Politics and health

Effect of democracy on health: ecological study

Álvaro Franco, Carlos Álvarez-Dardet, Maria Teresa Ruiz

Can political regimes be singled out as a factor affecting health? Rating countries by the extent of their freedom is a useful proxy for measuring the effects of democracy on health related variables

Although the influence of democracy in preventing famines has been reported,[1] there have been no empirical studies on the relation between the extent of freedom allowed by political regimes and the effect on a nation's health. We explored the effect of democracy on life expectancy and maternal and infant mortality in most countries, taking into account a country's wealth, its level of inequality, and the size of its public sector.

Politics and health

Since Virchow's seminal work, in which medicine was first proposed as a political science,[2] politics has often been referred to in the medical literature, although mostly at a rhetorical level.[3] Studies of political epidemiology are therefore needed, with research focusing on the effects on health of the institutions derived from political power.

Some authors have tried to determine empirically whether governments can have an effect on the incidence of specific health problems. Studies in the United Kingdom and elsewhere have measured the effect of Labour and Conservative governments on suicide rates.[4] More recently, welfare state policies have been associated with health benefits in people from countries belonging to the Organisation for Economic Cooperation and Development.[5]

Data are now available to enable the measurement of the global impact on health of a wide range of political and economic variables. As a result the World Health Organization commission on macroeconomics and health has produced valuable information on associations between health and wealth.[6] Yet information is still lacking on the relation between the extent of freedom of a particular country and the health of its people. Each year, Freedom House, a non-profit making, independent organisation promoting democracy, publishes a freedom rating for most countries, classifying them as free, partially free, or not free.[7] These ratings could be used as a proxy to explore the effects of democracy on health, as has been done recently with democracy and the provision of public services.[8]

High income countries tend to have democratic governments; dictatorships and lack of civil liberties and political rights tend to be concentrated in low income countries. The level of inequality within a country may be an important determinant of health.[9 10] The potential confounding effect of wealth and its distribution within a country should therefore be taken into account in research on the impact of democracy on health.

Global database of political epidemiology

We created a database from countries with data available on per capita gross national product, total government expenditure, the Gini coefficient, freedom ratings, life expectancy, and maternal and infant mortality. Information was obtained from the Human Development Report and publications of the International Monetary Fund and Freedom House. All data relate to 1998.

Freedom House generates freedom ratings for each country on the basis of data from key informers (box). The methods are described elsewhere.[11]

Firstly we did a simple analysis of the relations of the freedom ratings with health indicators. Then we stratified the analysis, using the World Bank's classification of economies (low, middle, and high income countries). We used a multiple linear regression model to control for the potential confounding effect of wealth (measured as per capita

Key informers of data for freedom ratings

Political rights
Elected rule
Competitive parties or political groupings
Opposition with actual power
Self government of minority groups or their participation in the government

Civil liberties
Freedom of expression, assembly, association, education, and religion
System of rule of law
Free economic activity
Equality of opportunity

Adjusted models for effect of democracy in 170 countries are on bmj.com

Observatory of Public Policies and Health, Departamento de Salud Pública, Universidad de Alicante, Edificio de Ciencias Sociales, APDO 99, 03080 Alicante, Spain
Álvaro Franco *professor*
Carlos Álvarez-Dardet *professor*
Maria Teresa Ruiz *professor*
Correspondence to: C Álvarez-Dardet carlos.alvarez@ua.es

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gross national product), level of inequality (measured with the Gini coefficient), and size of the public sector (measured as total government expenditure). To detect the additional effect of democracy, we introduced two dummy variables (demo1, passage from free country to partially free country; demo2, passage from free country to not free country) to obtain adjusted coefficients of association in the model:

$$Y = B_0 + B_{1\text{gross national product}} + B_{2\text{Gini}} + B_{3\text{total government expenditure}} + B_{4\text{freedom (partially free)}} + B_{5\text{freedom (not free)}}$$

Results

Our final sample represents 98% of the world's population in 170 countries—75% of the countries and territories of the world, and 85% of those in the United Nations. Overall, 45% of the countries were free, 32% partially free, and 24% not free. Around 61% of the world's inhabitants are therefore exposed to lack of freedom by living in partially free countries (29%) or not free (32%) countries. For our sample we had available data on freedom ratings and gross national product. We obtained data on life expectancy for 158 countries, on infant mortality for 162 countries, and on maternal mortality for 140 countries.

The health indicators showed a statistically significant relation with freedom ratings: the highest levels of health were in free countries followed by the partially free countries, and the worst levels of health were in countries that were not free. The relation between health indicators and freedom ratings we observed seemed to remain along the stratum of income by countries (figure).

After adjustment in our multiple linear regression analysis, the associations persisted, with a determination coefficient near to 50%; values for life expectancy, infant mortality, and maternal mortality were 0.51, 0.47, and 0.36, respectively (see bmj.com). The inclusion of the freedom ratings in the model produced changes in the coefficient of 13% for life expectancy, 11% for infant mortality, and 6% for maternal mortality, with statistically significant coefficients.

Comment

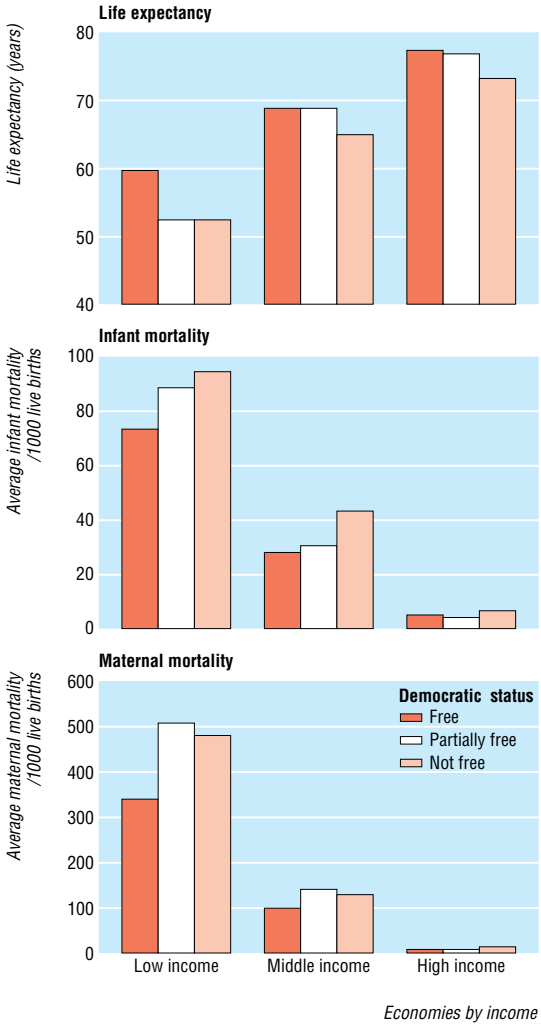
Democracy shows an independent positive association with health, which remains after adjustment for a country's wealth, its level of inequality, and the size of its public sector.

Democracy, political rights, and civil liberties are politically modifiable variables that seem to be associated with health status. In our study, democracy showed a stronger and more significant association with indicators of health (life expectancy and infant and maternal mortality) than indicators such as gross national product, total government expenditure, or inequality in income. When all these variables were taken into account, the economic ones lost their weight, thereby increasing the importance of the effect of democracy.

Maternal mortality showed less of a linear relation with democracy than did the other indicators of health. Countries that were not free seemed to have a small advantage over those that were partially free. In our study, data on maternal mortality were more limited than the other variables. The less developed and less democratic countries tended to have insufficient data or data that were inaccurate.

One important limitation of our study was its cross sectional design. Ideally the effect of democracy or other political constructs on health needs to be examined from a historical perspective to show its cumulative effect. We acknowledge that our study has some non-differential misclassification of exposure to democracy—for example, many countries, such as Spain, Portugal, and Greece, contain populations that have lacked freedom in the past. Freedom House classified these countries as free in 1998, along with democracies of long standing, such as in Sweden and the United Kingdom. This could create a bias towards the null hypothesis, thus favouring our assumption.

Another limitation of our study is the quality of the data on health. 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. These were, however, the only data available from which we could test our hypothesis at a global level. Nevertheless the probability of a differential



Health indicators in 170 countries by classification of economies (World Bank) and democracy (Freedom House), 1998

misclassification bias explaining our results produced by dictatorships worsening their health figures for international agencies seems remote.

The underlying mechanisms for the association between democracy and health are still unknown. Democracies allow for more space for social capital (for example, social networks, pressure groups),[12] opportunities for empowerment, better access to information, and better recognition by government of people's needs.[13] As we describe a new relation in the literature, our finding should be confirmed using longitudinal designs and potential causal pathways explored. If the relation is confirmed, the extent of freedom of a country could provide a new approach to decreasing national mortality.

The way societies organise themselves through their political regimes and their egalitarian policies could have a more important role in health than structural variables such as wealth and the size of the public sector. Increasing democratisation may be a way to counteract the deleterious effect on health of the unequal distribution of economic resources on a global scale.[14]

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Summary points

Data now available make it possible to measure the global impact on health of a wide range of political and economic variables

Freedom ratings can be used as proxies to explore the effects of democracy on other variables

After a country's wealth, level of inequality, and the size of its public sector are adjusted for, democracy has a beneficial effect on health

1 Sen A. *Poverty and famines: an essay on entitlement and deprivation.* Oxford: Clarendon Press, 1982.
2 Benaroyo L. Rudolf Virchow and the scientific approach to medicine. *Endeavor* 1998;22:114-7.
3 Porta M, Alvarez-Dardet C. Epidemiology: bridges over (and across) roaring levels. *J Epidemiol Community Health* 1998;52:605.
4 Kelleher CC. How exactly do politics play a part in determining health? New perspectives on an age old issue. *J Epidemiol Community Health* 2002;56:726.
5 Navarro V, Borrell C, Benach J, Muntaner C, Quiroga A, Rodriguez-Sanz M, et al. The importance of the political and the social in explaining mortality differentials among the countries of the OECD, 1950-1998. *Int J Health Serv* 2003;33:419-94.
6 Woodward D, Drager N, Beaglehole R, Lipson D. La globalización y la salud: marco de análisis y acción. *Bull WHO* 2002;32:32-8.
7 Freedom House. Freedom in the world country ratings 1972-73 to 2001-2002. www.freedomhouse.org (accessed 15 Nov 2003).
8 Lake D, Baum M. The invisible hand of democracy: political control and the provision of public services. *Comp Polit Stud* 2001;34:587-621.
9 Wilkinson RG. Income distribution and life expectancy. *BMJ* 1992;304:165-8.
10 Wilkinson RG. Socioeconomic determinants of health: health inequalities: relative or absolute material standards? *BMJ* 1997;314:591-5.
11 Freedom House. Freedom in the world 2003: survey methodology. www.freedomhouse.org/research/freeworld/2003/methodology.htm (accessed Nov 2004).
12 Baum FE, Ziersch AM. Social capital. *J Epidemiol Community Health* 2003;57:320-3.
13 Baum FE. Just imagine politicians working for health equity. *J Epidemiol Community Health* 2001;55:290.
14 Franco A. Globalizar la salud. *Gac Sanit* 2003;17:157-63.

Commentary: Politics as a determinant of health

Christopher Martyn

So, Franco et al found that people living in democracies enjoy better health than those who must endure repressive regimes.[1] That's good to know—at least for those fortunate enough to live in freedom. But, in a perverse kind of way, I cannot help thinking that it would have been more interesting if things had been the other way around. Suppose it turned out that one had to pay a price, in terms of health, for the privilege of living in an electoral democracy. It would certainly have given us cause to reflect on the value we place on our rights and institutions.

As a thought experiment, imagine that you are a participant in one of those time trade-off investigations that health economists use to determine the utility of different states of health. Ask yourself how many years of life you would be prepared to sacrifice to gain a vote? Or how high a level of infant mortality you would tolerate in exchange for freedom of association and the right to say what you liked without fear that the secret police would come knocking?

Strength of evidence

Actually, I doubt that anyone would have believed it had the finding been the other way around. No matter how hard you try to guard against it, there is always a tendency to require a higher standard for evidence that challenges your prejudices than for evidence that supports them. If health had been positively associated with political repression, would the paper have survived peer review and the rigours of the selection process of the *BMJ*?

This sort of ecological survey is notoriously vulnerable to confounding. The investigators tried to take account of wealth, inequality, and the size of the public sector in their analysis, but surely peer reviewers would have queried whether the link between democracy and health was weaker in the multiple regression model by the inclusion of education, birth rate, the age structure of the population, and civil war? Provision of education seems especially likely to be a confounding variable since it is well established that women's education in particular has strong negative effects on both fertility and infant mortality,[2] and that democracies spend more on education.[3]

BMJ, London WC1H 9JR
Christopher Martyn *assistant editor*
cmartyn@bmj.com