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# Assessing the dimensionality of a New Italian Covid-19 Conspiracy Beliefs Questionnaire

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✎ **ABSTRACT.** Questo studio aveva l'obiettivo di sviluppare un questionario italiano per misurare le credenze cospirazioniste riguardo il virus Covid-19 e gli agenti correlati coinvolti nella sua diffusione. Dall'analisi fattoriale sono emersi tre fattori. Il primo riguardava le origini del Covid-19 e i possibili scopi dietro la sua diffusione. Il secondo comprendeva le cospirazioni sui vaccini, il 5G, le cospirazioni guidate da Bill Gates e dalle organizzazioni ebraiche. Infine, il terzo fattore rappresentava lo scetticismo.

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✎ **SUMMARY.** This study aimed to develop a questionnaire to measure conspiracy beliefs about Covid-19, the related agents involved in its diffusion, the contemporary conspiracy theories about these agents, and assess its dimensionality and factorial structure. Eight different factor retention criteria were compared and three factors were retained. The first factor contained items on conspiracy beliefs about the origins of Covid-19 and the possible purposes behind its spreading. The second factor considered conspiracies about vaccines, 5G or conspiracies led by Bill Gates or Jewish organizations. The third factor was skepticism about the existence of world events. The three-factor model reached an acceptable fit. The assessment of conspiracy beliefs or the evaluation of the interventions to counter conspiracy beliefs might be possible future applications for this questionnaire.

**Keywords:** Covid-19, Conspiracy beliefs, Italian questionnaire

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## INTRODUCTION

Conspiracy theories regard the belief that a group of people is acting to pursue hidden malicious objectives (Zonis & Joseph, 1994). It is essential to investigate conspiracy theories because they can influence human behavior. For instance, subjects with conspiracy beliefs about Covid-19

had a reduced adherence to social distancing measures (Bierwiazzonek, Kunst & Pich, 2020). Moreover, they did antibody tests or vaccines less likely (Freeman et al., 2020). Conspiracy theories are robust despite counterfactual evidence (Darwin, Neave & Holmes, 2011) because they might satisfy psychological needs, explaining why people often believe in these theories. Specifically, Douglas, Sutton

and Cichocka (2017) identified the social (i.e., maintaining a positive image of the group), epistemic (i.e., being certain or consistent), and existential need (i.e., feeling secure or in control of the situation). For instance, national narcissism (i.e., a positive bias toward the ingroup), insufficient knowledge of Covid-19, and high anxiety and insecurity levels were positively associated with conspiracy beliefs about Covid-19 (Sallam et al., 2020; Sternisko, Cichocka, Cislak & Van Bavel, 2020).

Lately, an Infodemic has become stronger and stronger, where fake news has generated conspiracy theories (Diseases, 2020). Furthermore, conspiracies about Covid-19 have been linked to other theories about related agents that play a role in its spread, such as those on 5G antennas, vaccines, Bill Gates, Jews, lockdowns, malicious purposes of governments and in extreme cases, the complete denial of it. Social media analysis has revealed widespread of these theories. For instance, 5G antennas would favor the spread of Covid-19 (Ahmed, Vidal-Alaball, Downing & Seguí, 2020; Stephens, 2020). Another frequent theory states that Bill-Gates has created Covid-19 to implant microchips through vaccines (Goodman & Carmichael, 2020). Covid-19 is also thought of as a bioweapon released by governments to reduce the population (McManus, D'ardenne & Wessely, 2020). Moreover, Jews or Big-Pharma are often accused of having created Covid-19 to profit through vaccines (Freeman et al., 2020).

Some instruments measure general conspiracy beliefs (Brotherton, French & Pickering, 2013) or conspiracy mentality (Bruder, Haffke, Neave, Nouripanah & Imhoff, 2013; Stojanov & Halberstadt, 2019). Precisely, the *Generic Conspiracist Beliefs Scale* (GCBS; Brotherton et al., 2013) measures the level of engagement in general conspiracy theories (i.e., conspiracist ideation). Similarly, the *Conspiracy Mentality Questionnaire* (CMQ; Bruder et al., 2013) assesses the level of susceptibility to explanations based on conspiracy theories and the level of engagement in conspiracist ideation. In addition, GCBS and CMQ propose a list of conspirations where the participant has to indicate the level of agreement. Conversely, the *Flexible Inventory of Conspiracy Suspicions* (FICS; Wood, 2017) requires subjects to complete incomplete generic statements to detect conspiratorial beliefs about a specific topic. Finally, the *Conspiracy Mentality Scale* (CMS; Stojanov & Halberstadt, 2019) is useful to detect the engagement level in conspiracies independently from the content of these theories.

## AIM OF THE STUDY

Therefore, this study aimed to develop an instrument that investigated the contemporary conspiracy beliefs about Covid-19 and the related agents. Specifically, we aimed to assess the dimensionality of this new questionnaire following an explorative approach. Hence, we have decided to include items considering these agents after sifting through public posts on Italian social media platforms (such as Facebook, YouTube and so on) and consulting scientific literature where Covid-19 were explained through conspiracy theories (Goodman & Carmichael, 2020; McManus et al., 2020; Meese, Frith & Wilken, 2020). However, we wanted to investigate also the contemporary conspiracy theories about vaccines, Bill Gates or Jews, regardless of Covid-19. We believe that evaluating conspiracy beliefs about these topics can predict the intentions of the population to engage in behavior of social interest (such as getting vaccinated or following lockdown restrictions). Detecting conspiracy theories can be the first step to organizing a persuasive campaign that aims at preventing and fighting conspiracy theories to encourage appropriate behavior in case of health emergencies. Finally, to the best of our knowledge, this is the first Italian questionnaire about conspiracy beliefs.

## METHOD

### Participants

Five hundred sixteen subjects have been recruited through social networks for a correlation study investigating the link between conspiracist ideation and defense mechanisms (Antichi & Giannini, 2022). Every participant had to be at least 18 years old ( $N = 516$ , 197 men, 314 women, 5 other,  $M_{\text{age}} = 32.69$ ,  $SD_{\text{age}} = 14.11$ ). The majority was Italian (98.6%), and the sample's total was of white ethnicity. Regarding Italian regions, 79.5% of participants were from the Center, while the other zones were a minority, such as North-West (7.9%), North-East (7.6%), Southern (2.5%), and Peninsular (2.5%). Most participants were single (71.5%) and lived with their parents (53.1%). In addition, 40.5% were unemployed, 42.8% were employed, while the minorities were housewives (11.4%), students (3.3%), and retirees (1.9%). The majority had a total family income lower than 36,151 euros (55.4%) or between the 36,151 -

70,000€ range (30.8%) and they were homeowners (77.1%). Most participants held a high school degree (45.3%), while 25.8% had a bachelor's degree and 20% had a master's degree. Finally, left (30.4%) or Centre-left (32.9%) political orientations were predominant, followed by the Centre-right orientation (15.7%).

## Measures

- *Socio-demographic characteristics.* The online questionnaire contained a section asking nationality, Italian region, ethnicity, gender identity, marital status, housing situation, living situation, highest educational qualification, total household income, employment, and political orientation.
- *Contemporary conspiracist beliefs section.* We have created 22 items to investigate contemporary conspiracist beliefs about Covid-19, vaccines, lockdown, the possible roles of 5G antennas, Bill Gates, Jews, governments, and pharmaceutical companies on subjects' lives. Items have been developed extracting the content of public posts on Italian social media websites and scientific literature (Goodman & Carmichael, 2020; McManus et al., 2020; Meese et al., 2020). Participants had to indicate their level of agreement or disagreement on a 5-point Likert scale (1 = strongly disagree; 2 = disagree; 3 = neither agree nor disagree; 4 = agree; 5 = strongly agree). Examples of items were "Covid-19 has been released to reduce the population" or "5G antennas are instruments that governments use to control people's lives". There was only one reversed item (number 3; "The Covid-19 virus comes from a species leap, which has allowed human infection"). A higher score corresponded to a greater agreement on current conspiracy theories (see Appendix for the self-report). Antichi and Giannini (2022) estimated convergent validity ( $r = .79, p < .01$ ) using the *Generic Conspiracist Beliefs Scale* (GCBS; Brotherton et al., 2013). However, there were no other measures to test discriminant validity. Moreover, test-retest reliability could not be calculated because data have been collected only once.

## Procedure

The university's ethics committee approved the study. Participants were recruited on social networks (such as Facebook or LinkedIn). They participated if they were

interested, clicking on the link for the questionnaire. Subjects had to accept informed consent before they could complete the questionnaire. Participants were not asked to report their names, surnames, email addresses, or identification codes. The questionnaire took about 15 minutes to answer. Participants did not receive any compensation.

## Data analysis

Multiple participation, participants with age lower than 18 years, and more than 10% of missing answers per case were exclusion criteria for data analysis.

- *Item analysis.* Item means, standard deviations, kurtosis, skewness, correlation coefficients, and Cronbach's alpha were calculated with Statistical Package for Social Science (SPSS) version 26.
- *Exploratory factor analysis (EFA).* We compared the performance of eight different factor retention criteria - the Kaiser-Guttman rule, the Scree-test, PA based on the common factor model using the 50%-percentile as well as the 95%-percentile of the eigenvalue distributions, CD with 500 simulated data sets and an  $\alpha$ -level of 30%, the EKC, the hull method based on the CFI and the machine-learning-based Factor Forest. The Scree-test and both PA implementations were conducted with the psych package (Revelle, 2021) in R, while the EFA tools package (Steiner & Grieder, 2020) was used for CD and the hull method. The Kaiser-Guttman rule and the EKC were also conducted using base R, and the Factor Forest was applied using the pre-trained model from Goretzko and Bühner (2020) retrieved from <https://osf.io/mvrau/>. EFA tested the factorial structure of the instrument. EFA with weighted least squares (WLS) estimation and Promax/Geomin rotation was conducted using R (psych package). WLS was used as the factor extraction method to account for the categorical nature of the data and the rather high skewness in some item distributions. The Kaiser-Meyer-Olkin (KMO) criterion and Bartlett's test of sphericity were performed to determine the applicability of EFA. The number of factors was set based on the output of the different factor retention criteria. The uniqueness, communality, and complexity indices were estimated for each item. The RMSR (Root Mean Square of Residuals), TLI (Tucker-Lewis Index), and RMSEA (Root Mean Square Error of Approximation) were used to determine the goodness of model fit.

## RESULTS

No subjects have been excluded, and there were no missing data. The average of the total score was 29.60 ( $SD = 14.06$ ). Every item was right-skewed with skewness ranging from .38 to 7.57. Except for the second and the twenty-second items, every item had a positive correlation greater than .40 ( $p < .001$ ) with the total score (see Table 1 for item analysis).

The Exploratory Factor Analysis has shown that data were deemed suitable for factor analysis. In fact, KMO's value was .95 and Bartlett's test was significant ( $\chi^2 = 7958.89, p < .001$ ).

In a first analysis, the number of factors was set to four according to the outcome of the factor retention process (see Table 2) and Promax rotation (see Table 3 for the standardized loadings) was used. However, only the second item (i.e., Covid-19 originated from a laboratory and was released unintentionally) loaded substantially on the third factor. It had a mean of 2.34 ( $SD = 1.19$ ), a skewness score of .38, and a kurtosis score of  $-1.09$ . The item-total score correlation was .146 ( $p < .01$ ), the lowest among all items. We decided to eliminate it due to the low item-total correlation. Furthermore, content validity was not impaired since items 1, 3, 4, 5, 6 and 7 investigated the origin and hidden purposes behind Covid-19's diffusion. Hence, we decided to remove the second item for a second analysis using Geomin rotation to foster interpretability (see Table 4). Excluding item 2, half of the factor retention criteria suggested three factors (see Table 2). While the Scree-test (which is rather subjective and less reliable than other criteria) and the hull method suggested a one-factor solution for both item sets (with and without item 2) CD changed from a four-factor solution to a one-factor solution as well (this instability reduces the trustworthiness of CD in this particular case). The more reliable factor retention criteria (especially PA based on the 95%-quantile, the Factor Forest and EKC, see, for example, Auerswald & Moshagen, 2019; Goretzko & Bühner, 2020) agreed on a three-factor solution which is why we decided to retain three factors. Regarding this second solution, the first factor consisted of items reflecting conspiracy beliefs about the origins of Covid-19 and the possible purposes behind its spreading (e.g., item 1, "Covid-19 originated from a laboratory and was released voluntarily by one or more countries that already held the cure"). It was formed by the items 1, 3, 5, 6, 7, 8, 16, 17, 18, 19, and 20 and accounted for 58% of the explained variance. The second factor covered conspiracies about vaccines (e.g., item 14, "Vaccines cause

side effects that pharmaceutical companies tend to hide to citizens"), 5G or conspiracies led by Bill Gates or Jewish organizations. It was composed of items 9, 10, 11, 12, 13, 14, and 15 and accounted for 33% of the explained variance. Finally, the third dimension consisted of items 4, 21, 22 and accounted for 9% of the explained variance. It reflected skepticism about the existence of world events (e.g., item 4, "Covid-19 does not exist").

Moreover, items 9 and 21 showed substantial loadings in more than 2 factors (i.e., cross-loadings). However, we decided to retain these items due to content validity reasons. If item 21 had been discarded, the skepticism factor would have become meaningless as it would have been represented solely by the flat-earth theory item. Besides, the existence of cross-loadings is not a problem per-se; it just amplifies the impression of highly inter-related factors. Correlations between factors varied from .32 to .77 (see Table 5).

The Cronbach's  $\alpha$  coefficients for each dimension were .94, .90, and .57. While the internal consistency estimates for factors one and two are usually considered high, the estimate for the third factor, which only consists of three indicators, is substantially lower and has to be discussed critically. Moreover, items' communalities varied from .14 to .81, while items' uniqueness ranged from .19 to .86. In addition, item complexity varied between 1 and 1.9, with a mean of 1.3.

Regarding fit indexes, results were as follows: RMSR = .03, TLI = .908, RMSEA = .081, 90% CI [.075, .087]. These results suggest that the three-factor model fit was quite good.

## DISCUSSION

This study aimed to build an instrument that measured conspiracy beliefs about Covid-19, its related agents involved in its spreading, and the conspiracy beliefs about these agents, such as Bill Gates, 5G antennas, vaccines and so on. EFA found three dimensions for the questionnaire. The estimates of Cronbach's  $\alpha$  for each dimension were .94, .90, and .57. These results could depend on the small number of items related to the third dimension and the greater numbers for the first and the second dimension.

This questionnaire mainly focuses on Covid-19. We were interested in the Infodemic that began in 2020, characterized by fake news that has favored the development of conspiracy theories (Diseases, 2020). Conspiracy beliefs about the

**Table 1** – Item analysis

Item	Mean (SD)	Skewness	Kurtosis	Item-total score correlation
1	1.89(1.14)	1.04	-.08	.839**
2	2.34(1.19)	.38	-1.09	.146**
3	2.60(1.27)	.46	-.79	.405**
4	1.11(.46)	4.53	22.08	.488**
5	1.62(1.02)	1.49	1.10	.784**
6	1.54(.99)	1.86	2.64	.865**
7	1.78(1.14)	1.25	.37	.816**
8	1.61(1)	1.58	1.57	.862**
9	1.25(.67)	2.84	7.93	.644**
10	1.59(1)	1.58	1.51	.764**
11	1.33(.76)	2.06	2.85	.668**
12	1.56(.98)	1.59	1.35	.739**
13	1.66(1.03)	1.46	1.26	.788**
14	2.03(1.13)	.94	.01	.768**
15	1.95(1.15)	.99	.05	.733**
16	1.79(1.18)	1.35	.72	.856**
17	1.74(1.16)	1.45	.90	.807**
18	2.02(1.26)	1.05	-.13	.609**
19	1.98(1.26)	.99	-.27	.795**
20	2.25(1.32)	.63	-.91	.755**
21	1.12(.48)	4.65	24.69	.429**
22	1.05(.32)	7.57	64.85	.218**

*Note.* The table shows the main descriptive statistics for every item, such as mean and standard deviation. Skewness and Kurtosis indices are calculated to assess the distribution of each item. Item-total score correlation column reports every correlational coefficient between each item score and the total score.

\*\*  $p < .01$

**Table 2** – Suggested number of factors based on factor retention criteria

Factor retention criterion	Suggested number of factors	
	Solution with every item	Solution without item two
Kaiser-Guttman	4	3
Scree-test	1	1
Parallel analysis (95% percentile)	3	3
Parallel analysis (50% percentile)	4	4
Comparison data	4	1
Empirical Kaiser Criterion (restricted)	4	3
Factor forest (ML model)	4	3
Hull method (CFI based)	1	1

origins of Covid-19 included an unintended escape from a scientific laboratory or the calculated release to reduce or control the world's population, earn money with vaccines and drugs, or benefit economically some countries (Douglas, 2021). Furthermore, lockdowns or the number of deaths by Covid-19 could be used to control citizens by manipulating and fabricating data or lying about the number of deaths by Covid-19 (Open, 2021a). For instance, there are conspiracy theories stating that dead Covid patients were actors. One evidence is a video where an allegedly dead man smokes a cigarette (Open, 2021b). Another Italian video that has been shared thousands of times claiming that the staff of the ambulances had the order to activate sirens in the streets of the cities to generate alarmism (Open, 2020).

Regarding the second dimension, conspiracies about vaccines containing hidden substances, side-effects being intentionally kept secret, or possible diseases that could be linked to getting vaccinated are also covered in the questionnaire. Moreover, these conspiracies regarded the potential roles of Bill Gates, Jews, and 5G antennas to spread

Covid-19. In addition, the second dimension assessed the beliefs that Bill Gates and Jews could have played a role in the production of unsafe vaccines and the construction of 5G antennas. For instance, Bill Gates is often accused of implanting microchips via vaccination to control the human population (Goodman & Carmichael, 2020). Whereas Jews are charged using Covid as a weapon to control the world or kill Palestinians (Gerstenfeld, 2020).

Finally, the skepticism dimension investigated the denial beliefs of the existence of Covid-19, the environmental pollution, or the Earth's sphericity. The dimension of skepticism is generally related to conspiracy theories, similar to the CMS (Stojanov & Halberstadt, 2019). However, skepticism in CMS was related to the belief that human knowledge has limits. In fact, it was linked to rational thinking, even if the authors found no correlation between these constructs. In contrast, the skepticism factor in this questionnaire reflects a skepticism toward the existence of things such as Covid-19. For instance, being skeptical of the existence of environmental pollution predicts the

**Table 3** – Solution with four factors

Item	Factor 1	Factor 2	Factor 3	Factor 4
1	.83	-.02	.05	.08
2	.08	.02	.79	.10
3	.46	.03	.12	-.07
4	.09	-.01	-.03	.55
5	.73	-.10	.02	.21
6	.61	.02	-.12	.34
7	.77	-.08	-.01	.18
8	.53	.15	.01	.28
9	-.09	.39	-.06	.48
10	.16	.41	-.07	.30
11	-.02	.39	.01	.41
12	.10	.46	.06	.28
13	.02	.86	-.05	<.01
14	.16	.83	.07	-.16
15	.02	.88	.02	.10
16	.58	.27	-.04	.05
17	.70	.03	-.07	.12
18	.56	-.02	.07	.07
19	.92	.05	-.09	-.19
20	.83	.18	< .01	-.28
21	.15	-.13	-.06	.53
22	-.11	-.03	.09	.46

*Note.* This table shows the factor matrix where the four-factor-solution is reported. Standardized loadings after promax rotation are presented.

**Table 4** – Solution with three factors

Item	Factor 1	Factor 2	Factor 3	Communalities	Uniqueness	Complexity
1	.90	-.02	-.03	.75	.25	1
3	.48	-.01	-.13	.20	.80	1.1
4	.24	.12	.38	.36	.64	1.9
5	.83	-.07	.08	.66	.34	1
6	.72	.08	.22	.81	.19	1.2
7	.85	-.05	.06	.71	.29	1
8	.63	.21	.15	.75	.25	1.3
9	.01	.53	.37	.54	.46	1.8
10	.22	.50	.21	.61	.39	1.8
11	.07	.51	.30	.52	.48	1.7
12	.16	.55	.18	.57	.43	1.4
13	-.03	.89	.02	.77	.23	1
14	.09	.81	-.14	.72	.28	1.1
15	-.05	.89	-.07	.69	.31	1
16	.61	.29	.01	.72	.28	1.4
17	.75	.06	.04	.65	.35	1
18	.60	-.02	-.02	.34	.66	1
19	.91	-.01	-.20	.70	.30	1.1
20	.81	.09	-.31	.66	.34	1.3
21	.30	-.01	.37	.31	.69	1.9
22	.01	.08	.33	.14	.86	1.1

*Note.* This table shows the factor matrix where the solution with three factors is reported. Every item has the factor loadings for each factor. Geomin rotation has been used to improve interpretability. Item 2 has been eliminated. Communalities (i.e., the proportion of shared variance), Uniqueness (i.e., specific and error variances), and Complexity (i.e., how much an item indicates a single construct) indexes are shown for every item.



**Table 5** – Factor Correlation Matrix

Factor	1	2	3
1. Conspiracy about Covid-19	1		
2. Contemporary Conspiracy	.77	1	
3. Skepticism	.40	.32	1

conspiracy belief that environmental pollution is a hoax that is designed to serve hidden agendas (Sarathchandra & Haltinner, 2020). In addition, skepticism about Covid-19 is predicted by medical conspiracy theories (Gemenis, 2021). Also, skepticism influences behavior. For example, believing that Covid is a hoax is associated with a reduced willingness to socially distance (Imhoff & Lamberty, 2020).

Although there were three different dimensions, the first two factors were highly correlated ( $r = .77$ ). This could be due to the monologic nature of conspiracy theories - namely, the likelihood of believing in conspiracies if other conspiracy theories have already been accepted (Franks, Bangerter, Bauer, Hall & Noort, 2017). The monological system has also been found for conspiracies about Covid-19 and related agents (Miller, 2020). An alternative explanation could be that the thematic of the second dimension might overlap with the one of the first. Bill Gates, Jews, or 5G antennas are assumed to be possible agents for spreading Covid-19. Hence, shared common variance might be explained by the fact that both factors are related to indicators discussing the role of these different agents.

Moreover, instruments about conspiracy theories are usually developed using classical factor retention criteria, such as Scree-test, Kaiser-Guttman rule, or Parallel Analysis (Brotherton et al., 2013; Bruder et al., 2013; Stojanov & Halberstadt, 2019). Instead, we used eight different factor retention methods for exploratory factor analysis, comparing the results. In doing so, we tried to ensure that we were able to carve out the true factorial structure of our concept. Furthermore, our questionnaire is focused on specific contemporary topics, such as Covid-19, 5G antennas,

vaccines, and so on. In contrast, the GCBS (Brotherton et al., 2013), CMQ (Bruder et al., 2013), FICS (Wood, 2017), and CMS (Stojanov & Halberstadt, 2019) measure the agreement on general conspiracy beliefs or/and the tendency to engage in these theories.

## CONCLUSION

The present study can critically contribute to the psychological research on conspiracy beliefs. It introduces the first Italian questionnaire that measures conspiracy beliefs - especially about Covid-19. Hence, there could be interesting applications for it. For instance, since it represents the subjects' beliefs in contemporary conspiracy theories, future studies could investigate the relationship between conspiracy theories and intentions to engage in certain adaptive behaviors, such as getting vaccinated, keeping social distance, or respecting restrictions. Another important application is the evaluation of interventions to counter conspiracy beliefs. Efficacy and effectiveness could be estimated by evaluating the change of factor scores in this questionnaire after the intervention.

However, there are several limitations to this study. First, only one sample has been used to conduct the analysis, and no CFA was run as the sample size was not large enough to conduct an EFA and CFA on separate data subsets. Hence, in future research, the three-factor structure has to be evaluated in a confirmatory setting (using a CFA) and the generalizability of our results has to be tested. In a confirmatory study, different measures of convergent and

divergent validity, as well as investigations of retest reliability, have to be conducted. Second, in this study, most of the subjects were women. In fact, women seem to be less likely to believe in conspiracy theories about Covid-19 (Cassese, Farhart & Miller, 2020), so further research should focus on a more gender-balanced sample. In addition, 45.3% of participants hold a high school degree. Scientific literature indicates that a high educational level is a protection factor against conspiracy beliefs (Douglas, Sutton, Callan, Dawtry & Harvey, 2016; van Prooijen, 2017; van Prooijen, Krouwel & Pollet, 2015). Thus, sample characteristics might limit the generalizability of our results. Future research needs to generalize the results by assessing a more diverse and

representative sample of Italian society. Third, the first scale is unbalanced compared to the other two, having a higher number of items. Finally, this self-report measure focuses on conspiracy beliefs about Covid-19 and, therefore, cannot be used as a general measure of conspiracy beliefs such as GCBS (Brotherton et al., 2013) or CMQ (Bruder et al., 2013).

To conclude, further studies are needed to assess test-retest reliability and criterion validity. In addition, different samples with various characteristics have to be used to extend generalizability. Finally, future studies should use this questionnaire to investigate the link between conspiracy theories and behavioral intention or test health campaigns' efficacy.

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## APPENDIX

### List of items

Number of items	Description	Description
1	Covid-19 originated from a laboratory and was released voluntarily by one or more countries that already held the cure.	Il virus Covid-19 origina da un laboratorio ed è stato rilasciato in modo volontario da uno o più paesi che detenevano già la cura.
2 <sup>a</sup>	Covid-19 originated from a laboratory and was released unintentionally.	Il virus Covid-19 origina da un laboratorio ed è stato rilasciato in modo involontario.
3	Covid-19 originated from a species leap, which has allowed human infection.	Il virus Covid-19 proviene da un salto di specie, che ha permesso l'infezione dell'uomo.
4	Covid-19 does not exist.	Il virus Covid-19 non esiste.
5	Covid-19 has been released to reduce the population.	Il virus Covid-19 è stato rilasciato per ridurre la popolazione.
6	Covid-19 has been released by individual governments to control the population more easily.	Il virus Covid-19 è stato rilasciato dai singoli governi per poter controllare più facilmente la popolazione.
7	One or more countries have released Covid-19 to increase their earnings damaging others.	Il virus Covid-19 è stato rilasciato da uno o più paesi per incrementare i loro guadagni a scapito di altri.
8	Covid-19 has been released by drug companies to boost their earnings.	Il virus Covid-19 è stato rilasciato dalle case farmaceutiche per incrementare i loro guadagni.
9	Covid-19 has been able to spread more due to the presence of 5G antennas.	Il virus Covid-19 ha potuto diffondersi in modo maggiore per la presenza di antenne 5G.
10	Bill Gates is involved in at least one of the following phenomena: the spread of the Covid-19 virus, construction of 5G antennas, production of unsafe vaccines.	Bill Gates è coinvolto in almeno uno dei seguenti fenomeni: diffusione del virus Covid-19, costruzione di antenne 5G, produzione di vaccini non sicuri.
11	A group of Jews is involved in at least one of the following phenomena: the spread of the Covid-19 virus, construction of 5G antennas, production of unsafe vaccines.	Un gruppo di ebrei è coinvolto in almeno uno dei seguenti fenomeni: diffusione del virus Covid-19, costruzione di antenne 5G, produzione di vaccini non sicuri.
12	5G antennas are an instrument that is used by governments to control people's lives.	Le antenne 5G sono uno strumento utilizzato dai governi per controllare le vite delle persone.
13	Vaccines cause chronic diseases (e.g., autism or cancer).	I vaccini causano malattie croniche (per esempio l'autismo o il cancro).
14	Vaccines cause side effects that pharmaceutical companies tend to hide to citizens.	I vaccini causano effetti collaterali che le cause farmaceutiche tendono a nascondere ai cittadini.
15	Vaccines contain substances harmful to health (e.g., heavy metals).	Nei vaccini sono presenti sostanze nocive per la salute (per esempio i metalli pesanti).

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*continued*

Number of items	Description	
16	The cure for Covid-19 already exists, but it has not been adopted because it would not be as profitable as vaccines.	La cura per il Covid-19 esiste già ma non viene adottata perché non sarebbe redditizia come i vaccini.
17	Lockdowns have been designed to control citizens.	I lockdown imposti alla popolazione sono stati progettati per controllare la popolazione.
18	The generalized or local lockdowns have not been helpful to decrease Covid-19's infections.	I lockdown generalizzati o locali imposti alla popolazione non sono serviti per far diminuire i contagi del virus Covid-19.
19	Governments have intentionally lied about the total number of people infected with Covid-19, declaring one greater than the real one.	I governi hanno mentito intenzionalmente sul numero totale dei contagiati da Covid-19, dichiarandone uno maggiore rispetto a quello reale.
20	Governments intentionally lied about the death number from Covid-19.	I governi hanno mentito intenzionalmente sul numero dei morti da Covid-19.
21	The pollution of the planet is an invention of the strong world powers.	L'inquinamento del pianeta è un'invenzione dei poteri forti mondiali.
22	The Earth is flat, but it is kept hidden to citizens.	La Terra è piatta, ma viene tenuto nascosto ai cittadini.

*Note.* <sup>a</sup> = Item 2 has been eliminated from the second solution.

These items have been translated into English for this publication. Original items were in Italian.