

# Is COVID-19 a Disease or “Disease”? Personal Beliefs and Status Vulnerability as Determinants of Preventive Behaviour of Persons with Haemophilia in Croatia

---

**Marko Marinić**

*Institute of Social Sciences Ivo Pilar, Zagreb, Croatia*

*e-mail: marko.marinic@pilar.hr*

*ORCID: 0000-0002-9863-7571*

**Stanko Rihtar**

*Institute of Social Sciences Ivo Pilar, Zagreb, Croatia*

*e-mail: stanko.rihtar@pilar.hr*

*ORCID: 0000-0002-1369-7148*

**Kruno Sokol**

*Institute of Public Health of Zagreb County, Department of Epidemiology, Zaprešić, Croatia*

*e-mail: kruno.sokol@inet.hr*

*ORCID: 0000-0002-6457-5626*

**ABSTRACT** The protection from the coronavirus, especially among persons with severe diseases, has been one of the central topics since the beginning of the pandemic. It has been shown that real (physical) and symbolic threats (beliefs related to the pandemic) have an opposite effect on behaviour: personal vulnerability (threats to physical and material well-being) instigates appropriate preventive behaviour, while symbolic threats result in neglecting or in various ways avoiding of epidemiological measures.

In this paper we attempted to examine the extent to which objective (status) vulnerability and personal beliefs regarding the pandemic were absolutely and concurrently relevant factors of preventive behaviour among persons with haemophilia. The survey was conducted among adults with haemophilia in Croatia (N=98). Along with health status, age and income were

also considered as indicators of objective vulnerability. Furthermore, beliefs were examined by exploring satisfaction with the corona crisis management, tendency towards conspiracy theories, opinions on vaccine safety and disease severity, and the fear of becoming infected.

The results revealed a correlation between preventive behaviour and age and beliefs (gathered in a unique syndrome), while health and material status did not play a significant role. The regression showed that beliefs were statistically significant and were the only independent determinant of preventive behaviour.

The results support the findings suggesting that beliefs grouped around the tendency towards conspiracy theories can be more relevant for preventive behaviour than status vulnerability, including haemophilia-related health impairment.

*Key words:* haemophilia, COVID-19, vulnerable health, personal beliefs, prevention, sociology of health.

## **1. Introduction**

### ***1.1. Pandemic in contemporary societies: why is mass coping hard?***

Coping with pandemics is influenced by a broad spectrum of social factors, but there are generally two of them that can be pointed out as those aggravating the pandemic in contemporary societies: first, the level of democratic standards, and second, lifestyle in general.

The first is related to the fact that in late-modern, liberal, individualistic democracies high democratic standards have been reached. Besides that, the consumerist lifestyle is easier than ever. Under such circumstances, the restrictions necessary under epidemiological measures are harder to cope with and be accepted. It has also been shown that restrictions lower institutional trust, which is an otherwise relevant (and interculturally robust) factor of civic responsibility, particularly in situations of general (health) vulnerability (Han at al., 2021; Quinn at al., 2009).

The second factor that hinders coping with the pandemic are the difficulties occurring as the consequences of a combination of uncertain circumstances and democratization of public informing and communication. The development of the Internet has made the horizontal and multidirectional informing, especially via social networks, a competitor to the vertical one. Lack of normative (professional) regulation of such communication enabled social networks to become the main medium of spreading disinformation and fake news, including conspiracy theories (Hall Jamieson and Albaracín, 2020; Romer and Hall Jamieson, 2021). There is an abundance of theoretical explanations of conspiracy theories, from the influential Hofstadter's classical study (Hofstadter, 2008) onwards, which have been, along with accumulated empiri-

cal findings, summarized in a handbook by Lewandovsky and Cook (2021). It is this handbook that the European administration used in collaboration with UNESCO as the main source in developing guidelines for coping with conspiracy theories (recognition, revelation and suppression). According to the handbook and guidelines (Lewandovsky and Cook, 2021), conspiracy theories are briefly and generally defined as the beliefs that influential persons or circles having bad intentions manipulate certain events and situations. As a rule, these beliefs involve six common elements: existence of a secret plan, groups of conspirators, "evidence", overall interconnections (without random coincidences), a black and white worldview (either good or bad), and blaming (sometimes also stigmatization) of individuals or groups. Eventually, a number of cases have shown that believing in conspiracies has a broad or worldview-based reach, and that believing in one conspiracy usually implies believing in others, including the situations when they are not mutually connected and even when their causes are mutually logically excluded (Dagnall et al., 2015; Georgiou, Delfabbro and Balzan, 2020; Imhoff and Bruder 2020; Irwin, Dagnall and Drinkwater, 2015; Miller, 2020; Romer and Hall Jamieson, 2020; Wood, Douglas and Sutton, 2012; Uscinski et al., 2020). If the described beliefs also affect preventive behaviour, they can be considered a serious factor of public health risk: it has been shown that believing in conspiracy theories encourages neglect of or resistance to prevention (Hall Jamieson and Albaracín, 2020), which significantly hinders suppressing the pandemic in general (Romer and Hall Jamieson, 2020; Bierwaczzonek, Kunst and Pich, 2020).

## **1.2. Two types of pandemic threats**

Kachanoff, Bigman and Kapsaskis (2021) divide pandemic threats into the physical and symbolic.

Physical threats refer to the vulnerability of the health and material standard, especially in less developed economies that have scarcer health care capacities (Buheji et al., 2020). The symbolic ones refer to the vulnerability of the sociocultural identity, i.e. to the possible weakening of social cohesion due to social isolation, and restrictions to rights, freedoms or worldviews. The tendency towards conspiracy theories can be regarded as a symbolic threat due to its possible distortion of the social cohesion necessary for coping with the pandemic, especially in settings with lower institutional trust.

By comparing the relevance of real and symbolic threats, Kachanoff, Bigman and Kapsaskis (2021) asserted that, despite inflicting the same amount of psychological stress, they have an opposite effect on behaviour: personal vulnerability (threats to physical and material well-being) triggers appropriate preventive behaviour, while symbolic threats result in neglecting or in various ways avoiding of epidemiological measures. Moreover, it has been shown that the threats to physical and material well-being are more relevant than the symbolic ones. Age is relevant due to a greater vulnerability of

the elderly and lesser vulnerability of the young, with a simultaneous need for greater abstinence from a more dynamic social life. Income is important due to a greater possible economic vulnerability during the pandemic among those who already have a lower standard. For instance, a Gallup study conducted in 116 countries revealed that social restrictions had harder effects on the young worldwide, while economic consequences of the pandemic were seen as a greater threat by those having a lower standard or living in economically deprived environments (Reinhart, 2021).

However, when it comes to the tendency towards believing in conspiracy theories, the opposite indications have been observed (Romer and Hall Jamieson, 2020), according to which beliefs are more relevant for the adhering to pandemic measures than the diversity of the sociodemographic (status).

### **1.3. Pandemic threats and vulnerable health**

In order to resolve the previously described ambiguity, it can be explored which type of threats is more relevant among particularly vulnerable groups, such as those whose health is seriously compromised, besides having a vulnerable socio-demographic status. On one hand, they need to adhere more strongly to restrictive measures to avoid contact with the virus and not further jeopardize their health. On the other hand, they need to visit hospitals more frequently (going to check-ups, blood drawing, therapies, etc.), which makes them more exposed to the virus. This way the health-care system becomes a possible source of infection, while they, as frequent users, become potential transmitters of the disease in the same system, far more than those who are less in need of health services.

In this context, rare diseases, including haemophilia, constitute a special group. Research have shown that the frequency of hospitalization and bleeding due to COVID-19 is much higher among persons suffering from haemophilia than among the general population (Mericliler & Narayan, 2022). Persons with haemophilia need lifetime medical care: especially the elderly, which have developed numerous comorbidities due to inadequate past treatment. In addition, especially in the 1980s in western developed countries, many were infected with HIV and hepatitis B and C viruses through contaminated blood products for haemophilia (Evatt, 2006; Arnold, Julian and Walker, 2006). Many passed away, but some still live with these diseases, which might increase the risk of developing severe clinical symptoms in the case of the coronavirus infection. The literature also suggests many other potential risks for persons with haemophilia, in the context of the COVID-19 pandemic (Hermans et al., 2020).

## 2. Aim

In order to further clarify the type of threats that is more relevant, this analysis aims to examine the extent to which sociodemographic status and health vulnerability (physical threats), and beliefs (symbolic threats) are absolutely and concurrently relevant factors of preventive behaviour in an extremely vulnerable group: persons with haemophilia in Croatia.

## 3. Method

### 3.1. Sample, period and circumstances of the research

The research was conducted by the Institute of Social Sciences Ivo Pilar in collaboration with the Croatian Haemophilia Society by postal survey within the project *The Quality of Life of Adults with Haemophilia in Croatia – Medical and Psychosocial Aspects*. The research was approved by the Ethics Committee of the Ivo Pilar Institute on March 25, 2021, and the empirical part of the survey was conducted between May 5 and July 14, 2021, among the members of the mentioned Society.

With every distributed questionnaire, a letter was enclosed in which the aims, implementation and circumstances of the study were explained, along with the postal stamp and envelope for returning the questionnaire. Anonymity of responses was multifold guaranteed: the questionnaires needed not to be signed, the envelopes for return were not labelled, and the accompanying letter and introduction of the questionnaire clearly stated that the study was carried out in accordance with the European General Data Protection Regulation (GDPR), and that the answers would not be analysed individually, but only as a set of data for statistical analyses. The questionnaires were sent out to 140 addresses, or to all adult members of the Croatian Haemophilia Society diagnosed with haemophilia A or B. The response rate was 98 out of 140 (70%).

The socio-demographic structure of the realised sample is shown in Table 1.

Table 1  
Socio-demographic structure of the realised sample

		%	Range	M (SD)
Age (years)	1 18-20	8.2	1-7	3.65
	2 21-30	23.5		(1.67)
	3 31-40	15.3		
	4 41-50	19.4		
	5 51-60	19.4		
	6 61-70	7.1		
	7 71+	6.1		
	No answer	1.0		
Income per household member	1 No income	5.1	1-8	4.49
	2 < 1000 HRK	5.1		(1.71)
	3 1001-2000	17.3		
	4 2001-3000	19.4		
	5 3001-5000	27.6		
	6 5001-7000	9.2		
	7 7001-10 000	8.2		
	8 10 001+	5.1		
	No answer	3.1		

Note. M – mean, SD – standard deviation.

### 3.2. Instruments and variables

#### 3.2.1. Socio-demographic characteristics and health

Age was recorded on a scale ranging from 1 to 7 (ten-year periods, from 18 to 71 or more years); material status was examined on a scale of income per household member, ranging from 1 - No permanent income, to 8 - More than 10,000 HRK (approx. 1,350 EUR) per person.

Health was examined by introducing nine indicators that, besides an insight into the severity of the disease and possible adaptability, also included increased social needs and constraints induced by the disease.

Subjective assessment of health status in general was examined by a five-degree scale (from 1 – Very poor, to 5 – Very good), as well as the frequency of experiencing pain in the last month (from 1 – Not once, to 5 – Every day or almost every day).

For indicators of disease severity, which also include a greater need for assistance from others (family or the system) or lifestyle constraints, answers to the following four

questions were used: the first was related to the need for urgent visits to hospital in the last month (from 1 – Not once, to 5 – Every day); while the second explored the need for other people's help with applying home therapy (with possible answers from 1 – I am not using home therapy, to 3 – I need other people's help). The third question examined lifestyle constraints in general due to activities demanded by haemophilia treatment, with possible answers on a scale from 1 (Not constrained at all) to 5 (Extremely constrained); and the fourth question examined restrictions of personal development and social activities on a scale of the same range. All these items, except for the questions on other people's assistance, were taken from the *A36 Hemofilia-QoL* questionnaire (Remor et al., 2005).

Possible adaptability was checked by the question *How do you cope with your disease in general*, with possible answers ranging from 1 (Very badly) to 4 (Very well). Finally, the frequency of permanent disability was tested: degree of disability on a scale from 1 (None) to 5 (Higher than 80%), and movability on a scale from 1 (Able to walk without difficulties) to 5 (Not movable at all).

### 3.2.2. Beliefs

The general tendency towards conspiracy theories was tested on a single-item scale of Lantian and collaborators (Lantian et al., 2016) consisting of nine degrees, in which a higher score means a greater tendency towards conspiracy theories. The scale has an introduction suggesting that some political and social events are debated: for example, 09/11 attacks, the death of Lady Diana, the assassination of John F. Kennedy. It is suggested that the "official version" of these events could be an attempt to hide the truth from the public. This "official version" could mask the fact that these events have been planned and secretly prepared by a covert alliance of powerful individuals or organizations (for example secret services or government). The respondents are asked to give their opinion on the matter. To answer, they are required to indicate to what extent the sentence below represents what they think about this: "I think that the official version of the events given by the authorities very often hides the truth". The possible answers range from 1 (Completely false) to 9 (Completely true). The one-item scale was used following the insights on a worldview scope of believing in conspiracies. The intercultural validation confirmed satisfactory psychometric properties of the scale Lantian et al. (2016), and after the translation and adaptation of the statements for our research, additional validation of the scale was not performed.

Opinion about the corona crisis management was assessed on a scale ranging from 1 (Very bad) to 5 (Very good). The attitude on the severity of the COVID-19 disease, fear of the disease and opinion on the vaccine safety were measured on scales of the same range. Thus, attitude was measured on a range from 1 (That disease does not exist, it is a hoax) to 4 (It is a very serious disease, much more dangerous than the

seasonal flu); fear on a range from 1 (Not at all present) to 4 (Strong); and opinion on the anti-COVID-19 vaccine safety was observed on a scale ranging from 1 (Not safe at all) to 4 (Completely safe).

### *3.2.3. Pandemic-related behaviour*

Compliance with epidemiological measures was examined on a six-item scale (wearing a mask indoors/outdoors, keeping a physical distance, hand hygiene, avoidance of larger gatherings, handshaking and physical contact); with the answers that could range from 1 (Not cautious at all) to 4 (Very cautious about it).

The intention of being vaccinated was examined by asking the question “If anti-COVID-19 vaccine were available to you tomorrow, would you get vaccinated?“, for which the following answers were offered No (1), Do not know, cannot decide (2), Yes (3), I already got vaccinated (4). The last two answers were put in the same category, since in the period when the study was conducted vaccination was still not available to everyone.

## **4. Results and discussion**

### **4.1. Descriptive overview**

#### *4.1.1. Sociodemographic status and health.*

According to estimates, the dominant (A) type of haemophilia is present in between 80% and 85% of the population (Srivastava et al., 2013). In the present sample, the share of haemophilia A is 82%, while the rest of the sample has haemophilia B. The sample encompasses all degrees of haemophilia (mild, moderate, and severe), but the greatest response was received by the severely ill (60% of those with the factor level below 1%). This is an expected result, since the research was conducted among the members of the association of haemophilia patients, in whom the greatest interest for being a member is among those who have the most severe problems, i.e. the severe type of the disease.

Table 2 presents average distribution of particular difficulties. The measured average values of the scales are generally lower than the a priori average values, which suggests that the mentioned difficulties are not that intense. However, each result above 1 points to the presence of a concrete problem. It should be noted that the pain and level of disability are rather strongly distributed among the respondents, which is in line with numerous research studies (e.g. García-Ripoll & De la Corte-Rodríguez, 2023; Holstein et al, 2012; Foubert et al., 2022).



Table 2  
Health status

	Range	M (SD)	PC 1 (Health status)
Health status in general	1-5	2.20 (0.96)	0.837
Coping with the disease	1-4	1.72 (0.69)	0.856
Frequency of experiencing pain	1-5	2.71 (0.89)	0.750
Time constraints due to the disease	1-5	2.06 (1.18)	0.811
Social and developmental constraints	1-5	2.45 (1.34)	0.919
Need for going to hospital	1-5	1.59 (0.78)	0.689
Need for others' help with applying home therapy	1-3	2.00 (0.66)	0.314
Movability	1-5	1.81 (1.01)	0.775
Degree of disability	1-5	2.95 (1.70)	0.675
Eigenvalue			5.130
% variance			56.996
Cronbach alpha			0.880

Note. Higher scores mean poorer health; M – mean, SD – standard deviation; last column – projections on principal component.

Principal components analysis (projections: last column in Table 2) shows that particular health status indicators can be reduced to only one, synthetic and reliable (internally consistent) component.

#### 4.1.2. Pandemic-related beliefs

As a rule, institutional trust in Croatia varies greatly, especially regarding the institutions co-responsible for managing the current health crisis. Trust in the health care system is moderately high: according to most recent Eurobarometer data, in the first half of 2020 the health care system was trusted by a little over two thirds (68%) of citizens (European Commission, 2020). In contrast, trust in political institutions is extremely low, with less than a third of citizens trusting them (numerous research studies consensually suggest that it has been among the lowest in Europe ever since declaring independence in 1991 (Baloban, Črpić and Ježovita, 2019).

Considering this, opinions on the corona crisis management as a joint endeavour of politics and health care are mostly divided: the measured Mean is 2.78 and is somewhat lower than the a priori score, as presented in Table 3. A third of respondents (34%) think the crisis is managed badly, almost an equal proportion (37%) find it neither well, nor badly managed, while a little over a fourth (28%) find this policy moderately satisfactory.

Table 3  
Pandemic-related beliefs

	Range	M (SD)	PC1 (Beliefs)
Satisfaction with the corona crisis management	1-5	2.78 (1.03)	0.709
Tendency towards conspiracy theories	1-9	6.38 (2.26)	-0.486
Opinion on the seriousness of the COVID-19 disease	1-4	3.33 (0.94)	0.875
Fear of the disease	1-4	1.85 (0.83)	0.578
Trust in the vaccine safety	1-4	2.58 (0.89)	0.793
Eigenvalue			2.467
% variance			49.342
Cronbach alpha			0.733

Note. Tendency toward conspiracy theories was rescaled for further analysis (higher score – less belief in conspiracies); M – mean, SD – standard deviation; last column – projections on principal component.

When it comes to the tendency towards conspirative thinking, a significant proportion of persons with haemophilia do not reject a possible responsibility of conspiracies for negative social phenomena in general, including the current pandemic. Thus, 62% believe at least to some extent in the statements that such theories claim (of whom almost a fourth or 22% believe without reserve). In the case of the current pandemic, it can be mentioned that the Gallup survey conducted in early 2020 in 28 countries on all continents, revealed that on average more than 30% of respondents believed that the coronavirus was deliberately spread by some foreign or unknown force (Gallup International, 2022).

Furthermore, 56% thought of COVID-19 as a serious disease, unlike the 30% of those thinking it was not more threatening than the seasonal flu, while 14% suggested it was a mild or fake disease (the average on a scale from 1 to 4 is 3.33, Table 3).

Despite the relative majority of those who find the disease serious, the fear of becoming infected is not particularly strong – it is more pronounced in 20% of the cases (or, averagely 1.85 on a scale from 1 to 4; Table 4). The findings suggest that persons with haemophilia were only a little more afraid of the pandemic than the general population, where the percentage of the extremely scared was 14% (Čorkalo Biruški et al., 2020).

This needs to be complemented with the finding that two thirds (65%) of respondents, along with the relative majority who think that the disease is serious, also find that the developed vaccines are relatively or completely safe (averagely 2.58 on a scale from 1 to 4; Table 3).

The hypothesis on possible grouping of the tendency towards conspiracy theories and examined beliefs in a broader, unique and consistent syndrome is confirmed by principal components analysis (projections: last column in Table 3). Believing in conspiracy theories generally implies less satisfaction with the corona crisis management, perceiving COVID-19 as a milder or non-existent disease, and a lower fear of becoming infected, along with a higher scepticism towards the vaccine safety. The finding confirms the claim of the author of the used scale of conspiracy theories, according to which this tendency has a world-view range, which is consistent with numerous empirical confirmations (Georgiou, Delfabbro and Balzan, 2020; Imhoff and Bruder, 2020; Miller, 2020; Romer and Hall Jamieson, 2020; Uscinski et al., 2020; Lantian et al., 2016; Goreis and Voracek, 2019).

#### 4.1.3. Behaviour and behavioural intentions: compliance with the measures and response to vaccination

As presented in Table 4, despite the non-negligible tendency towards conspiracy theories, a relative majority of haemophilia patients in this sample still adhered to prescribed epidemiological measures and recommendations. The only exception was wearing masks outdoors, which was nevertheless not formally prescribed in Croatia.

Table 4  
Intentions of being vaccinated and compliance with epidemiological measures

	Range	M (SD)	PC 1 (Compliance with epidemiological measures)
Intentions of being vaccinated	1-3	2.18 (0.85)	
Wearing a mask indoors	1-4	3.57 (0.72)	0.502
Wearing a mask outdoors	1-4	1.74 (0.85)	0.482
Keeping a physical distance	1-4	2.83 (0.93)	0.760
Hand washing and/or disinfection	1-4	3.36 (0.84)	0.503
Avoidance of larger gatherings	1-4	2.89 (1.04)	0.812
Avoidance of physical contact	1-4	2.79 (1.11)	0.779
Eigenvalue			3.838
% variance			63.969
Cronbach alpha			0.886

Note. M – mean, SD – standard deviations; last column – projections on principal component.

Corroborated by percentages, 88% were cautious about wearing a mask in indoor public spaces, 86% about hand washing or disinfection, 68% avoided larger gatherings, 63% were careful about keeping a physical distance, 63% avoided handshaking, while less than 20% wore a mask outdoors. The general population average values are almost identical (Čorkalo Biruški et al., 2020) for wearing masks 3.21, hand hygiene

3.19, keeping a physical distance 3.08, and avoidance of physical contacts 2.77, hand-shaking 2.89, and larger gatherings 2.88.

The projections given in the last column in Table 4 show that compliance with the measures can be expressed as only one principal component (synthetic and consistent indicator).

Finally, when it comes to vaccinations, 47% accepted it as a measure of prevention (a fourth had already been vaccinated, and an additional 22% expressed the intention). A fourth could not decide, while 29% claimed they had no intention of getting vaccinated. As with compliance to the measures, this finding is also in accordance with the population share (46%) (European Commission, 2021).

#### 4.2. Correlation/regression analyses

As given in the displayed correlations (Table 5), the distinguishing between compliance with epidemiological measures and intentions of being vaccinated proved reasonable, since these criteria are not colinear, but moderately correlated ( $r = 0.498$ ;  $p < 0.01$ ).

Table 5  
Correlations (Pearson's  $r$ ) between variables included in the analysis

	2	3	4	5	6
1 Age	-0.006	0.594**	-0.194	0.293**	0.366**
2 Income	1	-0.212*	-0.136	0.057	0.161
3 Health status		1	0.063	0.189	0.127
4 Beliefs			1	0.695**	0.693**
5 Compliance with measures				1	0.498**
6 Intentions of being vaccinated					1

Note. Health status, beliefs and compliance – component scores.  
\*\* $p < 0.01$ ; \* $p < 0.05$

Although only moderately correlated with one another, both indicators of preventive behaviour are very similarly correlated with other variables.

Among status variables, behaviour is correlated only with age: the elderly are more cautious. Furthermore, a more cautious behaviour is not correlated with income, nor with health, despite the elderly having more health-related issues, and to some extent also those with a lower material status.

Finally, beliefs are correlated with preventive behaviour much more than potentially risky status variables.

In order to examine the concurrent (independent) relevance of status and beliefs, they were included in a hierarchical linear regression in two steps. Status variables were introduced as predictors in the first step, beliefs as intervening variable in the second, while compliance with the measures and intentions of being vaccinated served as criterions (Table 6).

Table 6  
Hierarchical linear regression: status and beliefs as determinants of preventive behaviour

		Compliance with measures	Intentions of being vaccinated
		b	
First step:	Age	0.375**	0.401**
Status	Income	-0.030	0.202
	Health	-0.075	-0.049
	R <sup>2</sup>	0.115	0.180
	F	3.194*	5.499**
	Max. VIF	1.531	1.601
Second step:	Age	0.113	0.166
Status + pandemic related beliefs	Income	-0.069	0.118
	Health	-0.013	0.024
	Beliefs	0.638**	0.659**
	R <sup>2</sup>	0.464	0.565
	DR <sup>2</sup>	0.349	0.385
	DF	47.576**	65.615**
	Max. VIF	1.681	1.615

Note. b – standardized regression coefficients; R<sup>2</sup> – coefficient of determination; F – significance of the model; D – change, VIF – variance inflation factor.  
\*\*p < 0.01; \*p < 0.05

Firstly, in this case also there are no differences in the concurrency of individual determinants in the sense of their influence on both types of responsible behaviour. Besides, age is the only relevant determinant.

But after introducing beliefs, independent effect of age was not significant anymore: beliefs took over complete mediation, i.e. age itself was not relevant for preventive behaviour, unless complemented with beliefs.

The finding that beliefs are absolutely (suggested by correlations) and concurrently (suggested by regression) most relevant does not imply that other variables are practically negligible. Age should especially be regarded as a factor of risky behaviour, due to the specific social needs, habits and lifestyle of youth. This includes a more frequent use of social networks, the main medium for spreading fake news and conspiracy theories, and the fact that youth generally have a better health.

Finally, since the relative majority of respondents pursue preventive behaviour, it cannot be argued that the effect of beliefs is indeed absolutely strong, but it is definitely relevant.

## **5. Conclusion**

The research has shown that people with haemophilia are not more prone to preventive behaviour in comparison with the general population. It also confirmed that personal beliefs, including those related to conspiracies, are a more significant determinant of preventive behaviour than is objective vulnerability, although not in an absolutely large number. This may pose an additional health risk. Consequently, the research has confirmed that conspiracy theories can be a real challenge to official health policy, and a potential global public health problem (Leonard & Philippe, 2021; Bierwiazzonek, Gundersen & Kunst, 2022; Romer & Jamieson, 2020; Tsamakidis et al., 2022).

## **Strengths, limitations and further directions**

The main strength of the study is the exploration of a very sensitive sample in terms of health. At the same time, since haemophilia is a very rare disease, the main limitation is that the number of respondents is relatively small. In line with this, further studies should be conducted on patients suffering from more common (and various) diseases.

## **Acknowledgements**

The authors thank to all the members of the Croatian Haemophilia Society who responded to the survey.

## References

1. Arnold, DM.; Julian, JA. and Walker IR. (2006). Mortality rates and causes of death among all HIV-positive individuals with hemophilia in Canada over 21 years of follow-up. *Blood*, 108 (2): 460-464.
2. Baloban, J.; Črpić, G. and Ježovita, J. (2019). *Vrednote u Hrvatskoj od 1999. do 2018. prema European Values Survey*. Zagreb: Katolički bogoslovni fakultet Sveučilišta u Zagrebu, Hrvatsko katoličko sveučilište, Kršćanska sadašnjost.
3. Bierwiazzonek, K.; Kunst, JR. and Pich, O. (2020). Belief in COVID-19 conspiracy theories reduces social distancing over time. *Appl Psychol: Health and Well-Being*, 12 (4): 1270-1285. <https://doi.org/10.1111/aphw.12223>
4. Bierwiazzonek, K.; Gundersen, A. B. and Kunst, J. R. (2022). The role of conspiracy beliefs for COVID-19 health responses: A meta-analysis. *Current opinion in psychology*, 46, 101346. <https://doi.org/10.1016/j.copsyc.2022.101346>
5. Buheji, M.; Cunha, K. D.; Beka, G.; Mavric, B.; Souza, Y. L.; Silva, S. S.; Hanafi, M. S.; Yein, T. C. (2020). The Extent of COVID-19 Pandemic Socio-Economic Impact on Global Poverty. A Global Integrative Multidisciplinary Review. *American Journal of Economics*, 10 (4): 213-224. <https://doi.org/10.5923/j.economics.20201004.02>
6. Čorkalo Biruški, D.; Jelić, M.; Kapović, I.; Baketa, N.; Bovan, K.; Dumančić, F.; Kovačić, M.; Tomić, I.; Tonković, M.; Uzelac, E. (2020). *Preživjeti i živjeti: hrvatsko društvo u vrijeme koronakrize*. Zagreb, Friedrich-Ebert-Stiftung.
7. Dagnall, N.; Drinkwater, K.; Parker, A.; Denovan, A.; Parton, M. (2015). Conspiracy theory and cognitive style: A worldview. *Frontiers in Psychology*, 6: 1-9. <https://doi.org/10.3389/fpsyg.2015.00206>
8. European Commission (2021). Flash Eurobarometer 494, report: Attitudes on vaccination against COVID-19. <https://europa.eu/eurobarometer/surveys/detail/2512>. (Accessed May 10, 2022)
9. European Commission (2020). Public opinion in the European Union. <https://europa.eu/eurobarometer/surveys/detail/2262>. (Accessed January 30, 2022)
10. Evatt B. L. (2006). The tragic history of AIDS in the hemophilia population, 1982-1984. *Journal of thrombosis and haemostasis*. 4 (11), 2295-2301. <https://doi.org/10.1111/j.1538-7836.2006.02213.x>
11. Foubert, A.; Roussel, N.; Chantrain, V. A.; Hermans, C.; Lambert, C.; Lobet, S.; Meeus, M. (2022). Pain coping behaviour strategies in people with haemophilia: A systematic literature review. *Haemophilia*, 28 (6): 902-916. doi: [10.1111/hae.14627](https://doi.org/10.1111/hae.14627). Epub 2022 Jul 18. PMID: 35850157.
12. Gallup International (2020). The coronavirus: A vast scared majority around the world. Snap poll on Cov19 in 28 countries by Gallup International Association. [https://www.gallup-international.com/fileadmin/user\\_upload/surveys\\_and\\_news/2020/GIA\\_SnapPoll\\_2020\\_COVID\\_Tables\\_final.pdf](https://www.gallup-international.com/fileadmin/user_upload/surveys_and_news/2020/GIA_SnapPoll_2020_COVID_Tables_final.pdf). (Accessed April 7, 2022)

13. García-Ripoll, M. and De la Corte-Rodríguez, H. (2023). Disability and the social impact of hemophilia. *Blood Coagul Fibrinolysis*, 34 (S1): S26-S28. doi: [10.1097/MBC.0000000000001207](https://doi.org/10.1097/MBC.0000000000001207). PMID: 37254728.
14. Georgiou, N.; Delfabbro, P. and Balzan. R. (2020). COVID-19-related conspiracy beliefs and their relationship with perceived stress and pre-existing conspiracy beliefs. *Personality and Individual Differences*, 166, 1-7. <https://doi.org/10.1016/j.paid.2020.110201>
15. Goreis, A. and Voracek, M. (2019). A Systematic Review and Meta-Analysis of Psychological Research on Conspiracy Beliefs: Field Characteristics, Measurement Instruments, and Associations With Personality Traits. *Frontiers in Psychology*, 10: 1-13. <https://doi.org/10.3389/fpsyg.2019.00205>
16. Hall Jamieson, K. and Albarracín, D. (2020). The Relation between Media Consumption and Misinformation at the Outset of the SARS-CoV-2 Pandemic in the US. *HKS Misinfo Review*, 2: 1-22. <https://doi.org/10.37016/mr-2020-012>
17. Han, Q.; Zheng, B.; Cristea, M.; Agostini, M.; Belanger, J.; Gutzkow, B.; Kreienkamp, J.; PsyCorona Collaboration; Leander, N. P. (2021). Trust in government regarding COVID-19 and its associations with preventive health behaviour and prosocial behaviour during the pandemic: a cross-sectional and longitudinal study. *Psychological medicine*, 1-11. Advance online publication. <https://doi.org/10.1017/S0033291721001306>
18. Hermans, C.; Weill, A. and Pierce, G. F. (2020). The COVID-19 pandemic: New global challenges for the haemophilia community. *Haemophilia*, 26 (3): 371-372. doi: [10.1111/hae.14001](https://doi.org/10.1111/hae.14001). Epub 2020 Apr 20. PMID: 32246879.
19. Hofstadter, R. (2008). *The Paranoid Style in American Politics*. New York: Vintage Books.
20. Holstein, K.; Klamroth, R.; Richards, M.; Carvalho, M.; Pérez-Garrido, R.; Gringeri, A. (2012). European Haemophilia Therapy Standardization Board. Pain management in patients with haemophilia: a European survey. *Haemophilia*, 18 (5): 743-52. doi: [10.1111/j.1365-2516.2012.02808.x](https://doi.org/10.1111/j.1365-2516.2012.02808.x). Epub 2012 Apr 25. PMID: 22530627.
21. Imhoff, R. and Bruder, M. (2020). Speaking (Un-)Truth to Power: Conspiracy Mentality as A Generalised Political Attitude. *European Journal of Personality*, 28 (1): 25-43. <https://doi.org/10.1002/per.1930>
22. Irwin, H. J.; Dagnall, N. and Drinkwater, K. (2015). Belief Inconsistency in Conspiracy Theorists. *Comprehensive Psychology*, 4 (Article 19). <https://doi.org/10.2466/17.cp.4.19>
23. Kachanoff, F. J.; Bigman, Y. E.; Kapsaskis, K.; Gray, K. (2020). Measuring realistic and symbolic threats of COVID-19 and their unique impacts on well-being and adherence to public health behaviors. *Social Psychological and Personality Science*, 12 (5): 603-616. <https://doi.org/10.1177/1948550620931634>
24. Lantian, A.; Muller, D.; Nurra, C.; Douglas, K. M. (2016). Measuring belief in conspiracy theories: Validation of French and English single-item scale. *International Review of Social Psychology*, 29 (1): 1-14. <https://doi.org/10.5334/irsp.8>



25. Leonard, M. J. and Philippe, F. L. (2021). Conspiracy Theories: A Public Health Concern and How to Address It. *Frontiers in Psychology*, 12: 682931. doi: [10.3389/fpsyg.2021.682931](https://doi.org/10.3389/fpsyg.2021.682931)
26. Lewandovsky, P. and Cook, J. (2020). *The Conspiracy Theories Handbook*. <http://sks.to/conspiracy>. (Accessed December 7, 2021)
27. Mericiler, M. and Narayan, G. (2022). Outcomes of COVID-19 in Adult Males With Hemophilia A: A Propensity Score-Matched Analysis. *Cureus*, 14 (10): e30662. doi: [10.7759/cureus.30662](https://doi.org/10.7759/cureus.30662). PMID: 36439567; PMCID: PMC9685584.
28. Miller, J. M. (2020). Do COVID-19 Conspiracy Theory Beliefs Form a Monological Belief System?. *Canadian Journal of Political Science*, 53 (2): 319-326. <https://doi.org/10.1017/S0008423920000517>
29. Quinn, S. C.; Kumar, S.; Freimuth, V. S.; Kidwell, K.; Musa, D. (2009). Public willingness to take a vaccine or drug under Emergency Use Authorization during the 2009H1N1 pandemic. *Biosecurity and Bio-terrorism: Biodefense Strategy, Practice, and Science*, 7 (3): 275-290. <https://doi.org/10.1089/bsp.2009.0041>
30. Reinhart, R. J. (2021). *COVID-19 affected people's lives everywhere*. Gallup international. <https://news.gallup.com/poll/348716/covid-affected-people-lives-everywhere.aspx>. (Accessed January 4, 2023.)
31. Remor, E.; Arranz, P.; Quintana, M.; Villar, A.; Jiménez-Yuste, V.; Diaz, J. L.; Rincón, C.; Marrero, C.; Moreno, M.; Lucia, F. J.; Martínez, E.; Soto, I.; Sedano, C.; Gonzalez-Boullosa, R.; Prieto, M.; Garcia-Luaces, M.; Hernández-Navarro, F. (2005). Psychometric field study of the new haemophilia quality of life questionnaire for adults: the 'Hemofilia-QoL'. *Haemophilia*, 11 (6): 603-610. doi: [10.1111/j.1365-2516.2005.01144.x](https://doi.org/10.1111/j.1365-2516.2005.01144.x).
32. Romer, D. and Hall Jamieson, K. (2021). Patterns of media use, strength of belief in COVID-19 conspiracy theories, and the prevention of COVID-19 from march to july 2020 in the United States: Survey study. *Journal of Medical Internet Research*, 23 (4): 1-14. <https://doi.org/10.2196/25215>
33. Romer, D. and Jamieson, K. H. (2020). Conspiracy theories as barriers to controlling the spread of COVID-19 in the US. *Social Sciences and Medicine*, 263: 1-8. <https://doi.org/10.1016/j.socscimed.2020.113356>
34. Srivastava, A.; Brewer, A. K.; Mauser-Bunschoten, E. P.; Key, N. S.; Kitchen, S.; Llinas, A.; Ludlam, C. A.; Mahlangu, J. N.; Mulder, K.; Poon, M. C.; Street, A. (2013). Guidelines for the management of hemophilia. *Haemophilia*, 19: e1-e47. <https://doi.org/10.1111/j.1365-2516.2012.02909.x>
35. Tsamakis, K.; Tsiptsios, D.; Stubbs, B.; Ma, R.; Romano, E.; Mueller, C.; Ahmad, A.; Triantafyllis, A. S.; Tsitsas, G.; Dragioti, E. (2022). Summarising data and factors associated with COVID-19 related conspiracy theories in the first year of the pandemic: a systematic review and narrative synthesis. *BMC psychology*, 10 (1): 244. <https://doi.org/10.1186/s40359-022-00959-6>

36. Uscinski, J. E.; Klofstad, C. and Atkinson, M. D. (2016). What Drives Conspiratorial Beliefs? The Role of Informational Cues and Predispositions. *Political Research Quarterly*, 69 (1): 57-71. [https://doi.org/ 10.1177/1065912915621621](https://doi.org/10.1177/1065912915621621)
37. Wood, M. J.; Douglas, K. M. and Sutton, R. M. (2012). Dead or alive: Beliefs in contradictory conspiracy theories. *Soc Psychol Personal Sci*, 3 (6): 767-773. [https://doi.org/ 10.1177/1948550611434786](https://doi.org/10.1177/1948550611434786)

## **Je li COVID-19 bolest ili »bolest«? Osobna uvjerenja i objektivna (statusna) ugroženost kao odrednice preventivnog ponašanja oboljelih od hemofilije**

**Marko Marinić**

Institut društvenih znanosti Ivo Pilar, Zagreb, Hrvatska  
e-mail: marko.marinic@pilar.hr

**Stanko Rihtar**

Institut društvenih znanosti Ivo Pilar, Zagreb, Hrvatska  
e-mail: stanko.rihtar@pilar.hr

**Kruno Sokol**

Zavod za javno zdravstvo Zagrebačke županije, Služba za epidemiologiju Zaprešić, Hrvatska  
e-mail: kruno.sokol@inet.hr

### **Sažetak**

Zaštita od zaraze koronavirusom, posebno među teže i kronično bolesnim osobama, svrstala se među središnje istraživačke teme tijekom pandemije. U ovom smo radu pokušali provjeriti koliko su objektivna (statusna) ugroženost i osobna uvjerenja povezana s pandemijom apsolutno i (međusobno) konkurentno relevantni čimbenici preventivnog ponašanja oboljelih od hemofilije. S tim je ciljem provedeno anketno istraživanje među punoljetnim osobama oboljelim od ove bolesti (N=98). Uz zdravstveni status, kao pokazatelji objektivne ugroženosti uzeti su u obzir dob i prihodi. Spektar ispitanih uvjerenja obuhvatio je zadovoljstvo upravljanjem pandemijskom krizom, sklonost teorijama zavjere, mišljenja o sigurnosti cjepiva i težini bolesti te bojazan od zaraze. Rezultati su pokazali da je preventivno ponašanje povezano s dobi i uvjerenjima (okupljenima u jedinstveni sindrom), dok materijalni status i zdravlje u tom pogledu nemaju relevantnu ulogu. Naknadnom regresijskom provjerom utvrđeno je da su uvjerenja najvažnija i jedina neovisna odrednica preventivnog ponašanja. Nalazi su u skladu s onima koji pokazuju da sklonost teorijama zavjere i uvjerenjima okupljenima oko te sklonosti mogu biti važniji za preventivno ponašanje u usporedbi s objektivnom ugroženošću, uključujući i hemofilijom narušeno zdravlje.

*Ključne riječi:* hemofilija, COVID-19, osjetljivo zdravlje, uvjerenja, prevencija, sociologija zdravlja.