is rather fragmentary. In this study we can take in account only the general nature of the changes that took place at that time.

The fall of the suicide rates in the mid-1980s could have been caused by a “tidal wave” directed towards democracy and national identity leading to the

restoration of independence in the long run. Another marker of early reforms was Gorbachev's strict alcohol policy, which made alcohol less available and led to a reduction of alcohol abuse and could have influenced the reduction of suicides.

The changes in suicide rates are often associated with shifts in *per capita alcohol* consumption (Mäkinen 2000). The growth of alcohol consumption increases suicide risks among younger people, but is insignificant among older persons (Ramstedt 2001, Mäkelä 1996). Alcohol as a significant negative factor in suicide risk in the former Soviet republics, including the Baltic countries, has also found confirmation (Wasserman et al. 1994, Wasserman and Värnik 1998b).

One of the most significant changes in society since the early 1990s was the replacement of nearly 100% **employment** during the Soviet period with the growing unemployment during the independence period. By the end of the 1990s the official unemployment rate in the Baltic countries was 12–14 percent varying by age and regions.

The reorganisation of the inefficient economy that was totally oriented to the Soviet market forced many people to change their job, thousands of jobs were lost altogether. The sectors of manufacturing and agriculture suffered most of all, while new spheres of service industries began to expand.

Fortunately, there were no significant political, cultural or ethnic repressions, and the sphere of work became the most important source of tension. Job losses and housing problems (due to intensive restitution policy) caused economic hardship to many people, even after the stabilisation of the market economy.

Being unemployed is also psychologically depressive, a totally new situation that damages self-esteem, reduces one's skills and abilities for coping in new conditions. A need for life-long education and retraining were rare during the Soviet period and people who had reached certain position often held it for life.

The study of Cutright and Fernquist (2001) embracing 20 developed nations confirms that societal integration proves to be an efficient prognostic factor of the suicide rate. In England and Wales on the basis of nearly 50-year data and age-specific macro indicators the negative role of unemployment and positive effect of the growth of GDP as well as women's employment rate on the decrease of the level of suicides is revealed (Gunnell et al. 2003). The authors also emphasises that in different age groups the risk of suicides is influenced by different social factors and their impact can vary considerably.

Those who had courage and a **favourable position** at the start of the reforms, an innovative attitude and appropriate education, could manage in new conditions. Estonian sociologists who studied the age cohort born in the mid-1960s found that this generation of 25–34 year-olds was quite successful on the labour market (Titma 1999). They were able to adapt to new conditions while the persons belonging to older generations faced stressful difficulties in maintaining their quite stable and often successful careers. Active competition in itself was a new phenomenon in society.

The growth of relative suicide risk in the youngest age group (15–24) may be caused by hardships in entering the labour market, a lack of competition

advantages because of inadequate education and work experience (since reforms the number of dropouts from schools started to grow and vocational training weakened).

The transition period in the Baltic states can be characterised as a transition from a **collectivist to an individualist** type of behaviour. The Soviet time cooperation often meant pseudo-collectivism, suppressing individuality, a trend towards uniformity. From a similar basis a highly liberal market economy could become a strong and shocking contrast to many people. Measures to alleviate the impact of these abrupt changes were very slow and weak. Krumins and Usackis have showed that the psychosocial stress index was a significant factor of the age-standardised death rate in Latvia in the early transition period (Krumins and Usackis 2000).

Pampel and Williamson (2001) differentiate the suicide rate in 18 welfare states over a 40-year period between countries according to their psychological dimension on the scale of collectivism-individualism, and indicate that inclining towards individualism increases the risk of suicides, particularly among younger people. Collectivist social programs alleviate social problems on the labour market, simultaneously easing the situation of older people.

Instability in work relations could lead to changing attitudes towards the **family** as an institution. Uncertainty towards taking responsibility for the family could be one reason for falling marriage rate and growing consensual unions (Kutsar 2003). Problems in the sphere of work could amplify family problems leading to a growing number of divorces. Families of middle-aged people who were also responsible for their children entering life and retired parents in the mid-1990s, were under particular pressure.

The rate of marriage has at the same time declined nearly twice, while the divorce rate has grown from 64 (Latvia and Lithuania) to 82 (Estonia) per 100 marriages in 1999. The share of extramarital births has grown dramatically, reaching 54%, 39% and 20% respectively in Estonia, Latvia and Lithuania in 1999 (Eesti statistika aastaraamat 2001, Latvijas statistikas gadagrāmata 2000, Lietuvos statistikos metraštis 2001). All these developments point to the weakening of family integration. The changing role of the family and attitudes towards the family (the growth of divorces and cohabitation without marrying) contribute to the relative growth of suicide risks (Stockard and O'Brien 2002, Trovato 1987, Kposowa et al. 1995).

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