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**DIVISION
OF HEALTH
PROMOTION**

**JACKSON
COUNTY**
HEALTH
DEPARTMENT

JACKSON COUNTY
HEALTH DEPARTMENT

REPORT

CIVIC ENGAGEMENT & HEALTH:
EXPLORING THE CONNECTION

BACKGROUND

Social determinants are well-known to influence health at the individual level. Income, occupation, education level, and other structural and community factors can impact health – even more than genetic makeup. One factor that is less studied – until more recently – is civic participation's impact on health. Over recent years, researchers have sought to understand how health may impact the electoral process and vice versa. The results show that health and voting are interconnected in important ways.

Research shows that those who report better health are significantly more likely to vote in elections than those who report poorer health or have lower incomes (Buren et al., 2016; Lyon, 2021; Ojeda & Pacheco, 2017). This relationship shows across the U.S. and around the world (Burden et al., 2016; Kim et al., 2015; Lyon, 2021; Mattila et al., 2013). While education, income, and age often have the most impact on voter turnout, health is still an important predictor even when controlling for these demographic factors (Lyon, 2021; Pacheco & Fletcher, 2015). Additionally, health can have a bigger impact on voting among certain populations. Poor health has disproportionately affected lower-income and older voters compared to wealthier and younger voters (Lyon, 2021; Mattila et al., 2013). This is due to wealthier and younger voters' ability to overcome poor health conditions in order to vote (Lyon, 2021). As a result, healthy, younger, and wealthier citizens are more likely to be represented in democracy than less healthy, older, and lower-income citizens. When voting becomes equitable across demographics, our democracy will more likely represent the entire community.

Additionally, the same individuals less likely to vote are also more likely to support social and economic policies that improve health. For example, those with less education, those who are non-white, and those who report being in fair or poor health were more likely to endorse providing health insurance to people as an effective way to improve health than those who had more education, were white, and who reported good or excellent health (Robert & Booske, 2011). These groups were also more likely to endorse reducing pollution, reducing poverty, and improving housing quality as effective ways of improving health. Another study found similar results when looking at voters with disabilities. Those with reported disability status were more likely to state that it is the government's responsibility to provide healthcare for the sick, provide housing for those who cannot afford it, provide jobs for those wanting one, and support increased spending on healthcare. Similar to those who report fair or poor health, those who report disability status were less likely to vote than their nondisabled counterparts (Schur & Adya, 2013).

Finally, a recent analysis by Healthy Democracy, Healthy People compared 12 public health indicators and voter turnout to the voting policies in each U.S. state. They found that states with more inclusive voting policies and, therefore, greater levels of voter turnout report better health outcomes. Overall, "states that make elections more accessible through policies like automatic and same-day registration, non-strict voter ID requirements, fel-

ECONOMIC STABILITY

EDUCATION

HEALTH AND HEALTH CARE

NEIGHBORHOOD AND BUILT ENVIRONMENT

SOCIAL AND COMMUNITY CONTEXT

on re-enfranchisement, and mail voting options enjoy higher levels of voter participation and stronger public health outcomes" (Healthy Democracy, Healthy People, 2021). Among the 50 states, Missouri ranked 48th on the Cost of Voting Index in 2020. The Cost of Voting refers to the time and effort associated with casting a vote. Only Georgia and Texas ranked lower. Missouri sits at the bottom of the ranking due to its lack of inclusive registration policies, no-excuse absentee voting, and voting rights restoration for all post-incarceration populations (Schraufnagel, 2020). Missouri does restore voting rights to those convicted of a felony upon completion of their sentence and probation or parole but does not restore rights to anyone convicted of an elections-related felony or misdemeanor. At the time of the 2020 rankings, Missouri did not have a restrictive voter ID law, however the Missouri General Assembly passed such a bill in May 2022. A restrictive voter ID law is one which requires a specific type of photo ID in order to vote. Usually, a government-issued photo ID is required, and those who do not have one are required to vote on a provisional ballot and then return with an accepted ID. If the voter cannot provide an accepted ID within a time frame, their vote is not counted.

Altogether, the links between civic participation and health **become self-reinforcing**. People who experience poor health are less likely to vote due to physical, time, and energy barriers. Their communities suffer from worse health outcomes as a result of being underrepresented. Since these communities are underrepresented, elected officials may have no incentive to make voting easier, enabling the cycle to continue. Higher levels of voter turnout among all populations, especially those historically less likely to vote, can disrupt this cycle.

POOR HEALTH OUTCOMES

LOW VOTER TURNOUT

POLICYMAKING THAT DOESN'T PRIORITIZE COMMUNITY HEALTH
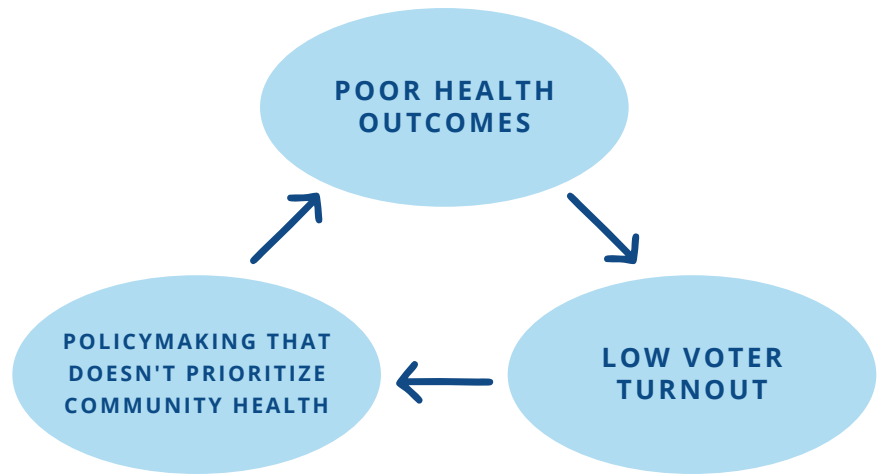
METHODS

We examined nine public health and demographic indicators and their relationship to voter turnout in the November 2020 election. The unit of analysis was Missouri's 115 counties. We selected indicators based on the background literature, which suggests a relationship between these indicators and voting.

DEPENDENT VARIABLE

Voter Turnout: County-level voting data was accessed on the Missouri Secretary of State's website for the November 2020 General Election. The total number of ballots cast was recorded for each county. Citizen voting age population estimates for each county were accessed through the Census Bureau. Together, these were used to calculate the voter turnout (out of total voting age population) for each county in Missouri in the 2020 General Election.

PUBLIC HEALTH & DEMOGRAPIC INDICATORS

Health Status: the percent of adults in each county reporting fair or poor health status. Accessed from Missouri's Department of Health and Senior Services' County Level Study, the most recent year available was 2016 data.

Poverty: the estimated percent of all people in a county living in poverty. Accessed from the Census Bureau's American Community Survey, 5-year estimates, from 2015-2019.

Frequent Mental Distress: the percent of all adults in each county reporting 14 or more poor mental health days in the last 30 days. Accessed from the CDC Behavioral Risk Factor Surveillance System, the most recent year available was 2018.

Uninsured: the estimated percent of all adults without health insurance in each county. Accessed from the Census Bureau's American Community Survey, 5-year estimates, from 2015-2019.

Non-white Population: the estimated percent of each county's total population that is people of color. Accessed from the Census Bureau's American Community Survey, 5-year estimates, from 2015-2019.

Education: the estimated percent of each county's total adult population with at least a high school diploma. Accessed from the Census Bureau's American Community Survey, 5-year estimates, from 2015-2019.

Premature Mortality: the number of deaths among residents of each county under age 75 per 100,000 population. Age-adjusted. Accessed from the University of Wisconsin, Population Health Institute, County Health Rankings, for the year 2020.

Disability Status: the estimated percent of people in each county who report having one or more disabilities. Accessed from the Census Bureau's American Community Survey, 5-year estimates, from 2015-2019.

Age 65 and Older: the estimated percent of people in each county who are aged 65 in older. Accessed from the Census Bureau's American Community Survey, 5-year estimates, from 2015-2019.

AVERAGE VOTER TURNOUT WHEN:		
	County Pop. is Above Avg.	*County Pop. is Below Avg.*
Poverty Level		
Mean	**60.15%**	**65.37%**
Count	57	58
p-value	<0.001	
Frequent Mental Distress		
Mean	**59.99%**	**65.26%**
Count	54	61
p-value	<0.001	
Fair or Poor Health Status		
Mean	**60.77%**	**64.98%**
Count	60	55
p-value	<0.001	
Non-white Population		
Mean	**59.59%**	**64.36%**
Count	38	77
p-value	<0.001	
Uninsured		
Mean	**60.78%**	**64.22%**
Count	48	67
p-value	<0.01	
High School Ed. or Higher		
Mean	**64.92%**	**59.79%**
Count	67	48
p-value	<0.001	
Premature Mortality Rate		
Mean	**59.47%**	**65.33%**
Count	50	65
p-value	<0.001	
With Disability Status		
Mean	**60.76%**	**64.13%**
Count	46	69
p-value	<0.01	
Aged 65+		
Mean	**64.08%**	**61.63%**
Count	54	61
p-value	<0.1	

Table 1. Results of t-tests when counties are split into two groups based on public health indicators and tested to see if differences between the average voter turnout of each group was significant.

The main public health indicator examined was the percent of each county's population reporting "fair" or "poor" self-reported health status from the 2016 County Level Study, administered by the Missouri Department of Health and Senior Services. Studies have shown self-reported health status is a valid measure of overall health (Pacheco & Fletcher, 2015).

Once all data was collected and cleaned, basic summary statistics were performed on each variable. Correlations between voter turnout and the public health indicators were performed, as well as correlations between each possible pair of public health indicators (see Tables 2 and 3).

Next, two sample t-tests were performed on each public health indicator to determine its impact on voter turnout. Counties were split into two groups – those that were above the average for each indicator, and those that were below. Then the average voter turnout for each group was calculated, and t-tests were conducted to determine if there was a significant difference between groups. For example, counties that had a below-average population living below the poverty level were in Group 1, and

counties that had a percent of the population living below the poverty level that was equal to or above the average were in Group 2. The counties with less than average populations in poverty had, on average, a 5.22% greater voter turnout rate than counties that had a percentage of people living below the poverty level that was above average. The difference was significant (p-value < 0.001). See full results in Table 1.

Finally, a multiple linear regression analysis with the all public health indicators included was performed in order to determine whether the public health indicators significantly predict voter turnout at the county level. In addition, it was used to determine if the main indicator being tested, self-reported health status, was still a significant predictor of voter turnout when including other demographic variables in the model (see Table 4). Assumptions for multiple linear regression (including linearity, independence, normality, and homoscedasticity) were checked. A backwards stepwise linear regression analysis was then run to narrow down and identify possible predictors of voter turnout at the county level out of all possible public health indicators (see Table 5).

RESULTS

Counties with above-average percent of their population living in poverty had lower voter turnout than counties where the percent of their population living in poverty was below average. Similarly, counties where frequent mental distress was experienced by more of their population, on average, had lower voter turnout. Counties with more of their population reporting fair or poor health status also had lower voter turnout on average. Additionally, counties with higher rates of premature mortality had lower voter turnout, on average, than counties with lower rates of premature mortality. Finally, counties where more of the population had completed high school had higher voter turnout, on average, than counties with less of their population completing high school (See Figure 1). These differences were significant (p < 0.001). The percent of the population with disability status and who were uninsured were also significant at the < 0.01 level. The percentage of the population aged 65 and older was not significant at p < 0.05 (See Table 1).

When including all public health indicators in a multiple linear regression model, results show that the percent experiencing frequent mental distress, reporting fair or poor health status, nonwhite population, and population aged 65 and older were significant factors for predicting voter turnout at the county level. Frequent mental distress, fair or poor health status, and nonwhite populations all had an inverse relationship with county-level turnout, meaning that county-level voter turnout decreased as these indicators increased. The counties' population aged 65 and older had a direct relationship with voter turnout, meaning as population aged 65 and older increases, so did voter turnout.

The percent of a population reporting a disability, the percent of a county living in poverty, the premature mortality rate, the percent of a county completing high school, and the percent of a county that is uninsured did not have a significant influence on the county's voter turnout (see Table 4).

Finally, out of all possible public health indicators which might be predictors of voter turnout, a backward stepwise linear regression model identified six key indicators: the percent experiencing frequent mental distress, the percent reporting fair or poor health status, nonwhite population, population over age 65, the percent completing high school, and the percent of a county that is uninsured. All but education and population aged 65 and older showed an inverse relationship.

Education and age showed a direct relationship (see Table 5). These results are consistent with background research, which has shown connections between education, age, and race with voting behavior. Newer research has also shown relationships between mental health, physical health, and voting (Lyon, 2021; Pacheco & Fletcher, 2015). Insurance status is one indicator that hasn't been researched and should be included in future research.

In both models, results indicate that even when controlling for other demographic factors, self-reported health status was still a significant (p-value < 0.001) predictor of a county's voter turnout in the 2020 general election. These findings align with previous research that demonstrates health and civic participation are interrelated.
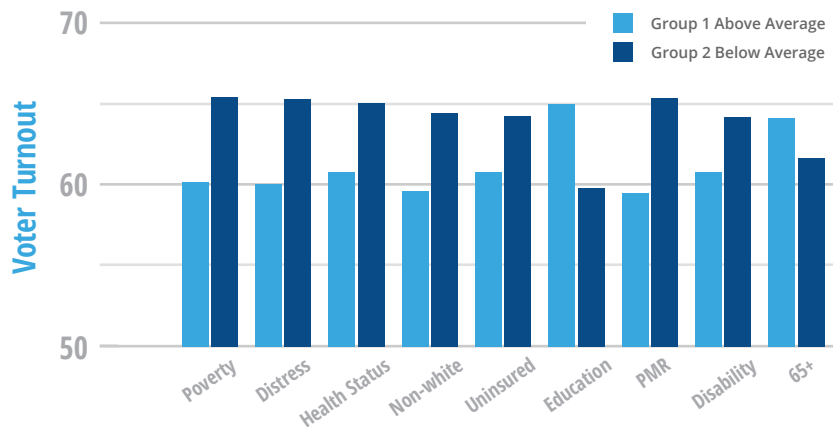
Figure 1. *Bar graph showing difference in voter turnout between counties grouped by public health indicators.*

VOTER TURNOUT (VAP)	
Voter Turnout (VAP)	1
Fair or Poor Health (2016)	-0.441123229
Uninsured	-0.328383779
Population with Disability Status	-0.328536994
Premature Age-Adjusted Mortality per 100k	-0.5361008
Poverty	-0.549589098
Frequent Mental Distress	-0.44594344
Non-white Population	-0.348446391
Population aged 65+	0.256865664
Population with at least a High School Degree	0.511832904

Table 2. *Correlations between public health indicators and voter turnout.*

DISCUSSION

The results from these analyses confirm the relationship between people's health and voter turnout in Missouri. Missouri counties with healthier populations experienced higher voter turnout, even when accounting for race, education, age, and other factors. Given that research shows that healthier people are more likely to vote, and communities with greater levels of civic participation are healthier, these findings imply that Missouri counties should consider civic participation, and specifically voting, as an important indicator of community health.

States with more inclusive voting policies experience higher turnout and better public health outcomes (Healthy Democracy, Healthy People, 2021). Inclusive registration systems are one way that states can increase voter turnout. Inclusive registration systems include policies like automatic voter registration, same-day registration, online voter registration, and restoring the right to vote for those who have felony convictions. The number one reason people cite for not voting is not being registered (Newall & Machi, 2020). Studies have shown that increasing registration closes the gap between groups such as high and low-income voters, white voters, and voters of color, as well as young voters and old voters. For example, in the 2012 general election, "the gap in turnout rates between all eligible 18-24 year-olds and all eligible people over 65 was 31 percentage points. But among people who were registered to vote, the voting gap between the youngest and oldest voters was only 14 points" (Kennedy et al., 2015). Registration deadlines that are far in advance of election days limit civic participation. One study found that an additional three to four million Americans would have registered in time to vote in the 2012 election if the deadline had been extended to Election Day (Street et al., 2015). Policies that make it easy to register (such as automatic voter registration or, at the very least, allowing registration through the day of the election) would increase voter turnout. In Missouri, the current deadline to register is the fourth Wednesday before an election.

Additionally, states can increase voter turnout by allowing vote-by-mail and early (absentee) voting without an excuse. Missouri currently allows six weeks of absentee voting with an excuse. A bill passed by the Missouri General Assembly in 2022 (HB 1878) would allow absentee in-person voting with no excuse during the last two weeks before an election. Vote-by-mail, on the other hand, is extremely limited in Missouri, and only those who are incapacitated or confined due to illness or physical disability or who are overseas on Election Day are allowed to vote by mail. Those who would like to vote absentee by mail must have an excuse (such as being out of town on Election Day) and must get their ballot notarized. In the 2020 general election, mail-in ballots were used due to the COVID-19 pandemic, which allowed anyone to vote by mail without an excuse. The provisions that allowed these mail-in ballots have now expired, and the election bill passed in 2022 explicitly states that they "shall not be authorized for use" in subsequent elections (HB 1878). In contrast, states that adopted policies to mail every registered voter a ballot in 2020 saw a turnout increase of 4.6% (McGhee et al., 2021). In Missouri, when vote-by-mail and absentee voting were more accessible in the 2020 election, turnout statewide was 70.07%, compared to only 66.56% in the 2016 general election.

	Poverty	Distress	Health	Non-White	High School	Uninsured	Premature	Disability	Age
Poverty		0.28	0.55	0.11	-0.65	0.50	0.62	0.62	0.19
Distress			-0.12	0.31	-0.02	-0.02	0.10	-0.06	-0.53
Health Status				-0.18	-0.67	0.37	0.68	0.67	0.37
Non-White					0.06	-0.14	0.16	-0.17	-0.50
High School						-0.61	-0.70	-0.69	-0.25
Uninsured							0.35	0.40	0.27
Premature Mortality								0.69	0.15
Disability Status									0.49
Aged 65+									

Table 3. *Correlations between each pair of public health indicators.*

DISCUSSION

Photo ID requirements, on the other hand, can reduce voter turnout by adding an additional step voters must take to be able to vote. While most registered voters have a government-issued ID, 11% of all U.S. citizens do not. While only 8% of white citizens of voting age lack an ID, 25% of Black citizens of voting age lack an ID (ACLU). Obtaining an ID costs money and time, and adds yet another step voters must take to cast a ballot. While the research is mixed on whether photo ID laws have a significant effect on voter turnout, a 2014 study by the U.S. Government Accountability Office (GAO) found that voter ID laws in Kansas and Tennessee may have decreased turnout by a few percentage points, and had larger effects among younger, Black, and new potential voters. Other research has found that subsets of the population who are already prone to low turnout are also less likely to have a compliant photo ID (Fraga & Miller, 2022). Missouri just passed a photo ID bill in May 2022, but it could be challenged in the courts as similar laws have been in the past.

Photo ID requirements are often implemented in response to alleged voter fraud. In the United States, voter fraud of any kind is extremely rare. One study has found that the incident rate for voter fraud in elections is somewhere between 0.0003% and 0.0025%. Often, when alleged fraud is reported it can be traced to administrative or voter error (Levitt, 2007). Another study found only 31 credible instances of voter fraud out of more than 1 billion ballots cast from 2000 to 2014 that might have been specifically prevented by a photo ID shown at the polls (Levitt, 2014). Following prominent but baseless (Eggers et al., 2021) allegations of widespread voter fraud during the 2020 presidential election, 24 states have passed 56 new

laws that restrict voting, including at least 6 states which have tightened voter ID requirements (Mejia & Samuels, 2022). Even if these concerns over voter fraud were legitimate, these laws have been shown to have no significant effect on potential voter fraud (Cantoni & Pons, 2019).

In addition to state-level policies, local organizations can help voters register. Legally, any Missouri resident can help register voters using the Missouri Registration Postcard Application. Organizations can request these from the Missouri Secretary of State's website. Another provision of the voter ID bill passed in May 2022 requires anyone who solicits more than ten voter registration applications per election cycle to register as a voter registration solicitor with the Missouri Secretary of State's office (HB 1878). To become more involved with voter registration, county health departments could consider becoming Permanent Registration Sites. This would mean having a certified Deputy Registrar on-site during public hours of operation. Health departments should reach out to their local election boards to apply. Many health departments in Missouri, including the Kansas City Health Department, already serve as Permanent Registration Sites.

Finally, county health departments and local boards of health should include civic participation as a metric of their county's overall health. Increasing voter turnout could be included as a health goal for each county in the same way that lowering smoking rates, decreasing low birthweight births, premature mortality, etc., are actively used as metrics for a county's health. Not only do healthier communities turn out to vote at higher rates, but more civically engaged communities enjoy better public health outcomes

(Healthy People, Healthy Democracy, 2021). The more people who are able to vote, the more representative a democracy truly is. Without inclusive voting policies, those who face barriers to voting, such as chronic health conditions, will continue to be left out at the decision-making table.

FULL MODEL			
	Estimate	*p-value*	Signif.
intercept	0.9712	0.0001	***
poverty	-0.1437	0.2986	
distress	-3.0070	0.0027	**
health status	-0.4282	0.0005	***
nonwhite	-0.1772	0.0068	**
high school	0.0024	0.1630	
uninsured	-0.2204	0.1016	
mortality	0.0000	0.5966	
disability	0.0068	0.9677	
65+	0.0043	0.0119	*
Adjusted R-squared	0.586		
F-statistic:	18.93		
p-value	0.00000		
significance codes: *** <0.001, ** <0.01, * < 0.05			

Table 4. *Results of linear regression model using all public health indicators.*

REDUCED MODEL			
	Estimate	*p-value*	Signif.
intercept	0.9712	0.0000	***
distress	-3.5638	0.0001	***
health status	-0.4914	0.0000	***
nonwhite	-0.2085	0.0004	***
high school	0.0033	0.0304	*
uninsured	-0.2459	0.0569	+
65+	0.0037	0.0131	*
Adjusted R-squared	0.5913		
F-statistic:	28.49		
p-value	0.00000		
significance codes: *** <0.001, * < 0.05, + < 0.1			

Table 5. *Results of reduced linear regression model using backwards stepwise selection.*

LIMITATIONS

This analysis was performed at the county level, so the relationship between health and voting on an individual level cannot be inferred (though they have been thoroughly studied elsewhere). Additionally, the analysis performed here indicates a linear relationship but not necessarily a causal relationship. The public health and demographic indicators were picked based on existing research but are not meant to be an exhaustive list of all the factors that could impact voting at the county level. Further, the data were accessed from whichever year they were last updated, so while 2020 general election voting data was used, the public health indicators were often from a few years prior.

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