The relationship between political ideology and mortality in Poland [v1; ref status: approved with reservations 2, <http://f1000r.es/ScPdjl>]

Piotr Romaniuk¹, Priyamvada Paudyal², Krzysztof Krajewski-Siuda³, Roman Topór-Mądry⁴, Raglan Maddox^{3,5} and Christian A Gericke^{2,6}

¹ Department of Health Policy, Medical University of Silesia, Katowice 40-752, Poland

² Peninsula CLAHRC, National Institute for Health Research, Peninsula Medical School, Plymouth University, Plymouth PL4 8AA, UK

³ Department of Health Promotion, Jagiellonian University, Kraków 31-126, Poland

⁴ Department of Epidemiology and Population Research, Jagiellonian University, Kraków 31-126, Poland

⁵ Curtin University of Technology, Perth, WA 6845, Australia

⁶ The Wesley Research Institute, Brisbane, QLD 4066, Australia

Correspondence to Christian Gericke: christian.gericke@pcmd.ac.uk

v1 First published: 22 November 2012, 1:55 (doi: 10.3410/f1000research.1-55.v1)

© Usage Licensed by Creative Commons CC-BY 3.0

How to cite this article: Romaniuk P, Paudyal P, Krajewski-Siuda K *et al.* (2012) The relationship between political ideology and mortality in Poland [v1; ref status: approved with reservations 2, <http://f1000r.es/ScPdjl>] *F1000Research* 1:55 (doi: 10.3410/f1000research.1-55.v1)

Abstract

Introduction: The political preference of voters has been shown to be associated with their health status. We investigated the relationship between political preferences and mortality in Poland around the time of the last three general elections.

Methods: We used the electoral data from the general elections held in 2001, 2005 and 2007. Indicators of political ideological preference were constructed based on the percentage of votes gathered by each party. Data on mortality, education and income level were obtained from 2002–2007 from the Polish Central Statistical Office. Pearson correlation was computed between standardised mortality ratios (SMR) and political preference. Finally, the influence of political preference on SMR was examined in a multivariate analysis controlling for socio-economic factors.

Results: SMR was positively correlated with liberal political views (0.26; $p < 0.05$) and negatively correlated with both secondary education (−0.49; $p < 0.05$) and monthly income (−0.239; $p < 0.05$). The correlation between SMR and conservative political views was negative, although the result did not reach statistical significance. Education and income explained more of the variation in SMR than political views. In a multivariate regression, the liberal views factor and secondary education were significantly associated with the SMR ($p < 0.001$ for both).

Conclusion: Our findings are consistent with earlier studies conducted in western countries showing a positive correlation between liberal political ideology and SMR, but differ in that an inverse relationship was found between conservative political orientation with education and income. The importance of socioeconomic and geographical factors in relation to political affiliation and health inequalities in Poland should be further explored.

Introduction

In recent years, there has been growing interest regarding the relationship between political ideology and health status. Strong associations between voting patterns, social deprivation and mortality

were reported in studies conducted in England and Ireland^{1–3}. These studies, in general, observed reduced mortality rates in areas where the majority voted for the conservative party. This effect has been explained in relation to socio-economic status;

people with better socio-economic status tend to be more conservative and thus, support a party that will improve their existing privileged condition¹. Studies conducted in the USA have also reported similar findings. Kondrichin and Lester⁴ analysed data from the 1980 election that pitted Ronald Reagan against Jimmy Carter and found an inverse correlation between mortality and the percentage voting for the Republican Party. Studies assessing political affiliation at an individual level also suggest that political ideology correlates with the degree of the importance survey correspondents attach to health care^{5,6}. These studies have indicated that Republicans are healthier and also assign a lower priority to issues related to health care than Democrats. It could also be possible that a reverse association exists whereby individuals with poor health are more likely to be influenced by 'leftist' ideology; however, this investigation requires longitudinal data on health and political ideology which is not available⁷.

Contemporary Poland lacks a clear social cleavage that could determine the shape of a stable party system because of its unique history⁸. The Polish political scene has been somewhat unstable since the collapse of communist rule in 1989. It has been regularly exposed to political shocks, splits and transformations. It has been postulated that as a consequence, the political preferences of voters have not been very stable, with evidence demonstrating significant flows between individual parties and coalitions⁹. Moreover, since the re-establishment of parliamentary democracy in 1989, none of the governing coalitions have managed to win a second election after being in power until 2011. This instability does not necessarily mean that there is irregularity in the voting preferences of particular social groups. However, there is a paucity of research investigating the voting behaviour of the Polish population in relation to their health. As a result of this lack of empirical evidence, a robust discussion regarding the potential relationship has been largely amiss. This study, therefore, is the first to examine the relationship between political preference and mortality in Poland.

Methods

The findings of this study are based on the results of three general elections held in 2001, 2005 and 2007. A proportional voting system is applied in the case of the lower chamber of the Polish Parliament and a majority rule system (plurality-at-large – multi-seat constituencies; first-past the post since 2011) in the case of the upper chamber of Parliament. Only the elections for the lower chamber of Parliament were considered in this study. Each political party was assigned a political "programme factor" varying from 3L (extreme left), through 2L (moderate left), 1L (centre-left), 1R (centre-right), 2R (moderate right) to 3R (extreme right). The economic programmes of the political parties in Poland are not usually coherent and stable. Hence, the assignment of a "programme factor" was based on other postulates such as concepts that refer to morals, the state's world-view on neutrality, and opinions on the church, religion

and individualism. The population indicator for political preference (left or right) was constructed based on the percentage of votes gathered by each party in an election. The results were then unified using a weighted mean, where the results of each party had the weight equal to its "programme factor". Finally, a higher positive number indicated more conservative views dominating in the examined population, whereas a higher negative number demonstrated more liberal views. It is worth noting that some of the parties have been excluded from the analysis, as their political programmes were impossible to be reconstructed, or were ambiguous in the relevant political spheres. These were generally small parties with an extremely narrow electoral support. The lists of the parties that have been included and excluded in the analysis have been listed in the supplementary material. We then analysed the results of the general elections on the level of the *poviat*, which represent the second tier of local self-government administration in Poland, equivalent to a county in many countries. In 2010, there were 379 *poviats* with population sizes varying between less than 30,000 to more than 200,000¹⁰.

Data on mortality, education and income levels from 2002–2007 was obtained from the [Polish Central Statistical Office](#). Standardised mortality ratios (SMR) were calculated in each *poviat* using the overall age-specific death rates for Poland for the period under consideration. We analysed the data using SPSS (statistical software, version 14). A correlation matrix was computed between SMR, voting preference, secondary education and income. Finally, a multiple linear regression analysis was conducted to examine the influence of political preference on SMR, controlling for socio-economic factors and election year.

Results

The results of the three general elections are displayed in [Table 1](#). The results presented show that the electoral turnout was relatively low in all three elections, although the proportion of eligible people voting increased significantly between 2005 and 2007.

The right wing parties dominated in all three elections – both in terms of the electoral support, and the distribution of seats in Parliament. In addition, the results show an increasing trend of electoral support towards right wing parties over the years, with the proportion of votes won by right wing parties increasing from 55% to 85% between 2001 and 2007.

The correlation matrix between SMR and other socio-political factors is presented in [Table 2](#). SMR showed a modest positive correlation with the liberal political views factor, a medium negative correlation with secondary education and a modest negative correlation with monthly income. The correlation between SMR and the conservative views factor was negative; although the result did not reach statistical significance. The conservative factor showed a medium negative correlation with secondary

Table 1 General election data for Lower Chamber in Poland, 2001–2007.

Elections	Total vote (n)	% of vote won	No of seats won
2001			
Right wing parties	7,141,168	55	242
Left wing parties	5,814,318	45	216
Total	12,955,486 (Turnout 46.3%)		
2005			
Right wing parties	9,550,928	81	403
Left wing parties	2,203,344	19	55
Total	11,754,272 (Turnout 40.6%)		
2007			
Right wing parties	13,781,162	85	406
Left wing parties	2,328,578	15	53
Total	16,109,740 (Turnout 53.9%)		

Table 2 Correlation matrix between political preference, socioeconomic status, and standard mortality ratios. Note: * $p < 0.05$

	SMR	The conservative factor	The liberal factor	% with secondary education	Monthly income
SMR	1				
The conservative factor	−0.015	1			
The liberal factor	0.262*	−0.776*	1		
% with secondary education	−0.496*	−0.416*	0.187*	1	
Monthly income	−0.239*	−0.323*	0.102*	0.525*	1

education and monthly income whereas the relationship was smaller and positive with the liberal factor ($p < 0.05$ for all).

The contribution of the political views factor, together with socioeconomic variables, to the statistical explanation of variance in SMR is summarised in Table 3. Secondary education and income explained more variation in SMR than did the political factor. The conservative factor alone had no influence on SMR and the liberal factor could explain only 6.8% of the variation. In a multivariate regression analysis, the liberal factor and secondary education were significantly associated with the SMR ($P < 0.001$ for both) (Table 4).

National election results on the level of poviat (middle Polish administration unit) in 2001

1 Data File

<http://dx.doi.org/10.6084/m9.figshare.97466>

National election results on the level of poviat (middle Polish administration unit) in 2005

1 Data File

<http://dx.doi.org/10.6084/m9.figshare.97467>

National election results on the level of poviat (middle Polish administration unit) in 2007

1 Data File

<http://dx.doi.org/10.6084/m9.figshare.97468>

Discussion

Here we report the results of the first study of voting behaviour in relation to mortality in Poland. In our study, we found a positive correlation between liberal political views and SMR. Conservative political views were inversely correlated with SMR, although the correlation did not reach statistical significance. An inverse correlation was also found between the conservative views factor and secondary education and income levels, whereas, the relationship with the liberal view factor was positive. In a multivariate regression analysis, liberal political views and secondary education significantly predicted the SMR.

Our results are in alignment with previous studies conducted in the UK and the USA, where conservative political views are negatively correlated with SMR^{1–2,4}. However, the finding of an inverse correlation between conservative political views with education and income levels is opposite to the findings of a US study⁶. The most likely explanation for this difference is the

Table 3 Variance in standard mortality ratios explained by the political views factor, socio-economic variables and in combination.

Variables	Variance explained
The conservative factor	0
The liberal factor	6.8%
Secondary education and monthly income	24.5%
The conservative factor, secondary education and monthly income	30.5%
The liberal factor, secondary education and monthly income	37.5%
The conservative factor, the liberal factor, secondary education and monthly income	38.1%

very different social structure and political party landscape in a post-communist, catholic country. Another explanation is that conservative views are less defined by economic status or social class in Poland, but more by geographical differences. For example, the north-west of Poland usually manifests more liberal political attitudes, while the south-eastern areas have a more conservative orientation. This may again be partly determined by the economic characteristics of the regions with western regions being more industrialised and urbanised compared to the eastern regions which are mostly rural and agricultural.

One of the limitations of our study is that we were not able to adjust for socioeconomic variables other than secondary education and income which could have influenced the study results. Moreover, the results are based on regional socioeconomic indicators and so are prone to suffer from this ecological fallacy. Thus, the results from this aggregated study could potentially have differing health determinants and characteristics from individuals within the study. However, other recent studies investigating political views at both the individual and regional levels did not show major differences between individual and ecological level political preference data, suggesting that political ideology influences health through several pathways at the individual and contextual level^{6,11,12}.

Important differences in political traditions, political agendas and political party labelling should be acknowledged when

comparing studies on political views and health from different countries^{13,14}. While it is important to consider the evidence base when analysing and interpreting the results of studies regarding political ideology and health, it is critical that policy decision makers and others utilising such evidence tailor their policies and programmes to meet local population needs. Furthermore, the hypothesis that conservative values, ideologies and latent attitudes could potentially prove conducive to health promoting behaviours and lifestyles^{6,15} has to be treated with caution. Unlike in many western countries, the results from this study indicated that higher levels of education and income were commonly correlated with more liberal political attitudes of examined individuals and groups in Poland.

There has been a wide-ranging debate on the possibility for political ideology to influence health; however, the reverse association is also possible. Health could potentially influence political ideology. For example, those with poor health may be inclined to liberal values and ideology as liberal parties typically tend to value and support social equality which in turn favours disadvantaged populations¹⁵.

Overall, our findings are consistent with earlier studies conducted in western countries in showing a positive correlation between liberal political views and mortality, but differ in that an inverse relationship was observed between conservative political orientation and education and income. The importance of socioeconomic and geographical factors in relation to political ideology and health inequalities in Poland should be further explored in a longitudinal observational study.

Key Points

- Political preference of voters has been found to be associated with their health status.
- Our findings corroborate the findings of studies conducted in western countries in showing a positive correlation between liberal political views and standardised mortality ratios (SMR).
- In contrast to western countries, conservative political views were inversely related with education and income levels in Poland. This counters the argument that the relationship between political views and health is primarily explained by socioeconomic status and that political preference is only a proxy for the latter.

Table 4 Results of the multiple linear regressions for standard mortality ratios.

Variables	Beta Coefficient	SE	95% CI		P value
			Upper	Lower	
The conservative factor	2.84	1.59	-0.29	5.97	0.075
The liberal factor	15.93	2.39	11.23	20.63	<0.001
Secondary education	-1490.98	140.43	-1767.15	-1214.81	<0.001
Monthly income	0.005	0.10	-0.015	-0.024	0.619

Author contributions

PR and KKS designed the study. PR and PP analysed the data with guidance from KKS, RTM and CAG. PR and RM wrote the first draft of the article with revisions by all co-authors.

Conflicts of interest

No competing interests were disclosed.

Grant information

This work was supported by the Medical University of Silesia under the agreement No. KNW-1-207/08. Support for CAG and PP from the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care for the South West Peninsula (PenCLAHRC) is gratefully acknowledged. The views expressed in this publication are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health in England.

References

1. Dorling D, Davey Smith G, Shaw M. Analysis of trends in premature mortality by labour voting in the 1997 general election. *BMJ* 2001; **322**: 1336–1337.
2. Davey Smith G and Dorling D. "I'm all right, John": voting patterns and mortality in England and Wales, 1981–92. *BMJ* 1996; **313**: 1573–1577.
3. Kelleher C, Timoney A, Friel S, McKeown, D. Indicators of deprivation, voting patterns, and health status at area level in the Republic of Ireland. *J Epidemiol Community Health* 2002; **56**: 36–44.
4. Kondrichin SV, Lester D. Voting conservative and mortality. *Percept Mot Skills* 1998; **87**: 466.
5. Blendon RJ, Altman DE, Benson JM et al. Voters and Health Reform in the 2008 Presidential Election. *N Engl J Med* 2008; **359**: 2050–2061.
6. Subramanian SV, Perkins JM. Are republicans healthier than democrats? *Int J Epidemiol* 2010; **39**: 930–931.
7. Huijts T and Kraaykamp G. Immigrants' health in Europe: a cross-classified Multilevel approach to examine origin country, destination country, and community effects. *Int Mig Rev* 2012; **46**: 101–137.
8. Domanski H. A new dimension of social stratification in Poland? Class membership and electoral voting in 1991–2001. *Eur Sociol Rev* 2008; **24**: 169–182.
9. Zuba K. Polska scena polityczna. Ciągłość i zmiana. [In Polish: Polish Political Scene. Continuity and Change]. Wydawnictwo Sejmowe, Warszawa 2012
10. Central Statistical Office 2011, Size and structure of population and vital statistics by territorial division in 2010. Warsaw, Central Statistical Office. (accessed on 19 Oct 2012)
11. Page A, Morrell S, Taylor R. Suicide and political regime in New South Wales and Australia during the 20th century. *J Epidemiol Community Health* 2002; **56**: 766–772.
12. Huijts T, Perkins JM, Subramanian SV. Political Regimes, Political Ideology, and Self-Rated Health in Europe: A Multilevel Analysis. *PLoS ONE* 2010; **5**: e11711. doi:10.1371/journal.pone.0011711.
13. Mishra R. Globalization and the Welfare State. Cheltenham: Edward Elgar, 1999.
14. Borrell C, Espelt A, Rodríguez-Sanz M, et al. Analyzing Differences in the Magnitude of Socioeconomic Inequalities in Self-Perceived Health by Countries of Different Political Tradition in Europe. *Int J Health Serv* 2009; **39**: 321–341.
15. Subramanian SV, Huijts T, Perkins JM. Association between political ideology and health in Europe. *Eur J Public Health* 2009; **19**: 455–457.

Open Peer Review

Current Peer Review Status: ? ?

Version 1

Reviewer Report 04 January 2013

<https://doi.org/10.5256/f1000research.232.r464>

© 2013 Vikhireva O. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Olga Vikhireva

Department of Epidemiology and Public Health, University College London, London, UK

As pointed out by the authors themselves and by the first reviewer, the study by Romaniuk and colleagues has some serious methodological limitations, such as omitted variable bias, residual confounding, ecological fallacy, and reverse causation.

In addition, it is not entirely clear whether the data clustering (within povyats over three consecutive elections) was properly adjusted for in the regression models. As the authors state in the Discussion, the geographical areas of the country differ substantially; therefore, it could have been sensible to include a wider geographical area (such as industrialized north-west vs. agricultural south-east) in the analytical models. It might also be advisable to have a closer look at cause-specific mortality – as, for example, tobacco- and alcohol-related mortality could be stronger associated with political affiliations.

The authors might also wish to strengthen the conclusive section on research and policy implications and emphasize that their findings, despite methodological issues, are relevant to a wider audience

Personally, my main take-home messages from the present paper were as follows. First, “conservative” and “liberal” mean different things to different people in different countries over different historical periods – a seemingly simple, but often forgotten point.

Second, while the voters’ preference may somehow reflect their health, the actual policy of the political party they voted into power could affect health to a much greater extent. For example, conservative values have been demonstrated to be “pro-health” in the West – but would one wholeheartedly claim that Conservative Party policy in the UK is “pro-health” for everybody who voted for Conservatives? Therefore, in an ideal world, the measures of population health would be an ultimate litmus test for the political party in power.

Third, while the world is not ideal, it makes sense to invest in education and its economic pay-offs – which is hardly surprising, but highly relevant.

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

Reviewer Report 18 December 2012

<https://doi.org/10.5256/f1000research.232.r380>

© 2012 McKee M. This is an open access peer review report distributed under the terms of the [Creative Commons Attribution License](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Martin McKee

European Centre on Health of Societies in Transition, London School of Hygiene and Tropical Medicine, London, UK

This paper is subject to a number of weaknesses, in particular omitted variable bias, whereby political affiliation is almost certainly confounded by other factors – a point conceded by the authors when they note the limited variables they have.

A further problem is the lack of a plausible mechanism. Another is the fact that the factors that give rise to different causes of death act over different time periods. As voter preference must act through these risk factors, voter preference at a single point in time will influence deaths at many different times in the future, depending on the cause. For example, starting smoking will kill you in 30 years, getting drunk may kill you today. Hence, although interesting, interpretation of the findings is difficult

Competing Interests: No competing interests were disclosed.

I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.

The benefits of publishing with F1000Research:

- Your article is published within days, with no editorial bias
- You can publish traditional articles, null/negative results, case reports, data notes and more
- The peer review process is transparent and collaborative
- Your article is indexed in PubMed after passing peer review
- Dedicated customer support at every stage

For pre-submission enquiries, contact research@f1000.com

F1000Research