

Title: COVID-SCORE Spain: Public perceptions of key government COVID-19 control measures

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Abstract (236/250)

Background: Spain was initially one of the countries most affected by the COVID-19 pandemic. In June 2020, the COVID-SCORE-10 study reported that the Spanish public's perception of their government's response to the pandemic was low. This study examines these perceptions in greater detail.

Methods: We employed an ordered logistic regression analysis using COVID-SCORE-10 data to examine the Spanish public's perception of ten key aspects of their government's COVID-19 control measures. These included support for daily needs, mental and general health services, communication, information and coordination, which were examined by gender, age, education level, having been affected by COVID-19, and trust in government's success in addressing unexpected health threats.

Results: 'Trust in the government' showed the greatest odds of positive perception for the ten measures studied. Odds of positive perception of communication significantly varied by gender, education level, and having been affected by COVID-19, whereas for information and coordination of disease control, odds significantly varied by gender and having been affected by COVID-19. Odds of positive perception for access to mental health services significantly varied by gender and education level. Age was not significant.

Conclusion: Public perception of the government's pandemic response in Spain varied by socio-demographic and individual variables, particularly by reported trust in the government. Fostering public trust during health threats may improve perception of response efforts. Future efforts should tailor interventions that consider gender, education level, and whether people have been affected by COVID-19.

Keywords: COVID-19, pandemic control, public perception, public health policy, trust, Spain

Introduction

The coronavirus disease 2019 (COVID-19) pandemic continues to put extreme pressure on governments, economies and communities around the world. Spain was one of the most affected countries during the first wave of COVID-19 in spring 2020. In response, it implemented some of the strictest lockdown measures in Europe, and is now experiencing a new wave that threatens to be even more severe (1) (2). As of 2 March 2021, there were 3.2 million confirmed cases and 69,609 reported deaths due to COVID-19 nationally (3), with some regions of Spain being much more affected than others in terms of overall cases and deaths (4).

The pandemic has highlighted and exacerbated a number of pre-existing challenges in Spain. For example, the national health system has been put under extreme pressure by an overwhelming demand for public health, social services and individual healthcare due to COVID-19 (1) and impacts of a decade of austerity measures and budget cuts (1,5). In addition, the underlying political climate, which included longstanding efforts to retain regional autonomy, has meant in part that implementing a coordinated national response to the pandemic has been challenging (2). Since the national government announced the state of alarm on 14 March 2020, which included a months-long lockdown period ending 21 June 2020, the national government was responsible for the new pandemic measures, whereas later pandemic measures largely devolved to the 17 autonomous communities, which hold broad responsibilities in health (6). The autonomous communities have implemented a heterogeneous range of COVID-19 prevention and control measures, such as lockdowns, physical distancing, closure of schools, universities, libraries, nursing homes, restaurants, bars and sports centres, and in cases restricting movement between different municipalities and provinces.

Government leadership and public cooperation are essential throughout a pandemic, especially when there is a high level of uncertainty about risk and effective control measures (7,8). As individual characteristics can influence the level of public trust in government (9), it is important to assess how public perceptions of the government's response to the pandemic may vary by sociodemographic and individual variables. This information may provide useful insights on how to overcome limitations in existing programmes, and areas where, and to whom, the government may need to focus more of their efforts.

COVID-SCORE was implemented globally in June 2020 (10), when Spain had experienced a severe early first wave of infection, hospitalizations and deaths, similar to neighbouring countries France and Italy (11,12), and the population had been subjected to strict home confinement, only allowed to leave to obtain essential goods such as food or medicines. Also, although no COVID-19 vaccine was in an advanced stage of development at the time, a quarter of the Spanish population reported hesitancy in taking it should one become available (13). The study found Spain to have a mean average COVID-SCORE of 44.68 out of a maximum of 100, one of the lowest scores across the 19 countries examined (10). COVID-SCORE, which was validated in the countries' primary languages, in this case in Spanish, measures public perception of government responses to the pandemic through ten key government pandemic response items (10). Broadly, these items cover socioeconomic support, health service continuity, communication, and disease control measures. We explore these perceptions by sociodemographic characteristics and individual variables.

Methods

Data collection

Participants were recruited to the COVID-SCORE-10 study through multiple international service providers to avoid coverage bias (10). A sample (n=748) of adults residing in Spain and who speak

Spanish were recruited through demographic strata weighted to be representative of the general population in terms of age, sex, and education level. Using a 95% confidence level and margin of error of ± 3.7 , a minimum sample size of 702 was calculated as necessary to represent the 2020 Spanish population of 47.36 million (14).

On 16–20 June 2020, participants were provided a Spanish translation of the COVID-SCORE-10 instrument (see Supplemental File 1) to assess their perception of ten key government pandemic control measures (10) (see Table 1). Further methodological details are described elsewhere (10).

Analysis

Ordered logistic regressions for each of the ten COVID-SCORE items compared those who ‘somewhat agreed’ and ‘completely agreed’ with those who ‘[were] neutral/[had] no opinion’, ‘somewhat disagreed’ and ‘completely disagreed’. We performed regression analyses with three sociodemographic variables: age, gender, education level, and two individual variables: whether the respondent had been affected by COVID-19 (yes or no/unsure), and whether the respondent trusted their government to successfully address unexpected health threats (yes or no). Transgender and other gender responses were excluded from this analysis because of an insufficient minimum sample. Analyses were conducted using Stata version 14.2.

Ethics statement

The Emerson College Institutional Review Board (IRB protocol number 20-023-F-E6/12) approved the data collection materials and methods for the original COVID-SCORE-10 study. The current study uses these data, which were collected by an online questionnaire administered by Emerson College, USA.

Results

Our sample includes 345 females and 401 males (see Supplemental File 2). Most respondents (56%) completed a university degree or higher education. The average age is 41 years, and the median is 39. Each of the 17 autonomous communities were represented in the study with 38% of participants living in the Community of Madrid and Catalonia (see Supplemental File 3).

The percentage of a possible maximum score for each item across the sample of Spanish individuals (Table 2) indicates an overall low perception of all ten key aspects of the government’s pandemic response. Respondents most agreed with government cooperation with other countries and international partners (Item 10, 69% of the maximum possible score). The government’s response in providing free, reliable access to COVID-19 testing was rated lowest among respondents (Item 5, 42% of the maximum possible score, while 49% of all respondents completely disagreed).

For all ten items, the odds that someone who trusted the government to successfully address unexpected health threats agreed with the government’s COVID-19 control measures were at least five times higher than someone who did not (Table 3). These odds were highest for item 3: trustworthy information (OR 12.99; 95% CI (9.12–18.52)), item 4: formulation of a pandemic preparedness and response team (OR 11.94; 95% CI (8.51–16.76)), and item 5: provision of access to COVID-19 testing (OR 11.77; 95% CI (7.77–17.82)).

Having been affected by COVID-19 showed lower odds of agreement with the government’s response than those who had not been affected for item 2: communication (OR 0.67; 95% CI (0.45–1.00)), item 3: information (OR 0.65; 95% CI (0.43–0.98)), item 4: formulation of a pandemic preparedness and response team (OR 0.61 ; 95% CI (0.41–0.91)), and item 7: special protections for vulnerable groups (OR 0.59; 95% CI (0.39–0.88)) (Table 3).

Compared to female respondents, male respondents had lower odds of agreeing with the government response in item 2: communication (OR 0.69; 95% CI (0.50–0.94)), item 3: information (OR 0.66; 95% CI (0.48–0.91)), and item 4: formulation of a pandemic preparedness and response team (OR 0.68; 95% CI (0.50–0.94)). Conversely, male respondents had a 36% greater odds of agreeing with the government’s response for item 9: provision of mental health services compared to female respondents (OR 1.36; 95% CI (1.01–1.85)) (Table 3).

Those who reported having a university degree or higher education had lower odds of agreeing with the government’s response for item 2: communication (OR 0.54; 95% CI (0.38–0.81)), compared to those with a lower level of education (Table 3).

Discussion

Many factors may have influenced the Spanish public’s perception and cooperation with their governments’ recommended COVID-19 control measures, including perceived risk (15), trust in government capabilities, and political, ideological and cultural values (16). While there is a lack of clarity about the impact of these contributing factors, public trust in government during a public health threat may improve when governments communicate with competency, consistency, credibility, honesty, and transparency (7). Evidence suggests that low or declining levels of public trust in the government may reflect a gap between individual expectations about what the government should accomplish and the government’s actual performance (9). In addition, trust in government may be negatively affected when public officials disagree or even contradict themselves over a policy or restriction measure, thus generating confusion and uncertainty.

In mid-2020, the Spanish public’s perception of their government’s response to the COVID-19 pandemic was low, and varied by key pandemic control measures, similar to France and Italy at the same time (10). We found that respondents who reported trust in their government to successfully address unexpected health threats showed the greatest odds of positive perceptions across the ten key pandemic control measures as compared to those who did not. The competence of leading experts advising governments is also associated with the confidence inspired in citizens by the government in managing the crisis. Our results show that the odds of having positive perceptions of the government’s response in terms of communication, information, formulation of a pandemic preparedness and response team, and provision of mental health services significantly varied by gender and whether respondents reported having been affected by COVID-19.

Below, we discuss the ten key aspects of the Spanish government’s COVID-19 control measures reported on in this study, which cover socioeconomic support, health service continuity, communication, and disease control.

1. *Socioeconomic support (items 1 and 7)*

Spain, like most of Europe (17), has been affected in terms of physical and psychosocial health, as well as economic well-being due in part to prevention and control measures, such as restrictions on free movement and reductions in business activity, contributing to permanent and temporary layoffs and short-term workforce reduction (18). Some social groups have been disproportionately affected by the pandemic; for example, gender inequalities in paid and unpaid work became exacerbated during the confinement period (19), and the rate of COVID-19 infection was much higher in under-resourced neighbourhoods in some cities (20).

Attempting to mitigate the severity of economic impacts, the central government introduced several socioeconomic support measures, including cash-based transfers to families with children in confinement and nearly five million low-income people, as well as utility waivers and mortgage and rental moratoria for those unable to pay (21). The government also created a social services contingency fund and supported outreach services for children who had been receiving school meals and the homeless (21). Yet, we found that those who had been affected by COVID-19 had a 40% lower odds of agreeing with the government's efforts to protect vulnerable populations than those who had not. This may indicate that the government's response actions were deemed insufficient, implemented too slowly or simply not well known by those who had been affected directly by the disease.

2. *Health service continuity (items 6, 8, 9)*

To ensure health service continuity during public health crises, it is essential for primary care services to remain operational and for all frontline healthcare professionals to be provided with the personal protective equipment (PPE) they need (5). Primary care services can play an important role in providing routine care, testing, and identifying and treating new cases, contact tracing and potential management of post-acute COVID-19; yet, the provision of testing and diagnostic services at the primary care level was limited in Spain and across Europe during the first wave of the pandemic (2).

In Spain, the national health system, articulated in practical terms through the regional health services of the 17 autonomous communities, has experienced extreme pressure by the overwhelming demand for public health, social and individual healthcare services; for example, a study conducted in April 2020 in Spain found 42% of hospital beds and 41% of gastroenterology and hepatology beds were allocated to COVID-19 patients and reductions in therapeutic endoscopies or hepatocellular carcinoma surgery were 75% and 89% respectively (1,22), highlighting weaknesses in balancing the continuity of essential health services.

In terms of mental health services, we found that men have greater odds of having a positive perception of adequacy of mental health services than women. Other studies performed in Spain during the same period identified personal sociodemographic and psychological variables to be related to adapting to the first confinement, particularly sex and age, and found that women more often reported symptoms of anxiety, stress, and depression than men, and that these were mainly associated with economic worries (23,24). Therefore, it is important that the availability of mental health services be increased, better communicated, and better tailored to the needs of women.

3. *Communication (item 2)*

Communication is a cross-cutting issue throughout all government policies and is key to facilitating public awareness of and compliance with disease control measures (17). We found that the odds of having a positive perception of government measures in the area of communication significantly varied by gender, education level, and whether respondents had been affected by COVID-19.

From May to September 2020, the Spanish Ministry of Health conducted an analysis to assess social inequalities in health and COVID-19, and identified a number of barriers to the adoption of prevention measures (25), including limitations in accessing clear health information, such as contradictory messages or messages without mitigation strategies for those unable to comply. To address these barriers, the government needs to adopt a bidirectional communications approach to deliver clear messages tailored to different social groups via multiple media so that everyone in the country receives the correct information, and to ensure community input on the messages to ensure their effectiveness (25). Validated techniques should be used to evaluate the impact and reach of targeted messaging.

Television, news and social media play a key role in framing and shaping public perception by selecting which issues are reported, and how and who represent them (26) and in so doing can influence or bias public opinion. The rigour of science-based reporting varies in quality and accuracy across media types, which can be a challenge for the public to manage and evaluate, given the diverse types of media (9,26). A study of COVID-19 information in daily newspapers' frontpages in Spain and Italy from late February to early April 2020 found that in Spain, the media outlets offered slightly more political coverage of the crisis than in Italy, with national political figures serving as the primary information providers and highlighting political conflicts in the management of the pandemic (26). In line with previous findings (27), this may have partly contributed to the lower levels of public perception in the government's response as reported in this study.

4. *Disease control (items 3, 4, 5, 10)*

It is crucial for decisionmakers and the public to have access to timely, reliable, disaggregated, and comprehensive COVID-19 data collection systems, and coordinating bodies at the local, regional and national levels should regularly report an accurate count of COVID-19 cases and deaths to guide policy and service interventions (2,28) and inform the public. In Spain, there were restrictions on testing and limitations in the COVID-19 data published at the national and regional levels (29); for example, five autonomous communities offer selected COVID-19 metrics disaggregated by age and sex, and data are not always comparable across regions, which creates a challenge in reporting and monitoring at the national level (29). Collectively, this reduced the ability to fully understand the dynamics of the virus, including domestic transmission dynamics, and to inform appropriate action (2,28,29). Further, Spain had no aerosol experts advising the government and it was not until 8 November 2020 that the government accepted this mode of virus transmission. This may have hampered public trust and created confusion with regards to transmission of the disease and related control measures.

Spain does not have a National Public Health Agency; rather, the Coordination Centre for Health Alerts and Emergencies (CCAES) reports directly to the Director-General of Public Health within the Ministry of Health, the responsible unit for preparedness planning and response to public health threats and cooperation with international institutions. The CCAES quickly established a coordinated response between the national and regional governments, but faces regular political and logistical challenges including an inability to achieve consensus for numerical criteria to guide response measures (2,25,28). The creation of a Spanish Public Health Agency for the whole country has been one of the conclusions emerging from the National Commission for Economic and Social Reconstruction established by Spain's Parliament (30).

International cooperation can be vital in controlling the spread and mitigating the impact of the pandemic, e.g. management of supply chains and production of PPE, medicines, and COVID-19 vaccines (13), and other global public goods, mobilization of resources to areas of greatest need (via e.g. the COVAX Facility), and information and knowledge-sharing. Our study found that government cooperation with international organizations was the best perceived of the ten pandemic control measures (56% agreement) (see Table 2).

Universal access to COVID-19 testing and contact tracing is needed to rapidly identify and isolate new cases and to improve data accuracy. Yet in Spain, testing capacities were low in the initial stage of the pandemic, and laboratories quickly became overwhelmed with the increased demand (28,29,31). Recently, it has also become clear that there is a need to intensify in Spain and around the world the limited genomic sequencing to identify and monitor SARS-CoV-2 variants (32,33), which required continued and possibly intensified pandemic control efforts, and to monitor for possible resistance to the current vaccines (34). Spain came out of lockdown and lifted most control measures without a comprehensive plan or well-established testing and tracing systems in place (28). For example, social and health centres, particularly care homes, have reported insufficient access to COVID-19 testing and

ineffective communication with the national health service and other centres, which has made it challenging to identify and follow up on COVID-19 cases and trace contacts (25). In recent months, testing has been largely scaled up, yet widespread delays in both access to a test and receiving the results are still reported (35), and asymptomatic individuals desiring a test, including those who have been in a risk situation, must pay a private provider for one.

By assessing public perceptions during the early stage of the COVID-19 pandemic in Spain, we indirectly identified where there are challenges and subsequently consider potential opportunities to intervene to improve public trust and cooperation with government responses. The effectiveness of the response may influence public trust. As such, we have developed the following list of policy recommendations, some directly relating to our findings, and others that do not directly stem from our study, but were ascertained from the literature and related to the measures we studied (see Table 4).

Limitations to our study include its point-in-time design, measuring public perception and trust, which are subjective domains that often change over time, in response to different factors and events, and vary by individuals and social groups. More longitudinal analyses will be needed to observe how public perceptions and trust may change during different waves of the pandemic and with changing (central and regional) government control measures. A major strength of our study was the effort taken to ensure the collection of a representative sample of the population; however, one limitation to the use of these data is that they do not explicitly capture the voice of marginalised populations, which have been disproportionately affected (40). In addition, respondents were asked to report whether they 'trusted in their government to successfully address public health threats'. However, the use of the term 'government' was not distinguished by level (e.g. national, regional, and local), and it is therefore possible to only assess perceptions of the government in broad terms, or to understand that most government actions through June 2020 stemmed from the national government in Spain. Future assessments of government performance should consider this distinction, as this may be particularly relevant in Spain, where health responsibilities, including subsequent government COVID-19 measures, are largely devolved to the 17 autonomous communities, and political tensions exist between different autonomous communities and the central government.

This study of the Spanish general public's perception of their government's response during the first wave of the COVID-19 pandemic can be used to guide future government response efforts. Overall, the Spanish public's perception of their government's response was low in mid-2020, and this perception varied by key control measures. In addition, perception of some government pandemic control measures, such as communication, significantly varied by sociodemographic characteristics and having been affected by COVID-19, which demonstrates the need for more tailored approaches in government communication and management strategies, alongside the need for a reinforcement of essential social and healthcare services, to protect population health and well-being. Fostering trust may improve the public's perception of government response efforts and compliance with recommended measures, which will be crucial in 2021 to ensure a high uptake of the COVID-19 vaccine. Further research is needed to understand the influences of public perceptions of and trust in the government during public health threats, why these may vary across different social groups and which determinants (e.g. individual, and socio-cultural-political values) may contribute. Continuous assessment of public perceptions of government response measures will be important to guide policy and research on the COVID-19 response, and unexpected health threats in the future.

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Conflict of interest

None declared.

Data sharing statement

All individual participant data, the data codebook, and the Spanish language COVID-SCORE are available in supplementary files.

Key points

- This first study, analysing the Spanish public's perception of key pandemic control measures implemented by its government and examining these perspectives amongst different sociodemographic groups, offers lessons to Spain to improve its response to the COVID-19 pandemic.
- Our study found that individual and sociodemographic factors are associated with the Spanish public's poor perception of government control measures, suggesting that fostering public trust during public health threats, and developing and implementing more tailored interventions may improve public perception and response to government efforts.
- Public perceptions of metrics for mental health services and social protections for vulnerable groups were found to be especially low, highlighting areas that deserve greater attention and more targeted policies and programmes to improve pandemic response efforts.
- Existing COVID-19 policies, interventions and health communications strategies in Spain remain weak and should be reviewed to consider our results with respect to different target audiences, namely men, women, those that experienced COVID-19, as well as biologically and socially vulnerable groups.
- In particular, the Spanish central and regional governments should better collaborate and prioritise interventions that address gender inequities and the groups most psychosocially impacted by the pandemic.

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Supplementary material

Supplemental File 1. COVID-SCORE-SPAIN: Questionnaire

Supplemental File 2. COVID-SCORE-SPAIN: Participant descriptive statistics

Supplemental File 3. COVID-SCORE-SPAIN: Representation by autonomous community

Supplemental File 4. COVID-SCORE-SPAIN: Codebook

Supplemental File 5. COVID-SCORE-SPAIN: Data file

Table 1. COVID-SCORE-10 questions to assess public perception of ten key government pandemic control measures (10).

1. The government helped me and my family meet our daily needs during the COVID-19 epidemic in terms of income, food, and shelter.
2. The government communicated clearly to ensure that everyone had the information they needed to protect themselves and others from COVID-19, regardless of socioeconomic level, migrant status, ethnicity or language.
3. I trusted the government's reports on the spread of the epidemic and the statistics on the number of COVID-19 cases and deaths.
4. The government had a strong pandemic preparedness team that included public health and medical experts to manage our national response to the COVID-19 epidemic.
5. The government provided everyone with access to free, reliable COVID-19 testing if they had symptoms.
6. The government made sure we always had full access to the healthcare services we needed during the epidemic.
7. The government provided special protections to vulnerable groups at higher risk such as the elderly, the poor, migrants, prisoners and the homeless during the COVID-19 epidemic.
8. The government made sure that healthcare workers had the personal protective equipment they needed to protect them from COVID-19 at all times.
9. The government provided mental health services to help people suffering from loneliness, depression and anxiety caused by the COVID-19 epidemic.
10. The government cooperated with other countries and international partners such as the World Health Organization (WHO) to fight the COVID-19 pandemic.

Table 2. Descriptive statistics and distribution of COVID-SCORE-10 responses in Spain (n=748)

	<i>Descriptive statistics</i>			<i>Distribution of item responses (n, % of row total)</i>				
	Mean score*	SD*	% of max score (5.00)	Completely agree	Somewhat agree	Neutral/ no opinion	Somewhat disagree	Completely disagree
Item 1	2.63	1.33	53	64 (9)	167 (22)	157 (21)	149 (20)	211 (28)
Item 2	3.11	1.48	62	163 (22)	210 (28)	81 (11)	133 (18)	161 (22)
Item 3	2.83	1.44	57	103 (14)	213 (28)	78 (10)	160 (21)	194 (26)
Item 4	3.01	1.49	60	152 (20)	196 (26)	90 (12)	131 (18)	179 (24)
Item 5	2.09	1.33	42	57 (8)	92 (12)	82 (11)	150 (20)	367 (49)
Item 6	3.06	1.41	61	129 (17)	231 (31)	95 (13)	141 (19)	152 (20)
Item 7	2.65	1.39	53	87 (12)	162 (22)	111 (15)	176 (24)	212 (28)
Item 8	2.41	1.35	48	59 (8)	151 (20)	91 (12)	187 (25)	260 (35)
Item 9	2.61	1.32	52	73 (10)	142 (19)	161 (22)	167 (22)	205 (27)
Item 10	3.46	1.27	69	174 (23)	249 (33)	157 (21)	84 (11)	84 (11)

* Mean scores and standard deviations (SD) for each item used to calculate the percentage of a maximum possible score were first reported in Lazarus *et al.* 2020 (10).

Table 3. Odds ratios of agreement with each COVID-SCORE item by sociodemographic and individual variables (n=746)

	Govt trust (95% CI)	<i>p-value</i>	Affected by COVID-19 (95% CI)	<i>p-value</i>	Age (95% CI)	<i>p-value</i>	Gender – Male (95% CI)	<i>p-value</i>	Some college (95% CI)	<i>p-value</i>	University or higher (95% CI)	<i>p-value</i>
Item 1 (n=745)	6.75* (4.90-9.28)	0.00	1.13 (0.77-1.63)	0.53	1.00 (1.00-1.01)	0.35	1.16 (0.87-1.56)	0.30	0.97 (0.62-1.50)	0.89	0.91 (0.64-1.27)	0.57
Item 2 (n=745)	9.14* (6.58-12.68)	0.00	0.67* (0.45-1.00)	0.05	1.01 (1.00-1.02)	0.27	0.69* (0.50-0.94)	0.02	0.72 (0.44-1.17)	0.19	0.54* (0.38-0.81)	0.00
Item 3 (n=745)	12.99* (9.12-18.52)	0.00	0.65* (0.43-0.98)	0.04	1.01 (1.00-1.02)	0.10	0.66* (0.48-0.91)	0.01	0.98 (0.60-1.60)	0.93	0.94 (0.64-1.37)	0.74
Item 4 (n=745)	11.94* (8.51-16.76)	0.00	0.61* (0.41-0.91)	0.02	1.01 (1.00-1.02)	0.18	0.68* (0.50-0.94)	0.02	0.85 (0.53-1.38)	0.52	0.89 (0.61-1.29)	0.53
Item 5 (n=717)	11.77* (7.77-17.82)	0.00	0.88 (0.57-1.36)	0.56	1.00 (0.99-1.01)	0.49	0.92 (0.66-1.28)	0.62	1.37 (0.83-2.27)	0.22	1.05 (0.71-1.54)	0.82
Item 6 (n=745)	8.55* (6.22-11.74)	0.00	0.76 (0.52-1.13)	0.18	0.99 (0.98-1.00)	0.07	0.79 (0.58-1.07)	0.13	0.87 (0.54-1.39)	0.55	0.88 (0.61-1.26)	0.47
Item 7 (n=745)	7.32* (5.24-10.21)	0.00	0.59* (0.39-0.88)	0.01	1.00 (0.99-1.01)	0.34	0.99 (0.73-1.34)	0.95	0.88 (0.55-1.40)	0.60	0.75 (0.53-1.06)	0.10
Item 8 (n=701)	7.28* (5.02-10.56)	0.00	0.65 (0.42-1.00)	0.052	0.99 (0.98-1.00)	0.06	1.02 (0.74-1.42)	0.89	1.10 (0.68-1.80)	0.70	0.83 (0.57-1.21)	0.33
Item 9 (n=695)	5.19* (3.74-7.19)	0.00	0.81 (0.55-1.20)	0.29	1.01 (1.00-1.02)	0.11	1.36* (1.01-1.85)	0.05	1.02 (0.66-1.60)	0.92	0.71 (0.50-1.01)	0.054
Item 10 (n=620)	5.25* (3.78-7.27)	0.00	0.90 (0.60-1.34)	0.60	0.99 (0.98-1.00)	0.21	0.85 (0.62-1.16)	0.30	1.32 (0.81-2.13)	0.26	1.11 (0.77-1.60)	0.58

* Indicates p-value ≤0.050.

Table 4: Policy recommendations to enhance the Spanish (central and regional) governments' future COVID-19 control measure efforts**Policy recommendations:***Socio-economic support:*

- Ensure the timely provision of expanded social and financial protection programmes, particularly for identified vulnerable populations, to facilitate inclusive and sustainable recovery (including housing protection and supportive return-to-work policies) (17,18). It has sometimes been made public that these initiatives have stagnated during formulation and public announcement, and are not being implemented with the necessary agility for people with pressing needs. It is important to review and address reported and potential administrative barriers to accessing these socio-economic benefits (17).
- Secure a coordinated national approach to ensure that documented and undocumented migrants and refugees can access the health and social services they need (18).
- Provide infrastructure and conditions for teleworking for those jobs where this is possible.
- Maintain and expand public spaces for health and well-being (18), such as for active travel and safely-distanced recreational physical activity (36).

Health service continuity:

- Strengthen primary health care and public health capacity to meet current and new health service needs (17,18).
- Scale up delivery of mental health services, including outreach to vulnerable groups (18).
- Strengthen information systems, and coordination and communication between health and social services to support COVID-19 data collection (17).
- Conduct regular service delivery assessments to monitor and overcome ongoing barriers to accessing care (17).

Communication:

- Ensure effective cooperation and communication between the government, the media, scientists, health experts, and the public, to ensure quality communication, which may also enhance public perceptions of the authorities' ability to manage current and future health threats (8,26,27).
- Strengthen scientific communication in the media. Provide the media access to scientific resources, such as timely, accurate data, to support fact-checking to contribute to the health literacy of the population (16,26).
- Monitor and interact on social media, serving as an official voice for health and the measures taken to control the severity of the pandemic.
- Develop clear, consistent, tailored messaging on COVID-19 protection measures, how the virus is transmitted, and vaccination opportunities (13) to empower individuals to protect themselves and their communities (17). Share these messages via a variety of media and in all relevant languages.

Disease control:

- Although not a part of our study, there have been calls to establish a national Public Health Agency to support coordination of public health issues, and this warrants careful consideration (30).
- Collect and report COVID-19 data disaggregated, at a minimum, by sex, age, and geography, to better monitor the impacts of the pandemic on different social groups in different geographical areas, and health inequalities, to inform the governments' public health response (2,28,29).
- Release regular, timely, consistent and comprehensive reports on COVID-19 data, which include updates on tests, cases, hospitalisations (including in ICUs), deaths, and recoveries (2,28,29). All

17 autonomous communities should employ the same case definitions when providing these data, and these should be aligned across Europe.

- Ensure universal access to PPE and care for health workers (5).
- Strengthen testing and contact tracing capacity, and provide testing outside of health services as well.
- Provide PCR results in a timely fashion, e.g. within 24-36 hours and, when urgent, within 12 hours.
- Strengthen integrated healthcare, coordinating primary and specialised care and optimising telemedicine.
- Ensure the timely production of COVID-19 vaccines including, if needed, in Spain for the national population and for export.
- Micro-eliminate (37) COVID-19 by creating “green zones” in Spain, at the province or autonomous community level, where COVID-19 has been controlled, and ensure that human and other resources in these zones support “red zones” with resources to scale up testing, tracing, vaccination and other pandemic control measures (38,39).