The turnout of medical professionals

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Medical associations, physicians and scholars commonly argue that civic engagement is a central component of medical professionalism.[1] [2] One of the most important ways of participating in societal matters in a democracy is through voting. Nevertheless, only one previous study has to our knowledge examined the extent to which medical trained individuals turn out at elections to cast their ballot.[3] We utilize a complete and validated public records dataset of more than 2.3 million eligible citizens to investigate the turnout of medical trained individuals compared to other groups in society at large.

There are two main challenges in studying medical professionals' turnout or civic engagement in general. First, in nationally representative surveys, which do not over-sample specific educational or vocational groups, the number of medical trained individuals is often too small to provide sufficiently accurate estimates to separate the effect of the profession from sampling error. Second, it is well known that respondents in self-reported surveys over-estimate their civic engagement which can lead to biased inferences due to social desirability bias.[4] This problem can be particular serious for groups who are subject to professional social norms to participate.

The dataset used in this study overcomes both challenges. During the 2009 Danish municipal and regional elections, the public records were coded for 2,336,760 of the 4,283,392 number of total

eligible voters. That is, we do not use self-reported turnout, but whether each eligible citizen actually voted or not in the elections. Municipal and regional elections are particularly interesting in the perspective of medical professionals' participation, since most doctors in Denmark are employed by the regions. Thus, if doctors even here are not over-represented at the polls, it is a strong sign of civic disengagement. The voting records were merged with information on detailed socio-demographics from the Danish bureau of statistics, including information about the exact educational degree of each individual. Thereby we also have more reliable independent variables than in survey based studies.

We define the groups of interest by their educational degrees. The total sample size was more than 2.3 million eligible citizens of which 14,159 were doctors (5-6 year medical degree), and 38,077 were nurses (3-4 year nursing degree). The turnout of eligible citizens with a medical degree at the 2009 elections was 74.8% compared to 64.5% for the population in general and 78.3% for non-doctors with a 2 year master's degree (e.g. economists, engineer or architect). Thus, while doctors indeed vote more than the population at large, it would seem that they vote substantially less than one would expect from their educational level. Surprisingly, nurses actually have a slightly higher participation than doctors – about 76.1% compared to 79.2% for other individuals with a 3-4 year higher education (e.g. elementary school teachers, social educator or librarian).

Individuals with a medical (or nursing) degree, of course, differ from the general of the population on other characteristics than their education. Table 1, model 1 depicts the partial effect of having a medical degree, when controlling for a range of variables that have been shown to be associated with turnout in the literature.[5]

When controlling the effect on turnout for third variables, the estimated odds ratios are 0.63 (95% CI 0.60-0.66) for doctors and 0.75 (95% CI 0.73-0.77) for nurses. Doctors are a massive 10 percentage points less likely to vote than one would expect from their other characteristics while nurses are 6 percentage points below the expectations from their socio-demography. The adjusted effects for doctors are significantly larger than the bivariate ones, since doctors on average are older, more residentially stable, have a higher income and slightly more likely to be married than the average highly educated citizen.

Table 1: Predicting the likelihood of voting.

	Model 1		**Model 2**	
Completed the education to medical doctor	0,63*** (0,015)	-1/-10		-
Completed nursing education	0,75*** (0,010)	-1/-6		-
Medical student at BSc level	-	-	0,85*** (0,039)	-1/-4
Medical student at MSc level	-	-	1,08 (0,049)	0/2
Nursing student	-	-	0,79*** (0,024)	-1/-6
Residential stability (in 1,000 days on address)	1,03*** (0,00056)	3/-	1,09*** (0,0027)	5/-
Municipal stability (in 1,000 days in municipality)	1,01*** (0,00044)	2/-	1,02*** (0,0016)	2/-
Sex (male)	0,93*** (0,0032)	-1/-1	0,95*** (0,0081)	-1/-1
Age in 1000 days	1,16*** (0,0016)	-	0,99 (0,0069)	-
Age in 1000 days^2	1,00*** (0,000057)	-	1,00*** (0,00054)	-
1 child	1,02*** (0,0066)	0/0	1,12*** (0,016)	1/3
2 children	1,09*** (0,0073)	1/2	1,23*** (0,019)	2/5

3 children	1,15*** (0,012)	1/3	1,24*** (0,027)	1/5
4 or more children	1,14*** (0,024)	0/3	1,29*** (0,049)	1/6
In work	1,35*** (0,0077)	3/6	1,02* (0,011)	0/1
High school (normal)	2,21*** (0,019)	3/13	1,83*** (0,034)	7/14
High school (other)	1,83*** (0,024)	2/11	1,46*** (0,030)	3/9
Technical education	1,41*** (0,0062)	3/7	1,44*** (0,032)	2/9
Higher education (below 3 years)	2,06*** (0,017)	3/13	1,52*** (0,056)	1/10
Higher education (3-4 years)	2,82*** (0,019)	7/17	2,04*** (0,073)	3/16
BA/BSc	2,74*** (0,052)	2/16	2,13*** (0,070)	6/17
Higher Education (4 years and above)	3,41*** (0,035)	7/19	1,83*** (0,11)	2/14
PhD	3,00*** (0,083)	2/17	1,45 (0,33)	0/9
Income in 100,000 DKK	1,00*** (0,00072)	1/-	0,98** (0,0070)	-1/-
Married	1,73*** (0,0079)	6/11	1,35*** (0,027)	2/7
Non-Danish, Western ethnicity	0,56*** (0,0088)	-2/-13	0,52*** (0,025)	-2/-17
Non-Danish, non-Western ethnicity	0,39*** (0,0043)	-4/-21	0,35*** (0,0076)	-7/-25
Non-Danish, Western citizen	0,55*** (0,010)	-2/-12	0,63*** (0,033)	-1/-11
Non-Danish, non-Western citizen	0,76*** (0,012)	-1/-6	0,98 (0,034)	-0/-1
43 municipal dummies includes		-	YES	-
7 dummies for level of ongoing education included	NO	-	YES	-
Constant	-1.66***	-		-

	(0.012)	
N	1959825	255864
McFadden's R2	0.11	0.069
Log Likelihood	-1105449.4	-161979.2
Chi2	128518.9	18861.9

Note: The coefficients are odds ratios. Standard errors in parentheses are clustered by household. The effect sizes in column 2 and 4 depicts the percentage change from changing the variable in question a half standard deviation below to a half standard deviation above the mean with other variables held at their mean (age^2 held at the mean of age squared). "0-1" is the effect of a 1 on a dummy variable compared to the reference category. The sample in model (1) is all non-students in the 44 municipalities. The sample in model (2) is all students in the 44 municipalities. Statistical significance: *p<0.05,**p< 0.01,***p< 0.001.

The direction of the results is in line with a previous study based on U.S. survey data. The results in the present study is not subject to social desirability bias, and is furthermore conducted for municipal and regional elections where doctors should have a greater incentive to participate than most other groups. Thus, the assertion that doctors vote less than a corresponding peer group seems robust and general. This is surprising, given that medical professional norms encourages active participation in community affairs.

Why do we see such a result? Two types of explanations are possible. First, lower participation may be due to selection. Individuals entering into medical training may simply be less interested in politics than students in general. Second, participation may be similar to other individuals at the outset but be suppressed over time due to socialization or the working conditions in the health sector. The nature of the job as a medical professional may focus dedication on patient care rather than the more general questions of politics.

One way to get some suggestive insight into the relative importance of selection and socialization/working is to examine individuals who have only recently entered into the medical community. We thus examined the turnout of medical and nursing students compared to other students. Medical students in the first three years of their education (N=2,878 individuals) have a turnout of 59.9% (check) compared to 62.7% for BA/BSc students in general. The corresponding

numbers are 59.9% (check) and 68.2% for medical students at the master level (N=2,803 individuals) and their peer group, respectively. Of the 5,902 nursing students, 57.3% turned out – 3 about three percentage point short of the 60.4% for their group of comparison. The partial effects can be found in Table 1 model 2. The specification is the same as in model 1 – only is the level of education the individuals are engaged in currently also included.

Both groups of medical students are better represented relative to what one would expect from their other characteristics than the fully trained doctors. The turnout of the BSc medical students is indistinguishable from their peer group (odds ratio 1.08, 95% CI 0.99-1.18) while the medical students at the master level are underrepresented by 4 percentage points (odds ratio 0.85, 95% CI 0.78-0.93). The finding that the turnout differential between members of the medical community and the population in general increase over time could indicate that socialization rather than selection is the main driver behind the eventual 10 percentage point differential (a further case against the selection hypothesis is that we able to link the turnout behaviour of most of the students' parents to their offspring, and medical students' parents did not vote less than the parents of similar students with otherwise similar characteristics).

For nurses the eventual 6 percentage point differential (odds ratio 0.79, 95% CI 0.75-0.84) is already in place during their training at the nursing schools. Though we cannot preclude that nurses, before entering nursing school, would have a relatively higher turnout, the early differential indicates that nurses' lower political interest at the outset is part of the explanation for the eventual differential. Thus, to the extent that socialization and working conditions are the main reason for doctors' lower participation, it likely to be due to conditions of particular relevance to doctors.

In conclusion, while medical trained individuals indeed vote more than the average population, they vote substantially less than one would expect from their socio-demographic characteristics. The same is also true – albeit for a lesser extent – for nurses. We also found some indications that socialization and not selection is the course of doctors' relatively low turnout. However, since this evidence is only suggestive (the observed pattern could, for instance, we caused by the new generation of doctors being more similar to the rest of the pattern than the more establishes ones), future studies should inquire further into the causal mechanism.

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[3] Grande D, Asch DA and Armstrong K (2007). Do Doctors Vote. Journal of General Internal Medicine. 22: 585-589
[4] Karp J and Brockington D (2005). Social desirability and response validity: A comparative analysis of overreporting voter turnout in five countries. Journal of Politics 67(2): 825-840.
[5] E.g. Wolfinger RE and Rosenstone SJ (1980). Who Votes?. New Haven. Yale University.