HEALTH PROMOTION

Trust levels toward health care and government: insights from TrustMe, an Italian cross-sectional study

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Keywords

Trust • COVID-19 • Italy • Survey

Summary

Introduction. *Negative trends of trust in governments have been described around the world. This study aimed to describe the distrust level in the National Health Service (NHS) and in governmental management of the pandemic, one year after the start of the COVID-19 vaccination campaign.*
Methods. *A survey was distributed in February 2022 among a convenience sample. Outcomes were measured through validated tools: Revised Health Care System Distrust Scale, and the COVID-SCORE-10 questionnaire. Associations were assessed using multiple linear regression models.*
Results. *A total of 2111 questionnaires were collected (54.8% female, median age 43 years [IQR = 34-50]). Distrust in the NHS had a median level of 12 [IQR = 10-14], while trust in the government had a level of 47 [IQR = 35-60]. COVID-19 vaccine hesitancy, high educational attainment, worse economic status, low conventional and digital health literacy, as well as the presence of conspiracy thoughts and distrust in the NHS were significantly associated with lower trust in government during the COVID-19 pandemic. Lack of trust in governmental actions, along with low education and health literacy, as well as the presence of conspiracy thoughts and worse perceptions of one's own health, were associated with greater distrust in the NHS.*
Conclusions. *Overall, low levels of trust in both the government and the NHS have emerged. Since the determinants of reduced trust in institutions can be very diverse and that such levels of distrust after a pandemic can last for an entire generation, tailored interventions are needed to rebuild adequate levels of trust in institutions among the population.*

Introduction

Trust is a multidimensional construct that is generally ascribed as an assumption about others [1] as well as a fundamental element in human interaction [2]. Individual trust levels may vary in a positive or negative way. Lack of trust can produce distrust, which is a different and productive feeling [3]. Distrust relays on the competencies of the trustee, doubting that a task or a goal will be fulfilled [4] and it is based on rational thinking. Finally, the violation of individual trust can lead to feelings of betrayal and scepticism, configuring a loss of trust [5]. Although there are several categories of trust [6] this study is focused on two forms of institutional trust, toward healthcare service and government, on a public health perspective. Institutional trust can be defined as a belief of trust in values and competencies of an institution [7].
Trust in healthcare services refers to healthcare systems including hospitals, clinics, nursing homes, labs, insurance companies and pharmaceutical companies [8]. It does not involve trust in doctors, which is part of interindividual trust [9]. Trust in healthcare services is a pivotal factor to work efficiently in healthcare policy. High levels of trust in institutions responsible for citizens' wellbeing and for controlling hazards lead people to perceive certain decisions (like lockdowns and wearing masks) more positively [6]. Especially in large scale crises, such as economic crises, natural disasters or pandemics, the threatened groups tend to bind together against the external threat, in order to overcome it [10]. Yet, people could respond to the same events sceptically and could develop conspiracy theories, as has already happened in previous pandemics [11]. In such events, public health institutions are interlaced with governmental ones in managing people's wellbeing and safety, so that trust in government is fundamental as well as trust in public health. Indeed, it produces sociability, which in turn leads to altruistic behaviours and acceptance of recommendations such as preventive measures to avoid a disease from spreading [12, 13].
Moreover, trust in healthcare service was found as a predictor of vaccine acceptance and related to previous vaccine compliance, as well as trust in government relates to vaccine intention [14]. Conversely, it is known that distrust in healthcare can lead to avoidance of care services and potential damages for public health [15], acting as one of the main vaccine hesitancy drivers [16]. Even out of vaccine topic, trust in healthcare service was related to positive public health behaviours, like participation to screening for breast cancer. Lack of trust in healthcare, nevertheless, can negatively impact on the continuity of care for breast cancer [17].
However, trust is unstable over time and demotivation could significantly decrease its levels. For instance,

during COVID-19 pandemic, the feeling of "pandemic fatigue" came out [15]. Some people found themselves exhausted from social and economic repercussions of restrictions and started doubting on their efficacy by a lack of trust, so that they were no longer able to fully understand the need of COVID-19 tackling and followed these measures less strictly [15].

Already before the recent pandemic, decreasing levels of trust in social, economic and governmental institutions were reported, especially from those on lower incomes and lower levels of education [2]. While there are already studies assessing trust in healthcare institutions or in government in Italy during the pandemic [15, 18] still little is known since the advent of vaccines. In Italy, COVID-19 vaccinations were introduced at the end of 2020 and in July 2021 the government introduced the "Green Pass" certificate, required for access to various public venues and events. The pass, based on the EU certificate, could be obtained through vaccination, recovery from COVID-19, or a recent negative test. The government later expanded its use, making it mandatory for workplace entry and requiring vaccination for those over 50 and school and university staff [19]. Specifically, from February 2022 COVID-19 vaccination was mandatory for individuals with more than 50 years [20]. Therefore, the primary aim of the present study was to evaluate the level of trust in Italian health and government institutions from a sample of the general population, one year after the beginning of the COVID-19 vaccination campaign. The secondary aim was to explore potential determinants of reduced trust in institutions, focusing also on participants' health literacy and vaccination status.

Methods

Study design and questionnaire

TRUSTMe was an observational and cross-sectional study. Opportunistic sampling was performed by administrating a questionnaire on people who came to receive COVID-19 vaccination in the healthcare agency hubs of the local health unit ASL TO5, in province of Turin (309,862 inhabitants). The research protocol was approved by the Ethics Committee of the University of Turin (prot. N. 2784 18/02/2022). Data were collected during last two weeks of February 2022, when people could receive either booster doses or primary vaccination cycle against COVID-19. It should be noted that, from 1st February 2022, for people older than 50 years, COVID-19 vaccination (concerning booster dose, too) was declared mandatory [20]. We administered a paper questionnaire during the waiting time before the interview with a doctor or after the vaccination, during the observation phase. We included only people older than 18, able to understand the survey and who gave an informed consent for the study enrolment.

In the survey we collected sociodemographic data, such as gender, age, level of education, work status, and nationality. Then, we explored vaccine-related data: COVID-19 dose to be received, COVID-19 infection during last 6 months, and compliance to tetanus vaccine in past 10 years as proxy for vaccination behaviour before the pandemic. Considering that COVID-19 vaccination campaign began in Italy in early 2021, participants were considered as "COVID-19 vaccine hesitant" if they were getting the first or the second dose of the primary cycle at the time of the survey and they did not get COVID-19 in the six months preceding the survey. In addition, we investigated data about impact of the pandemic (consequences on health or economy of self or relatives), perceived economic status, daily social media usage, frequency of fact-checking information on social media.

Finally, the following validated tests were administered to each participant. We used the eHealth Literacy Scale (eHEALS) [21, 22], an 8-item questionnaire that evaluates digital health literacy: the perceived competence of search, evaluate and put in action information about health found online. Digital health literacy was considered not adequate if the score was below 26 [23]. The European Health Literacy Survey (HLS-EU-Q6) [24] was used to evaluate health literacy, with 6 items whose answers ranged from very difficult (1 point) to very easy (4 points). The total score is a mean of the items' score. The higher the score, the higher is health literacy. The Self-Rated Health single item (SRH) [25] was selected for evaluating self-perceived general health: a single-item tool, which can predict mortality and healthcare services [26]. The Single item Conspiracy Belief Scale [27] was used to assess conspiracy beliefs: the answer ranges from 1 to 9 points, where a higher score represents greater conspiracy level.

The last two instruments were the two outcomes of the present study. We explored distrust in healthcare system through a 4-item adapted version of the Revised Health Care System Distrust Scale (RHCSDS) [8]. Each item has an answer with 5 options, with a total score ranging from 4 to 20 points. A higher score represents higher distrust. Then, we assessed perception about decisions and responsibilities of the government in tackling the pandemic using the COVID Score 10 questionnaire items (COVID-SCORE-10) [28] a 10-item tool whose score correlates with trust in government. The scoring is based on 5 options per each item, ranging from 5 to 100 total points. A higher score represents a greater trust.

Statistical analysis

We performed descriptive analysis for each variable, indicating frequencies and percentages for categorical variables and median and interquartile range (IQR) for scalar variables, since Shapiro-Wilk test showed non-normal distributions. We analysed the differences in distribution of the two outcomes across each categorical variable using the non-parametric test of Mann-Whitney for dichotomic variables and non-parametric test of Kruskal-Wallis for non-dichotomic variables.

The associations between the variables explored in the questionnaire and the two outcomes were analysed by multivariable linear regression models. Data were analysed with STATA Statistical software (v17), and statistical significance was set to $p < 0.05$. Missing values were excluded.

Results

Descriptive analysis

A total of 2111 citizens completed the survey. The median age was 43 years (IQR= 34-50) and 54.8% were women. Only 19.0% of the sample had a university degree. A good economic status was perceived by 72.1% of participants. COVID-19 vaccine hesitant individuals were 18.1%. Self-perceived health was considered excellent or very good by 38.6% of participants. Digital health literacy was sufficient for 40.5%, with a median score of 25.00 (IQR = 20.00-30.00). The health literacy median score was 2.66 (IQR = 2.33-3.00). The median score of conspiracy beliefs was 5.00 (IQR = 4.00-7.00). Regarding the outcomes, a median score of 12 (IQR = 10-14) was measured for distrust in healthcare, whereas the median score of trust in government was 47.5 (IQR=35.00-60.00). Detailed descriptive analysis of all categorical items is shown in Table I.

Significant differences in healthcare distrust score's distribution were found across gender, education levels, perceived economic and health status, compliance with anti-tetanus vaccine, COVID-19 vaccine hesitancy, and consequences of the pandemic on economic status. Significant differences in government trust score's distribution were found across gender, perceived economic and health status, nationality, consequences of pandemic on self or relatives' health or economy, digital health literacy, compliance in anti-tetanus vaccine, and COVID-19 vaccine hesitancy (Tab. I).

Multivariable regression models

The multivariable analysis showed a significant negative correlation between healthcare distrust and having a university degree ($b = -0.33$, $p =< 0.001$), health literacy ($b = -0.37$, $p = 0.02$), and trust in government ($b = -0.06$, $p =< 0.001$). Instead, a positive association with healthcare distrust was reported for participants with low self-perceived health status ($b = 0.23$, $p = 0.03$) and conspiracy beliefs ($b = 0.29$, $p =< 0.001$). Trust in government was negatively associated with COVID-19 vaccine hesitancy ($b = -4.1$, $p < 0.001$), having a university degree ($b =-2.07$, $p < 0.001$), a low self-perceived economic status ($b = -2.7$, $p = 0.02$), digital health literacy ($b = -3.01$, $p =< 0.001$), conspiracy beliefs ($b = -0.71$, $p =< 0.001$), and distrust in healthcare system ($b = -2.8$, $p =< 0.001$). Last, trust in government had a positive association with health literacy ($b = 3.45$, $p =< 0.001$). Multivariable analyses' results are shown in Table II.

Discussion

The main aim of the TRUSTMe study was to assess, in a general population sample, healthcare distrust levels and trust levels toward government performance in handling the COVID-19 crisis one year after the beginning of the vaccination campaign in Italy. Potential determinants associated with these main outcomes, such as health literacy and vaccine hesitancy, were also assessed.

TRUSTMe found high levels of distrust in the healthcare system, even higher than those found in earlier research from USA [29, 30]. Moreover, our findings showed a reduction of trust levels in Government performance during the pandemic, considering 2020 Italian data [28]. Overall, if compared to earlier studies, our results may depict a less encouraging scenario. However, it is known that during crises there is a rise in trust levels, thanks to the calls to action of both Government and public health institutions [31]. Indeed, during the COVID-19 pandemic, citizens were exhorted and incited to follow socially restrictive measures in order to tackle the disease from spreading. Making people feel responsible may have accentuated the so-called "rally around the flag" effect [32], which in turn may have led to higher levels of cooperation and national cohesion. It is possible that trust in institutions could have benefited from this effect as well [33].

However, the Italian strategy for the COVID-19 pandemic focused mainly on prevention, firstly with lockdown, then with non-pharmacologic measures like social distancing and personal protective equipment usage. Also, during the vaccination campaign various social restrictions were actualized, such as green passes and mandatory vaccination in some cases [34]. This could have eventually led to a reduction of trust in institutions, with more than a few cases of discontent being exploited [35]. This discontent went along with vaccine hesitancy, consistently with earlier literature [36]. Even in this case, from our analyses vaccine hesitancy came out as a significant negative factor against trust in government policies. In this respect, tackling measures enacted by the government may have been felt as coercive or excessive.

TRUSTMe was carried out in February 2022 after the outbreak of the Omicron variant in December 2021, during which the highest peak of contagions in a short period of time since the beginning of the pandemic was detected [37]. Many could have interpreted this as due to the scarce effectiveness of the efforts made in following the recommendations, so that trust levels could have decreased with the "pandemic fatigue" phenomenon [38].

Multivariable analysis showed that distrust in the NHS and positive judgment of the government's handling of the pandemic were inversely associated. After all, trusting the work of the NHS, one could be very likely to mirror the values of prevention and public health protection. At the same time, with high levels of trust in the NHS, one could believe that the government has managed the pandemic crisis to the best of its ability. Vice versa, higher trust in

Tab. I. Sociodemographic and attitudinal variables: descriptive analysis and non-parametric tests.

Characteristic (n)	N. (%)	Healthcare distrust	Trust in government
		Median [IQR]	Median [IQR]
Gender (n = 2053)			
Male	927 (45.2)	**12 [10-13]**	**50 [35-62.5]**
Female	1126 (54.8)	**12 [10-14]**	**47.5 [32.5-57.5]**
Educational level (n = 2065)			
None or elementary-middle school	652 (31.6)	**12 [11-14]**	47.5 [32.5-60]
Secondary school	1020 (49.4)	**12 [10-14]**	47.5 [35-60]
Postsecondary education	393 (19.0)	**11 [10-13]**	47.5 [35-60]
Occupational status (n = 2053)			
Employed	1517 (73.9)	12 [10-14]	47.5 [32.5-60]
Student	133 (6.5)	11 [9-13]	50 [35-55]
Unemployed	403 (19.6)	12 [10-14]	47.5 [35-60]
Perceived economic status (n = 2042)			
Good-excellent	1472 (72.09)	**12 [10-13]**	**50 [35-60]**
Low-scarce	570 (27.91)	**12 [11-14]**	**42.5 [27.5-52.5]**
Nationality (n = 1959)			
Italian	1790 (91.4)	12 [10-14]	**47.5 [32.5-57.5]**
Other	169 (8.6)	11 [10-13]	**52.5 [45-62.5]**
Consequences of the pandemic on one's own health or that of loved ones (n = 2066)			
No	1697 (82.1)	12 [10-13]	**50 [35-60]**
Yes	369 (17.9)	12 [10-14]	**45 [32.5-55]**
Consequences of the pandemic on the economic status of the family (n = 2057)			
No	1508 (73.3)	**12 [10-13]**	**50 [35-60]**
Yes	549 (26.7)	**12 [11-14]**	**42.5 [30-52.5]**
Daily use of social media (n = 2060)			
No	570 (27.7)	12 [10-13]	50 [36.25-60]
Yes	1490 (72.3)	12 [10-14]	47.5 [32.5-60]
Fact-checking social media information (n = 2052)			
Rarely	407 (19.8)	12 [11-14]	47.5 [32.5-57.5]
Sometimes	434 (21.2)	12 [11-13]	50 [35-60]
Often	570 (27. 8)	12 [10-14]	47.5 [35-57.5]
Always	641 (31.2)	12 [10-14]	47.5 [32.5-60]
Perceived health status (n = 2095)			
Excellent-very good	808 (38.5)	**12 [10-13]**	**50 [35-62.5]**
Good	936 (44.7)	**12 [10-13]**	**47.5 [35-57.5]**
Fair-bad	351 (16.8)	**12 [11-14]**	**42.5 [25-55]**
Received tetanus vaccine booster in the last 10 years (n = 2015)			
No	1103 (54.7)	**12 [10-14]**	**47.5 [32.5-57.5]**
Yes	912 (45.3)	**12 [10-13]**	**50 [35-60]**
COVID-19 vaccine hesitancy (n = 2017)			
Not hesitant	1652 (81.9)	**12 [10-13]**	**50 [35-60]**
Hesitant	365 (18.1)	**12 [11-14]**	**45 [27.5-55]**
Digital Health Literacy (n = 1983)			
Adequate	803 (40.5)	12 [10-14]	**50 [37.5-62.5]**
Not adequate	1180 (59.5)	12 [10-14]	**47.5 [32.5-57.5]**

* Scale from 1 to 4; **: Scale from 8 to 40; *** Scale from 4 to 20; **** Scale from 0 to 100; ***** Scale from 1 to 9. In bold the statistically significant differences ($p < 0.05$) calculated using Kruskal-Wallis or Mann-Whitney tests. N: number; IQR: InterQuartile Range.

governments is correlated with vaccine acceptance [39] together with acceptance toward other preventive measures enacted during previous epidemics, like Ebola [40] or SARS [41]. So, both trust in government and in the NHS are fundamental for a proper functioning of policy [42] and healthcare [43]. Low levels of trust are associated with poorer mental and physical health status [44]. While societies with greater trust in institutions were marked by better perceived health among citizens [45] and a lower mortality for COVID-19 [46].

As for trust level determinants, from our results, distrust in the NHS was associated with perceiving one's health as poor. Maybe, those who feel their health status as poor could think that they are not sufficiently cared for by the NHS. It is true indeed that, during the pandemic, many activities were suspended, especially regarding chronic

Tab. II. Multivariable regression models.

Variable	Healthcare distrust		Trust in government	
	b (CI 95%)	p-value	b (CI 95%)	p-value
Age	0 (-0.01; 0.01)	0.97	0.04 (-0.04; 0.12)	0.34
Female gender	0.19 (-0.08; 0.46)	0.17	-1.47 (-3.33; 0.39)	0.12
COVID-19 vaccine hesitant	0.15 (-0.2; 0.51)	0.39	**-4.1 (-6.5; -1.7)**	**< 0.001**
Educational level:				
Ref: primary education/none				
Secondary school Postsecondary	-0.25 (-0.57; 0.07)	0.13	-1.64 (-3.84; 0.55)	0.14
Postsecondary	**-0.69 (-1.10; -0.28)**	**< 0.001**	**-4.38 (-7.17; -1.58)**	**< 0.001**
Occupational status				
Ref: student				
Employed	-0.27 (-0.85; 0.32)	0.37	0.14 (-3.84; 4.13)	0.94
Unemployed	-0.31 (-0.68; 0.06)	0.1	2.44 (-0.08; 4.96)	0.06
Fact-checking social media information				
Ref: seldom/never				
Sometimes	-0.09 (-0.53; 0.36)	0.7	0.09 (-2.93; 3.11)	0.95
Most of the times	0.1 (-0.32; 0.52)	0.63	1.1 (-1.77; 3.96)	0.45
Always	0.05 (-0.36; 0.47)	0.8	-0.33 (-3.16; 2.5)	0.82
Perceived health status				
Ref: excellent				
Good	0.16 (-0.13; 0.45)	0.29	0.98 (-1; 2.97)	0.33
Fair or bad	**0.51 (0.07; 0.94)**	**0.02**	-2.55 (-5.52; 0.42)	0.09
Perceived economic status as bad	0.11 (-0.23; 0.44)	0.54	**-2.7 (-5.01; -0.39)**	**0.02**
Nationality: foreigners	-0.05 (-0.57; 0.48)	0.87	3.5 (-0.13; 7.12)	0.06
Consequences of the pandemic on one's own health or that of loved ones	-0.19 (-0.53; 0.15)	0.28	-1.13 (-3.47; 1.21)	0.34
Consequences of the pandemic on the economic status of the family	0.24 (-0.09; 0.56)	0.15	-2.18 (-4.41; 0.05)	0.06
Received tetanus vaccine booster in the last 10 years	-0.23 (-0.49; 0.04)	0.09	0.79 (-1.02; 2.6)	0.39
Daily use of social media	-0.11 (-0.43; 0.21)	0.50	-1.7 (-3.88; 0.48)	0.13
Health Literacy Score*	**-0.37 (-0.68; -0.06)**	**0.02**	**3.45 (1.34; 5.57)**	**< 0.001**
Inadequate Digital Health Literacy	-0.24 (-0.52; 0.03)	0.09	**-3.01 (-4.91; -1.11)**	**< 0.001**
Conspiracy level**	**0.29 (0.24; 0.35)**	< 0.001	**-0.71 (-1.1; -0.31)**	**< 0.001**
Distrust in the NHS***	-	-	**-2.8 (-3.15; -2.45)**	**< 0.001**
Trust in government****	**-0.06 (-0.07; -0.05)**	**< 0.001**	-	-

* Scale from 1 to 4; ** Scale from 1 to 9; *** Scale from 4 to 20; **** Scale from 0 to 100.

conditions and outpatient care. Conversely, many resources were diverted to manage the pandemic [47], also lengthening waiting times [48].

Conspiracy thoughts resulted to be associated with little trust both in the NHS and in government actions. Conspiracy theorists tend not to believe the official version of events [49]. This scepticism could have manifested itself also regarding COVID-19 [50], disbelieving in the existence of the COVID-19 disease and seeing protective measures in a bad light [51,52], as it already happened before [53].

Based on our findings, high levels of health literacy were significantly associated with lower distrust in the NHS and less confidence in the government's management of the pandemic. Health literacy is a major determinant of virtuous health behaviours and good health status [54]. Indeed, good health literacy enables individuals to better understand and express their own health needs, as well as a better understanding of the work of institutions. On the other hand, previous research [55] reported how citizens with inadequate health literacy levels may have had difficulty understanding certain measures, especially during a pandemic. Our sample's median health literacy level, according to the validation study of the test we used [54], is definable as problematic. This finding highlights a social and public health problem of health literacy deficiency in our population. Citizens with inadequate levels of health literacy tend to eat less healthily, drink more alcohol, exercise less and smoke [54, 56], as well as they tend to ignore preventive policies [57].

Adequate digital health literacy was positively associated with trust in government's performance. Given that many online services were implemented during the pandemic, like green passes or the possibility of booking swabs and vaccinations, those with poorer digital health literacy may have had difficulty orienting themselves. Then, the infodemic resulted in the spread of misinformation, and those with poor digital health

literacy could have been more easily deceived, believing in fake news [52]. Eventually, this could have led them to trust the government less.

According to our results, low education levels were negatively correlated with trusting the NHS, consistently with earlier research [58]. On the contrary, in some cases [59], it is associated with greater trust in institutions.

In addition, we found that higher education correlated with less trust in government. It is possible that citizens with better education levels had a broader perspective, such that they expected more comprehensive and more far-sighted policies, instead of measures that could have been perceived as far too paternalistic, like green passes or mandatory vaccinations. Better educated citizens are more likely to demand better performances from institutions [60].

Moreover, perceiving one's economic status as poor was correlated with little confidence in government. Restrictive measures for tackling the COVID-19 from spreading surely had serious negative effects on many people and on their work activities. Indeed, many workers were not only at risk to pause their activities, but also to lose their job.

In such a situation, one must wonder how it would be possible for institutions to gain people's trust. Given that citizens already have access to an adequate amount of information, if not even excessive [61] it should not be a matter of information and knowledge, but rather of the foundations of the relationship between institutions and citizens.

Lastly, the collapse of trust in institutions after a pandemic could also last over a generation as it happened before with the Spanish flu [62], so that it will be crucial to identify tailored interventions for each less trusting population. To better address future public health challenges, like new vaccination campaigns (not only for COVID-19), trustful citizens will be strong allies. Adequate levels of trust in government are also essential for facing upcoming challenges like climate and energy crises, which require citizens' complete cooperation to achieve a truly sustainable development [63].

Strengths and limitations

TRUSTMe was the first study in Italy to investigate trust in health and government institutions after the beginning of vaccination campaign against COVID-19. Our results can offer a new public health perspective on this topic, considering that the sample was large and was obtained at a time when all segments of the population were presenting within the vaccine hubs, drawing a comprehensive picture of societal perceptions, including both the vaccine hesitant and the non-hesitant. Then, we adopted validated tests to assess the variables of interest. However, this study has some limitations. The cross-sectional nature of the study allowed us to only explore relationships and to investigate only a fraction of the population. It should be noted that the opportunistic sampling, while practical and efficient, can introduce several biases, *e.g.* the selection bias and the response bias. Although we cannot exclude the presence of such biases, to mitigate these distortions we employed several strategies: using broad inclusion criteria, ensuring a diverse sample within the vaccinated population; providing neutral questionnaire administration as the questionnaire was administered in a non-coercive manner, either before the interview with a doctor or during the observation period after vaccination, to minimize the influence of the vaccination experience on responses; assuring participants anonymity and confidentiality. Finally, the sample, although large and diverse, consisted of citizens from a single local health unit that may not be representative of the entire Italian population and the picture of vaccine hesitant individuals is limited only to those of them who showed up at the vaccine hub, while the more tenacious citizens did not.

Conclusions

TRUSTMe study found higher levels of distrust in the NHS and governmental management of the pandemic in the Italian population, if compared with the past or other countries. COVID-19 vaccine hesitancy, a high level of education, a worse economic situation, low conventional and digital health literacy, as well as the presence of conspiratorial thoughts and distrust in the National Health Service were significantly associated with low trust in governmental management of the pandemic. This last element, along with low levels of education and health literacy, as well as the presence of conspiratorial thoughts and perceiving one's health as poor were associated with distrust in the NHS. Improving levels of trust in institutions is a mission that needs to be accomplished as soon as possible in order to best address new policy and public health challenges, such as future vaccination campaigns and energy-climate crises, possibly minimizing the enacting of paternalistic measures.

Conflict of interest statement

The authors declare no conflict of interest.

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Authors' contributions

RS, FB, CZ, AS, GG, GLM: conceptualisation; AS, GG, GLM: methodology; AS, GG, GLM: formal analysis; AS, FT: investigation; AS, GG, GLM: data curation; AS, GG: writing-original draft preparation; RS, FB, CZ, FT, GLM: writing-review and editing; AS, GG: visualisation; FB: supervision; AS, GG: project administration. All authors have read and agreed to the published version of the manuscript.

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