

**SHORT REPORT**

# Democratisation and health after the fall of the Wall

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**Objectives:** The fall of the Wall in 1989 can be seen as a natural experiment in the epidemiological sense to further examine the relation between democracy and health.

**Design and setting:** Ecological study in the 23 post-communist countries, during the last decade of the 20th century, exploring the relations between the level of democratisation and health, taking into account as relevant confounders wealth and the level of inequality.

**Main results:** A significant correlation ( $p < 0.01$ ) was found of the democratic deficit of the countries with the health indicators circa 2000, with values of Pearson's coefficient of  $-0.629$  for life expectancy,  $0.760$  for infant mortality, and  $0.555$  for maternal mortality. These associations remain significant after adjustment by lineal regression for GNP per capita and the Gini coefficient, with  $R^2$  values of  $0.336$  for life expectancy,  $0.575$  for infant mortality, and  $0.529$  for maternal mortality.

**Conclusions:** These findings add pieces of evidence to the previously reported cross sectional association between democracy and health.

epidemiological sense, and hence be used to gain knowledge on the aetiology of health problems. At a defined date, in 1989, 23 countries started with different paces and styles their own pathway to the democratisation of their regimes. Democratisation has not been in these countries a continuous or homogeneous process. The health of the post-communist countries suffered of a considerable decline, during the process of westernisation that has been partially explained through political,<sup>2</sup> behavioural (alcohol, violence), or structural (access to healthy food) approaches.<sup>3</sup>

We proposed recently democracy as a potentially modifiable<sup>4</sup> and relevant predictor of health using an ecological, cross sectional design.<sup>5</sup> In that paper we found a worldwide association of freedom ratings, as a proxy of democracy, with life expectancy and infant and maternal mortality, even after adjustment by the wealth of the countries. Thus the retrospective observation of the effect of the different degrees of democratisation in health in the countries affected by the fall of the Wall can be used to learn further on this issue.

In this paper we explore, in the post-communist countries, the relations between democracy and health during the last decade of the 20th century, taking into account as relevant confounders wealth and the level of inequality.

## METHODS AND RESULTS

We designed an ecological study using as indicators the averages of each selected country. The population of the studied region is around 400 million, ranging from 144.6 million in the Russian Federation to 1.3 million in Estonia. Using data from Freedom House<sup>6</sup> a variable of "democratic

The fall of the Wall in 1989 as the end of the communist regimes in central and Eastern Europe, was a historic event with consequences for the every day life of millions of people living in the affected countries and beyond. But also, it can be seen as a natural experiment<sup>1</sup> in the

**Table 1** Post-communist countries: democratic deficit and health, 1991–2000

	Democratic deficit*, 1991–2000	Life expectancy 2000 at birth, in years	Infant mortality rate 2000/per 1000 live births	Maternal mortality rate 2000/100000 live births
Czech Republic	15.00	74.90	5.0	9
Hungary	16.00	71.30	8.0	15
Slovenia	16.50	75.50	4.0	11
Poland	17.00	73.30	9.0	8
Lithuania	18.00	72.10	17.0	18
Estonia	20.00	70.60	17.0	50
Latvia	21.00	70.40	17.0	45
Bulgaria	23.50	70.80	14.0	15
Slovak Republic	26.50	73.30	8.0	9
Romania	30.50	69.80	19.0	42
Macedonia	33.50	73.10	22.0	11
Ukraine	35.00	68.10	17.0	25
Russia	37.50	66.10	18.0	44
Croatia	38.00	73.80	8.0	6
Moldova	38.50	66.60	27.0	28
Albania	39.00	73.20	27.0	13
Armenia	40.50	72.90	25.0	35
Kyrgyz Republic	42.50	67.80	53.0	65
Georgia	43.00	73.20	24.0	50
Belarus	51.00	68.50	17.0	20
Kazakhstan	53.00	64.60	60.0	65
Azerbaijan	54.00	71.60	74.0	80
Bosnia Herzegovina	54.50	73.10	22.0	7

\*Calculation based on Freedom House Rating, 1990–2000.

deficit" during these 10 years was created. Freedom ratings range from 1 (full democracy) to 7 (no democracy at all) each year. The democratic deficit reflecting the different pace of the democratic reforms in the different countries ranges theoretically from 1—full democracy during the 10 years—to 70 or no democracy at all during the 10 years. We computed the index of democratic deficit just by adding the ratings obtained by each country each year from 1990 to 2000.

Data on health (life expectancy, infant mortality, and maternal mortality) circa 2000 were obtained from the Human Development Report. The Gini coefficient and the GNP per capita were obtained for the year 2000 from the World Bank.

A Pearson's correlation coefficient on the relation of the democratic deficit and the health indicators was first performed. To control the potential confounding effect of per capita GNP and Gini we used later a lineal regression.

The less democratised countries in the period were Bosnia Herzegovina with a democratic deficit value of 54.5, Azerbaijan with 54.0, and Kazakhstan with 53.0. Conversely countries like Czech Republic, Hungary, or Poland exhibit less democratic deficits with values of 15, 16, and 16.5 (table 1).

We found a significant correlation ( $p < 0.01$ ) of democratic deficit with the health indicators circa 2000, with values of Pearson's coefficient of  $-0.629$  for life expectancy,  $0.760$  for infant mortality, and  $0.555$  for maternal mortality (fig 1).

These associations remain significant after adjustment by lineal regression for GNP per capita and the Gini coefficient, with  $R^2$  values of  $0.336$  for life expectancy,  $0.575$  for infant mortality, and  $0.529$  for maternal mortality. The  $\beta$  association coefficients of the democratic deficit were  $-0.121$  for life expectancy,  $1.052$  for infant mortality, and  $0.806$  for maternal mortality, with all the estimations significant ( $p < 0.001$ ).

**COMMENTS**

The different levels of democratisation attained by the post-communist countries in the first decade after the fall of the Wall have had an effect in their levels of health circa 2000. This adds pieces of evidence to the previously reported cross sectional association between democracy and health. The level of democratisation of these countries seems to have had a protective effect on the health crisis suffered as a consequence of the abrupt disruption of the communist regimes.

The quality of the data used can be mentioned as potential limits of the study. Data from the United Nations for life expectancy and mortality are estimates from a mix of sources and methods and are therefore not real data, but are the only ones available to test our hypothesis in an ecological exploratory study.

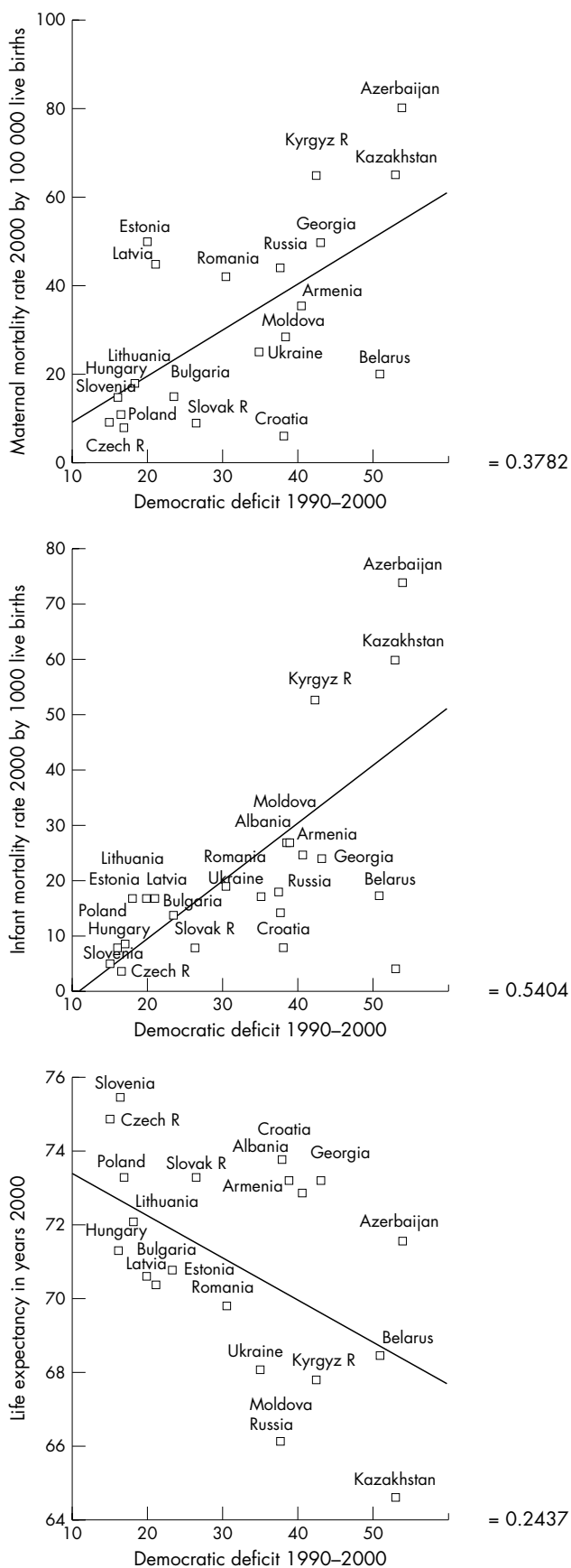
A framework to explain the relation between democracy and health has been recently proposed, based on Amartya Sen's notion of development as freedom. Democracy offers

**What is already known about this topic**

Democracy has been associated with health at the country level using a cross sectional ecological design

**What this study adds**

Further evidence gathered from a natural experiment in the post-communist countries



**Figure 1** Democratic deficit and health in post-communist countries, 1990-2000.

more institutional room for opportunities to people in helping themselves and in helping others.<sup>7</sup> Also country comparison between China and the Indian state of Kerala has been used

to further support the crucial role of political regimes in health.

Besides the behavioural and structural approaches to explain health changes in post-communist countries an approach based in political epidemiology<sup>8</sup> could have explanatory meaning and public health relevance.

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