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Social Aspects of COVID

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Between Contestation and Conformism: Cluster Analysis of the Poles' Attitudes During the Second Wave of the COVID-19 Pandemic

Abstract: The aim of the article is to identify the factors that contribute to the differentiation of attitudes towards the coronavirus pandemic in three areas: 1) course of the pandemic; 2) evaluation of the actions of various actors in the fight against the pandemic; and 3) assessment of the restrictions introduced during the pandemic. The analysis is based on a survey conducted among the Polish population. A hierarchical cluster analysis procedure was conducted on the 15 variables using Ward's method. We distinguished five groups: 1) dissenters, 2) government's critics, 3) conformists, 4) critical conformists and 5) bystanders. Based on the cluster analysis we argue that: various models of social compliance with restrictions and of crisis management can be identified during pandemic, pandemic followed different trajectories for different groups and was differently experienced, the credibility of the statistics is an important element in shaping attitudes towards the pandemic.

Keywords: death toll statistics, trust, cluster analysis, communication, COVID-19

Introduction

A pandemic is a health crisis that distorts the regularity of social life and the regular functioning of social institutions. A pandemic may seem to be a phenomenon that unites the society in the face of a new and unknown threat, causing existing differences and divisions to be put aside. Many studies indicate, however, that this is not true. Great differences can be observed, for example, in people's attitudes towards restrictions or social distancing. Cluster analyses show that these attitudes depend on the people's pursued profession (Huang et al. 2020), their feelings of financial stability (Charles et al. 2020) or their political affiliation (Wang and Pagán 2021). Such analyses show that the pandemic experience may have different trajectories and may also depend on factors that are not affected by the virus. Studies that examine the influence of one's lifestyle on the risk of virus transmission exemplify this observation (Ozdenerol and Seboly 2021).

Knowledge about the differences in people's attitudes towards restrictions, official communications or the institutions managing the health crisis allows not only to understand the variations in the social experience of the pandemic but also to improve crisis

management during the pandemic. Understanding social differences enables to better address the crisis policies, develop more effective communication and prepare better action plan scenarios in case of future pandemics.

The primary aim of this article is to identify the factors that contribute to the differentiation of attitudes towards the pandemic in three areas: 1) beliefs about the course of the pandemic; 2) assessment of the actions of various actors in the fight against the pandemic; and 3) assessment of the appropriateness of the restrictions introduced during the pandemic. The analysis is based on poll research conducted among the Polish people at the peak of the second wave of the pandemic between 3 and 20 November 2020. A detailed description of the three areas under consideration along with the corresponding topics is presented in Table 1. Data analysis is based on clustering, which distinguished five groups (clusters).

Table 1

Variables used for clustering

Topic	Category in the questionnaire
Beliefs about the course of the pandemic	Readiness of the Polish healthcare system
	Polish healthcare system and future pandemics
	Assessment of government's communication
	Death toll statistics
Assessment of the actions of institutions in the fight against the pandemic	Government
	Police
	Local authorities
	Media
	Healthcare
	State Sanitary Inspectorate (Sanepid)
	Scientists
Assessment of the appropriateness of the restrictions introduced during the pandemic	Requirement to wear masks in the streets
	Closing of primary and secondary schools
	Limiting international travel
	Ban on entering parks and forests
	Closing of shopping centres

Trust and Communication

The present study focused on phenomena that are related to trust and communication. These factors are important in the context of crisis management during a pandemic. In times of crisis, trust in political institutions influences people's readiness to comply with legal rules (Marien and Hooghe 2011), including those connected with the health policy (Taylor-Clark et al. 2005). During a pandemic, trust influences compliance with sanitary restrictions and taking preventive actions, and, in turn, it may also influence the risk of infection and death (Devine et al. 2020; Blair et al. 2017; Deurenberg-Yap et al. 2005; Siegrist and Zingg 2014; Bargain and Aminjonov 2020; Han et al. 2021; Lalot et al. 2020; Amdaoud et al. 2020; Oksanen et al. 2020).

The example of Italy shows that the pandemic situation may significantly build up people's trust in the authorities ('rally 'round the flag' effect) and, thus, not only influence their readiness to comply with restrictions at the beginning of a crisis but also help to maintain

strong social support for the government's actions (Falcone et al. 2020). Other studies show that this effect may quickly wear off or even not occur at all due to the political divisions that might have existed even before the pandemic (Kritizinger et al. 2021; Amat et al. 2020).

It is also worth emphasizing that even before the pandemic it was indicated that the assessment of the quality of medical services influences the level of trust towards medical expertise (Halbert, Armstrong, Gandy 2006). Thus, it can be assumed that during the pandemic the level of trust towards institutions and the government is related to the assessment of the efficiency of the health care system.

Communication is an important factor during a pandemic. Effective communication strategies may contribute to better crisis management (Coombs 2015) when faced with health threats (Hooker 2010) and epidemic risk (Davis et al. 2011). During the COVID-19 pandemic, communication strategies employed by institutions or experts are confronted with the uncertainty surrounding the new virus, which negatively impacts the clarity and cohesiveness of communication (Balog-Way and McComas 2020; Chossek-Malecki et al. 2021). Trust is also crucial when it comes to the interpretation and effectiveness of the messages communicated by institutions and the government (Bearth et al. 2021). Consequently, messages from the government and public health institutions are crucial to the level of trust and in shaping public attitudes toward pandemic risks (Lee, Li 2021). An important communication component for COVID-19 is death and infection statistics. As publicly available data, they are the primary source for the public to learn about the course of the pandemic. They can also, because of their frequency and alarming nature, create feelings of anxiety (Balog-Way, McComas 2020).

COVID-19 in Poland

The first case of COVID-19 in Poland was confirmed on 4 March 2020, and the first death was recorded on 12 March 2020. Although the first wave was quite mild in Poland, the second wave caused a significant increase in mortality. According to the report of the Polish Ministry of Health (MZ, 2021), the number of deaths in 2020 increased by 67,000 compared to the average for the years 2016–2019. Most of these excess deaths occurred during the second wave, between October and November, and 94% of them concerned people over the age of 60. It was further documented that 43% of these excess deaths were caused by COVID-19, and 27% concerned people with prior SARS-CoV-2 infections.

Poland can be considered as a distinctive example, when compared to the other European Union countries, while examining the factors that may influence social attitudes towards the pandemic. Firstly, before the year 2020, Poland had the lowest level of trust in the government among the EU countries, which, furthermore, systematically decreased in the recent years (OECD 2020). Secondly, the level of trust in medical expertise and healthcare system is also very low in Poland, as demonstrated both in studies from before the pandemic (Blendon et al. 2014; Zhao and Cleary 2018) and those conducted during the pandemic. [1]

[1] https://yougov.co.uk/topics/international/articles-reports/2020/05/18/international-covid-19-tracker-update-18-may?utm_source=twitter&utm_medium=website_article&utm_campaign=covid_article_8 [accessed: 27 October 2021].

Moreover, the pandemic took a heavy toll in Poland, compared to the other EU countries, which is confirmed by the statistics on excess deaths. In 2020, Poland had the highest number of such deaths per 100,000 inhabitants, ranking second after Lithuania, from among 29 OECD member countries (Islam et al. 2021). The year 2021 turned out to be even more tragic. According to official figures, 520,000 people died then, more than 34,000 more than in 2020.[2] Such a high ratio may indicate primarily a shortage in hospital capacities, which proved insufficient to serve all the people in need.

In 2022, a wave of omicron variant infections began in Poland in late January and early February, resulting in daily infection records. However, it was not accompanied by increased mortality, so the government decided to lift most restrictions in March.

Methods

The data presented in this article was obtained from a study conducted on a sample of 1,000 adult (18–75) inhabitants of Poland, which was representative in terms of gender, age and place of residence. The study was conducted using computer-assisted telephone interviewing (CATI). The questions asked were answered by the respondents on a two types of scale: 1) a five-point semantic differential scale (from 'a complete lack of approval' to 'full support'); 2) a five-point (from 'too little' (scarcity) to 'too much' (excess), where the midpoint of the scale is 'adequately'. For the variables measured using the first scale (semantic differential scale) in the statistical description negative (1 and 2) and positive (4 and 5) responses were aggregated (marked with +/− signs in Table 3), while middle responses (3) were omitted. For the variables measured using the second scale (too-little-too-much scale) results indicating a scarcity (1 and 2) and an excess (4 and 5) were aggregated (marked +/− in Table 4), while the response indicating an adequate level (3) was left unaggregated (marked 'right' in Table 4). The collected data was further analysed using quantitative statistical procedures. Initial analysis examined if the answers to the 15 questions formed any pattern at the respondent level. This was sorted out by a reliability analysis that proved that the selected variables may be considered to constitute a scale measuring the same phenomenon (Cronbach's alpha = 0.8).

Subsequently, a hierarchical cluster analysis procedure was conducted on the mentioned 15 variables using Ward's method, one of the multiple methods of hierarchical clustering frequently used in social sciences (Gauthier et al. 2010; Sadler et al., 2012; Velten et al. 2015). Originally, the data set included a larger number of variables, but some of them were excluded due to excessive correlation. The strong correlation threshold is differently set in the literature from 0.5 (Cohen 1988) or from 0.7 (Moore et al. 2013, Chapter 4). For the purposes of this analysis, the more conservative criterion of 0.5 was adopted. The essence of this method involves the aggregation of respondents in such a way that the conditions of internal similarity of elements within the distinguished clusters and of external differentiation between them are met simultaneously, which strives towards levelling the number of elements in the clusters while meeting the two remaining conditions. In the segmentation procedure, the variables were kept on the

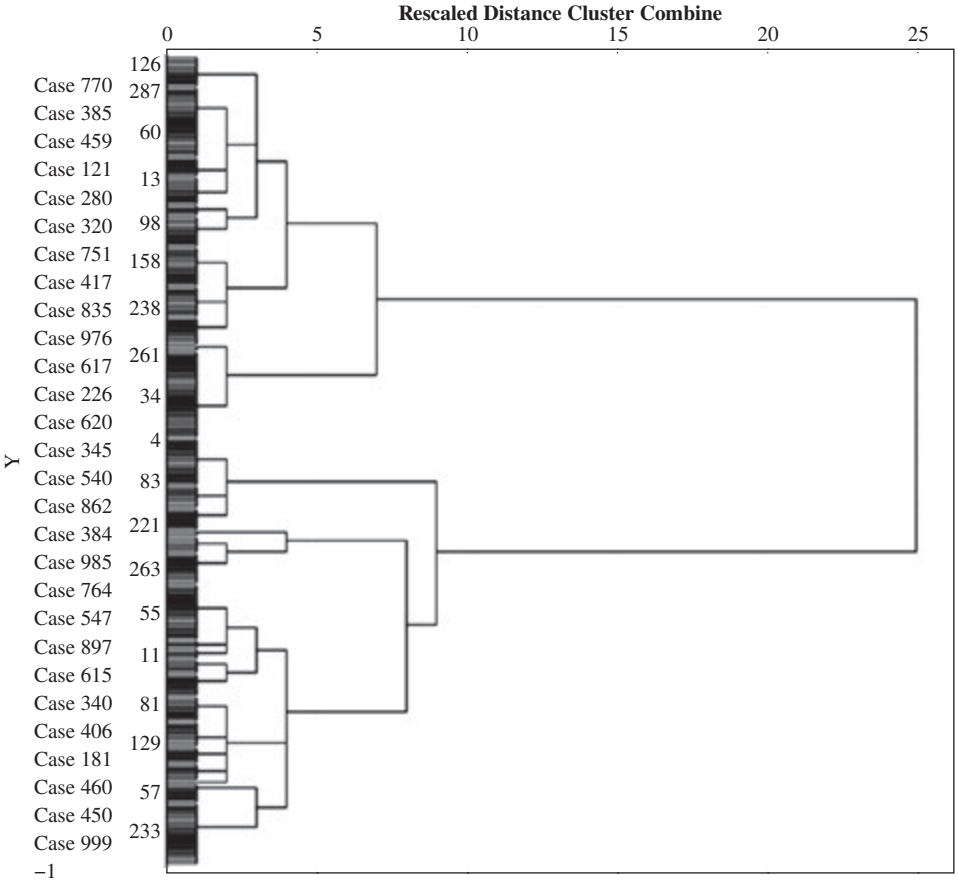
[2] https://stat.gov.pl/obszary-tematyczne/ludnosc/ludnosc/zgony-wedlug-tygodni,39,2.html

original measurement scales, without the aggregation described above. Due to missing data in the variables, 154 observations were excluded and segmentation was performed on a sample of 846.

Following the analysis based on the hierarchical clustering procedure using Ward's method and the expert review of the distribution of the measured characteristics, five clusters were distinguished in the fifth step of hierarchical joining (see Graph 1).

Graph 1

Dendrogram using Ward Linkage



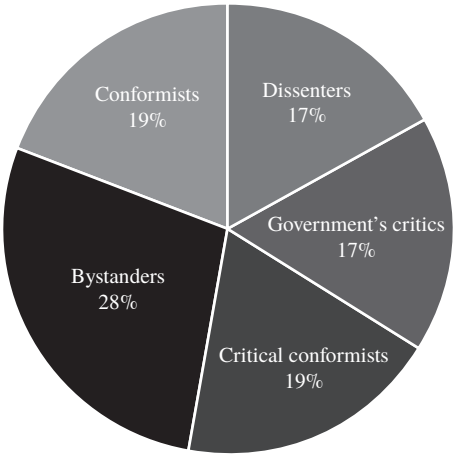
Subsequently, the distribution of opinions and of the social and demographic characteristics in individual clusters was reviewed. Although demographic variables were not used in the clustering procedure, the obtained clusters demonstrate statistically significant differentiation. This was confirmed by the chi-squared test and Cramér's V measure of association based on the test regarding characteristics such as age, education, income level, size of the city of residence and professional status.

Results

After the analysis of the respondents' answers to the questions used for clustering combined with the social and demographic characteristics, the clusters were given the following names: 1) dissenters, 2) government's critics, 3) conformists, 4) critical conformists and 5) bystanders. The clustering structure is presented in Graph 2. The differences are described using demographic variables (Table 2) and the respondents' opinions on various aspects of the pandemic (Table 3, Table 4).

Graph 2

Clustering structure



The clusters are differentiated with regard to all demographic variables except gender ($p = 0.055$) and localisation ($p = 0.152$) and with regard to opinions on various aspects of the pandemic. The most strongly differentiating demographic variables are age (.213), professional status (.156) and monthly income (.153). The strongest opinions, on the other hand, were the opinion on the readiness of the Polish healthcare system comparing to other European systems (.420) and the assessment of the government's actions in the fight against the pandemic (.410). The descriptions of individual clusters are presented below. The differences in the occurrence of COVID-19 in the respondents' environments are statistically significant ($p = 0.017$) with week association (Cramer $V = 0.105$).

Dissenters

The dissenters are highly sceptical of the degree of threat posed by the pandemic. This is confirmed by the high percentage of respondents from this group declaring that the government definitely or probably exaggerated the threat posed by the coronavirus and the opinion, prevailing in this cluster, about overestimated death toll. Among all the clusters, the dissenters comprise a group that is most critical of various aspects of the pandemic.

Table 2

Demographic profile of clusters (%)

Characteristic	Category	Cluster					Total	Cramér's V	p-value
		Dissenters	Government's critics	Critical conformists	Bystanders	Conformists			
		N = 145	N = 143	N = 160	N = 241	N = 157	N = 846		
Gender	Male	52	54	54	49	42	50		
	Female	48	46	46	51	58	50	0.087	0.17
	Total	100.0	100.0	100.0	100.0	100.0	100.0		
Age (3 ranges)	18–29	30	20	18	24	9	20		
	30–59	63	61	55	64	50	59	0.213	0.000
	60+	7	20	27	12	41	21		
	Total	100.0	100.0	100.0	100.0	100.0	100.0		
Education	Primary/lower-secondary	8	4	5	5	7	6		
	Basic vocational	25	16	17	30	32	25		
	Secondary	39	41	39	35	39	38	0.104	0.006
	Higher	29	38	39	30	22	31		
	Total	100.0	100.0	100.0	100.0	100.0	100.0		
Localisation (size class of place of living)	Village	43	33	31	44	41	39		
	City 20,000 and below	12	17	13	14	14	14		
	City 20,000–100,000	17	14	18	15	21	17	0.080	0.152
	City 100,000–500,000	19	20	21	18	15	18		
	City above 500,000	10	16	18	10	10	12		
	Total	100.0	100.0	100.0	100.0	100.0	100.0		
Monthly net income of respondent (PLN)	No income	5	6	5	7	10	7		
	1,000 and below	15	17	19	20	25	19		
	Between 1,000 and 1,999	23	17	28	27	24	24		
	Between 2,000 and 2,999	14	15	14	13	17	15		
	Between 3,000 and 3,999	11	12	6	8	6	9	0.153	0.000
	Between 4,000 and 4,999	11	8	9	5	3	7		
	Between 5,000 and 6,999	8	9	8	2	3	6		
	Above 7,000	1	1	1	1	1	1		
	REFUSAL	6	6	5	6	2	5		
	Total	100.0	100.0	100.0	100.0	100.0	100.0		

Table 2 (continued)

Characteristic	Category	Cluster					Total	Cramér's V	p-value
		Dissenters	Government's critics	Critical conformists	Bystanders	Conformists			
		N = 145	N = 143	N = 160	N = 241	N = 157	N = 846		
Professional status	Employment contract	51	52	45	49	35	46	0.156	0.000
	Contract of mandate, specific task contract	6	8	7	5	2	5		
	Self-employed	13	10	11	9	6	10		
	Pensioner	9	15	24	15	37	20		
	Unemployed	6	5	4	7	9	6		
	Attending school/studying and working	2	1	1	1		1		
	Not working (another reason)	1	1	2	3	3	2		
	Maternal leave	2			1	1	1		
	Farmer	5	3	2	4	4	4		
	Attending school/studying	6	3	4	6	4	5		
	Total	100.0	100.0	100.0	100.0	100.0	100.0		
Contraction (personally or among close relatives/friends)	No	57	43	41	49	56	49	0.105	0.017
	Yes—mild course	37	47	43	41	31	40		
	Yes—severe course	6	10	16	10	13	11		
	Total	100.0	100.0	100.0	100.0	100.0	100.0		

Table 3

Clusters' profile according to the respondents' opinions on various aspects of the pandemic (semantic differential scale)

	Dissenters		Government's critics		Critical conformists		Bystanders		Conformists		TOTAL		Measure of association	
	% +	% −	% +	% −	% +	% −	% +	% −	% +	% −	% +	% −	Cramér's V	Phi-value
Assessment of the actions of institutions in the fight against the pandemic														
Government	0	97	0	97	7	65	19	47	65	12	19	61	0.41	0.000
Police	12	62	15	51	38	21	39	20	87	1	39	29	0.32	0.000
Local authorities	8	67	11	66	53	11	29	24	65	6	34	33	0.31	0.000
Media	3	79	4	64	41	13	18	39	62	9	25	39	0.34	0.000
Healthcare	14	69	36	34	71	8	38	26	80	3	48	27	0.31	0.000
State Sanitary Inspectorate (Sanepid)	3	79	12	59	45	22	28	24	72	3	32	35	0.34	0.000
Scientists	28	41	58	8	89	1	56	12	87	1	63	12	0.27	0.000
Assessment of the appropriateness of the restrictions introduced during the pandemic														
Requirement to wear masks in the streets	2	88	57	22	90	4	48	26	90	5	57	28	0.38	0.000
Closing of primary and secondary schools	14	70	52	24	73	7	37	35	85	5	51	28	0.30	0.000
Limiting international travel	16	64	70	15	81	4	46	29	93	0	60	23	0.32	0.000
Ban on entering parks and forests	0	99	1	98	2	91	16	78	30	45	11	81	0.28	0.000
Closing of shopping centres	9	77	41	24	58	20	41	28	85	1	47	29	0.31	0.000

Table 4

Clusters' profile according to the respondents' opinions on various aspects of the pandemic (*too little—adequately—too much* scale)

	Dissenters			Government's critics			Critical conformists			Bystanders			Conformists			TOTAL			Measure of association	
	% −	% right	% +	% −	% right	% +	% −	% right	% +	% −	% right	% +	% −	% right	% +	% −	% right	% +	Cramér's V	Phi-value
Beliefs about the genesis and course of the pandemic																				
Readiness of the Polish healthcare system comparing to other European systems	63	33	4	67	27	6	80	20	0	21	62	17	10	55	34	45	42	13	0.42	0.000
Polish healthcare system and future pandemics	41	52	8	47	41	13	19	40	41	12	56	32	8	41	50	24	47	30	0.31	0.000
The death statistics	8	8	84	69	16	15	7	18	75	27	34	39	17	57	26	26	28	46	0.26	0.000
Assessment of government's communication	20	11	69	81	13	6	59	26	15	24	43	33	15	68	17	38	34	28	0.35	0.000

They negatively evaluate the actions of various actors in the fight against the pandemic and consider the restrictions introduced to curb the spread of the coronavirus to be unjustified.

The dissenters live mainly in rural areas (43% of all the people in this cluster), and most of them are aged 30–59 (63%). Among all the clusters, they form a group that includes the highest number of economically active people (77%) and the highest number of self-employed people (13%). It also includes the largest number of people with income above PLN 4,000 (20%) and the lowest number of people in the lowest earnings level considered, when compared to the other groups. This makes dissenters the wealthiest cluster. The fact that dissenters include both so many rural residents and relatively wealthy people is probably due to the peculiarities of Polish suburban areas. These formally have the status of villages, but often have an urban middle class living in them. These types of people are likely to be among the dissenters.

In terms of age, this is also the youngest cluster—30% of the respondents are under 30 years of age; this cluster also contains the fewest people over 60. This translates into the ratio of people studying and teaching—in this cluster it is 8% in total (the highest of all groups).

The dissenters also have the highest number of people who did not have any form of contact with the virus. Among the dissenters, 57% neither contracted the disease personally nor had any close friends or relatives suffer from the disease.

This cluster is labelled 'dissenters' because they are clearly characterised by an attitude that contests the institutions fighting against the pandemic, the approaches adopted towards controlling it and the official information concerning the scale of the pandemic. Considering its demographic profile (in particular, the earnings and the professional status), it can be concluded that this cluster is primarily composed of people who perceive the pandemic from the perspective of their economic interests and not as a potential threat to health and life.

Age also appears to be an important factor here. COVID-19 was initially presented as a threat mainly to the elderly, so that younger people might interpret the disease as low risk. From this perspective, for them the pandemic is a phenomenon that negatively affects their life situation not because of the risk of infection or death (as confirmed by the percentage of answers in the question about contact with the virus), but because of the difficulties posed by the restrictions. The latter are perceived as inadequate in relation to the risk. We think that in this group there are people who would not so much declare that they do not believe in coronavirus and pandemics, but rather perceive it as a phenomenon blown up by the media and politicians and not as threatening as it might appear from officially available messages.

Government's critics

This group considers the pandemic a serious threat to health and life. This is reflected in their approval of the restrictions and their critical attitude towards the government's communication—in their opinion, the government downplayed the threat.

This cluster shares the dissenters' negative opinion on the actions of the government and, to a certain extent, the police, but it differs from them in their attitude towards the scientists, the healthcare system and the State Sanitary Inspectorate (Sanepid). Members

of this cluster are also less critical of the restrictions imposed. Most of them see the requirement to wear masks on the streets, close schools and restrict foreign travel as legitimate. They are, however, critical of the official communication regarding the death toll statistics and the government's communications concerning the scale of the threat. Contrary to the dissenters, however, the critics think that the government neglected the threat posed by the coronavirus and that the statistics concerning COVID-19 are underestimated. They also display a negative attitude towards the capabilities of the healthcare system. This cluster had the highest number of respondents claiming that the Polish healthcare system was less prepared than its counterparts in other countries.

Comparing to other clusters this group has the second highest number of people with higher education qualifications and the highest number of people living in big urban areas (cities above 100 000 inhabitants). It also has the highest number of people with employment contracts and the highest number of people who have had contact with the virus (either directly or through relatives or friends).

This cluster is referred to as 'government's critics' because their attitude towards phenomena related to the pandemic is closely related to their attitude towards the actions of the government-related institutions. The institutions that are either directly (government) or indirectly (police) associated with the central government are evaluated negatively by this cluster; on the other hand, the healthcare system and the scientists are evaluated ambivalently or positively. It is worth noting the negative opinion towards health care preparedness for this and potentially future pandemics also indirectly indicates attitudes towards government actions (this would be an indication of negligence in the health care system for which the government may be responsible). Given the demographic profile, we assume that these are people who already had a negative attitude towards the government before the pandemic and evaluate the current government through the filter of their previous ideological preferences. Educated people living in large cities with relatively high incomes are potential voters of the political opposition.

Conformists

When compared to the other clusters, the respondents from this group most positively evaluate the actions of the government, the police, the healthcare and the State Sanitary Inspectorate (Sanepid) as well as the introduced restrictions. This group even has the highest number of supporters for the rule banning entry to forests and parks; this is contrary to the other clusters, which were much more critical to this rule. The conformists also put their trust in the government's communication of pandemic-related dangers, and in the death toll statistics. The conformists are also optimistic, comparing to other clusters, about the capacity of the healthcare system. 34% evaluate the Polish system as better prepared for the current pandemic compared to other systems and 50% claim that the system will perform better in case of future pandemics.

Although this segment has the second highest percentage of people who have not been in contact with the virus, at the same time there are a relative big group of respondents, compared to other segments, who has declared that they had or their relatives or friends had had a severe course of COVID-19 infection (13%).

The conformists cluster has the highest share of women (58%) and the highest percentage of people aged above 60 (41%) among all the clusters. This cluster also has the highest number of people in the lowest income level, the highest number of pensioners and the highest number of people with vocational educational. Most of them (55%) live in rural areas or small towns.

This cluster is labelled 'conformists' because it is composed of people who adjusted to the new social situation and the limitations to their social life by approving and accepting the restrictions and the government's policy aimed at counteracting the pandemic. Their assessment of the measures implemented and the statistics and communication demonstrates trust in the actions of the government and other actors. This cluster also includes a relative high amount of people who have an optimistic attitude towards the functioning and capabilities of the healthcare system, despite the fact that many respondents from this cluster had probably frequent encounters with the healthcare system in the past because of their age. It seems that they view the pandemic as a serious threat to health and life. This is, however, not coupled with a contestation of the actions of public institutions (as in the case of the government's critics). We argue that, given their positive attitudes toward the government and their demographic profile, these individuals are potentially the electorate of the conservative government that ruled during the pandemic. As with critics of the government, conformists' attitudes toward the pandemic may be mediated by pre-existing divisions in society, although in this case they would be a group on the other side of the barricade of political conflict.

Critical conformists

Representatives of this group are critical of the government—65% of them are negative about government actions. To a lesser extent than critics of the government they remain negative about other institutions such as local authorities, the police, the State Sanitary Inspectorate (Sanepid). They positively evaluate health care and scientists. In the latter case, this evaluation is the best among other clusters. At the same time, critical conformists positively evaluate most of the introduced restrictions. Like the conformists, 90% of them consider the requirements to wear masks in the street a legitimate restriction. Most of them are also positive about the closing of schools, limiting international travel, and the closing of shopping centres. Critical conformists are only critical of the closure of parks and forests, bringing them closer to government critics and dissenters in this regard.

Although critical conformists are positive about health care in the fight against a pandemic, 80% of them (the highest number of all clusters) believe that the Polish healthcare system was less well prepared than other European systems. On the other hand, 41% of them believe that Polish healthcare system will be better prepared in the future to face other pandemics. In relation to death statistics, critical conformists come close to dissenters—75% of them believe the statistics are overstated—but at the same time 59% of them believe the government has underestimated the threat of coronavirus in its communications.

This cluster has the highest percentage of people with higher education (39%) and the highest percentage of people from major metropolitan areas (18%). In terms of income, this cluster is similar to other "rich" clusters, namely dissenters and government's critics.

In addition, this group has the largest number of individuals indicating a severe course of coronavirus (either directly or among close relatives or friends).

We call this group critical conformists because it is characterized by two features. First, they are individuals who are positive about most restrictions, especially about wearing masks. Second, they express critical attitudes both toward the government and some other issues related to the course of the pandemic. On issues that are subject to direct regulation of behaviour (restrictions), they show a conformist attitude, while on issues that do not compel a certain behaviour but are subject to subjective evaluation they are critical.

The approving attitude to the majority of restrictions and the conviction that government's communication disregarded the threat during the pandemics indicate that these people are not sceptical about the threat of coronavirus. At the same time, a very large proportion of critical conformists express scepticism about the death statistics. This, however, appears to be of a different character than dissenters and is related more to a lack of trust in the government than to downplaying the risk from coronavirus.

Given the attitudes toward scientists and the demographic profile (higher education, large urban centers), it can be concluded that critical conformists are people who trust science. Perhaps it is such a positive attitude towards science that underlies the acceptance of restrictions. The issue of experiencing a severe COVID-19 course, which is the largest in this group, may also be an important aspect here.

Bystanders

The largest group in our cluster analysis are those who are ambivalent about most of the issues we asked about in the survey. Although we present positive and negative attitudes in Tables 3 and 4, for this cluster we must refer to the results indicating the middle of the scale. This group is characterized by the largest number of respondents indicating neutral answers (three in a five-point semantic differential scale). In the case of assessing the government's performance, this percentage was 34%, police 41%, local authorities 46%, media 44%, health care 37%, Sanitary Inspectorate (Sanepid) 48%. In the case of attitudes towards restrictions, excluding the ban on entering forests and parks, the percentage ranged from 25% to 33%, with the greatest acceptance of the order to wear masks (48%).

Ambivalence is also evident in questions about the health care system in comparison to other countries and in the context of future pandemics. Middle answers ("the same") to both questions were given by 55% (the highest of all clusters) and 41% respectively. When it comes to statistics and government communication, this is the second cluster, after the conformists, in which most respondents are convinced of the adequacy of statistics and government communication.

As far as the demographic profile is concerned, it is close to the average of the entire survey sample. This segment contains the largest number of people aged 30–59, as well as the largest number of rural residents (44%). At the same time, there are the largest number of people with no income (7%) and a relatively large number of people with the lowest income (20%—the second highest result after the conformists).

We defined this group as bystanders, because they have a neutral attitude towards most aspects of the pandemic that we examined. For a large proportion of these people, the

pandemic is not a reason to express a clear opinion about the various institutions dealing with the crisis or about most restrictions. On the one hand, this attitude may be considered as adaptive, associated with an unemotional acceptance of the pandemic situation and its limitations. On the other hand, however, it may be an expression of a deeper indifference to public institutions, especially those related to the health system. Taking into account the ambivalence expressed in many questions (neutral answers) and the fact that a large proportion of respondents believe that Polish health care will be as prepared for upcoming pandemics as it was for the coronavirus pandemic may be an expression of lack of illusions about the future development of the health care system.

Discussion

Considering the size of the bystanders cluster, it can be concluded that to a significant share of the respondents, the pandemic was a permanent element of the social landscape during the second wave and, hence, did not evoke violent emotions. This may be attributed to the period during which the present study was conducted. The second wave of the pandemic happened at a time when the majority of people had already grown accustomed to life with COVID-19 and had experienced the effects of the changed organization of life. Such an attitude can be described as adaptive, i.e., one that is based on acceptance of both the threat of COVID-19 and the measures that attempt to counteract it. It should be underlined that such an adaptation is not related to an unconditionally positive attitude towards the actions of the institutions fighting against the pandemic. As mentioned above, it is neither completely negative nor absolutely positive. Such attitudes may stem both from low expectations towards public institutions, given the low levels of social trust in the government, and from the belief that the responsibility for dealing with the health crisis lies mainly with the individual.

As mentioned above, compared to the other EU countries, Poland is a fairly distinctive case, owing to the low level of trust in the government, the healthcare system and medical expertise. In the present study, the most strongly differentiating aspects were the, respondents assessments of the government's actions in the fight against the pandemic and of the readiness level of the healthcare system compared to those of other countries. Both factors are to a lesser or greater extent related to trust. Criticism against the government most visible among the dissenters and the government's critics. The strongest criticism of the healthcare system, in turn, can be noticed among the dissenters and, to some degree, among critical conformists. Correspondingly, it can be concluded that the results of the present study could be influenced by the low level of trust in the government and in the healthcare system, which was observed even before the pandemic.

The social attitudes towards the pandemic were also definitely influenced by the second wave of infections. It was mentioned in the introduction that Poland had one of the highest rates of excess deaths among the OECD countries in 2020. It should, therefore, not come as a surprise that many respondents evaluated the readiness level of the healthcare system negatively. Nevertheless, there is a visible polarisation between the opinions of the critical conformists and the opinions of the conformists—the majority of the latter declared that the

Polish healthcare system was better prepared for the pandemic than the public healthcare institutions in other countries.

The present study illustrated various models of social compliance with restrictions and of crisis management. A positive attitude towards restrictions need not necessarily be coupled with a positive evaluation of institutions and the government, which is illustrated by the differences between the government's critics and the conformists. For the government's critics, the approving attitude towards restrictions is not based on their trust in the government and institutions but on independent recognition of the risk posed by COVID-19, which is illustrated by their distrust in official statistics and their belief that these are underestimated. The conformists have a positive attitude towards the restrictions, and they also perceive the government's actions and communication efforts as adequately reflecting the level of threat. This means that for a certain cluster (government's critics) of the population trust is not a necessary prerequisite for accepting the government administration's approaches towards fighting the pandemic. The results of the present study can be compared to the analyses of social attitudes towards the coronavirus pandemic in Hong Kong. Despite a low level of trust in government institutions, the inhabitants of Hong Kong took preventive measures on their own and accepted the imposed restrictions (Hartley and Jarvis 2020). Another model of compliance seems to be the attitude of critical conformists, who were negative towards the government, accepted restriction, but at the same time had the best evaluation of scientists. In this case, the source of acceptance of restrictions could be confidence in the science.

It should be also noted that other cluster analyses conducted at the beginning of the pandemic (in March 2020) among the Polish people did not prove the existence of a significant group of respondents who criticised the government's actions (Boguszewski et al. 2021). The present study, however, found a large section of the respondents to be more critical. This is additionally confirmed by public opinion polls that demonstrate an increase in the number of people calling themselves government's critics from 27% in March 2020 to 45% in November of this year (CBOS 2021). This change shows that the 'rally 'round the flag' effect may wear off during the pandemic due to the rising dissatisfaction with the crisis policy pursued by the government. This seems to have been the case in Poland, as illustrated by the emergence of the cluster referred to herein as the government's critics. Nevertheless, the reduction in the intensity of this effect need not necessarily be accompanied by a disapproval of the restrictions.

The differences between the clusters distinguished in the analysis translate into differences in the perception of the scale of pandemic-related risks. Considering the demographic profile, it can be stated that the pandemic followed different trajectories for different groups and was, therefore, differently experienced. For the relatively affluent people living in big cities with higher education qualifications (the 'government's critics' and 'critical conformists' clusters), the pandemic is a different phenomenon to that experienced by the economically active people, including the self-employed, living in rural areas or small towns (the 'dissenters'). The differences between the clusters suggest that COVID-19 may constitute a threat that is more clearly perceived from the large cities where the risk of infection is higher and the laboratory testing infrastructure is better developed, which translates into higher detection rates of infections and deaths, than from the rural

areas or small towns. These different trajectories correspondingly dictate the people's attitudes towards the threat—while the government's critics do not downplay the virus, the dissenters are much more sceptical of it.

The several models of compliance and the different ways of perceiving the risk of COVID-19 seem to suggest that it is necessary to use different communication models that are appropriate for the various groups. The government's critics and dissenters have a critical attitude towards the government's communication approaches, so the communication strategies directed at them should be decidedly non-political; for example, local opinion leaders or authorities not linked to the world of politics could be enlisted for this purpose. Whereas critical conformists as people who positively evaluate scientists are the group that expert discourse will better reach.

The role of statistics was highlighted in the context of infectious disease risk management in the past (Naylor 2003), but it seems that the COVID-19 pandemic and the universal access to data proved the importance of this tool in public communication. As the present study shows, the respondents were divided over their evaluation of the credibility of the statistics, which is best illustrated in the differences between the dissenters and government's critics on the one hand and the conformists on the other. From among all clusters, only the conformists, i.e., 19% of all the respondents in the present analysis, firmly declared that the statistics reflected the reality (57%). This ratio had the following values for the remaining clusters: 34% (bystanders), 18% (critical conformists), 16% (government's critics) and 8% (dissenters). Assuming that the statistics may constitute an effective tool in informing the society about the pandemic-related risk and that they are, therefore, useful for the effective implementation of policies aimed at counteracting the risk, their credibility is of key importance for ensuring the effectiveness of risk communication. It should be also underlined that the dissenters' disbelief in the statistics was accompanied by a refusal to accept the restrictions and also by opinions that downplayed the scale of the threat (such as the belief that the government communication exaggerates the threat). Low level of credibility of the death toll statistic deaths may catalyse criticism about other aspects related to pandemic management and risk perception, and it may precipitate contesting attitudes.

Summary

The present study, which was conducted at a fairly sensitive moment of the pandemic, provided the image of a society embroiled in a health crisis. It revealed the dividing lines in the society and showed that, even when faced with the threat of a global pandemic, the society is far from being able to present a united front against a common enemy. The spectrum of possible attitudes presented herein ranges from extreme loyalty to all the institutions involved in the fight against the 'plague' to an attitude that contests almost every aspect of this fight.

The fact that there is a relatively large group of dissenters (17%) indicates the need for improvement in the state's and society's systems of crisis management. This improvement pertains to both the capacity of the healthcare system and the elements of communication. It seems that clusters with critical opinions have a socio-demographic profile more

predisposed to position themselves as opinion leaders (higher income, professional status) and to pull more people from other clusters (e.g. 'bystanders' cluster) to more radical and contesting positions.

Given that the present study was conducted at one of the most dramatic moments of the pandemic in Poland, the obtained results concern social attitudes towards a phenomenon of high intensity. To what extent the attitudes formed by this experience will prove lasting remains to be seen. The current study is also subject to the risk of temporariness—due to its timing, the obtained results may be valid for only the immediate present. Considering the above reservations, it also foregrounds the need to acknowledge the actual risk of emergence of similar pandemics in the future. Medical experts warn that we will be faced with further health crises of this type and recommend ensuring preparedness for the same (Burton and Topol 2021). While revealing several areas that are of key importance in pandemic management, the results of the present study identifies two underlying factors that influence public response—trust in public institutions and crisis communication.

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