Risk behaviours and self rated health in Russia 1998

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Abstract

Objectives—As self rated health and mortality represent different dimensions of public health and as risk behaviours have been closely related to mortality, we wanted to examine whether (poor) self rated health on the one hand and risk behaviours on the other can be attributed to different causes.

Methods—The Taganrog household survey (1998) was conducted in the form of face to face interviews and included 1009 people and their families. To estimate health differences and differences in risk behaviours between groups, logistic regressions were performed.

Results—In Taganrog between 1993/94 and 1998, changes in self rated health seem to have been much more dramatic than changes in smoking and different in direction from changes in heavy alcohol consumption. Moreover, self rated "poor" health was especially common among those whose economic situation was worse in 1998 than 10 years before. However, having a poorer economy during the period 1988–1998, does not seem to have affected drinking or smoking habits significantly.

Conclusions—Self rated health seems to be closely related to three indicators of economic circumstances. Risk behaviours are probably important for the poor state of public health in Russia, but may be less sensitive to the economic aspects of the transition than is self rated health.

(*J Epidemiol Community Health* 2001;55:806–817)

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Since the collapse of communism during the period 1989–91, Russia has suffered severe political, social, economic, and health problems. Medical sociologists and epidemiologists have looked closely at the crisis in public health behind the former Iron Curtain, which has attracted attention (in the West) in recent years, both with regard to mortality[1 2] and self rated health.[3 4] This research has given us a valuable insight into the problems of public health in Russia, yet the suggested explanations have sometimes been contradictory. Sociological research can help us to gain a better understanding of the complex pathways linking society and social change on the one hand and individual health on the other. These pathways can include purely material circumstances as well as social and psychological ones.

Social networks as social capital

Kennedy *et al*[5] maintain that social capital in Russia is made up, in the main, of informal networks, such as family and friends. More formal institutions, such as voluntary organisations, are less common (and less important) in Russia than in Western countries. In other words, Russians prefer to rely on the more immediate types of social network. This has been described as an "hour glass society", where the informal networks constitute the base, the political elite and the institutions form the top, and little exchange or trust exists between these two.[6] As a result, people without informal networks are particularly vulnerable.[5] In other words, these people live more or less in isolation and lack both emotional support and support of a more instrumental character (for example, economic help). It was suggested that Russian regions with low social capital also had a higher mortality, even when a number of economic circumstances were taken into consideration.[7]

Apart from the fact that membership of a voluntary organisation can be a valuable social network and a resource for the individual, it can also constitute an important foundation stone for civil society and can thus also be a collective power resource. It is assumed that a strong civil society will mobilise society's political resources as a counterbalance to more market-based ones.[4 8]

Economic difficulties

A person's social situation is closely linked to his or her economic circumstances. Ever since the beginning of 1992, when shock therapy was introduced in Russia, an ever increasing proportion of the Russian population has found itself sinking into poverty. Possibly a third of the population is now living below the recognised subsistence level.[9–11] The question arises: what kind of people make up that minority of Russians who, in purely economic terms, have not lost out in the transition? As yet there have been relatively few studies of this, but some researchers have maintained that the groups who were favoured (politically or financially) during the Soviet era have largely been able to maintain their positions in the new society.[12] Growing economic problems in the population at large have in all likelihood negatively affected health, possibly most of all among those groups who have been reliant on the crumbling social security systems. These groups include pensioners, among whom malnutrition occurs.[13 14] Economic difficulties can also have other, more indirect consequences, as they can give rise to stress, anxiety, depression,

family conflicts, etc, which in turn can cause ill health, alcohol problems and smoking.[15–18] Economic circumstances are thus believed to affect both health and health related behaviours.

Control over life

Being in control of your situation affects a person's health in a variety of ways. Steptoe suggested at least three such pathways.[19] A feeling of powerlessness (that is, low control) is related to certain biological reactions, where difficulty in acting (high response costs) tends to raise stress related reactions in a number of body systems (for example, metabolism). Sense of control is also important at a more subjective and conscious level; a low sense of control can cause people to feel anxiety about the possible consequences of certain behaviours. In other words, facing problems that you regard as beyond your capacity to deal with triggers stress. A third possible pathway between life control and health is that a feeling of powerlessness influences risk behaviours such as alcohol consumption and smoking (page 313).[19] These three suggested pathways are not regarded as mutually exclusive but rather as existing in parallel.

Class differences in morbidity and mortality found in Western Europe and the USA[20–24] and also in Russia[2 3 25] can to some extent be explained by differences in people's degree of life control.[3 20 26] In this article, "control over life" is assumed to be one of the factors that affects self rated health as well as alcohol consumption and smoking. It is also assumed that it can to some extent mediate the influence that social networks, education, and economic circumstances exert.

Self rated health, alcohol consumption and smoking in transitional Russia

Not only is mortality higher in Russia than in the West; but self rated health is also poorer.[3 4] Studies of this have looked at socioeconomic, social psychological and purely behavioural explanations. The pioneering work by Leon *et al* from 1997[1] drew the conclusion that alcohol was the most important factor in explaining the rise in Russian mortality during the period 1987 to 1994. This conclusion was questioned by Carlson and Vågerö,[15] who maintained that the authors had focused too much on alcohol and too little on a closer analysis of the socioeconomic and psychological consequences of the Russian transition. Thus, family and family relations could be key factors in explaining the high alcohol consumption among Russian men. Alcohol consumption has seldom been analysed in relation to self rated health in Russia (see, however, Bobak *et al* [3]).

Smoking has been looked at in a number of studies,[27] but there are a lack of data on how smoking habits may have changed during the transition. McKee *et al* [28] concluded that smoking was very common in Russia (1996), especially among young and middle aged men. Even though women do not smoke nearly as much, there were signs of a rapidly rising trend among young women—something that can

give rise to problems in the future. Russian smoking habits have undoubtedly contributed to the high (in relation to the West) mortality in Russia.[27 28] Whether or not they also influence self rated health is less clear. Bobak *et al* [3] found that smokers were more likely than non-smokers to report ill health, but the difference was not significant. In the West, on the other hand, considerable differences have been found. Manderbacka *et al*[29] found that smokers and former smokers in Sweden differed significantly from non-smokers in terms of self rated health.

It is important to underline here that self rated health and mortality constitute two separate aspects of public health. One clear example of this is the "gender paradox"—the fact that women often, although not always, report more illness than men whereas it is men who have the higher mortality. Nowhere is this gender paradox so clear as in Russia. Despite the very high mortality of Russian men, Russian women report poorer self rated health than do Russian men. A possible explanation of this "paradox" is that the most common illnesses tend not to be those from which we ultimately die.[30] The most usual causes of death, on the other hand, are, possibly by their very nature, not always preceded by any obvious symptoms. Heart disease, for example, which is related both to binge drinking[31] and to smoking[32] is often not discovered until it is too late—that is, immediately before, or even after death. The very great gender differences in average life expectancy in Russia (14 years in 1994),[33] may be explained in part by the large gender differences in alcohol consumption and smoking.

One plausible hypothesis for this study is that risk behaviours such as high alcohol consumption and smoking are more closely related to mortality than to self rated health. It is therefore interesting to investigate whether the causes of self rated health and of risk behaviours in transitional Russia are, at least to some extent, different.

The aim of this study is to describe developments in self rated health, alcohol consumption, and smoking in Taganrog during the period 1993/94 to 1998. The aim is, furthermore, to attempt to explain self rated poor health, high alcohol consumption and smoking in terms of social, economic and psychological factors, and finally to establish whether the explanations found for self rated health and for the above mentioned risk behaviours differ from each other.

Methods

POPULATION UNDER STUDY

Taganrog is a chiefly industrial town with some 300 000 inhabitants situated on the Sea of Azov some 1000 km south of Moscow in the Rostov *oblast* (region). In the late 1960s it was chosen for a series of repeated surveys because it was regarded as a typical medium sized Russian industrial town in terms of average income, employment, living conditions, and family size.[34 35] During the period July to September 1998, Russia went through a

Table 1   Subsistence level in the Rostov Region and in the Russian Federation 1998

Month (1998)	Rostov Roubles	Russia Roubles
June	314	436
July	311	438
August	310	450
September	358	552
October	376	573
November	413	619

Sources: Rostovskii Komitet Statistiki (personal communication) and Goskomstat (1999) *Sotsialno-Ekonomicheskoe Polojenie Rossii*. Moscow.

dramatic economic and political crisis, which also had consequences for the Rostov region. To give an overview of the economic situation in the region and in Russia as a whole, table 1 presents month by month changes in the subsistence level during the summer and autumn of 1998, during the so called rouble crisis, which took place while the interviews for this study were being carried out.

Although subsistence levels are generally lower in Rostov than in Russia as a whole, changes in them during the period in question seem to be similar. Taganrog therefore appears not to have changed appreciably in relation to Russia in general—something that can help us to understand our findings. In 1997, average life expectancy in Rostov was somewhat higher for men (61.66) than in Russia as a whole (60.75) and somewhat lower for women (72.78 as compared with 72.89 in Russia).[33]

The Taganrog survey of 1998 was carried out during the period January to December by means of structured interviews with the family members of 1009 households. The sample frame was the electoral register, by means of which 1009 people aged 18 and above and their families were randomly selected. The interviews were carried out by local female graduates experienced in this type of work. The response rate was 81%. In nearly all cases, where a family agreed to be interviewed all the family members were willing to take part. Adults always answered questions about themselves personally. The families received a small gift (equivalent to about US$1) in return for their help. Some of the data from the 1993/94 surveys are presented in brief here for the purpose of comparison. The response rate in this earlier study was 91%. However, the age, sex, family size, and educational distributions are very similar to the 1998 study (for a more detailed description of the Taganrog survey of 1993/94, see Carlson and Vågerö[15] or Rimashevskaya[34]).

Furthermore, in order to be able to compare Taganrog with Russia as a whole, a number of analyses from the "Russia Longitudinal Monitoring Survey" (RLMS) for the years 1993/94 and 1998 are presented, as they featured an identical question about self rated health. RLMS is a survey that is representative of Russia and that has been carried out at repeated intervals since 1992. It is obviously very difficult to obtain a sample that is representative of the entire Russian population. In brief, the selection procedure involved the following

three steps. (1) In accordance with certain criteria (including degree of urbanisation) a number of regions were selected that together would represent the vast country's enormous heterogeneity. (2) A number of electoral districts were chosen at random. (3) A register of households in each electoral district was used to select a total of some 7000 households. The response rate was around 90% for the earliest surveys and approximately 80% for the later ones.[36]

DEPENDENT VARIABLES

Self rated health, high alcohol consumption, and smoking according to the 1998 survey were analysed as dependent variables. Self rated health was dichotomised. "Very good" and "good" were defined as good health and "satisfactory", "poor" and "very poor" were defined as poor health. The dichotomisation was carried out for a number of reasons. Firstly, it is unclear whether the five point scale really is continuous or whether the values do in fact represent two different qualities.[21 37] It is also easier to understand the findings intuitively if one dichotomises and then analyses them by means of logistic regression.[38]

High alcohol consumption was dichotomised according to whether a person's reported weekly alcohol consumption was under 0.5 l (0.5 l of 40% alcohol is approximately equivalent to 160 g of pure alcohol). (For a discussion see Carlson and Vågerö.[15])

Smoking was also dichotomised. All those who replied that they smoked on a daily basis, regardless of quantity, were classified as smokers. The rest were regarded as non-smokers.

The distribution of the three dependent variables according to gender and age is presented in the results section (tables 2 to 4). The tables also present the corresponding data from the 1993/94 Taganrog survey, as well as (for health) data for Russia as a whole (table 2).

BACKGROUND VARIABLES

The analysis is limited to respondents aged 19 and above. These 2191 respondents always answered questions about themselves personally.

Women are in the majority in the analysed sample (59% women, 41% men). In Russia as a whole, in the age group 20 and above, the relation is 55% women to 45% men.[33]

Sixty four per cent of respondents were married or cohabiting, 36% were divorced, widowed or single. However, only 20% of those who described themselves as "not married" were actually living alone.

INDEPENDENT VARIABLES

Education is here divided into five groups; higher or incomplete higher, specialised secondary, common secondary, incomplete secondary/vocational, less than compulsory. This type of division, or similar, has been used before,[2 25 39] and has been found to be appropriate.

Three social network variables were used. The first is membership of a voluntary organisation. Even where information about the type

Table 2 Self rated "poor" health by age and sex in Taganrog and Russia in 1993/94 and 1998

	Taganrog			Russia		
Age	1993/94 %	1998 %	Δ 1993/94–1998 Change in % units	1993/94 %	1998 %	Δ 1993/94–1998 Change in % units
Men						
19–29	23.9	39.3	15.4	23.6	40.9	17.3
30–39	36.2	57.0	20.8	42.6	50.4	7.8
40–49	55.5	59.6	4.1	59.9	69.5	9.6
50–59	67.1	82.1	15.0	76.3	82.6	6.3
60–69	80.2	85.2	5.0	83.6	87.1	3.5
70–	90.8	97.7	6.9	93.5	96.5	3.0
All	53.3	65.1	11.8	58.0	64.7	6.7
	$\chi^2=379.7$	$\chi^2=145.4$		$\chi^2=721.6$	$\chi^2=526.8$	
	p<0.001	p<0.001		p<0.001	p<0.001	
	(n=1909)	(n=900)		(n=3462)	(n=3347)	
Women						
19–29	34.8	47.9	13.1	42.5	52.8	10.3
30–39	57.2	59.6	2.4	62.4	73.5	11.1
40–49	71.9	80.2	8.3	67.8	85.5	17.7
50–59	83.3	85.6	2.3	87.7	91.0	3.3
60–69	88.1	92.9	4.8	96.2	96.4	0.2
70–	94.5	94.7	0.2	96.9	99.2	2.3
All	70.7	76.0	5.3	75.9	81.2	5.3
	$\chi^2=480.6$	$\chi^2=213.7$		$\chi^2=977.7$	$\chi^2=798.7$	
	p<0.001	p<0.001		p<0.001	p<0.001	
	(n=2518)	(n=1291)		(n=5038)	(n=4482)	

Sources: The Taganrog surveys 1993/94 and 1998; Russia Longitudinal Monitoring Survey 1993/94 and 1998.

of organisation in question is available, only the fact of being or not being a member is of interest here.[4][40] The second variable is how often people socialise with their neighbours. Six possible answers were grouped into two categories: those who had daily contact with their neighbours and those who did not (including those without neighbours). Family relations could be described according to four alternatives: "good, friendly", "normal, peaceful", "strained, nervous" and "quarrels, conflicts". Those living alone were assigned to a fifth category. It is obviously not possible fully to measure a person's social networks and social capital; these three variables do nevertheless capture some of the dimensions that may exist, both in terms of quantity, degree of formalisation/institutionalisation, and quality.

The family's economic situation was measured by asking whether, and if so how often in the previous 12 months, they had been

Table 3 High alcohol consumption by age and sex in Taganrog 1993/94 and 1998

	Taganrog		
Age	1993/94 %	1998 %	Δ 1993/94–1998 Change in % units
Men			
19–29	22.6	6.9	−15.7
30–39	34.2	15.6	−18.6
40–49	42.0	21.1	−20.9
50–59	29.1	18.9	−10.2
60–69	25.4	10.5	−14.9
70–	12.6	7.3	−5.3
All	29.2	13.8	−15.4
	$\chi^2=61.2$	$\chi^2=23.1$	
	p<0.001	p<0.001	
	(n=1821)	(n=870)	
Women			
19–29	3.2	*1.3*	−1.9
30–39	4.8	*2.0*	−2.8
40–49	2.5	*1.1*	−1.4
50–59	1.8	*0.5*	−1.3
60–69	1.7	*0.0*	−1.7
70–	*0.3*	*0.0*	−0.3
All	2.5	0.9	−1.6
	$\chi^2=20.0$	$\chi^2=7.4$	
	p<0.001	n.s.	
	(n=2401)	(n=1254)	

Sources: The Taganrog surveys 1993/94 and 1998.
Figures in italics: n<5.

Table 4 Smoking by age and sex in Taganrog 1993/94 and 1998

	Taganrog		
Age	1993/94 %	1998 %	Δ 1993/94–1998 Change in % units
Men			
19–29	59.9	56.0	−3.9
30–39	64.5	68.2	3.7
40–49	62.1	66.8	4.7
50–59	51.2	49.2	−2.0
60–69	35.3	41.5	6.2
70–	22.4	25.0	2.6
All	53.2	54.3	1.1
	$\chi^2=134.7$	$\chi^2=63.5$	
	p<0.001	p<0.001	
	(n=1905)	(n=876)	
Women			
19–29	13.7	21.8	8.1
30–39	9.8	19.6	9.8
40–49	10.2	9.2	−1.0
50–59	4.3	4.2	−0.1
60–69	1.7	2.8	1.1
70–	1.7	*2.0*	0.3
All	7.1	10.2	3.1
	$\chi^2=73.6$	$\chi^2=86.1$	
	p<0.001)	p<0.001	
	(n=2451)	(n=1260)	

Sources: The Taganrog surveys 1993/94 and 1998.
Figures in italics mean n<5.

obliged to rely on external help to pay their routine expenses. The answer alternatives were the following: "never", "once or twice", "3 to 12 times", "more than 12 times". Another way of measuring economic situation would have been to use the family's disposable income, but given the extent of the informal economy in Russia and the relatively great significance of payment in kind among Russian families, this could have led to problems.[41] The families were also asked whether they were faring better, worse or the same as 10 years earlier. Those who replied that their situation had worsened during that time will be compared with the rest. Also included was economic circumstances during childhood, as these can be of significance for health and circumstances in later life.[42]

Life control (degree of control over ones own life) was measured on a 10 grade scale, where 1

Table 5   Distribution of independent variables by sex among respondents over 18 years in Taganrog, 1998

Variable	Men	Women	Total
Education			
Higher/inc. higher	29.05	26.33	27.42
Specialised secondary	26.86	32.33	30.14
Common secondary	19.92	18.78	19.24
Including secondary/vocational	10.67	4.72	7.10
Less than compulsory	13.50	17.84	16.10
χ^2=34.95 p<0.001			
Social networks			
Membership of organisation (%)	44.22	35.85	39.20
χ^2=13.71 p<0.001			
Daily contact with neighbours (%)	50.77	59.61	56.07
χ^2=14.79 p<0.001			
Family relations			
Good, friendly	58.23	57.20	57.61
Normal, peaceful	28.02	23.58	25.36
Strained, nervous	7.58	7.20	7.36
Quarrels, conflicts	2.31	2.66	2.52
Household of one person	3.86	9.35	7.15
χ^2=23.70 p<0.001			
Financial circumstances			
Economic difficulties during childhood (%)	40.00	41.00	40.57
χ^2=0.17 p>0.05			
Economic hardship the past 12 months (%)			
Never	28.28	27.53	27.83
1–2 times	23.26	21.27	22.07
3–12 times	34.58	35.85	35.34
More than 12 times	13.88	15.35	14.76
χ^2=1.83 p>0.05			
Worsening of material circumstances over the past 10 years (%)	81.23	83.19	82.41
χ^2=1.23 p>0.05			
Life control			
Life control (mean)	5.72	5.42	5.54
t=2.92 p<0.01			

meant "no control at all" and 10 "a great deal". This variable has been analysed before and has been found to be useful, in Eastern Europe also.[4]

Table 5 presents the distribution of the independent variables according to gender and in total. (See the appendix for a more detailed presentation of the questions and alternative answers.) Logistic regressions were performed in order to analyse the suggested determinants (these will be presented later). As people in large families also have a greater chance of being selected, all regressions are weighted. This weighting is based on family size, or rather the number of people eligible to vote in the family (fs). Each family member obtains a weight (vi) calculated as follows [vi=l/fs]. There is also the risk of statistical dependence between persons in a family. This problem is controlled for in the regression models by means of a "Huber-White Sandwich Estimate", which gives robust standard errors and confidence intervals.[43] These two procedures make it possible to generalise the results from the sample to the inhabitants of Taganrog as a whole[43] (and Stata Corporation, personal communication, 9 November 1999.) Odds ratios and confidence intervals (95%) are presented in tables 6 to 8, with controls for a variety of social, economic and psychological factors.

The analysis strategy was first to estimate the "gross effects" of education, social networks,

Table 6   Self rated "poor" health among men and women aged over 18 years in Taganrog, 1998

Variable	Model 1		Model 2		Model 3	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Education						
Higher/including higher*	1.00		1.00		1.00	
Specialised secondary	1.23	0.90, 1.68	1.02	0.74, 1.40	1.02	0.74, 1.40
Common secondary	1.11	0.78, 1.57	0.84	0.58, 1.22	0.80	0.55, 1.16
Including sec/vocational	1.43	0.86, 2.38	1.02	0.60, 1.76	0.98	0.57, 1.68
Less than compulsory	1.73	1.03, 2.91	1.21	0.71, 2.07	1.19	0.69, 2.03
(p value)	(0.229)		(0.665)		(0.561)	
Membership of organisation						
No*	1.00		1.00		1.00	
Yes	0.75	0.57, 0.98	0.70	0.52, 0.93	0.72	0.54, 0.96
(p value)	(0.037)		(0.014)		(0.024)	
Contact with neighbours						
Once a week at most*	1.00		1.00		1.00	
Almost daily	1.19	0.90, 1.58	1.09	0.82, 1.46	1.12	0.84, 1.51
(p value)	(0.225)		(0.541)		(0.442)	
Relation in the family						
Good, friendly*	1.00		1.00		1.00	
Normal, peaceful	1.24	0.89, 1.72	1.16	0.83, 1.62	1.12	0.80, 1.56
Strained, nervous	1.35	0.82, 2.21	1.25	0.76, 2.06	1.16	0.70, 1.91
Quarrels, conflicts	2.55	0.76, 8.56	1.80	0.55, 5.90	1.66	0.49, 5.67
Single person household	0.64	0.37, 1.12	0.71	0.39, 1.29	0.70	0.38, 1.29
(p value)	(0.093)		(0.419)		(0.567)	
Economic difficulties during childhood						
No*	1.00		1.00		1.00	
Yes	2.48	1.43, 4.30	2.46	1.42, 4.24	2.37	1.36, 4.11
(p value)	(0.001)		(0.001)		(0.002)	
Economic difficulties						
Never*	1.00		1.00		1.00	
1–2 times	0.94	0.63, 1.41	0.95	0.63, 1.42	0.94	0.63, 1.41
3–12 times	1.98	1.36, 2.88	1.98	1.36, 2.90	1.86	1.27, 2.74
More than 12 times	2.32	1.34, 3.99	2.24	1.27, 3.94	2.03	1.15, 3.57
(p value)	(0.000)		(0.000)		(0.000)	
Changes in material wellbeing over 10 years						
Better/unchanged*	1.00		1.00		1.00	
Worse	1.85	1.31, 2.63	1.86	1.31, 2.65	1.77	1.24, 2.52
(p value)	(0.001)		(0.001)		(0.002)	
Interaction: age × economic difficulties during childhood	(0.000)		(0.000)		(0.000)	
Life control						0.90	0.85, 0.97
(p value)					(0.002)	
	(n=1888)		(n=1888)		(n=1888)	

*Reference group.

Table 7   *High alcohol consumption among men and women, aged over 18 years in Taganrog, 1998*

Variable	Model 1		Model 2		Model 3	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Education						
Higher/including higher★	1.00		1.00		1.00	
Specialised secondary	1.65	0.87, 3.14	1.49	0.72, 3.06	1.45	0.70, 3.01
Common secondary	1.93	1.05, 3.53	1.46	0.77, 2.78	1.28	0.68, 2.43
Inclucing sec/vocational	2.60	1.23, 5.50	2.41	1.07, 5.42	2.29	1.02, 5.12
Less than compulsory	0.94	0.39, 2.28	0.51	0.19, 1.39	0.49	0.18, 1.37
(p value)	(0.085)		(0.061)		(0.080)	
Membership of organisation						
No★	1.00		1.00		1.00	
Yes	0.97	0.60, 1.57	0.97	0.60, 1.58	1.06	0.64, 1.75
(p value)	(0.894)		(0.898)		(0.829)	
Contact with neighbours						
Once a week at most★	1.00		1.00		1.00	
Almost daily	1.40	0.86, 2.28	1.43	0.87, 2.35	1.45	0.88, 2.40
(p value)	(0.174)		(0.159)		(0.144)	
Relation in the family						
Good, friendly★	1.00		1.00		1.00	
Normal, peaceful	2.32	1.32, 4.08	2.40	1.33, 4.33	2.31	1.28, 4.15
Strained, nervous	9.25	4.30, 19.91	12.01	5.39, 26.75	10.91	4.60, 25.87
Quarrels, conflicts	21.35	8.59, 53.07	22.68	9.42, 54.59	20.60	8.76, 48.42
Single person household	4.22	1.25, 14.28	4.65	1.32, 16.39	4.44	1.24, 15.89
(p value)	(0.000)		(0.000)		(0.000)	
Economic difficulties during childhood						
No★	1.00		1.00		1.00	
Yes	2.17	0.57, 8.24	1.54		1.42	0.33, 6.05
(p value)	(0.253)		(0.566)	0.35, 6.69	(0.634)	
Economic difficulties						
Never★	1.00		1.00		1.00	
1–2 times	2.75	1.37, 5.52	3.07	1.42, 6.61	3.10	1.44, 6.70
3–12 times	2.64	1.33, 5.22	2.49	1.16, 5.31	2.23	1.01, 4.89
More than 12 times	1.94	0.90, 4.19	1.37	0.59, 3.19	1.16	0.49, 2.77
(p value)	(0.021)		(0.011)		(0.006)	
Changes in material wellbeing over 10 years						
Better/unchanged★	1.00		1.00		1.00	
Worse	1.51	0.76, 3.02	1.45	0.70, 3.02	1.38	0.66, 2.90
(p value)	(0.243)		(0.315)		(0.400)	
Interaction: age × economic difficulties during childhood	(0.000)		(0.000)		(0.000)	
Life control					0.85	0.73, 0.98
(p value)					(0.022)	
	(n=1888)		(n=1888)		(n=1888)	

★Reference group.

and economic circumstances. After this, the effect of the same factors was calculated with mutual control. This was done in order to establish whether the independent variables affect health, alcohol consumption, and smoking independently or via each other. Finally, life control was introduced to investigate whether this is the factor that mediates the effect of the other analysed variables.

The year 1998 was a turbulent year in Russia, particularly the period from August to September when a financial crisis occurred. Therefore one could assume respondents to answer differently to questions, depending on whether they were interviewed before or after the "August-September Crisis". To analyse this possible effect, all logistic regression models are additionally performed with control for date of interview—that is, whether the respondent was interviewed during January-August or September-December (alternatively during January-July or August-December). The results when using the alternative models are presented in the text only.

Results

CHANGES IN SELF RATED HEALTH, ALCOHOL CONSUMPTION AND SMOKING 1993/94–1998

The proportion of people reporting poor health in Taganrog in 1998 must be seen as very great in all age groups, both men (65.1%) and women (76.0%) (table 2). The same question was asked in RLMS in 1993/94 and 1998, and a comparison of Taganrog and Russia in 1993/94 produces fairly similar figures. The development over time, however, seems to be worst for Taganrog men. Between 1993 and 1998, the proportion of these reporting poor health rose in almost all age groups. The total increase was 11.8% for men and 5.3% for women. For Russia as a whole, the increase was less: 6.7% for men and 5.3% for women. The trend is opposite to the one in life expectancy for the same years, where we could find improvements.

Table 3 shows the proportion of high alcohol consumers by gender and age for 1993/94 and 1998.

High alcohol consumption seems to be a very "male" behaviour. Some 29.2% of the men interviewed in Taganrog in 1993/94 reported a high alcohol consumption (that is, more than 0.5 l/week). The figure for 1998 was 13.8%. The percentages were much lower for women: 2.5% in 1993/94 and 0.9% in 1998. For men, high alcohol consumption was most common in the age group 40–49 years and for women among those aged 30–39 years. The figures have fallen considerably over the period in question for both men and women and in all age groups.

Table 4 shows the proportion of men and women in Taganrog who smoked on a daily basis in 1993/94 and in 1998.

Smoking, too, is more common among men. More than one half of all the men (53%–54%) reported that they smoked every day, but only 7%–10% of the women. A slight general increase between 1993/94 and 1998 is observable among both men and women. The somewhat greater increase among young women (8%–9%) should be noted.

Overall, the changes in self rated health seem to have taken the opposite direction from the one that might have been expected, given the fact that alcohol consumption seems to have fallen and smoking increased only slightly. Nor is there any significant association (tested with logistic regression and χ^2 test) between people's alcohol and smoking habits and their self rated health.

EDUCATION, SOCIAL NETWORKS, ECONOMY AND LIFE CONTROL IN TAGANROG 1998

The distribution of the independent variables according to gender and in total is presented in table 5.

Some 40% of the respondents reported that they belonged to some voluntary organisation. This seems to be a little more common among men than among women.

The situation is different when one looks at people's contact with their neighbours. Here, women seem to have more contact: 59.6% compared with 50.7% of men. Where family relationships are concerned, most people (57.6%) seem to have friendly relationships with their family. There are no observable differences in this respect between men and women, except for the fact that a greater number of women live alone.

Around 40% of the men and women reported that they had experienced economic

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> **KEY POINTS**
>
> - In Taganrog (Russia) between 1993/94 and 1998, changes in self rated health seem to have been much more dramatic than changes in smoking and different in direction from changes in alcohol consumption.
> - Self rated "poor" health was particularly common among those whose economic situation was worse in 1998 than 10 years before.
> - Having a poorer economy during the period 1988–1998, does not seem to have affected drinking or smoking habits significantly.
> - Self rated health seems to be more closely related to economic aspects of the Russian transition than to smoking and alcohol consumption.

Table 8 Smoking among men and women aged over 18 years in Taganrog, 1998

Variable	Model 1		Model 2		Model 3	
	Odds ratio	95% CI	Odds ratio	95% CI	Odds ratio	95% CI
Education						
Higher/including higher*	1.00		1.00		1.00	
Specialised secondary	1.87	1.29, 2.73	1.67	1.13, 2.46	1.66	1.12, 2.45
Common secondary	1.95	1.33, 2.85	1.65	1.10, 2.48	1.61	1.06, 2.44
Including sec/vocational	2.77	1.61, 4.79	2.56	1.46, 4.49	2.50	1.42, 4.42
Less than compulsory	2.47	1.53, 3.99	2.05	1.24, 3.40	2.02	1.21, 3.35
(p value)	(0.000)		(0.005)		(0.008)	
Membership of organisation						
No*	1.00		1.00		1.00	
Yes	0.68	0.51, 0.91	0.70	0.52, 0.94	0.71	0.53, 0.96
(p value)	(0.008)		(0.017)		(0.025)	
Contact with neighbours						
Once a week at most*	1.00		1.00		1.00	
Almost daily	1.39	1.04, 1.86	1.28	0.95, 1.72	1.29	0.96, 1.73
(p value)	(0.027)		(0.109)		(0.097)	
Relation in the family						
Good, friendly*	1.00		1.00		1.00	
Normal, peaceful	1.39	1.01, 1.91	1.26	0.91, 1.75	1.24	0.90, 1.72
Strained, nervous	1.66	0.96, 2.87	1.52	0.90, 2.58	1.48	0.87, 2.52
Quarrels, conflicts	4.70	2.07, 10.70	3.88	1.79, 8.40	3.75	1.71, 8.20
Single person household	2.28	1.11, 4.70	2.54	1.24, 5.22	2.51	1.21, 5.20
(p value)	(0.001)		(0.002)		(0.003)	
Economic difficulties during childhood						
No*	1.00		1.00		1.00	
Yes	2.57	1.25, 5.29	2.20	1.03, 4.67	2.15	1.00, 4.59
(p value)	(0.01)		(0.041)		(0.049)	
Economic difficulties						
Never*	1.00		1.00		1.00	
1–2 times	1.51	1.03, 2.21	1.58	1.06, 2.35	1.56	1.04, 2.34
3–12 times	1.73	1.17, 2.55	1.65	1.11, 2.46	1.59	1.06, 2.39
More than 12 times	2.57	1.54, 4.31	2.27	1.36, 3.80	2.18	1.30, 3.65
(p value)	(0.002)		(0.011)		(0.020)	
Changes in material wellbeing over 10 years						
Better/unchanged*	1.00		1.00		1.00	
Worse	1.06	0.73, 1.54	1.02	0.66, 1.49	1.00	0.68, 1.45
(p value)	(0.764)		(0.924)		(0.978)	
Interaction: age × economic difficulties during childhood	(0.004)		(0.007)		(0.008)	
Life control					0.96	0.89, 1.02
(p value)					(0.169)	
	(n=1888)		(n=1888)		(n=1888)	

*Reference group.

hardship in childhood. Over 70% had had economic difficulties on at least one occasion during the previous 12 months. Approximately half reported having had this type of problem on at least three occasions. Men and women seem to have had very similar experiences in this regard. The total proportion of those reporting a deterioration in their economic circumstances over the previous 10 years must be regarded as very high indeed (82.1%).

Some gender differences in life control exist, with men appearing to feel that they have a somewhat greater degree of control over their lives than women do.

In the following section, self rated health, high alcohol consumption, and smoking habits are analysed in relation to the introduced independent variables. Gender, age, and marital status were controlled for in all the regressions, although the results are not presented here. In model 1, education, social networks (membership of associations, contact with neighbours, and family relations) and economic circumstances (economic hardship during childhood, economic problems during the previous 12 months, changes in material well being over the previous 10 years) were analysed separately. Model 2 includes all variables. This is repeated in model 3 but with one extra variable, namely life control.

DETERMINANTS OF SELF RATED HEALTH

In table 6 (models 1–3) we find that education is not significantly related to reported ill health. However, those with incomplete compulsory education diverge significantly from those with a university or college education and are 1.7 times more likely to report ill health. Of the social network variables, membership of an organisation had a significant effect on self rated health: people who belong to organisations report ill health less than people who do not. This effect remains when education and economic factors (model 2) and life control (model 3) are controlled for. Neither contact with neighbours nor family relations had any significant effect. What table 6 shows most clearly is the great importance of purely economic circumstances—both hardship during childhood, economic difficulties during the previous 12 months and changes over a 10 year period—for self rated health. Economic deprivation during childhood seems to have a negative impact on health, with those reporting such problems being around 2.5 times more likely than others to have poor health. This is also the case in models 2 and 3, where other factors are also taken into consideration. Those who reported having experienced economic difficulties at least three times during the previous 12 months were also more likely to report poor health. This difference was reduced only slightly when education, social network, and life control were controlled for (models 2 and 3). People reporting poorer economic circumstances today than 10 years ago were also 1.9 times more likely to report poor health (model 1). This effect too remains in models 2 and 3. Model 3 includes life control, which demonstrates having a significant effect. A greater

sense of control over one's own life is accompanied by a lower likelihood of poor health. The introduction of life control in model 3 scarcely changes the estimate for the other independent variables (education, social networks, economic circumstances). One cannot, therefore, conclude that life control mediates the effect of these.

DETERMINANTS OF ALCOHOL CONSUMPTION

In model 1, high alcohol consumption is not related significantly to membership of an organisation nor, apparently, to contacts with neighbours. Two educational categories (common secondary and incomplete secondary/vocational school) demonstrated a significantly greater risk of high alcohol consumption than those with the highest education (1.9 and 2.6 times respectively). There were no significant differences between other groups. What appears to be of great importance here are family relations, inasmuch as persons reporting tension, arguments and conflicts in the family are also more likely to report high alcohol consumption. In all the models, and regardless of controls for other factors (models 2 and 3), there is a dramatically higher incidence of high alcohol consumption (over 20 times greater) in families reporting conflicts. But it is not only among the 3% who report arguments and conflicts that we find a considerably greater proportion of high alcohol consumption—alcohol problems increase in direct relation to deteriorating family atmosphere. It is, however, difficult to distinguish cause and effect here: drinking can of course affect a person's relationships with his or her family. Single person households also demonstrate a higher proportion of heavy drinkers.

Only economic difficulties over the previous 12 months had a significant bearing on individual alcohol consumption. Temporary and frequent difficulties seem to increase the risk of heavy drinking. It is perhaps particularly interesting that any long term deterioration in material wellbeing (over a 10 year period) could not be shown to be related to high alcohol consumption. Neither for people who experienced hardship during childhood could we demonstrate an effect. In contrast, the individual's sense of control over his or her life seems to be closely related to alcohol habits: high consumption was less common among those with a greater sense of control over their lives. Life control does not, however, seem to mediate the effect of family situation or of economic difficulties during the previous 12 months.

DETERMINANTS OF SMOKING

There seem to be more smokers among people with a low educational level than among the better educated. Smoking seems to be at least 2.5 times more common among people with an incomplete secondary/vocational or less than compulsory school than among the most highly educated (model 1). These differences largely persist when social networks, economic circumstances (model 2), and personal control (model 3) are taken into account. People who

belong to organisations smoke less than those who do not (model 1). This pattern does not appear to result from differences in education, economic circumstances or life control, as the effect remains when these factors have been controlled for (models 2 and 3). Possibly somewhat surprisingly, people reporting daily contact with their neighbours smoked more than others (model 1). However, the significant effect disappeared in model 2 and can therefore be explained in part by differences in education or economic circumstances. Just as with alcohol consumption, people's smoking habits were closely linked to family relations. Smoking was considerably more common in families with troubled relations (model 1). In model 2, where alternative explanations (education and economy) had been controlled for, the effect was somewhat less, but the differences were still significant. Economic hardship during childhood seems to double the risk of becoming a heavy smoker in adult life. Economic difficulties during the previous 12 months could also be linked to smoking (model 1); those with more frequent economic problems seem to be more likely to smoke. This effect could not be explained by the factors introduced in model 2 or model 3. In contrast, deterioration over a 10 year period did not seem to be of any significance at all. Life control (model 3) had no significant effect on smoking, unlike self rated health and alcohol consumption. Thus, daily smoking was affected first and foremost by education and social network variables, as well as by temporary economic difficulties and economic hardship during childhood.

For both self rated health (table 6) and the studied risk behaviours (tables 7 and 8), there was a significant interaction effect between age and economic hardship during childhood (all models). Economic hardship when young seems to have greatest impact on ill health and alcohol and tobacco consumption among the oldest age groups—that is, those aged 60 and above. One possible explanation for this is that the childhood economic hardships experienced by the oldest respondents were more severe than those experienced by younger generations.

Finally, as date of interview possibly could affect the results, all models were re-estimated including a dummy variable indicating whether the respondent was interviewed during January-August or September-December (alternatively during January-July or August-December). However, the results showed to be very similar to the original. The dummies were not significant in any of the models. Neither were any significant interactions found and the original models did not differ significantly (likelihood-ratio test) from the alternative ones. Only 6% of the respondents were interviewed January-July (27% January-August) and this may explain why no significant effects were found.

Discussion

The results from this study must be interpreted carefully. When analysing self reported, cross sectional data, several biases may occur. For instance, underreporting is critically dependent on response rates and as the response rate were higher in 1993/94 than in 1998, the lower levels of alcohol use and smoking, as well as the poorer health, could be attributable to the loss of respondents. However, a brief analyses of the two dataset shows that they are fairly similar according to age and sex distribution, educational level, and family size.

The proportion of Russians reporting poor health is very high compared with data from Western Europe and from Sweden.[4 44] Moreover, the development in Taganrog and in Russia as a whole during the period 1993/94 and 1998 seems to have taken a negative turn, in contrast with the Russian life expectancy, which improves during this period. This suggests that self rated health, on the one hand, and mortality/life expectancy, on the other, should be treated as different aspects of public health in Russia, and the explanations may also differ.

A large proportion of the men in Taganrog report a high alcohol consumption, but during the period 1993/94 and 1998 the proportion halved. A reduction is also observable among women—although the numbers were very small right from the start. High alcohol consumption seems chiefly to be a male problem in Taganrog.

Over half of the men in Taganrog smoke every day. However, the proportion of male smokers does not seem to have risen very much between 1993/94 and 1998. The number of female smokers does not seem to have risen dramatically either, with the exception of women in the 19–29 and 30–39 age groups. McKee *et al*[28] also found an increase in smoking among young women, something that must be seen as a potential future health problem.

Neither smoking nor high alcohol consumption is linked to self rated health in this study. They also develop differently over time. Self rated health and risk behaviours clearly represent different dimensions of public health.

Education seems only to be of moderate importance for people's health and alcohol consumption, while smoking was more than twice as common among the more poorly educated.

Membership of an organisation was related to self rated health and to smoking but not to high alcohol consumption. Previous research into social networks and alcohol consumption has demonstrated that socially integrated persons in "wet" cultures drink more, while the reverse relation prevails in "dry" cultures—that is, socially integrated persons drink less.[45] Here we find that in a "wet" culture the positive effects of organisation membership and contact with neighbours are absent.

Quarrels and conflicts in the family, as with strained relationships in general, are closely linked to high alcohol consumption. The great importance of the family for alcohol habits also emerged from the 1993/94 Taganrog study.[15] It is of course difficult to determine causality. High consumption presumably gives rise to

problems in the family, and vice versa. Consumption is probably underestimated, possibly especially so in "problem families",[46] but this does not have to affect the association between these two aspects. Family relationships seem to play a similar part with regard to smoking. Self rated health, on the other hand, was not significantly associated with family relationships.

Common to both health and behaviour is the close link with the economic situation that prevailed in 1997–98. Repeated economic difficulties in the previous 12 months, where people had to rely on economic help from others, is not only a direct health risk but also seems to have a negative impact on people's risk behaviours, both tobacco and alcohol consumption. This is the only one of the investigated factors that is directly related to all three outcomes. As we may assume that temporary economic difficulties have become more common in Russia during the transition, this factor is a possible pathway linking the transition with the prevailing health crisis.

Possibly the most interesting finding of this study is thus that the deterioration in economic conditions during the entire period of transition from 1988 to 1998 was linked to poor health but not to a higher incidence of heavy drinking or daily smoking. This conclusion contradicts a number of previous studies that have maintained the opposite.[1 15] Neither of these latter studies was able to measure both economic changes and consumption at individual level. They also focused on a different period— that is, up to 1994. It is interesting to note the fall in alcohol consumption in Taganrog during the period 1993–1998. This trend could possibly be accounted for by differences in response rates, but these are unlikely to have been great enough to explain the reduction in its entirety. It is probable that both alcohol consumption and smoking habits are largely culturally determined and related to old structures that still exist in post-communist Russia.

People's sense of control proved to be important for self rated health and for alcohol consumption. A greater sense of control was linked to better self rated health and a lower risk of heavy drinking. Control was also largely independent of other circumstances, social or economic, and was not to any great extent a mediator of these circumstances. In other words, the way in which a sense of control is distributed in Russian society is still unclear.

Finally, the dichotomisation of self rated health carried out in this study must be justified, as it is a step that is open to question. A different division, where the category "satisfactory health" is combined with the category "good health", gives rise to a different distribution: only 18% of the men and 26% of the women then have poor health (compared with 65% of men and 76% of women according to the dichotomisation used in this study). When these figures are compared with the survey from 1993/94 there are no changes at all in self rated health. In other words, in 1998 people were more likely to regard their health as "satisfactory" than as "good" or "excellent".

Nevertheless, it is justified to assign the category "satisfactory health" to the group with "poor health". A similar question was asked at interview; the interviewees had to decide whether or not they had any health problems (yes or no). The distribution of this variable is very close to that of the variable analysed here, which means that 71% of the men and 81% of the women expressly replied that they had some form of problem with their health. Furthermore, several researchers have pointed out that a positive definition of the concept of health—that is, that health is not solely a question of the absence of illness and infirmity but rather a state of complete physical, mental and social wellbeing,[47] is more in line people's own ideas about what health is.[20 21] In other words, there is reason to assume that even those who regard their health to be satisfactory, rather than good, experience some kind of problem with their health.

We can thus conclude that in the period 1993/94 to 1998 the changes in self rated health in Taganrog seem to have been considerably more dramatic than the changes in smoking habits and that they took a different direction from those in alcohol consumption. The findings of this study indicate that specific social, economic, and psychological circumstances structure the health and behaviour of the inhabitants of Taganrog. Different factors account for the three different outcomes, thus indicating that these three are linked to the transition in different ways. Material circumstances and changes in them as well as people's sense of control over their lives proved to be particularly important for self rated health. Alcohol consumption and smoking, on the other hand, are not as clearly linked to purely economic circumstances, and in particular not to any changes in these. In so far as alcohol consumption and smoking have steered the changes in mortality in Russia,[1 28] we should clearly expect the changes in self rated health and in mortality to differ from each other. The presumed link between self rated health and education is not particularly strong. As this largely agrees with previous research,[3] there is good reason to believe that this is a specific feature of Russian society. If Shkolnikov's assumption that the link between education and mortality strengthened during the Russian transition is correct, then this is a further example of the fact that self rated health and mortality are two separate aspects of the Russian crisis in public health in the 1990s.

Appendix (survey questions)
(coding in parentheses)

SELF RATED HEALTH
How do you judge your general state of health?
Excellent (0)
Good (0)
Satisfactory (1)
Poor (1)
Very poor (1)

ALCOHOL CONSUMPTION
How much spirits do you usually drink?
Do not usually drink (0)
Less than 0.5 litre/week (0)
Between 0.5 and 1 litre/week (1)
Between 1 litre and 1.5 litre/week (1)
More than 1.5 litre/week (1)

SMOKING
Do you smoke?
Yes, but only 1 to 2 cigarettes/day (1)
Yes, 3 to 10 cigarettes or equivalent/day (1)
Yes, at least 10 cigarettes or equivalent/day (1)
No, I have stopped smoking (0)
No, I have never smoked (0)

ECONOMIC HARDSHIP
*Did you experience economic hardship during
childhood?*
No (0)
Yes (1)
*If you look back over the last 12 months, have you
at any time had to turn to others for help in
meeting your living costs in time, for example,
rent?*
Never (1)
1 to 2 times (2)
3 to 12 times (3)
More than 12 times (4)
*If you look back over the last 10 years, do you feel
that your circumstances during this period have…*
Worsened (1)
Improved (0)
Are more or less the same today (0)

SOCIAL NETWORKS
*Are you a member of any of the following
organizations, associations or committees?*
Trade union. Political party (including youth
or women's branch). Religious organisation.
Sports association. Women's group ,women's
institute. Health group/the Red Cross/similar.
Youth organisation, retireds' club, parents'
association. Music association, orchestra, choir
or theatre group. Housing association, tenants'
association. Residents' association/local com-
munity organisation. Local interest group/
environmentalist organisation. Other associa-
tions, committees or organisations. None.
Yes (1)
No (0)

*Roughly how often do you have contact with your
closest neighbours?*
Almost daily (1)
Every week, but not daily (0)
Every month, but not every week (0)
A few times a year, but not every month (0)
Not even once a year (0)
I have no neighbours (0)

How would you describe relations in your family?
Good, friendly (1)
Normal, peaceful (2)
Tense, nervous (3)
Quarrels, arguments (4)
Live alone (5)

PERSONAL CONTROL
*Some people feel they have completely free choice
and control over their lives, and other people feel
that what they do has no real effect on what
happens to them. Please use the scale to indicate
how much freedom of choice and control you feel
you have over the way your life turns out.*
None at all (1)…A great deal (10)

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