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Social norms, conspiracy theories and vaccine scepticism: a snapshot from the first year of the COVID-19 pandemic in Poland

In January 2022, Poland experienced the highest rate of SARS-CoV-2 transmission since the beginning of the COVID-19 pandemic. Considering the widespread consensus among experts about the efficacy of vaccines in preventing hospitalization and death resulting from the virus, low vaccination rates and widespread anti-vaccine sentiments in Poland are of great concern. We use data from the DIAGNOZA+ Survey to demonstrate the relationship between various demographic characteristics, opinions around certain gender norms, the propensity for conspiratorial thinking, concern about the pandemic, and vaccine scepticism. While controlling for exogenous demographic characteristics, we measure the strength of the relationship between various beliefs that people hold and how they feel about the COVID-19 vaccine. Our analysis indicates that while respondents who hold more traditional views on gender roles are 6 percentage points less likely to get vaccinated, those who agree with a variety of conspiratorial statements are 43 percentage points less likely to vaccinate against COVID-19.

Introduction

As of January 2022, Europe finds itself well into the 4th wave of the COVID-19 pandemic, with some countries, including Poland, experiencing the highest rates of transmission since the virus was first detected. There are a few tools available to policymakers and healthcare professionals for combating the spread of the virus, ranging from preventative measures to strict social lockdowns aimed at reducing interpersonal interaction. A comprehensive literature review of 72 academic studies conducted by the BMJ found that the implementation of preventative measures such as hand washing, mask wearing, and social distancing decreased the risk of transmission by 53% (Talic et al., 2021). But even though such measures reduce transmission, the shortcomings in adherence and enforcement make high vaccination rates much more effective in diminishing the risk of hospitalization and death (Moline et al., 2021). With a consensus among experts reaffirming the effectiveness of vaccines in minimising the more severe cases of COVID-19 illness, the widespread availability of the vaccine has become the most effective and cost-efficient tool in limiting morbidity while avoiding future instances of economically unsustainable lockdowns. The drawbacks of the alternative scenario have already been made evident in 2020, before the development and distribution of COVID-19 vaccines. Over the course of the year, hospital capacities were overwhelmed in many countries around the world, leading to significant spikes in excess deaths. Poland saw an increase of over 18% in all-cause mortality in 2020 (OECD, 2021), the fourth-highest in the OECD and second-highest in the European Union (Eurostat, 2021).

Considering the central role that prevalent vaccination plays in combating the impact of COVID-19, it is important to understand the underlying factors and demographic characteristics of individuals who are driving the low vaccination rates in countries such as Poland. With this in mind, we use an online survey: DIAGNOZA+ (DIAGNOZA Plus, 2020-2021), conducted on a representative sample of adults in Poland throughout the pandemic, allowing for the identification of characteristics that are most strongly correlated with vaccine scepticism. This kind of analysis can provide useful indicators for the targeting of certain policies and information campaigns that encourage vaccinations, and thereby suppress future outbreaks of SARS-CoV-2, as well as any other future pandemics. Below, we first outline the key features of the DIAGNOZA+ data, describe the methodology adopted in this study, and present results on the relationship between key demographic characteristics, social norms, views of respondents, and attitudes towards COVID-19 vaccination. We show a strong correlation between traditional family values, conspiratorial views, and reservations relating to the vaccination programme. Having traditional family values (expressed by about 40% of the sample) is associated with an over 10 percentage point (p.p.) lower probability to declare a willingness to get vaccinated. This drops to about 6 p.p. when we extend the model to account for conspiratorial thinking, which strongly dominates the relationship. Individuals who express strong conspiratorial and anti-establishment views (about a quarter of the sample), conditional on other demographic characteristics, were more than 40 p.p. less likely to declare a willingness to get vaccinated.

Methodology

The following analysis is based on data from DIAGNOZA+, an online survey collected in seven waves over the course of the COVID-19 pandemic (DIAGNOZA Plus, 2020-2021). The panel survey was conducted with the purpose of assessing changes in the labour market situation of adults in Poland between April 2020 and July 2021. The survey consistently included standard questions on individual and household characteristics such as age, gender and education, as well as questions on as well as questions about the respondent's labor market status, hours worked, and financial situation. Waves 3 and 4 included additional modules where respondents were asked to express their opinions on a variety of statements surrounding gender norms such as *"In general, fathers are as well suited to look after their children as mothers"*, *"A pre-school child is likely to suffer if his or her mother works"* and *"When jobs are scarce, men should have more right to a job than women"*. The questions were answered on a scale of 1 (strongly agree) to 4 (strongly disagree). For the analysis, these categorical variables are dichotomised, with a value of 1 assigned to responses 1 and 2 (strongly agree or agree) and a value of 0 assigned to responses 3 and 4 (disagree or strongly disagree). Thus, for each question, we develop a binary variable that categorises respondents as either having a progressive or traditional reaction to each particular gender norms statement.

In consecutive waves, the same respondents were asked questions surrounding their willingness to vaccinate against the virus (in wave 5) and their trust in experts and the government response to the COVID-19 pandemic (in wave 6). For this analysis, we select questions that may influence an individual's likelihood to vaccinate, starting with their level of concern about the pandemic or their fear of the virus itself. Furthermore, we identify individuals with a high predisposition for conspiratorial beliefs based on information from wave 6. Each variable included in this module is converted into a binary measure of agreement or disagreement, as outlined above for the social norms questions. We consider seven statements from the survey related to conspiratorial views, including *"Secret organisations influence political decisions"* or *"I trust my intuition more than the so-called experts"* (see the full list of statements in Figure 2). For each of them, the variable is converted into a binary measure of agreement or disagreement, similarly to the social norms questions above. Those who agreed or strongly agreed with all seven statements are classified as having conspiratorial views.

Due to sample attrition and after dropping respondents who did not answer one (or more) of the questions needed for our analysis, the sample reduces to 726 individuals (see table A1 in the Annex). Although each wave of the DIAGNOZA+ survey is carefully weighted to ensure population representativeness of the survey, these cross-sectional weights are only relevant to each independent wave of the survey. Therefore, for our sample, we develop frequency weights by sex and age using population data from Statistics Poland (Statistics Poland, 2021), which are utilised throughout the analysis. Given the low number of participants in the oldest age groups (those above 60 years old), we limit the sample to individuals aged between 21 and 60. Unfortunately, calibrating the weights according to additional characteristics such as education and municipal population is not feasible with a sample of this size. Clearly, the requirement of

consistent consecutive participation in at least three waves of the survey has implications for its representativeness. For example, after the sample of respondents that participated in wave 6 is cut to include only those who also participated in waves 3, 4 and 5, we observe a bias in favour of conspiratorial views among the remaining observations, indicating that individuals who hold these views were more likely to continue their participation in the survey. For example, while 18.1% of the total cross-sectional sample of individuals in wave 6 hold conspiratorial views, the proportion is 23.4% in the sample we analyse (falling slightly to 23.2% when weights are applied). From this perspective, while indicative of existing correlations, the results ought to be treated with some caution.

Limiting the sample to respondents who answered all sets of questions across several rounds of the survey allows us to study vaccine scepticism and respondents' susceptibility to conspiracy theories in relation to a number of personal characteristics. Furthermore, we consider the relationship between a respondent's attitudes towards certain social norms (asked in waves 3 and 4), their individual response to COVID-19 (asked in wave 5), and their trust in the government's response to the pandemic (asked in wave 6). We begin the analysis by assessing the relationship between respondents' demographic characteristics and their opinions on gender roles, their propensity to hold conspiratorial beliefs, and their concern about the pandemic. This is followed by two models measuring respondents' willingness to vaccinate. In the first of these models, demographic characteristics and traditional family values are used as explanatory variables, while in the second model conspiratorial views are included as well. Finally, we conclude with a summary of results and policy considerations.

Survey results

Traditional family values in Poland

The respondents of the DIAGNOZA+ survey vary, on average, in the 'traditionality' of their attitudes towards gender and family depending on the selected indicator. The shares of answers to the three questions about gender norms are presented in Figure 1. The results demonstrate that progressive views on gender norms in Poland were more common in relation to the workplace than the home and family. For example, the statement to which most respondents were opposed was "*When jobs are scarce, men have more right to a job than women*", with 37.2% of respondents disagreeing and 50.3% of respondents strongly disagreeing. On the other hand, slightly fewer respondents disagreed (50.5%) or strongly disagreed (34.8%) with "*In general, fathers are not as well suited to look after their children as mothers*". Finally, respondents were most 'traditional' in their views in reaction to the statement "*A pre-school child is likely to suffer if his or her mother works*", with 28% agreeing and 10% strongly agreeing. There is a natural correlation between these different views, and in our analysis, we examine the significance of different combinations of the three indicators. Given the relatively small sample, only the last indicator proved to be significantly related to our main outcome of interest and we use this one to represent the view on the 'progressive-traditional' spectrum

Figure 1. *Gender norms in the survey sample*
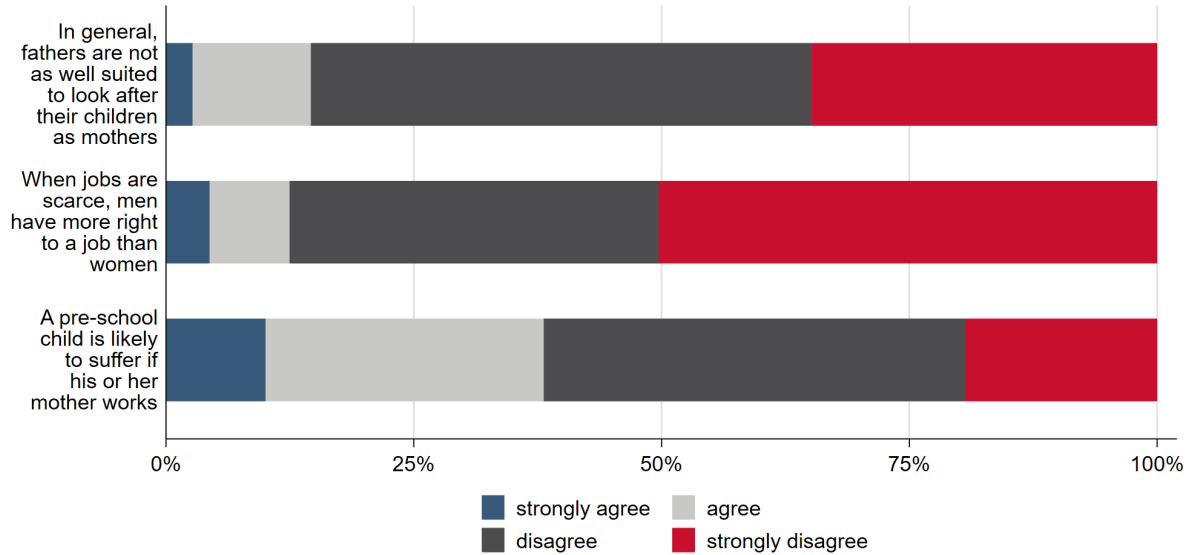
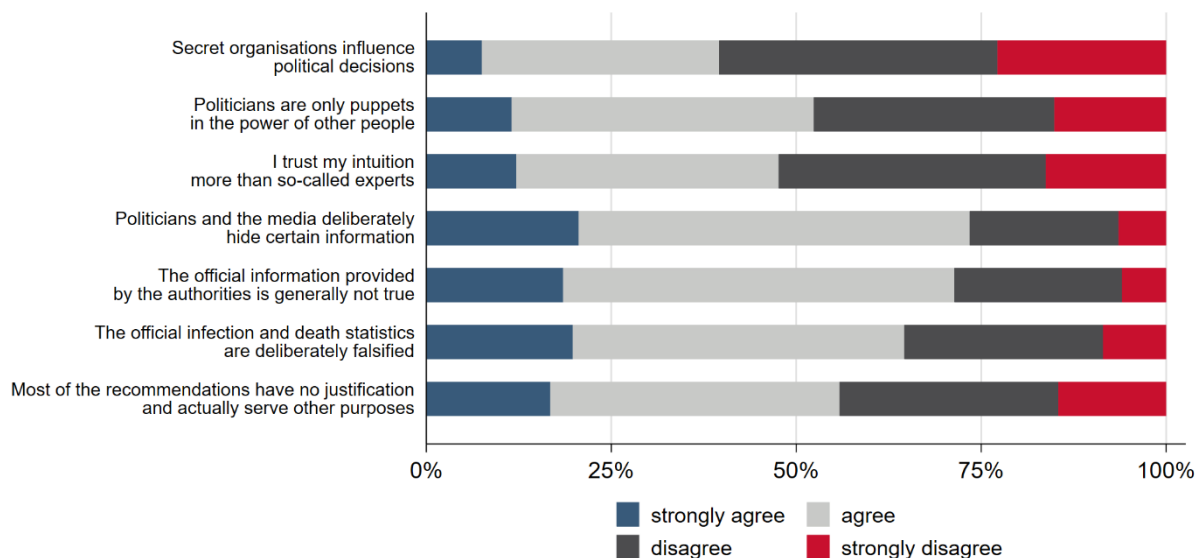

Source: DIAGNOZA+ survey, waves 3 and 4.
Note: Data weighted using weights generated from Statistics Poland's data on population by sex and age. Sample limited to individuals aged 21-60. The statement "In general, fathers are as well suited to look after their children as mothers" from the questionnaire was adjusted in the graph for better readability.

Conspiratorial views

In wave 6 of the DIAGNOZA+ survey respondents were asked seven different questions relating to trust in government, politicians, media, and the recommendations of experts. As shown in Figure 2, for five out of the seven statements, a majority of respondents agreed or strongly agreed that the government or media are dishonest, intentionally share misinformation, or have ulterior motives. Nearly three quarters of respondents agreed that "*politicians and the media deliberately hide certain information*". This result supports data published by the OECD in 2020 showing that, out of the 38 member countries, Poland had the second-lowest trust in government, with only 27.3% of the population expressing confidence (OECD, 2022). However, the DIAGNOZA+ survey goes further to find that nearly half of respondents in our sample reported that they trust their own intuitions more than the experts during the pandemic, while the least widespread belief out of the seven was that "*secret organisations influence political decisions*". Still, even this statement, which suggests deep-seeded nefarious behaviour behind the scenes of government, found 39.8% of respondents to be in agreement. Note that we aim to identify individuals who have a general propensity for conspiratorial thinking, rather than those who simply find some of the statements particularly compelling. To this end, we only categorise those respondents who agreed with all seven statements as having a high propensity for conspiratorial thinking, which was the case for 23.2% of our sample after reweighting.

Figure 2. *Conspiratorial beliefs and trust in authority*

Source: DIAGNOZA+ survey, wave 6.
Note: Data weighted using weights generated from Statistics Poland's data on population by sex and age. Sample limited to individuals aged 21-60.

Analysis

Table 1 presents regression results on the relationship between specific beliefs reported in the different waves of the survey and a number of individual characteristics. We show these results for three dependent variables: traditional family values, as defined by the opinion that a pre-school child is likely to suffer if his or her mother works; propensity for conspiratorial views, which identifies the respondents that agreed with all seven statements presented in Figure 2; and concern about the pandemic, a binary variable that identifies individuals who expressed great worry or fear about the pandemic. The results indicate that parents who live with their children are 10.1 p.p. more likely to hold traditional family values. After controlling for age, gender and education, living in a small town or village is associated with a 10.9 p.p higher probability of ascribing to more traditional gender norms, while individuals holding a tertiary degree are 18 p.p. less likely to agree that "*a pre-school child is likely to suffer if his or her mother works*" compared to those with primary education. Interestingly, neither age nor gender significantly correlates with family values, suggesting that the DIAGNOZA+ survey did not capture an intergenerational or gender-driven divide on these issues. This might relate to the online nature of the survey and the implied sample selection, in particular among older individuals.

Table 1. *Regression results on views and attitudes*

	Traditional family values		Conspiratorial views		Very concerned or frightened about the pandemic	
Age group (21-30)						
31-40	0.000	(0.051)	-0.035	(0.044)	0.100**	(0.047)
41-50	-0.040	(0.053)	0.026	(0.046)	0.126**	(0.049)
51-60	0.031	(0.055)	-0.014	(0.048)	0.214***	(0.051)
Female	-0.022	(0.036)	0.070**	(0.031)	0.020	(0.033)
Parent living with a child	0.101**	(0.039)	0.093***	(0.034)	0.037	(0.036)
Education (less than secondary)						
secondary	-0.054	(0.067)	-0.076	(0.058)	-0.057	(0.062)
tertiary	-0.180***	(0.067)	-0.145**	(0.058)	-0.038	(0.062)
Population (>500 000)						
100 000-500 000	0.050	(0.050)	0.100**	(0.043)	0.077*	(0.046)
10 000-100 000	0.057	(0.049)	0.119***	(0.042)	0.083*	(0.046)
<10 000 and villages	0.109*	(0.057)	0.117**	(0.049)	0.063	(0.052)
Constant	0.423***	(0.081)	0.191***	(0.069)	0.127*	(0.074)
Observations	726		726		726	
R-squared	0.048		0.063		0.040	

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Data weighted using weights generated from Statistics Poland's data on population by sex and age. Sample limited to individuals aged 21-60. Estimates using the linear probability model.

The results presented in Table 1 also demonstrate a relationship between some demographic characteristics and the likelihood to hold conspiratorial views (as defined by expressing agreement to the seven related statements in wave 6). A number of characteristics strongly correlate with conspiratorial thinking: being a parent living with their children aged 0-17, and living in small cities, towns and villages. Each of these characteristics is associated with a higher probability of believing in secret organisations and mistrusting experts. A number of characteristics strongly correlate with conspiratorial thinking: holding such views are 9.3 p.p. more likely among parents living with their underaged children and 10 p.p. more likely among individuals living in smaller towns or villages compared to those living in cities of over 500 thousand inhabitants. Higher education is strongly negatively correlated with the likelihood of holding conspiratorial views – those with tertiary education are 14.5 p.p. less likely to have these views compared to individuals with primary education.

One simple explanation for the increased vaccination rates among certain demographic groups in Poland could be that some segments of the population are more worried about the virus, and thus choose to take greater precautions. The analysis presented in Table 1 demonstrates that people were increasingly likely to be concerned about the pandemic in higher age groups. When asked *"To what extent are you concerned about the COVID-19 pandemic?"*, the probability of expressing serious concern increases progressively with age. This is an intuitive result considering the strong relationship between age and the severity of COVID-19 symptoms and the associated risk of mortality (CDC, 2021). Respondents aged between 31 and 40 were 10 p.p. more likely to report being very concerned or frightened than respondents between the age of 21 and 30, while in the age groups 41-50 (12.6 p.p.) and 51-60 (21.4 p.p.) the probability was even higher. There is also a weak but positive correlation (7.7 and 8.6 p.p.) between living in a city with

a population of 10,000 to 500,000 inhabitants and expressing fear about the pandemic, as compared to respondents who lived in cities with a population of more than 500,000 people. The relationships between the remaining demographic characteristics and the probability of being seriously concerned about the pandemic are not statistically significant. Below, we use this data to examine the link between people's beliefs and the likelihood of getting vaccinated.

Vaccine scepticism, demographic characteristics and conspiratorial views

In light of the widespread scientific consensus on the safety and effectiveness of COVID-19 vaccines, low vaccination rates in Poland are difficult to explain. In this section, we analyse to which extent they may be driven by the underlying beliefs, on top of the socio-demographic characteristics. Overall, 54% of respondents in the selected sample from the DIAGNOZA+ survey planned to be or had already been vaccinated. Thus, the survey sample closely reflects the actual proportion of the population that was fully vaccinated in Poland as of January 2022. (ECDC, 2022). In Model A of Table 2, we present the relationship between the response to the question *"Do you plan to get vaccinated against COVID-19 or are you already vaccinated?"* and traditional family values, alongside the usual demographic characteristics. We find that those in the 51-60 age group were 14.5 p.p. more likely to plan to vaccinate than those aged between 21 and 30. This also reflects the higher level of concern about the virus expressed by those over the age of 50, as presented in Table 1, and the risk of serious illness associated with increasing age. However, the relationship between age and the probability of vaccination was much weaker than the relationship between age and the probability of expressing general concern about the pandemic, implying that concern does not translate directly into willingness to vaccinate. We also find that tertiary education has a particularly strong effect, and respondents who have a university degree were much more likely (17.7 p.p.) to get vaccinated than those with less than secondary education.

Through this analysis we also discover several less intuitive relationships between individual characteristics and the propensity to vaccinate. We find that women are 11.5 p.p. less likely to plan to vaccinate against COVID-19 than men. Moreover, individuals living in a city with less than 500,000 inhabitants were much less likely to vaccinate, with the strongest correlation (-23.5 p.p.) observed for respondents living in medium-sized cities of 100,000 to 500,000 people. However, a strong relationship can also be seen for smaller cities of 10,000 to 100,000 inhabitants (-19.3 p.p.) and small towns and villages (-17.2 p.p.). Respondents' expressions of traditional family values are also a strong predictor of their propensity to vaccinate. After controlling for gender, age, education and municipality size, those categorised as holding traditional views are 10.6 p.p. less likely to plan to vaccinate against COVID-19. Our findings demonstrate that while population density, education, age and gender, are all strong indicators of vaccine scepticism in Poland, so is the degree of traditionalism in people's beliefs.

Table 2. *Regression results on vaccination:*

probability of being vaccinated or planning to get vaccinated

	Planning or being vaccinated Model A		Planning or being vaccinated Model B		Planning or being vaccinated Model C	
Age group (21-30)						
31-40	0.036	(0.051)	0.021	(0.048)	0.000	0.047
41-50	0.058	(0.053)	0.071	(0.049)	0.044	0.048
51-60	0.145***	(0.055)	0.137***	(0.051)	0.092*	0.051
Female	-0.115***	(0.036)	-0.083**	(0.033)	-0.089**	0.033
Parents living with a child	0.026	(0.039)	0.061*	(0.037)	0.052	0.036
Education (less than secondary)						
secondary	0.049	(0.067)	0.018	(0.063)	0.031	0.061
tertiary	0.177***	(0.068)	0.122*	(0.063)	0.133**	0.062
Population (>500 000)						
100 000-500 000	-0.235***	(0.050)	-0.194***	(0.047)	-0.212***	0.046
10 000-100 000	-0.193***	(0.049)	-0.144***	(0.046)	-0.163***	0.045
<10 000 and villages	-0.172***	(0.057)	-0.126**	(0.053)	-0.141***	0.052
Traditional family values	-0.106***	(0.037)	-0.059*	(0.035)	-0.060*	0.034
Conspiratorial views			-0.433***	(0.041)	-0.415***	0.040
Fear of pandemic					0.211***	0.037
Constant	0.606***	(0.082)	0.669***	(0.077)	0.639***	0.075
Observations	726		726		726	
R-squared	0.097		0.221		0.255	

Standard errors in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Note: Data weighted using weights generated from Statistics Poland's data on population by sex and age. Sample limited to individuals aged 21-60. Estimates using the linear probability model.

A commonly cited explanatory factor for vaccine scepticism is the susceptibility to conspiratorial beliefs, as well as scepticism towards information disseminated by figures of authority (Hornsey et al., 2018). Thus, in Model B, we seek to identify a relationship between conspiratorial beliefs and scepticism towards the COVID-19 vaccine in Poland. When adding to our model a binary indicator for agreement with all seven of the conspiratorial statements included in the survey, we find that those who agreed across the board were 43.3 p.p. less likely to get vaccinated. Therefore, it seems that the propensity for conspiratorial thinking is a very strong correlate of willingness to vaccinate, and the characteristic most strongly associated with vaccine scepticism. The impact of the demographic factors goes in the same direction for both models, although the scale diminishes in Model B after controlling for conspiratorial views, reflecting the higher propensity of older individuals to hold such views. Furthermore, the effect of traditional family values is much weaker in Model B, suggesting a positive correlation between traditional family values and conspiratorial beliefs (Figure A1 in the Annex shows how values and views in the analysis views overlap with each other). This is in line with past research that ties traditional moral values and conservatism with conspiratorial beliefs, both before and during the COVID-19 pandemic (Pennycook et al., 2020; Romer and Jamieson, 2021).

One explanation for the strong relationship between conspiratorial beliefs and vaccine scepticism could be that respondents who do not trust the media and figures of authority believe that the dangers of the pandemic have been exaggerated and would thus not be concerned about its

consequences. We account for this possibility in Model C by including the indicator for fear of the pandemic. We find that those who are very concerned or frightened are 21.1 p.p. more likely to vaccinate than those who are not. However, including this variable in the model has little effect on the estimates of the relationship between traditional gender views or conspiratorial thinking and the likelihood to vaccinate. Further research is needed to understand what is driving these relationships in this particular context. These findings demonstrate that while individuals that believe in conspiracies are the most susceptible to vaccine scepticism, other elements such as fear of the pandemic, education attainment, and where people live play an important role as well.

Conclusion

By January 2022 most European countries have reached a plateau in their vaccination rates, with free vaccines readily available since the summer months of 2021 to all those who are willing to take them. Not only have the high rates of hospital admissions among the non-vaccinated population proven the epidemiological models about the efficacy of vaccines in reducing hospitalisation and death to be true (a study in the United States showed a more than tenfold reduction in the risk of each measure; Scobie et al., 2021), but disparities between countries in the proportion of the population that is vaccinated have created a natural experiment that further substantiates this hypothesis. Poland, a country with a vaccination rate that is 15 p.p. lower than neighbouring Germany, had virtually the same number of cases per 100,000 people in the first two weeks of December, but almost threefold the number of deaths from COVID-19 (ECDC, 2021). Due to the burden COVID-19 related hospitalisations place on healthcare systems, the issues arising from the significant scale of vaccine scepticism are not only related to physical well-being, but also directly impact economic and fiscal stability.

Despite a fairly small sample size available for our analysis from the DIAGNOZA+ survey, a number of important correlations are identified in this study. We find that people living in cities and towns smaller than 500,000 people are less likely to vaccinate than those living in big cities. We show that women, those with less than secondary education, and young people are less likely to be vaccinated. Moreover, those believing that pre-school-aged children suffer when their mothers work are less likely to vaccinate compared to those with more progressive gender views. The most significant predictor of vaccine scepticism, however, is whether a respondent expressed low trust in authority and belief in the conspiracy theories presented in the survey, which was the case for 23.2% of the sample. These individuals are more than 40 p.p. less likely to express willingness to get vaccinated than the rest of the population. This suggests that the low rate of vaccination in Poland can, in part, be attributed to widespread distrust of government, the media, and scientific experts. Poland has already suffered the consequences of the high magnitude of anti-vaccine sentiments in the population, with the severity of the fourth wave of COVID-19 being one of the harshest in Europe (ECDC, 2021). If the government intends to prevent future outbreaks and protect the healthcare system and the economy, it must present a consistent, clear, and transparent message about the safety and efficiency of vaccines to minimise the misinformation that is driving vaccine scepticism among certain demographic groups.

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Annex

Table A1. *Sample description*

Variables	Values	Women	Men
		N=402	N=324
Educational level	less than secondary	32 (8.0%) [8.2%]	27 (8.3%) [9.4%]
	secondary	147 (36.6%) [37.5%]	116 (35.8%) [36.7%]
	tertiary	223 (55.5%) [54.3%]	181 (55.9%) [53.9%]
Age group	21-30	80 (19.9%) [21.4%]	67 (20.7%) [22.0%]
	31-40	145 (36.1%) [29.1%]	127 (39.2%) [29.6%]
	41-50	106 (26.4%) [26.8%]	84 (25.9%) [26.9%]
	51-60	71 (17.7%) [22.7%]	46 (14.2%) [21.6%]

Population of the place of residence	> 500 thous.	99 (24.6%) [24.2%]	104 (32.1%) [30.9%]
	100-500 thous.	95 (23.6%) [23.8%]	89 (27.5%) [27.5%]
	10-100 thous.	128 (31.8%) [32.5%]	77 (23.8%) [24.7%]
	< 10 thous. + villages	80 (19.9%) [19.5%]	54 (16.7%) [16.8%]
Parent living with a child	no	213 (53.0%) [55.9%]	196 (60.5%) [62.4%]
	yes	189 (47.0%) [44.1%]	128 (39.5%) [37.6%]
In general, fathers are as well suited to look after their children as mothers	strongly agree	158 (39.3%) [39.3%]	99 (30.6%) [30.4%]
	agree	200 (49.8%) [50.2%]	164 (50.6%) [50.9%]
	disagree	37 (9.2%) [8.8%]	49 (15.1%) [15.1%]
	strongly disagree	7 (1.7%) [1.7%]	12 (3.7%) [3.7%]
When jobs are scarce, men should have more right to a job than women	strongly agree	15 (3.7%) [3.5%]	18 (5.6%) [5.3%]
	agree	26 (6.5%) [6.6%]	31 (9.6%) [9.6%]
	disagree	127 (31.6%) [31.2%]	137 (42.3%) [43.2%]
	strongly disagree	234 (58.2%) [58.7%]	138 (42.6%) [41.9%]
A pre-school child is likely to suffer if his or her mother works	strongly agree	40 (10.0%) [10.0%]	31 (9.6%) [10.1%]
	agree	111 (27.6%) [27.6%]	93 (28.7%) [28.5%]
	disagree	163 (40.5%) [40.3%]	147 (45.4%) [44.8%]
	strongly disagree	88 (21.9%) [22.1%]	53 (16.4%) [16.6%]
Secret organisations influence political decisions during pandemic	strongly agree	31 (7.7%) [7.7%]	24 (7.4%) [7.3%]
	agree	146 (36.3%) [36.4%]	89 (27.5%) [27.8%]
	disagree	148 (36.8%) [36.6%]	123 (38.0%) [38.7%]
	strongly disagree	77 (19.2%) [19.3%]	88 (27.2%) [26.2%]
Politicians are only puppets in the power of other people	strongly agree	55 (13.7%) [13.8%]	31 (9.6%) [9.3%]
	agree	180 (44.8%) [44.5%]	120 (37.0%) [37.1%]
	disagree	115 (28.6%) [28.6%]	117 (36.1%) [36.5%]
	strongly disagree	52 (12.9%) [13.1%]	56 (17.3%) [17.0%]
I trust my intuition more than so-called experts	strongly agree	49 (12.2%) [12.2%]	43 (13.3%) [12.1%]

	agree	166 (41.3%) [41.0%]	98 (30.2%) [30.0%]
	disagree	134 (33.3%) [33.6%]	120 (37.0%) [38.6%]
	strongly disagree	53 (13.2%) [13.2%]	63 (19.4%) [19.3%]
Politicians and the media deliberately hide certain information	strongly agree	83 (20.6%) [20.8%]	69 (21.3%) [20.4%]
	agree	220 (54.7%) [54.3%]	162 (50.0%) [51.5%]
	disagree	77 (19.2%) [19.6%]	69 (21.3%) [20.7%]
	strongly disagree	22 (5.5%) [5.4%]	24 (7.4%) [7.5%]
The official information provided by the authorities is generally not true	strongly agree	81 (20.1%) [20.0%]	59 (18.2%) [17.0%]
	agree	218 (54.2%) [54.5%]	161 (49.7%) [51.3%]
	disagree	85 (21.1%) [21.2%]	79 (24.4%) [24.0%]
	strongly disagree	18 (4.5%) [4.3%]	25 (7.7%) [7.6%]
The official infection and death statistics are deliberately falsified	strongly agree	84 (20.9%) [20.8%]	64 (19.8%) [18.8%]
	agree	183 (45.5%) [45.9%]	137 (42.3%) [43.7%]
	disagree	101 (25.1%) [25.3%]	92 (28.4%) [28.4%]
	strongly disagree	34 (8.5%) [8.0%]	31 (9.6%) [9.0%]
Most of the recommendations have no justification and actually serve other purposes	strongly agree	72 (17.9%) [18.4%]	51 (15.7%) [15.1%]
	agree	172 (42.8%) [42.5%]	112 (34.6%) [35.8%]
	disagree	109 (27.1%) [27.2%]	104 (32.1%) [31.9%]
	strongly disagree	49 (12.2%) [11.9%]	57 (17.6%) [17.2%]
To what extent are you concerned about the COVID-19 pandemic?	not concerned at all	53 (13.2%) [13.2%]	54 (16.7%) [15.1%]
	a little concerned	111 (27.6%) [27.0%]	91 (28.1%) [28.5%]
	concerned	123 (30.6%) [30.8%]	97 (29.9%) [30.3%]
	very concerned	87 (21.6%) [21.7%]	71 (21.9%) [22.5%]
	frightened	28 (7.0%) [7.2%]	11 (3.4%) [3.6%]
Do you plan to get vaccinated against COVID-19 or are you already vaccinated?	no	206 (51.2%) [51.6%]	131 (40.4%) [39.6%]
	yes	196 (48.8%) [48.4%]	193 (59.6%) [60.4%]

Note: Share of answers and demographic characteristics after reweighting in square brackets.

Table A2. Regression results on vaccination

	Planning or being vaccinated Model A		Planning or being vaccinated Model B		Planning or being vaccinated Model C	
Age group (21-30)						
31-40	0.038	(0.052)	0.023	(0.048)	0.003	(0.047)
41-50	0.057	(0.053)	0.071	(0.049)	0.043	(0.048)
51-60	0.146***	(0.055)	0.140***	(0.051)	0.095*	(0.051)
Female	-0.118***	(0.036)	-0.087**	(0.034)	-0.094***	(0.033)
Parent living with a child	0.026	(0.039)	0.063*	(0.037)	0.053	(0.036)
Education (less than secondary)						
secondary	0.050	(0.067)	0.021	(0.063)	0.033	(0.061)
tertiary	0.181***	(0.068)	0.130**	(0.063)	0.138**	(0.062)
Population (>500 000)						
100 000-500 000	-0.236***	(0.050)	-0.197***	(0.047)	-0.213***	(0.046)
10 000-100 000	-0.192***	(0.050)	-0.144***	(0.046)	-0.162***	(0.045)
<10 000 and villages	-0.171***	(0.057)	-0.126**	(0.053)	-0.140***	(0.052)
Fathers look after children well	0.049	(0.051)	0.066	(0.048)	0.072	(0.047)
Men have more right to a job	0.017	(0.056)	0.043	(0.052)	0.023	(0.051)
Children suffer when mother works	-0.104***	(0.039)	-0.058	(0.036)	-0.056	(0.035)
Conspiratorial views			-0.436***	(0.041)	-0.418***	(0.040)
Fear of pandemic					0.211***	(0.037)
Constant	0.559***	(0.095)	0.603***	(0.088)	0.571***	(0.087)
Observations	726		726		726	
R-squared	0.098		0.223		0.257	

Standard errors in parentheses

* p<0.1, ** p<0.05, *** p<0.01

Note: Data weighted using weights generated from Statistics Poland's data on population by sex and age. Sample limited to individuals aged 21-60.
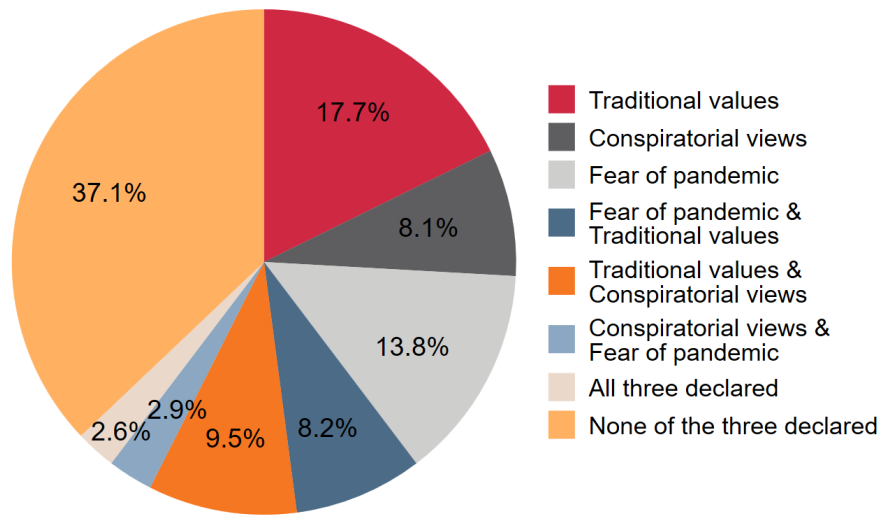
Fathers look after children well – "In general, fathers are as well suited to look after their children as mother"

Men have more right to a job – "When jobs are scarce, men should have more right to a job than women"

Children suffer when mother works – "A pre-school child is likely to suffer if his or her mother works"

Figure A1. *Values and views declared in the DIAGNOZA+ survey*

Notes: Data weighted using weights generated from Statistics Poland's data on population by sex and age. Sample limited to individuals aged 21-60.

Traditional values – "A pre-school child is likely to suffer if his or her mother works"

Conspiratorial views – Agreement with all seven conspiratorial questions in the survey

Fear of pandemic – Expressed fear or great concern about the pandemic

Disclaimer

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