ICOH Survey on the first wave of COVID-19. Final Report

ICOH Survey
on the first wave
of COVID-19.
Final Report

Authors:
Bruna Maria Rondinone, Diana Gagliardi, Antonio Valenti, Fabio Boccuni, Caterina Barillari, Valeria Boccuni, Erika Cannone, Pierluca Dionisi, Sergio Iavicoli

Graphic layout: Arianna Pagliara

CONTENTS

INTRODUCTION

COVID-19 pandemic is a global health emergency that is profoundly affecting societies and economies all over the world. According to the WHO estimates [1], as of 21 November 2021, there are more than 256 million confirmed cases of COVID-19 in the world, of which 37% in Americas and 29% in Europe. Total deaths amounted to more than 5,1 million of which 45% in the Americas and 29% in Europe. This pandemic led to a dramatic loss of human lives worldwide and brought an unprecedented challenge to public health and the world of work with a huge effect on the jobs, livelihoods, and well-being of workers and on enterprises at global level [2]. The impact of pandemic will most likely increase inequalities and poverty at global level, making achievement of Sustainable Development Goals (SDGs) even more urgent [3].
Even though not all regions were equipped to face the pandemic, many governments have reacted quickly, adopting and implementing national and subnational measures in response to the COVID-19 crisis (e.g., containment measures and the temporary suspension of many productive activities). Containment measures at workplaces have aimed at reducing social contacts to tackle the risk of infection intrinsic to any work activity. Each country has also implemented gradual measures in order to ensure the return-to-work, guaranteeing proper standards in terms of workers' health and safety. The International Commission on Occupational Health (ICOH) is the world's leading international scientific society in the field of occupational health with over two thousand members from 113 countries. Based on its role for the development of occupational health research, information, good practices, training and education of occupational health experts and related professionals [4], ICOH has launched a series of activities aimed at the prevention and management of the pandemic at work, which demand competence in occupational health and a good knowledge of work, working environments and working conditions. The ICOH Scientific Committee on Occupational Health for Health Workers, in collaboration with WHO's department of Occupational and Workplace Health, have compiled a survey on health and safety of health workers during the COVID-19 crisis [5].
Furthermore, ICOH developed the present study also taking a cue from the success of previous investigations which saw the active involvement of the ICOH scientific community on the status of national occupational health services (OHS) systems at national level [6-8],.
The aim of this survey was to gather information on public health policies, prevention measures, and other policies put in place by the governments of the countries in the world to contain the pandemic. The survey, which aimed at collecting in a systematic and structured way all data available from as many countries as possible, found its reasons in ICOH traditional and institutional aim of improving workers' health and safety.

METHODOLOGY

The survey was administered to ICOH National Secretaries, who were selected as the key informants of this study. The National Secretaries are appointed by the ICOH President for three-year tenures, and they represent the activities of ICOH in the country or area for which they are designated. They promote the active cooperation and communication among ICOH members at country level and they have good contacts with the OH communities, stakeholders, and actors in their respective countries. To extend the geographical representativeness of the study to all ICOH countries, senior OSH experts have been identified in those countries where no National Secretaries are appointed, and they have been included in the sample. The total sample was composed by 113 participants. Collected data refer to the period ranging from the beginning of the pandemic in each country to 30 June 2020.

Questionnaire form

An online questionnaire composed of 89 questions was administered to 113 participants, through the dedicated web-based platform SurveyMonkey. The questionnaire, circulated in English, included some preliminary questions aimed at gathering information on the geographical origin and the profession of respondents, followed by the following sections:

- **COVID-19 data.** This section investigates the quality of COVID-19 epidemiological data, in terms of classification and use in the various countries.
- **Public health policies and prevention measures.** This section includes questions aimed at investigating a wide range of public health policies and prevention measures adopted by governments in order to contain the pandemic emergency. These include information about the declaration of a state of emergency and the announcement of lockdown, the use of face masks, the application of measures concerning local, territorial and national level movements, the limitation of mass gatherings and meetings between friends and relatives, the closure of schools, universities and workplaces, etc.
- **Support measures for economy, work, and education.** This section investigates the measures adopted in the various countries to support work, economy and education, with particular reference to the use of remote work and distance learning. Some aspects (e.g. poor availability of technological devices, poor Internet connection and poor familiarity with technological devices, difficult re-organization of work activities) that may have had a greater impact on such measures were also investigated, as well as support measures for unemployment or support to businesses, incentives for health workers to use public transport etc.;
- **Personal Protective Equipment (PPE), Intensive Care Unit (ICU), contact tracing.** This section analyses the aspects concerning the availability of PPE and the production capacity of each country, the potential re-organization of the health system (establishment of COVID-19 hospitals, increase in ICU beds, hiring of new health workers, etc.), the contact tracing system and a study on seroprevalence.
- **Return to work**. This section investigates the implementation of possible measures, possibly aimed at ensuring a safe return to work (social distancing, use of face masks, re-organization of workspaces, etc.), the existence of a plan for the identification and management of COVID-19 cases in the workplace, measures for public transport, etc.

- **ICOH against COVID-19.** In this last section, respondents are asked to comment on the usefulness of the ICOH's contribution in relation to the pandemic, in particular by focusing on the topics that may need the drafting of specific documents by the Scientific Committees.

The questionnaire was administered on 22 July 2020, setting the deadline within 1st August. Reminders were sent on 30 July, extending the response time to 10 August. On 11 August, another reminder was sent, with a deadline set at 21 August. The survey was closed on 22 August.

Statistical analysis
The analysis was performed using SPSS, version 25. In the case of the Likert scales and the questions with nominal/ordinal answers, the absolute frequencies and the percentages in the total sample were calculated. Then, considering a greater level of detail, the percentages in the various subgroups generated by the variable income were calculated by means of a cross table in order to highlight any peculiarities. The Chi Square test (X2) was used and the p<0.05 values were considered statistically significant. Below is a description of the main results obtained, with an in-depth analysis related to some statistically significant comparisons.

RESULTS

Sample description
The questionnaire was administered to the 113 ICOH National Secretaries and to the OSH experts (for those countries where the National Secretary is not currently appointed), representatives of all the countries in which the ICOH boasts an active membership.
After a screening of incomplete responses, 73 questionnaires from 73 countries around the world were considered valid, with a response rate of 64.6%.
With respect to the characteristics of the respondents, it emerges that most of them are physicians (68.5%). A large proportion of the respondents (67.1%) belong to the academic world and public institutions. Moreover, the primary area of interest indicated by the majority of respondents (58.9%) is occupational health and safety.
As for the geographical area, Europe is the most represented (31.5%), followed by Africa (24.7%), Asia (23.3%), America, and Oceania (since Oceania has only two respondents, it was considered together with America). Furthermore, considering the income classes -calculated by GDP per capita in USD-, they result to be homogeneous. In particular, 34.2% for low-income countries (<5,000 USD), 31.5% for middle-income countries (between 5,000 and 15,000 USD), 34.2% for high-income countries (>15,000 USD) (Table 1). With respect to the income, Table 2 shows the detail of the countries belonging to each of the three groups.

Table 1 – Sample description

	n=73	%
Profession		
Physician	50	68.5
Epidemiologist	4	5.5
Hygienist	4	5.5
Other	15	20.5
Working for		
Academia	27	37.0
Public institution	22	30.1
Private sector	16	21.9
Self-employed	3	4.1
Other	5	6.8
Primary area of interest		
Occupational health and safety	43	58.9
Public Health	5	6.8
Epidemiology	4	5.5
Other	9	12.4
Missing values	12	16.4
Geographical area		
Europe	23	31.5
Africa	18	24.7
Asia	17	23.3
America and Oceania	15	20.5
GDP per capita		
Low-income (<5.000 USD)	25	34.2
Middle-income (5.000-15.000 USD)	23	31.5
High-income (>5.000 USD)	25	34.2

Table 2 – Distribution of countries by income

| Low-income	Democratic Republic of the Congo, Egypt, Ghana, Guatemala, India, Indonesia, Ivory Coast, Kenya, Liberia, Mali, Morocco, Mozambique, Nepal, Nigeria, Pakistan, Philippines, Senegal, Tanzania, Togo, Tunisia, Uganda, Ukraine, Uzbekistan, Venezuela, Zimbabwe
Middle-income	Argentina, Belarus, Brazil, Bulgaria, Chile, China, Croatia, Grenada, Jamaica, Kazakhstan, Malaysia, Mauritius, Mexico, Montenegro, North Macedonia, Paraguay, Peru, Romania, Russian Federation, Serbia, South Africa, Thailand, Turkey
High-income	Australia, Belgium, Canada, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Portugal, Republic of Korea, Saudi Arabia, Singapore, Slovenia, Spain, Sweden, Switzerland, Taiwan (China), United Arab Emirates, Uruguay, USA

Epidemiological situation

On the basis of the data extracted from the GitHub database (https://github.com/owid/covid-19-data/tree/master/public/data), it was possible to establish the duration of the epidemic from the appearance of the first case until 30 June 2020.

The average duration is 128 days (SD 21 days), with a minimum of 97 days and a maximum of 183 days. By conducting a cluster analysis, two clearly distinct groups of countries were identified, considering the duration of the epidemic, precisely calculated as the number of days elapsed between the appearance of the first case in the country and 30 June 2020 (Fig. 1). Cross tabulation with income shows a statistically significant association (p<0,001). In fact, in the total sample there are 50 countries (68.5%) with a shorter average duration and 23 countries (31.5%) with a longer average duration. These percentages are around 83-84% and 16-17% in low and middle-income countries respectively, while in the high-income countries the group of countries with a longer average duration (60.0%) predominates (Fig. 2). In particular, in the first cluster of countries, the average duration is 115 days (SD 8, minimum 97, maximum 126) and in the second cluster the average duration is 157 days (SD 9, minimum 137 and maximum 183).

Figures 3 and 4 illustrate the epidemic trend. In particular, they show the number of total cases and total deaths calculated per million inhabitants, taking into account the three groups of income (low, middle and high).
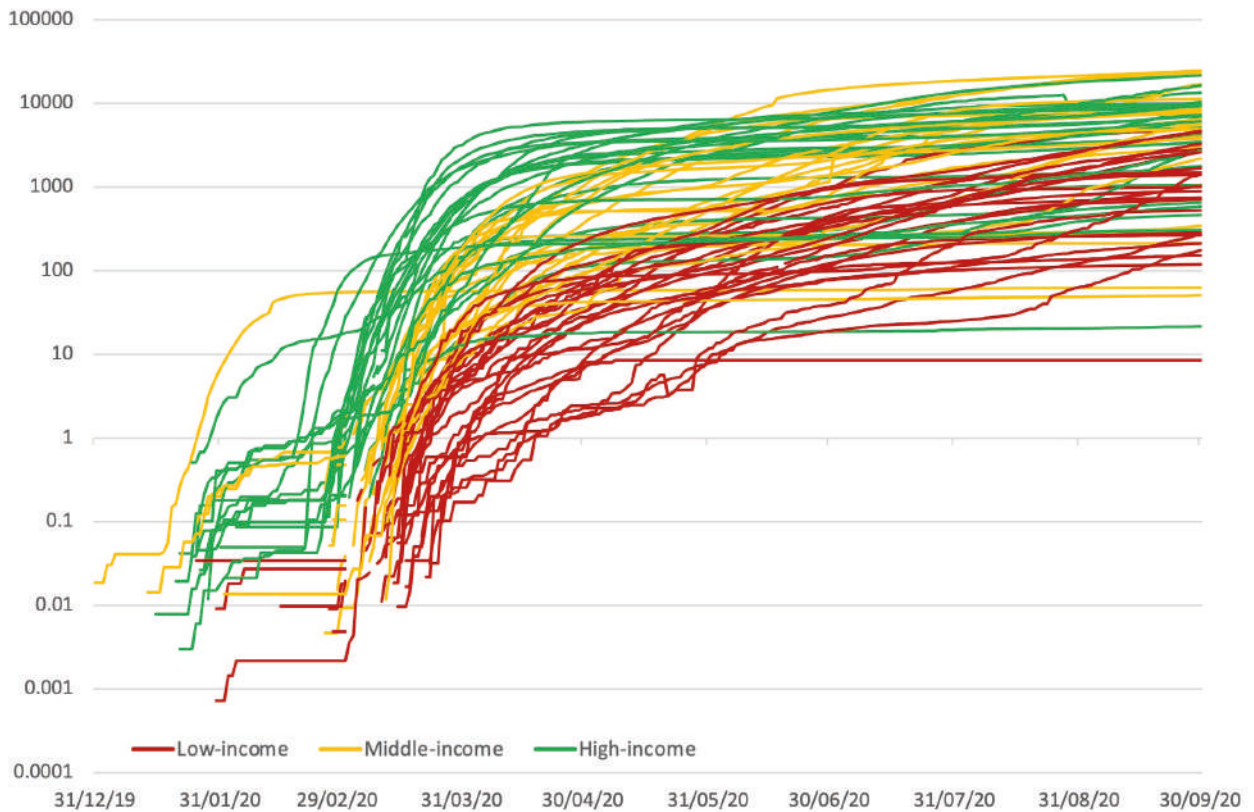
Fig. 1 – Duration of the epidemic calculated as the number of days between the appearance of the first case in each country and June 30, 2020.
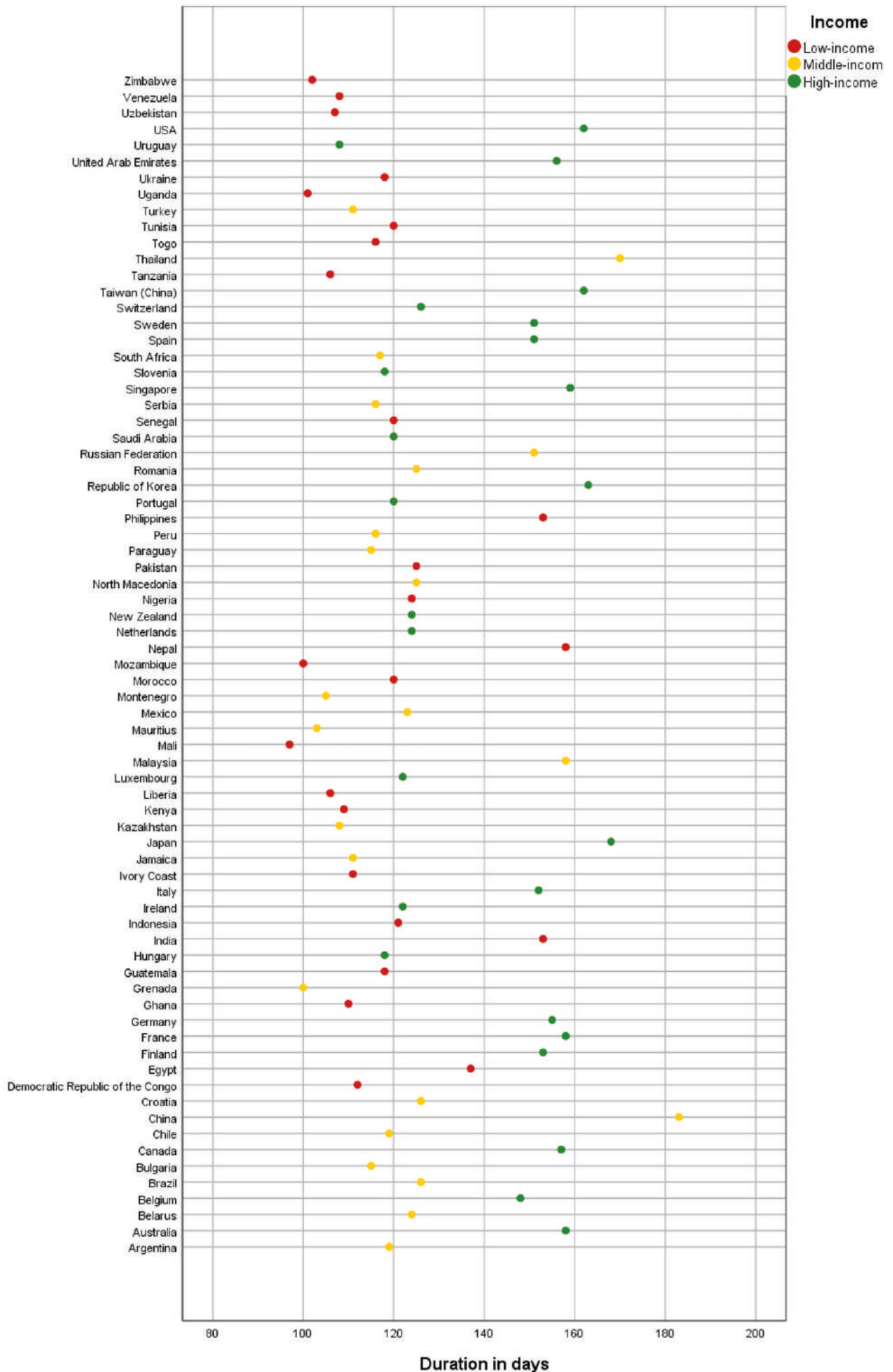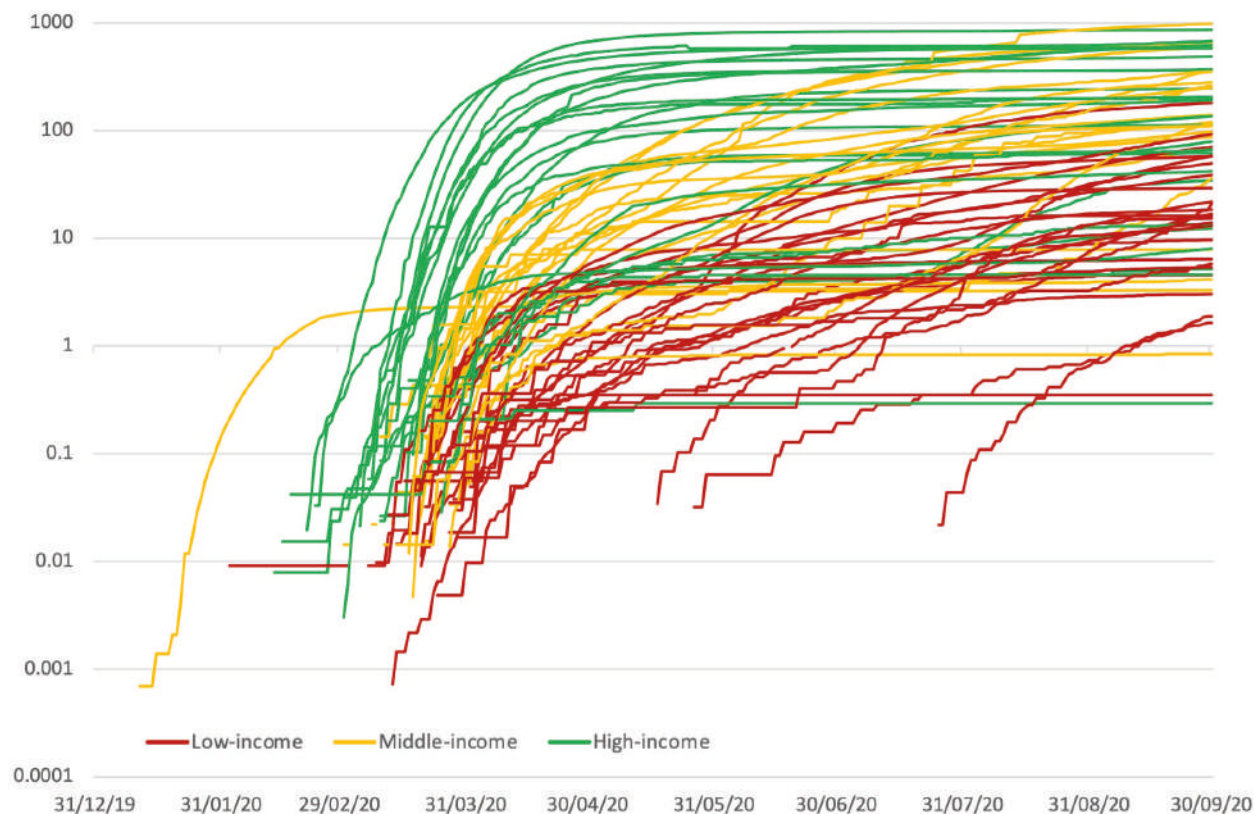
Fig. 2 – Clusters of duration and income
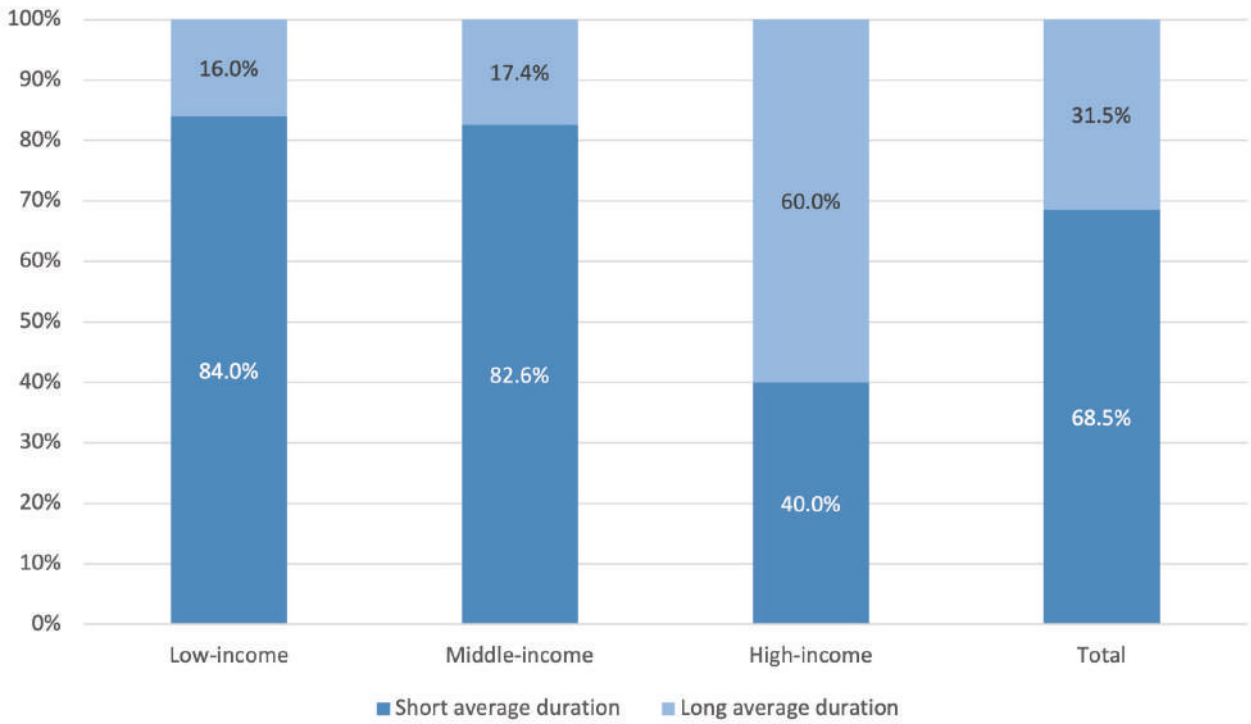
Fig. 3 – Total cases per million by income

Fig. 4 – Total deaths per million by income

Section 1 – COVID-19 data

This section investigates the quality of COVID-19 epidemiological data available in the various countries, in terms of classification and use. From the analysis of the answers provided, 71.2% of respondents believe that there is an adequate data classification. Among these, 94.2% believe that the use of data for the definition of national policies for the epidemic control was at least adequate (adequate, mostly and totally adequate). Cross tabulation with income shows that the percentage of those affirming the existence of an adequate data classification system in their country increases as income increases, although no statistically significant associations emerge (Fig. 5). A similar trend is recorded on the opinion on the use of such data for setting national policies for epidemic control (Fig. 6).

Section 2 – Public Health Policies and preventive measures

This section includes some questions aimed at investigating public health policies and preventive measures adopted by the governments in order to counter the pandemic emergency. The majority of the respondents (71.2%) reports that the state of emergency was declared in their country. These individuals were asked to indicate the starting date of the state of emergency. The responses show that in 77.1% of cases this condition began in March 2020. These data suggest that there was a homogeneous response, both in the type of measures adopted and in the response time to the health emergency. As a further measure to contain the pandemic spread, many countries adopted restrictions on the main non-essential economic activities, as well as restrictions on the free movement of citizens in order to contain social interactions. Considering this aspect, a substantial homogeneity emerges, since 86.1% of the countries adopted lockdown measures.

Fig. 5 – Existence of an adequate data classification and income
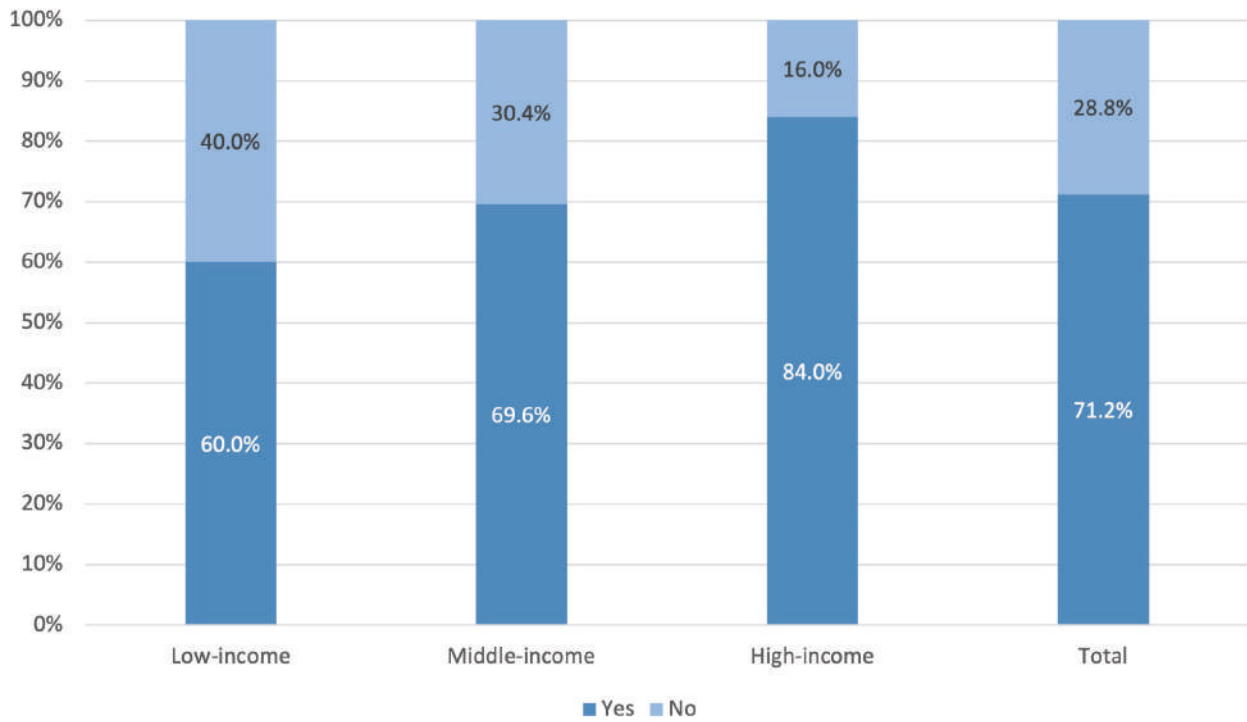
Fig. 6 – Opinion on the use of such data for setting national policies for epidemic control and income (n=52)
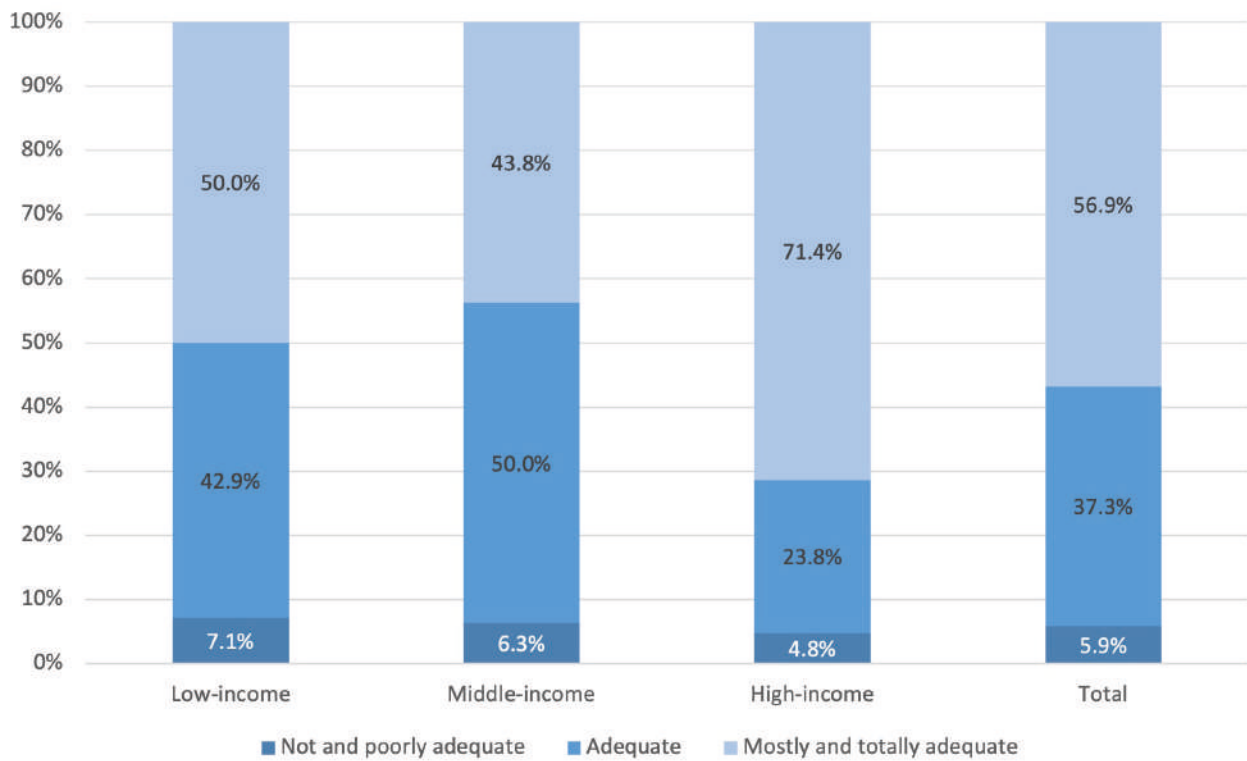
As for those countries who adopted the lockdown, they implemented more or less extensive measures, ranging from total lockdown throughout the national territory (71.0%) to partial lockdown of specific regions or areas (29.0%). With respect to the duration of lockdown, in 35.5% of the 62 countries that adopted it, it was still in place as of June 30, 2020 while for the remaining 64.5% it ceased earlier.

However, there is no statistically significant difference in the average duration of the epidemic (calculated as the duration from the day of the first case until June 30, 2020) in the two groups of countries, thus ranging between 126 and 129 days.

Among those countries where lockdown ended by 30 June 2020, 65.0% reported new post-lockdown outbreaks, which have been managed through the implementation of active contact tracing strategies (88.9%), quarantine (88.9%), and/or prohibition of social gatherings (74.1%) (Fig. 7). Therefore, both for the lockdown and in the management of subsequent epidemic outbreaks, it is clear that the countries adopted similar measures and strategies.

Although no statistically significant associations emerge, Fig. 8 shows the distribution of the declaration of the state of emergency and the adoption of lockdown in the three groups of countries divided according to income. Fig. 9 shows how the lockdown was more or less extended in relation to income.
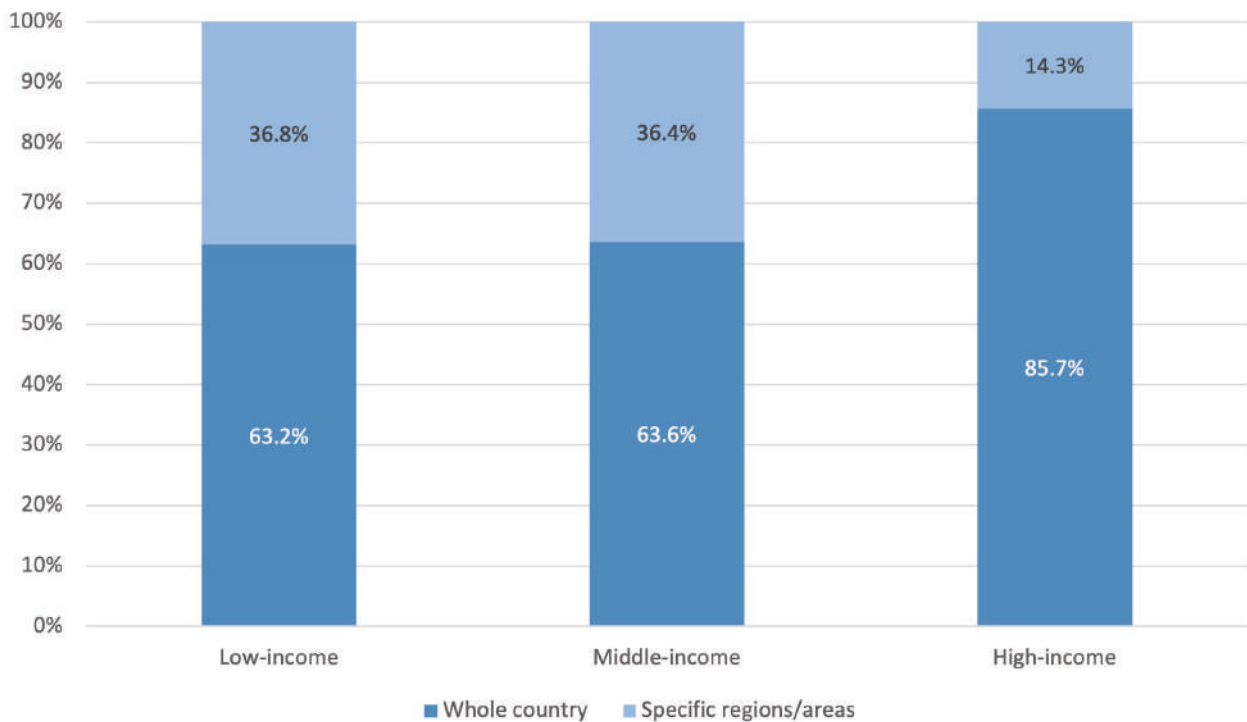
Fig. 7 – Strategies for managing new outbreaks following the end of the lockdown. Multiple-choice questions. Percentages of cases (n=26)
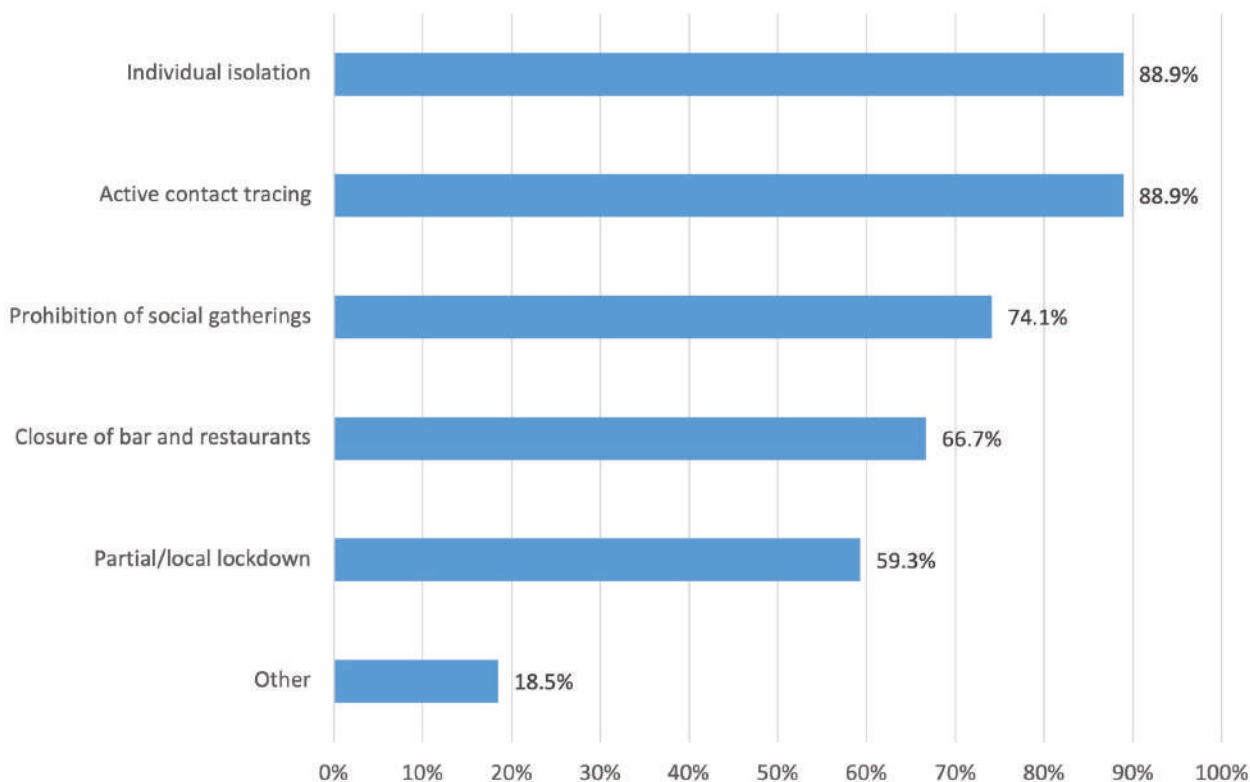
Fig. 8 – Declaration of state of emergency and adoption of lockdown in relation to income
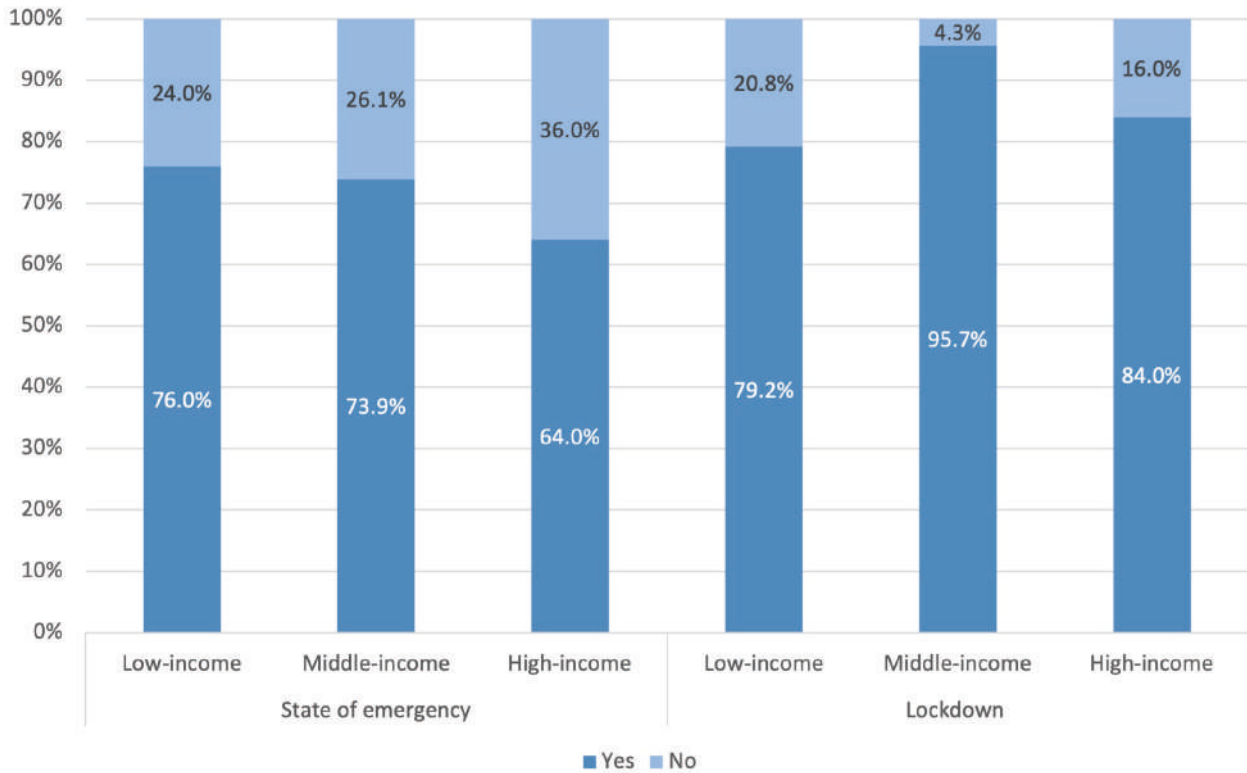
**Fig. 9 – Extension of lockdown in relation to income**

The next questions aimed at investigating the use of face masks, which is one of the most common containment measures. A large proportion of respondents (66.7%) stated that the use of face masks was compulsory in their country, while their use was only recommended in 25.0% of responding countries, and 8.3% replied that in their country there was no prescription for the use of masks.

In the countries where the use of masks was prescribed or recommended, some relevant differences can be detected. In fact, 37.9% of respondents stated that in their country face masks to be worn everywhere were compulsory; a slightly lower percentage, 34.8%, stated that face masks were always compulsory indoors, while, as for outdoors, only when social distancing was not possible. A small percentage (7.6%) stated that, in their countries, face masks were only provided or recommended outdoors and 19.7% chose the answer other.

It should be noted that the compulsory nature of masks use reaches higher percentages in middle-income countries (73.9%) than in high-income countries, where it stands at 56.0%. On the other hand, among the latter, 20.0% of the countries have no prescription for the use of masks (Fig. 10).

Furthermore, with regard to the type of face mask, in those countries that prescribed or recommended it, cloth masks are used by 81.5%, medical face masks by 69.2%, and 18.5% report to use another type.

Fig. 10 – Prescription for the use of face masks and income
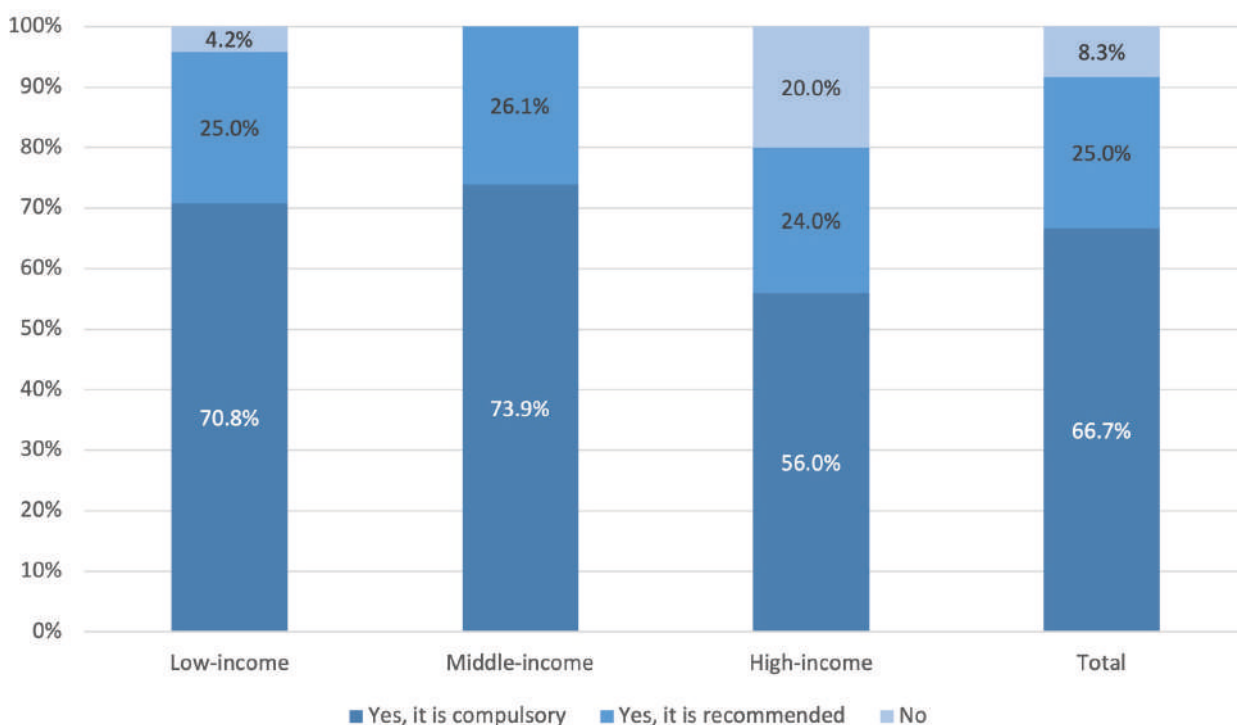
The containment measures (Fig. 11) aimed at slowing down the pandemic also include restrictions on movement within the national territory. From the analysis of responses, 80.3% of countries adopted domestic travel restrictions. These were mainly (57.1%) restrictions both between different regions and within the same region. In 62.5% of cases, these restrictions affected the whole country, while the remaining 37.5% applied these restrictions to specific regions or areas of the country.

Among the main mobility restriction measures, 88.6% of the responding countries recorded a reduction in public transport services.

Restrictions aimed at reducing and/or preventing social gatherings were also investigated, since they are the most widespread mode of virus transmission, as far as close contacts are concerned. Almost all respondents (97.2%) indicated that mass gatherings (meetings) were limited. A significant majority (84.5%) said that outdoor activities were limited. Social gatherings between friends and family were limited in 93.0% of the responding countries.

Then, the interviewees were asked to answer to some questions related to the containment measures adopted in the school system. Almost all respondents (94.4%) stated that schools had been closed. At a greater level of detail, it can be said that the closure affected schools of all orders and degrees in a uniform manner, with percentages varying between 94% and 96%.

As of June 30, 2020 schools were still closed due to the COVID-19 emergency for 56.7% of respondents, while they were closed for the season break for 19.4% of cases. In the countries where schools re-opened (23.9%), the reopening involved middle schools at 100.0%, high and elementary schools at 87.5%, and nurseries at 68.8%. Universities were also closed to students in 94.3% of respondent countries. Among these, 80.0% said they had been closed and 14.3% that the closure was limited to teaching.

Fig. 11 – Containments measures
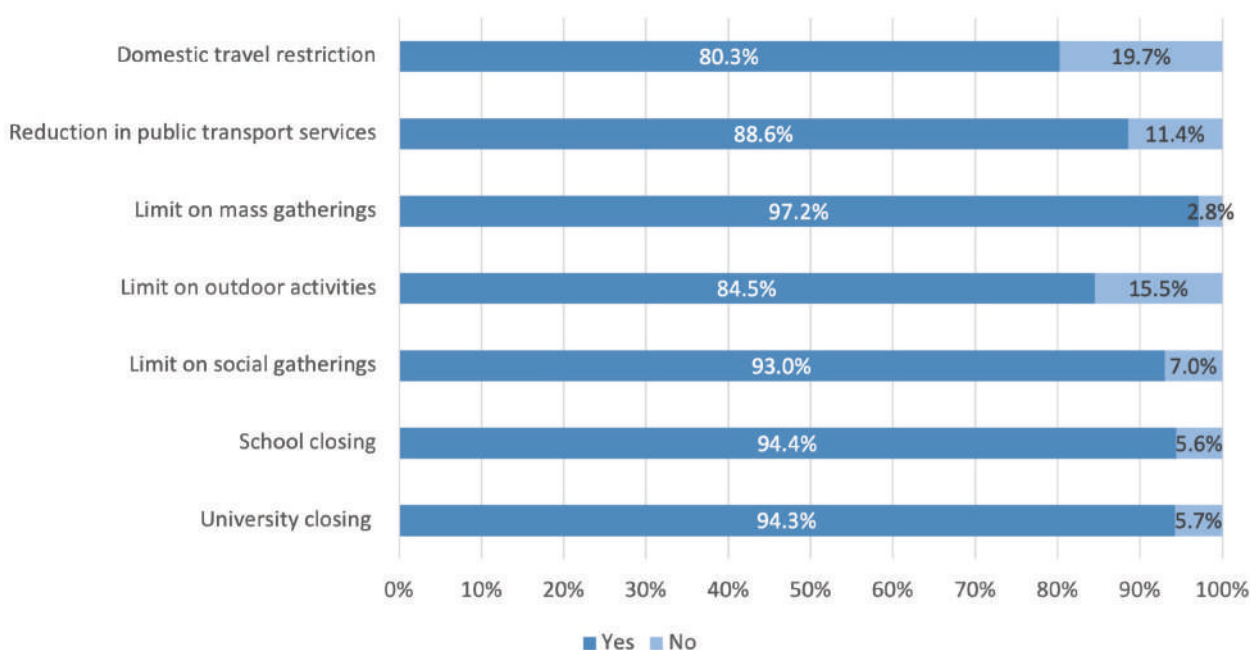
With reference to the workplace closing, the responses provided show that it mainly affected the entertainment sector (indicated by 90.1% of respondents), sports facilities (88.7%), discos and concert arenas (88.7%), museums (83.1%), restaurants (81.7%), and personal care (74.6%) (Fig. 12).

Fig. 12 – Workplace closing. Multiple-choice questions. Percentages of cases (n=71)
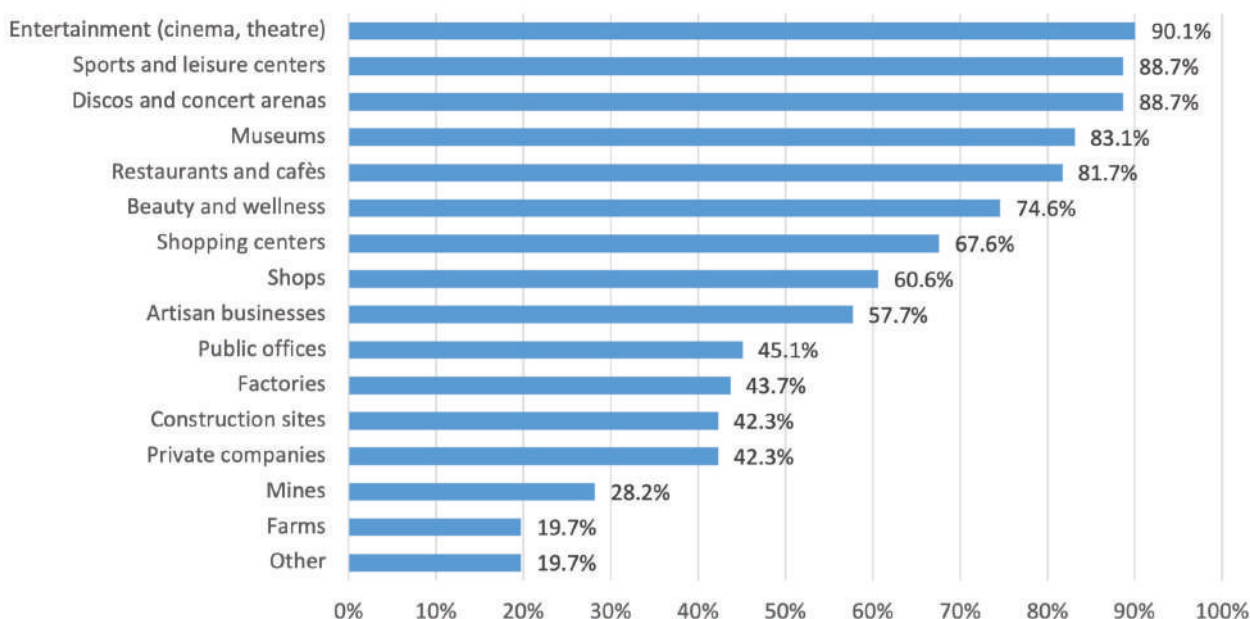
Psychological support

Among its secondary consequences, the pandemic has also determined a work-related stress load with particular reference to health workers, as they are more exposed to the risk of infection. For this reason, it was necessary to activate psychological support services. With regard to this aspect, 53.5% of respondents stated that specific psychological support services in the workplace were activated in their country. Among these ones, counselling centers (43.9%) and guidelines for management of stress (42.4%) were the main measures to be made available. Cross tabulation between the variable relating to any psychological support services adopted and the income variable shows a statistically significant association. In fact, Fig. 13 shows that, in low-income countries, those confirming the existence of psychological support amount to about 35%, against 73.9% in middle-income countries and 52.0% in high-income countries.

18

Fig. 13 – Implementation of psychosocial support services at the workplace and income
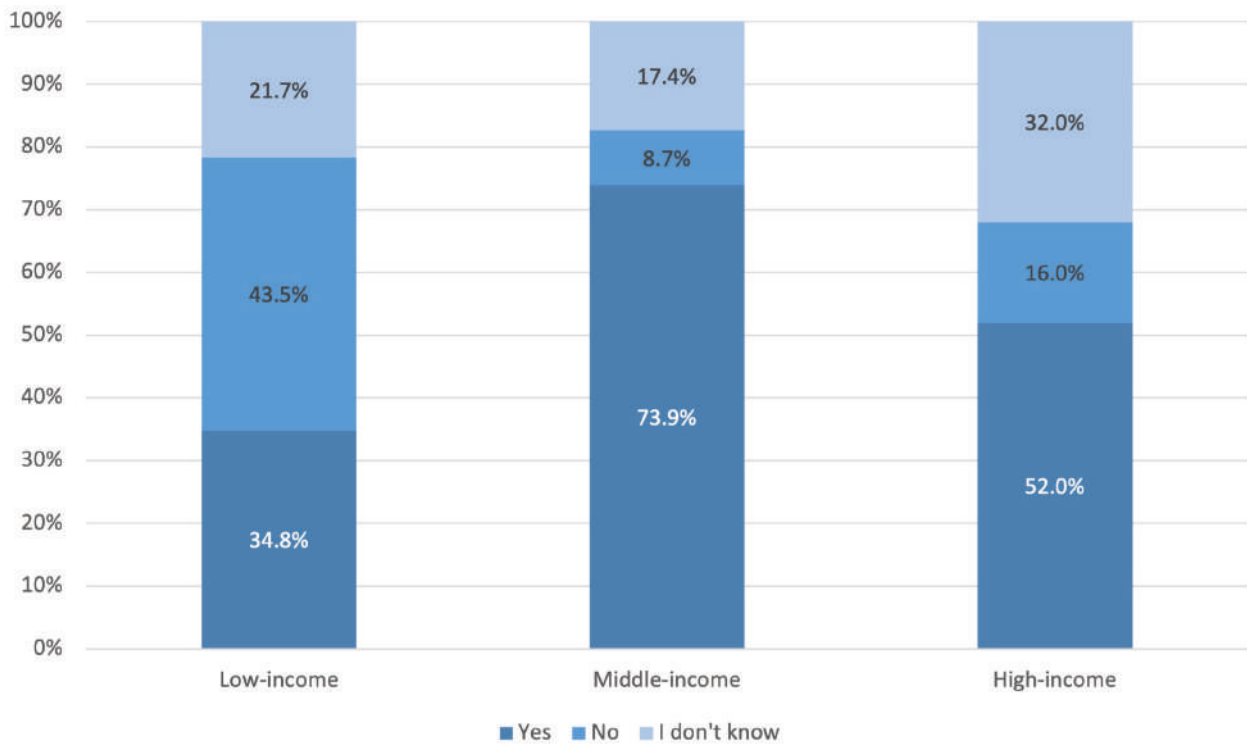
In the last part of this section, respondents were asked to give a general assessment of the effectiveness of the public health and containment policies adopted by each country. Around half of the sample (47.9%) believes that the policies adopted in their country have been effective (mostly and very effective).

However, there is a different characterization with respect to income, since, as shown in Fig. 14, this percentage goes from 13.0% in low-income countries to 52.2% in middle-income countries, up to 76.0% for those with high income. It should be noted that the intermediate assessment prevails in low-income countries (adequate, 52.2%) and the percentage of those choosing the answers not adequate and poorly adequate (34.8%) is quite high.

**Fig. 14 – Opinion on the effectiveness of policies and income**
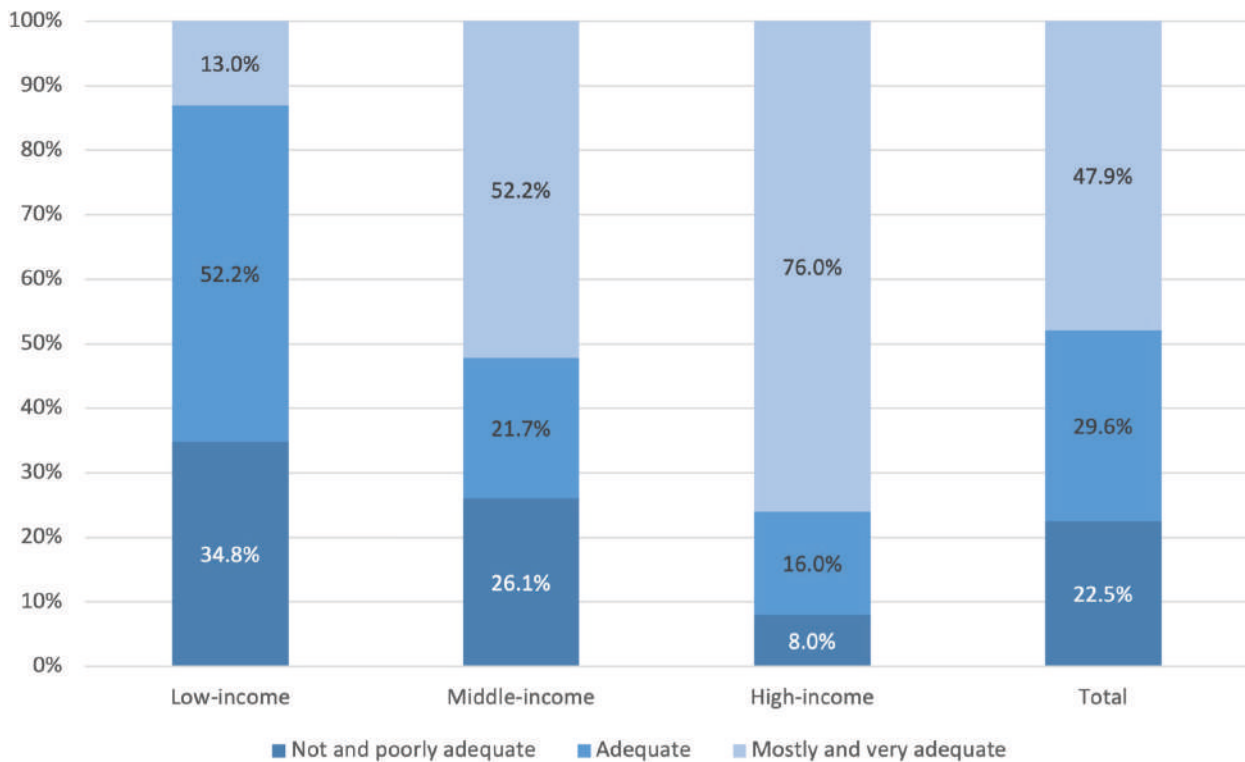
Finally, it was investigated how much OSH aspects had been taken into consideration in the fight against the pandemic. About 24% of respondents state that OSH aspects have not been taken into account or had little consideration in the development of the epidemic containment policies in their countries. On the contrary, 46.5% report that these aspects have been taken into account (mostly or totally were the selected answers), and 29.6% took an intermediate position. In this case, there are no statistically significant associations with the variable relating to the income.

With specific reference to the implementation of a compensation scheme for work-related COVID-19 cases, 57.7% of the total sample declared that it was guaranteed in their country.

Even in this case, statistically significant associations emerge with respect to the income. In fact, this percentage is around 72-74% in high and middle-income countries, while in low-income countries it reaches 26.1% (Fig. 15).

Among those countries applying a compensation scheme, it mainly concerns health workers (for 95% of respondents) and police forces (62.5%). The types of coverage provided were sick leave (for 89.7% of respondents) and quarantine (84.6%), followed by temporary impairment (71.8%) and permanent impairment (66.7 %). Death coverage is provided for 59% of respondents.

Fig. 15 – Has a compensation scheme been put in place for work-related COVID-19 cases?
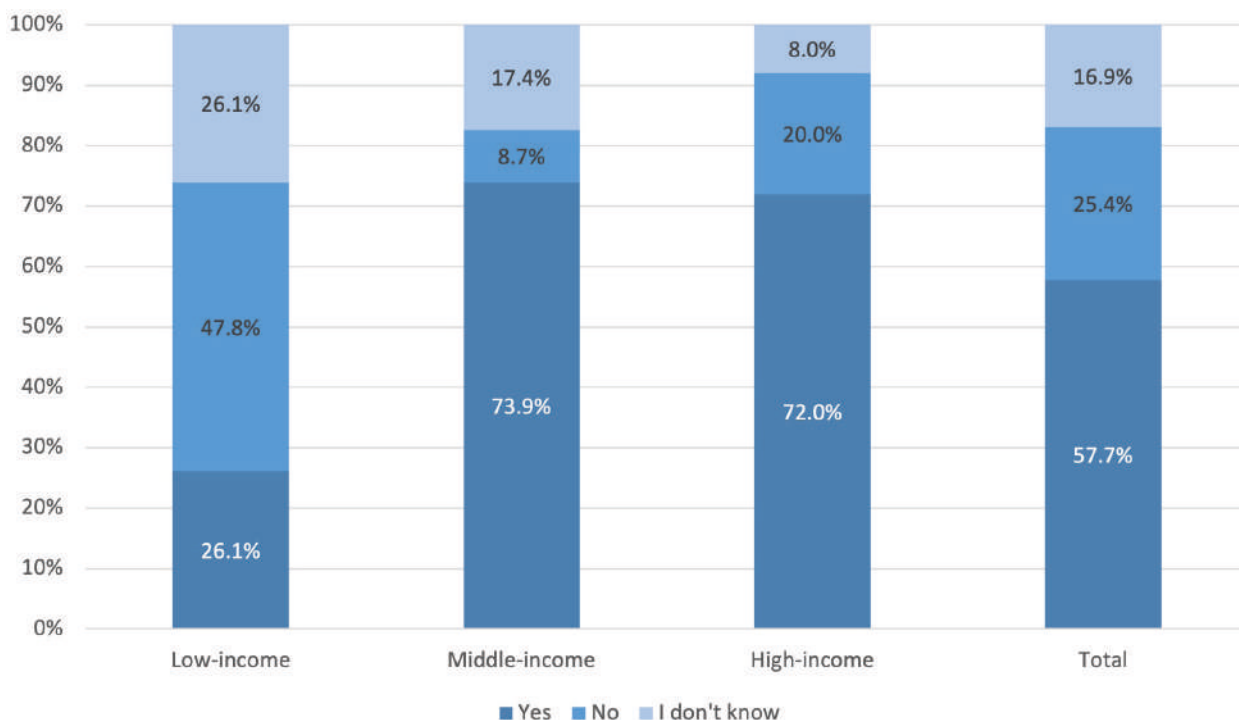
Section 3 – Support measures for economy, work, and education
This section investigates the measures that the various countries adopted to support work, economy, and education, with particular reference to the use of remote work and distance learning.

Almost all respondents (90.1%) state that remote work was extended in their country as a result of the spread of the pandemic. There is a slight statistically significant association with the income variable. In fact, 100.0% of high-income countries declare that remote work has been increased as a result of the pandemic spread. This percentage decreases for middle-income (91.3%) and low-income (78.3%) countries (Fig. 16).

Education (93.7%), private companies (90.5%), public administration (85.7%) and administrative offices of manufacturing companies (76.2%) represent the most affected sectors as far as remote work is concerned.

The interviewees were asked to evaluate the impact on remote work caused by the main difficulties encountered: in particular, the availability of technological devices, poor Internet connection, poor familiarity with technological devices, and difficult re-organization of work activities. It should be noted that for all the aspects mentioned, about half of the sample indicated that they had a low impact (not at all and slightly) (Fig. 17). There are no statistically significant associations with the income variable.

Half of the respondents (50.7%) agree that the extension of working hours was one of the negative consequences of remote work, regardless of the income variable. There is also a fairly high percentage (37.7%) of people who do not know. The remaining 11.6% declare that the extension of working hours is not one of the consequences of remote work.

Fig. 16 – Has remote work been utilized more extensively in your country during COVID-19 emergency?
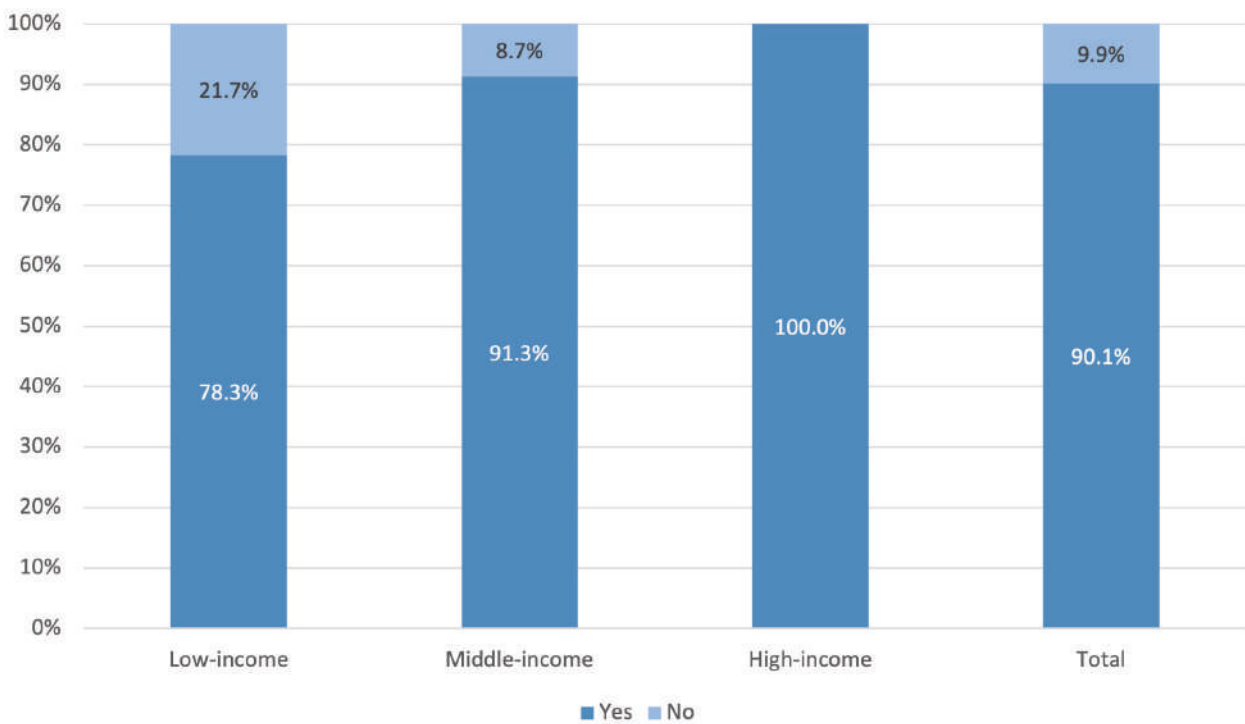
**Fig. 17 – How much did the following difficulties impact on remote work?**
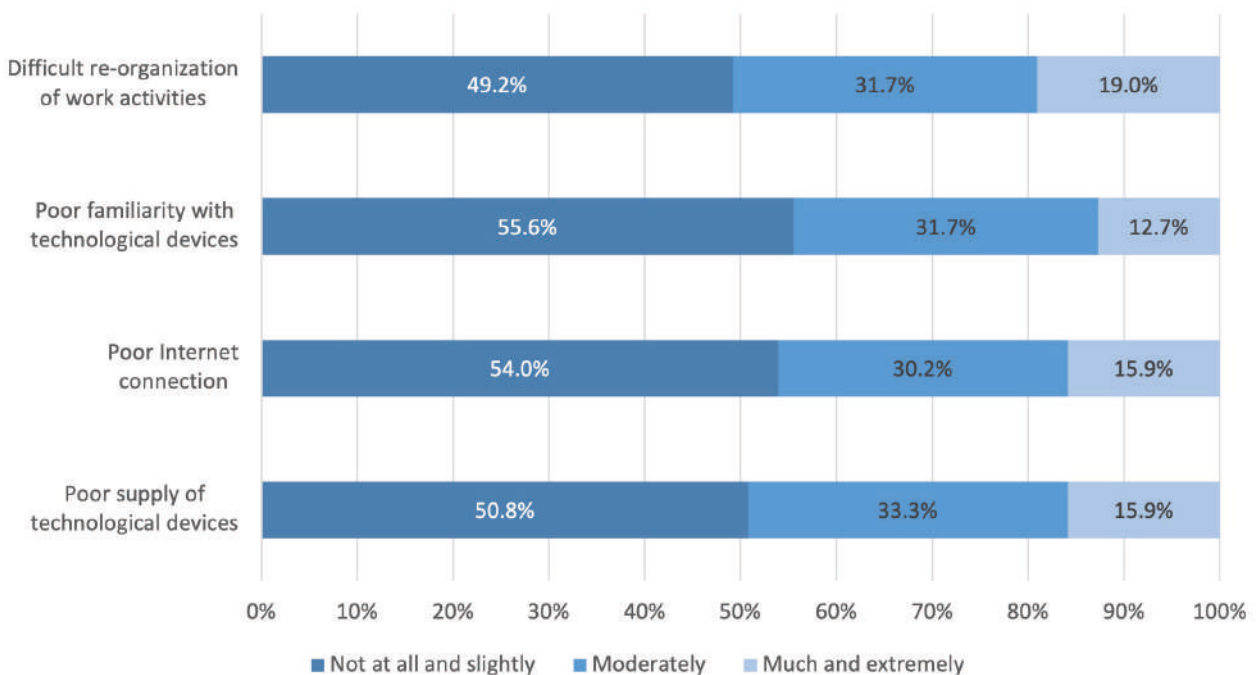
The economies of most countries suffered from a contraction in growth perspective, largely caused by travel restrictions and lockdown measures, which damaged part of the manufacturing sector and services.

Each government has been forced to implement the necessary resources to support businesses and to limit unemployment. With reference to these specific aspects, 72.5% of respondents state that their own country put in place measures to prevent unemployment. A large majority of the respondents (87.1%) state that their country

applied measures to support businesses. Cross tabulation with income shows statistically significant associations. The percentage of those declaring that such measures had been implemented in their country are higher in middle and high-income countries, reaching 96.0% (Fig. 18). Then, it should be noted that 71.0% of countries adopted both measures, 8.7% did not adopt any of the aforementioned policies to support the economy. Businesses support policies were applied more than unemployment containment policies.

Fig. 18 – Unemployment containment and businesses support policies distributed according to income
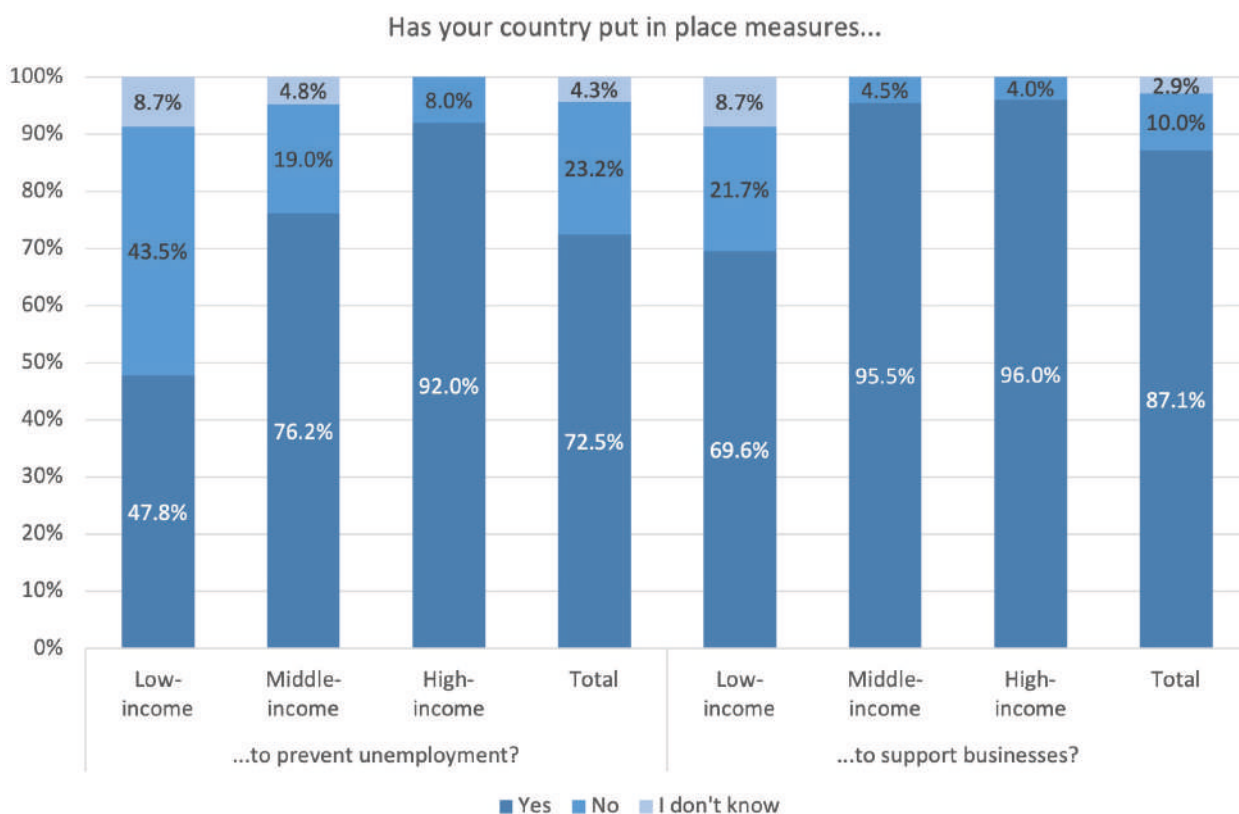

The use of distance learning to replace classroom teaching was also investigated. Almost all the respondents (97.1%) state that the main teaching method was distance learning. Moreover, the possible difficulties that may have had an impact on classroom teaching at school were analyzed. The results are illustrated in Fig. 19. It should be noted that for all the considered aspects, percentages between 33% and 38% are expressed in favor of a slight impact (not at all or slightly). With regard to poor familiarity with technological devices, a percentage of about 40% concerns the answer moderately, thus being higher than the other aspects investigated, which barely exceeded 30%.
A significant majority of the respondents (88.6%) state that universities used technology to have online lectures and exams. As done for remote work and classroom teaching at school, the aspects with the greatest impact on classroom teaching and exams for universities were examined. The results (Fig. 20) show that all the aspects recorded percentages lower than 15% as far as the answers much and extremely are concerned. The opposite answers (not at all and slightly) reached the highest percentages, especially

for the aspects concerning poor familiarity with technological devices (67.2%) and poor supply of technological devices (59.0%), followed by poor Internet connection (55.0%), and difficult re-organization of work activities (45.9%).

Fig. 19 – How much did the following difficulties impact on classroom teaching at school?
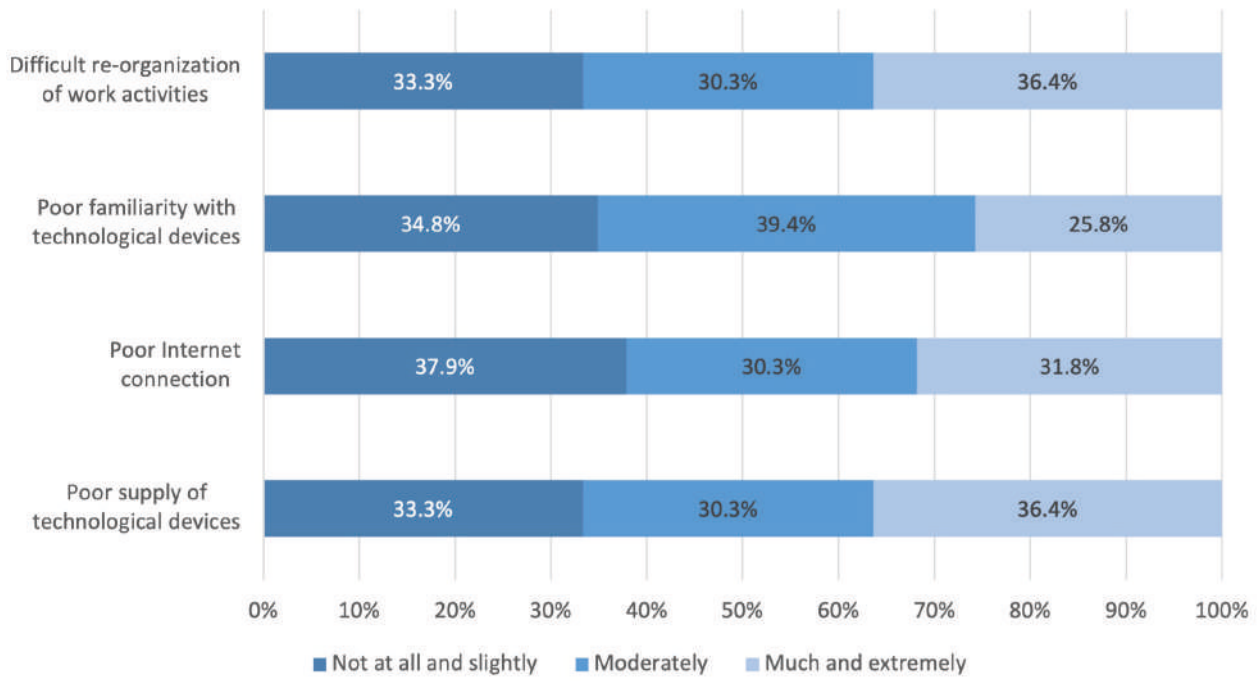
Fig. 20 – How much did the following difficulties impact on classroom teaching and exams for universities?
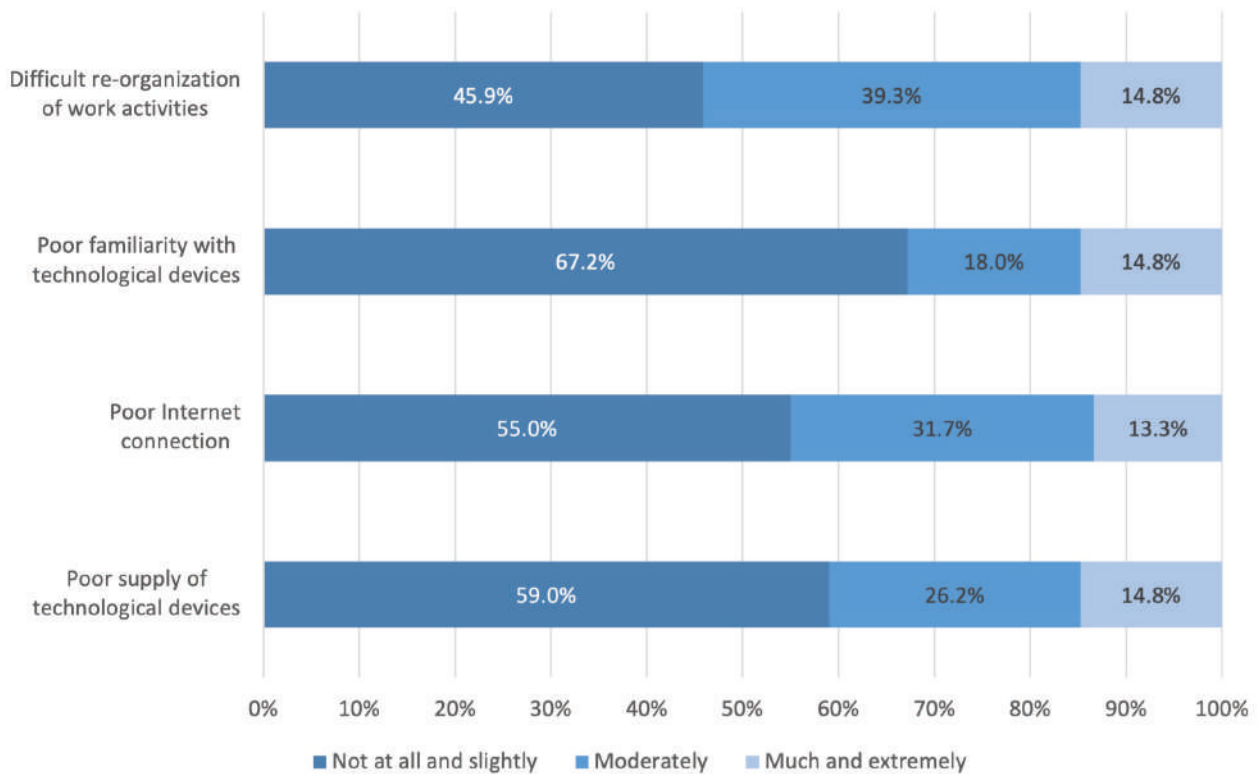
The last question of this section concerned the introduction of incentives for healthcare workers for the use of public transport. Only 17.1% of respondents state that their own country adopted such measures. In fact, 62.9% answered no, while 20.0% reported that they did not know. Among those who answered in the affirmative, the incentives they used the most - even at the same time - were free tickets (for 33.3% of respondents), discounted tickets (33.3%), and reserved vehicles at specific hours (33.3%).

Section 4 – Personal Protective Equipment (PPE), Intensive Care Unit (ICU), contact tracing
This section of the questionnaire is aimed at exploring the availability of PPE and the production capacity of each country.
The majority of the respondents (71.0%) stated that their country is not autonomous in the production of PPE or that they do not have this information, while 29.0% say they are autonomous. On the other hand, 70.0% of respondents stated that their country experienced a lack or scarcity of PPE, while 30.0% said that PPE shortage was not a problem in their country, or they do not know. Cross tabulation between these two questions shows that among those countries which considered themselves autonomous in the production of PPE, 55.0% have in any case experienced a shortage phase; this percentage rises to 75.5% in those countries that declared not to be autonomous in the production of PPE (Fig. 21).

Fig. 21 – Autonomy in the production of PPE and shortage

Legend: ■ Shortage of PPE   ■ No shortage of PPE
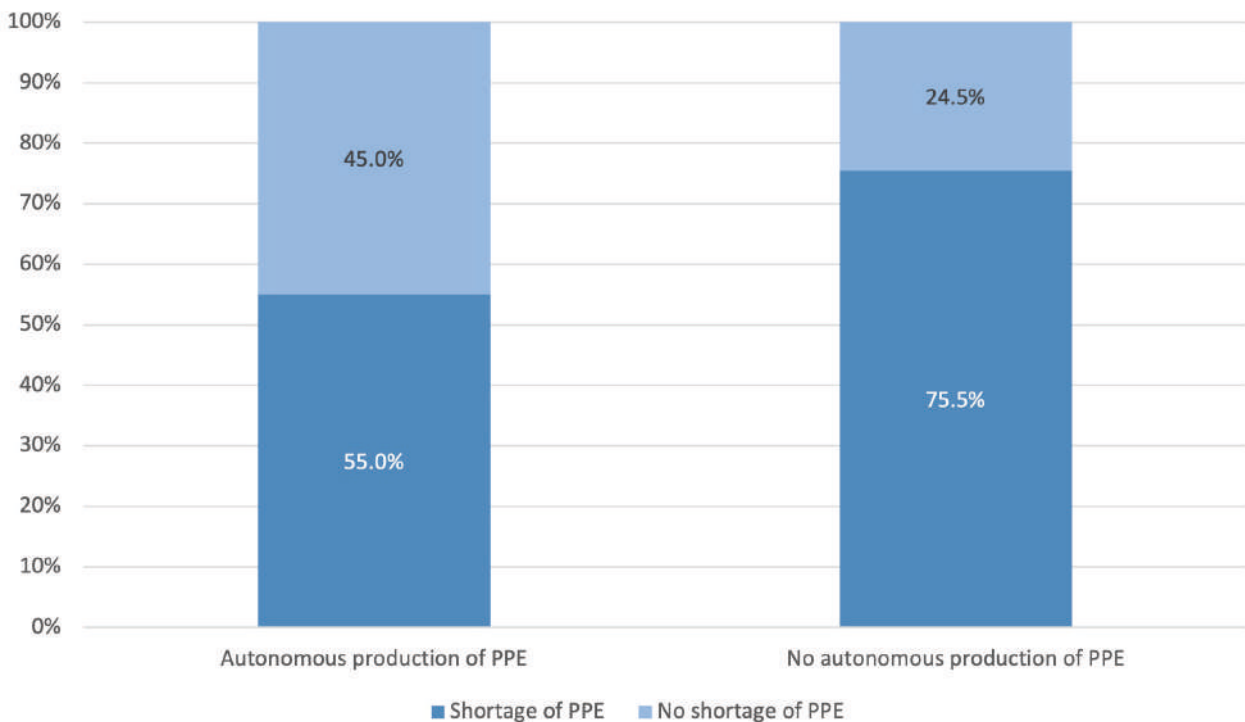
Among those declaring that their country experienced shortages of PPE, the strategies adopted to compensate for the lack were investigated. Fig. 22 represents the strategies used, in descending order, from the most used to the least used: increased production (87.5%), reconversion of existing industries for PPE production (64.6%), prolonged use of PPE (62.5%), decontamination and reuse of PPE (52.1%).

Furthermore, the same individuals were asked to indicate what kind of healthcare facilities were most affected by the shortage of PPE. From the frequency analysis, it emerges that the prevailing response concerned public hospitals (62.5% of respondents), private care (10.4%), and retirement homes (10.4%). A percentage of 16.7% for other types of structures is also recorded.
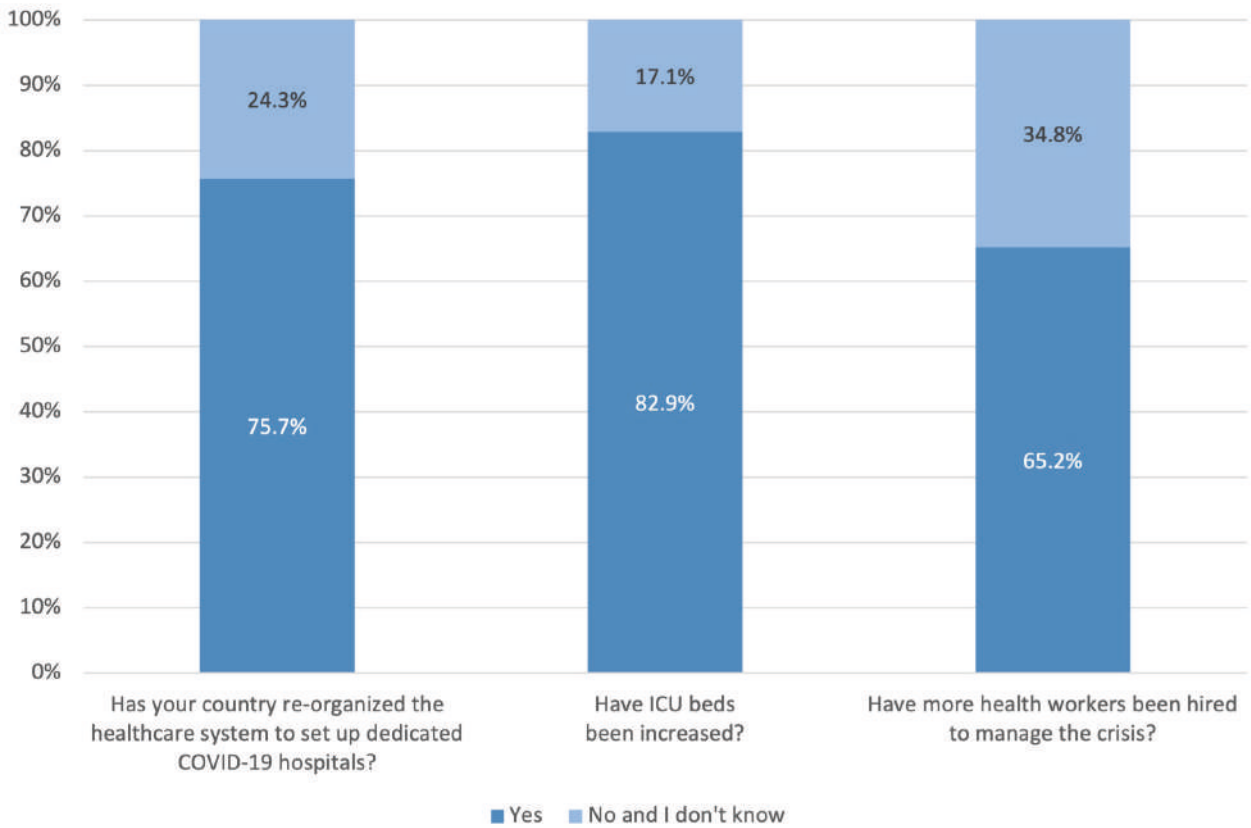
About 54% of respondents added that there were no outbreaks in care homes and retirement homes.

Fig. 22 – Strategies put in place for optimizing the supply of PPE. Multiple-choice questions. Percentages of cases (n=48)
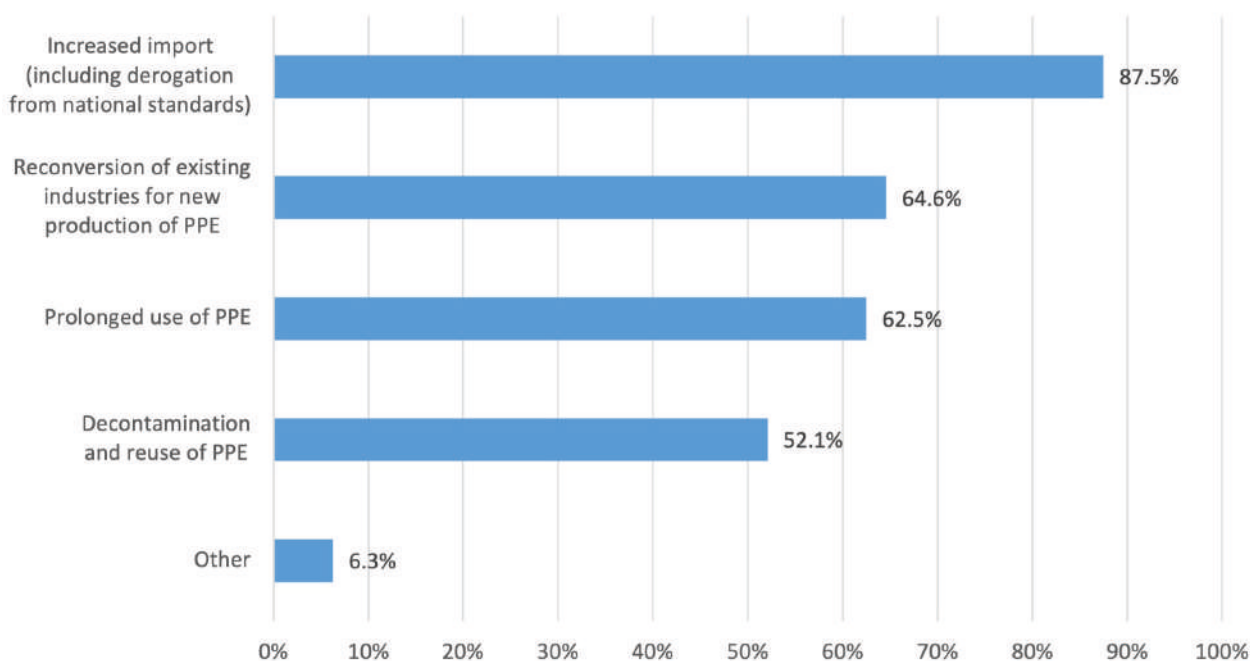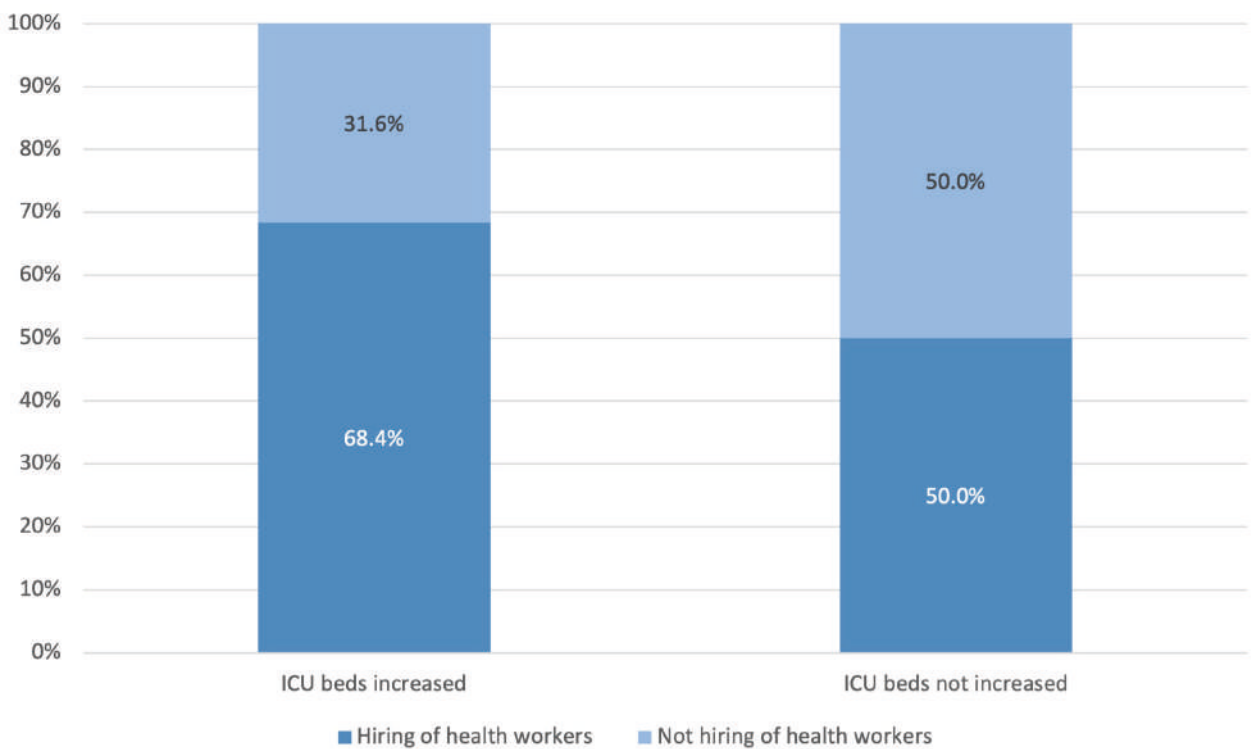

Each country needed to reorganize its health system, both from the point of view of infrastructure (COVID-19 hospitals and the procurement of new intensive care units) and the hiring of new health workers. Fig. 23 shows that 75.7% of respondents state that their country set up dedicated COVID-19 hospitals, 82.9% of them declare that ICU beds were increased, and 65.2% that new health workers were hired to handle the emergency. There are no statistically significant associations with the income variable. From the intersection of the variables relating to the increase in ICU beds and the hiring of new health workers there is no statistically significant association. However, it has to be highlighted that, among those who increased the number of ICU beds, 68.4% hired new health workers. This percentage drops to 50.0% in the group of countries that did not declare an increase in the number of beds in intensive care (Fig. 24). Almost all respondents (91.3%) stated that in their country patients with mild symptoms were isolated. Among them, 71.4% stated that these patients were isolated from family members. There are no statistically significant associations with the income variable.

Fig. 23 – Reorganization of the health system to deal with the COVID-19 emergency

Legend: ■ Yes ■ No and I don't know

Data points:
- Has your country re-organized the healthcare system to set up dedicated COVID-19 hospitals? — Yes: 75.7%, No and I don't know: 24.3%
- Have ICU beds been increased? — Yes: 82.9%, No and I don't know: 17.1%
- Have more health workers been hired to manage the crisis? — Yes: 65.2%, No and I don't know: 34.8%

Fig. 24 – Increase in ICU beds and hiring of new health workers

Legend: ■ Hiring of health workers ■ Not hiring of health workers

Data points:
- ICU beds increased — Hiring of health workers: 68.4%, Not hiring of health workers: 31.6%
- ICU beds not increased — Hiring of health workers: 50.0%, Not hiring of health workers: 50.0%

In some cases, in order to assess the impact and the spread of the pandemic in the different population groups and areas of the country, studies on seroprevalence were conducted. From the questionnaires received, it emerges that 58.0% of respondents of the total sample declared that an epidemiological study on seroprevalence exists in their country. Fig. 25 shows the characteristics of the sample with respect to the income variable: the percentage increases as the level of income increases, passing from 39.1% of low-income countries to 59.1% in middle-income countries, and 75.0% in high-income countries.

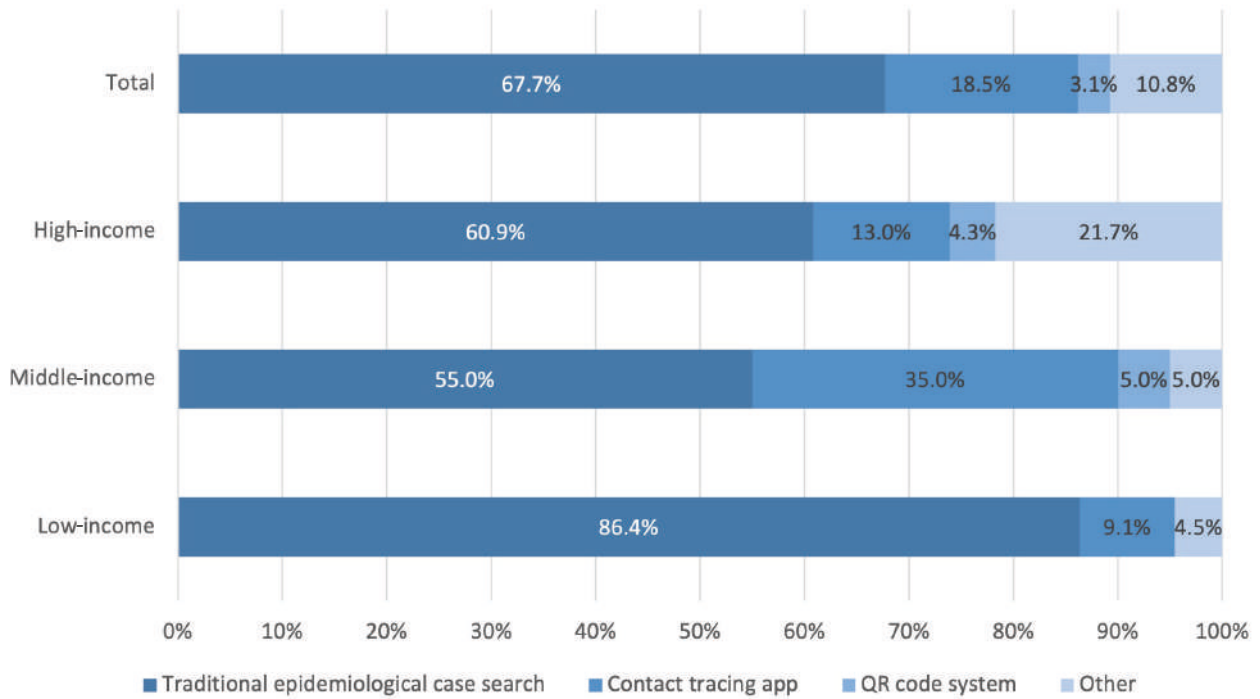**Fig. 25 – Study on seroprevalence and income**
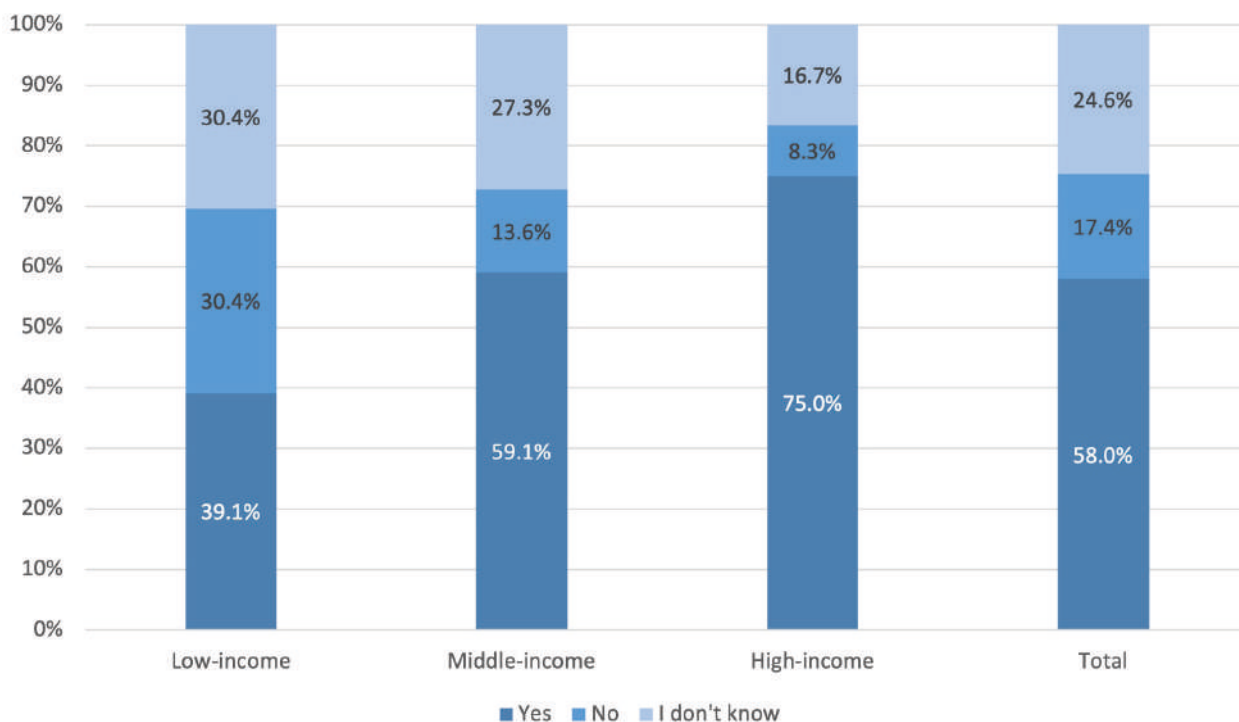
Furthermore, the survey aimed at assessing the contact tracing system used to identify positive cases and to trace the chains of contagion. About 94% of respondents declared that a contact tracing system exists in their country. This percentage remains almost stable depending on the income level, amounting at around 96% for low and high-income countries and around 91% for middle- income countries. The most common tracking system is the traditional epidemiological case search (67.7% of respondents), followed by the contact tracing app (18.5%), and the QR code system (3.1%). It should be noted that, according to income, the use of traditional epidemiological case search has a high percentage in low-income countries (86.4%), compared to medium-income countries (55.0%), and high-income countries (60.9%) (Fig. 26).
The epidemiological emergency has sometimes caused the overload of health facilities with the consequent reduction of ordinary health services.
The survey found that medical examinations, treatments and diagnostics for non-COVID-19 patients have been totally suspended (30.4%) or partially suspended (49.3%), while 20.3% of respondents state that there have been no interruptions in their country. There are no statistically significant associations with the income variable.
An analysis on the activities suspended for non-COVID-19 patients show that non-urgent surgeries are the most affected (92.7% of cases) followed by physiotherapy (70.9%), medical examinations (67.3%), diagnostic tests (47.3%), home assistance (43.6%), medical treatments (38.2%), and cancer therapies (21.8%) (Fig. 27).

Fig. 26 – Contact tracing systems and income

	Traditional epidemiological case search	Contact tracing app	QR code system	Other
Total	67.7%	18.5%	3.1%	10.8%
High-income	60.9%	13.0%	4.3%	21.7%
Middle-income	55.0%	35.0%	5.0%	5.0%
Low-income	86.4%	9.1%		4.5%

Fig. 27 – Services suspended because of COVID-19 emergency. Multiple-choice questions. Percentages of cases (n=69)

Service	Percentage
Non urgent surgeries	92.7%
Physiotherapy	70.9%
Medical examinations	67.3%
Diagnostic tests	47.3%
Home assistance	43.6%
Medical treatments	38.2%
Cancer therapy	21.8%
Other	5.5%
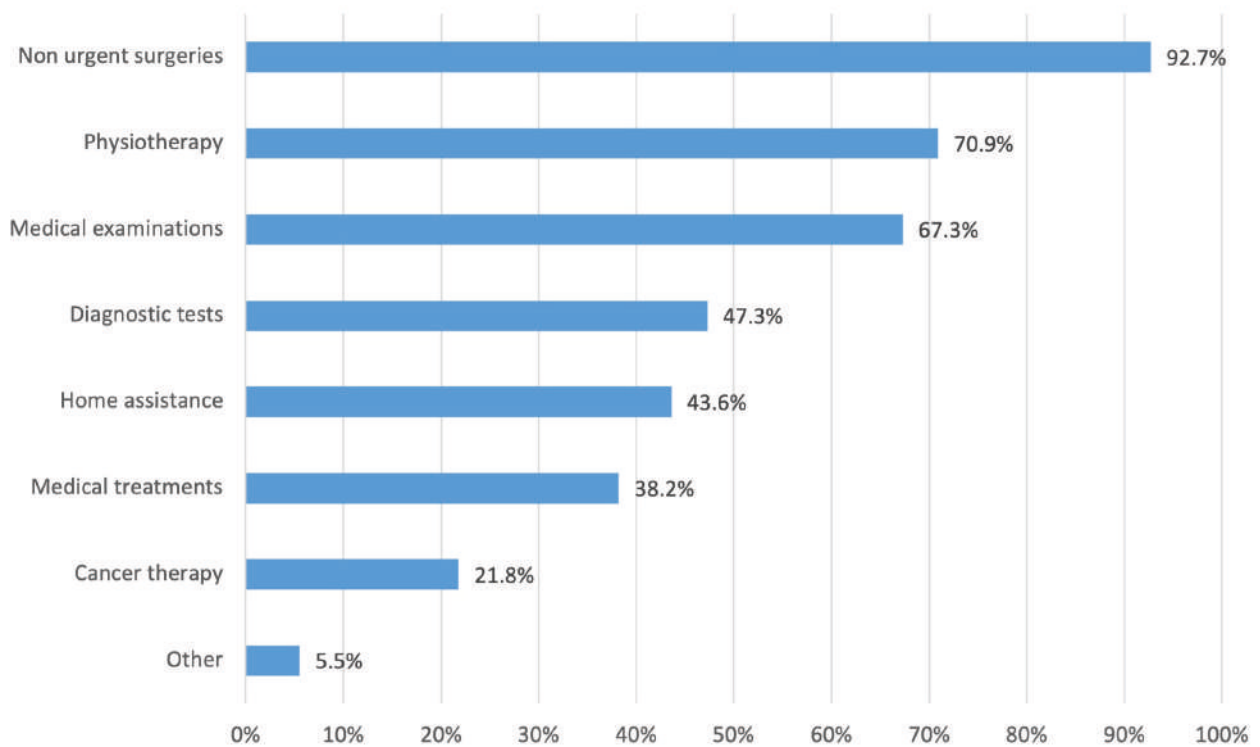
Section 5 – Return to work

The end of lockdown measures led to the adoption of a return-to-work plan, which in some cases involved the drafting of guidelines and protection of fragile workers, as well as all measures for the safety of workplaces and public transport services. Almost 87% of the respondents stated that national guidelines exist in their country to return to work after the lockdown. There is no statistically significant association with the income variable, but this percentage amounts at 73.9% in low-income countries, and rises to 95.2% and 91.7% in middle and high-income countries respectively. The measures adopted for the return to work include social distancing (95.7% of cases), the use of mouth and nose protective devices (such as cloth masks, medical face masks, face shields) (94.2%), remote work (89.9%), re-organization of workspaces (85.5%), temperature checking (79.7%), re-organization of work schedules (75.4%), and shiftwork (40.6%) (Fig. 28).

Fig. 28 – Measures adopted for the return to work. Multiple-choice questions. Percentages of cases (n=68)
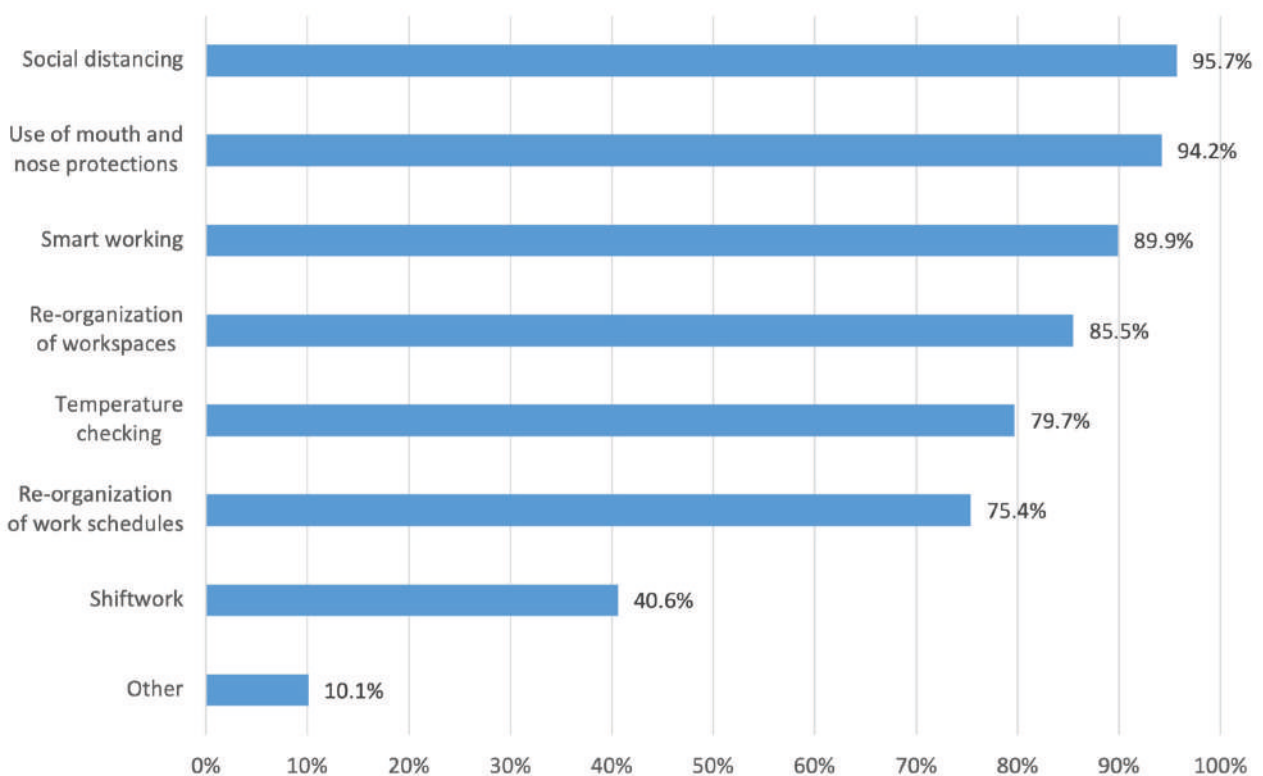
Almost half of the respondents (47.8%) stated that social security measures for vulnerable workers have been activated. Although there are no statistically significant associations with the income variable, this percentage increases as the income class increases, passing from 30.4% for low-income countries, to 54.5% for middle-income countries, up to 58.3% for high-income countries.

The prevailing measures envisaged to protect fragile worker were: priority of remote work for vulnerable workers (97.0% of cases), individual rooms or physically separated workspaces (78.8%), and special sanitary surveillance (51.5%) (Fig.29).

Fig. 29 – Measures adopted in favor of fragile workers. Multiple-choice questions. Percentages of cases (n=33)
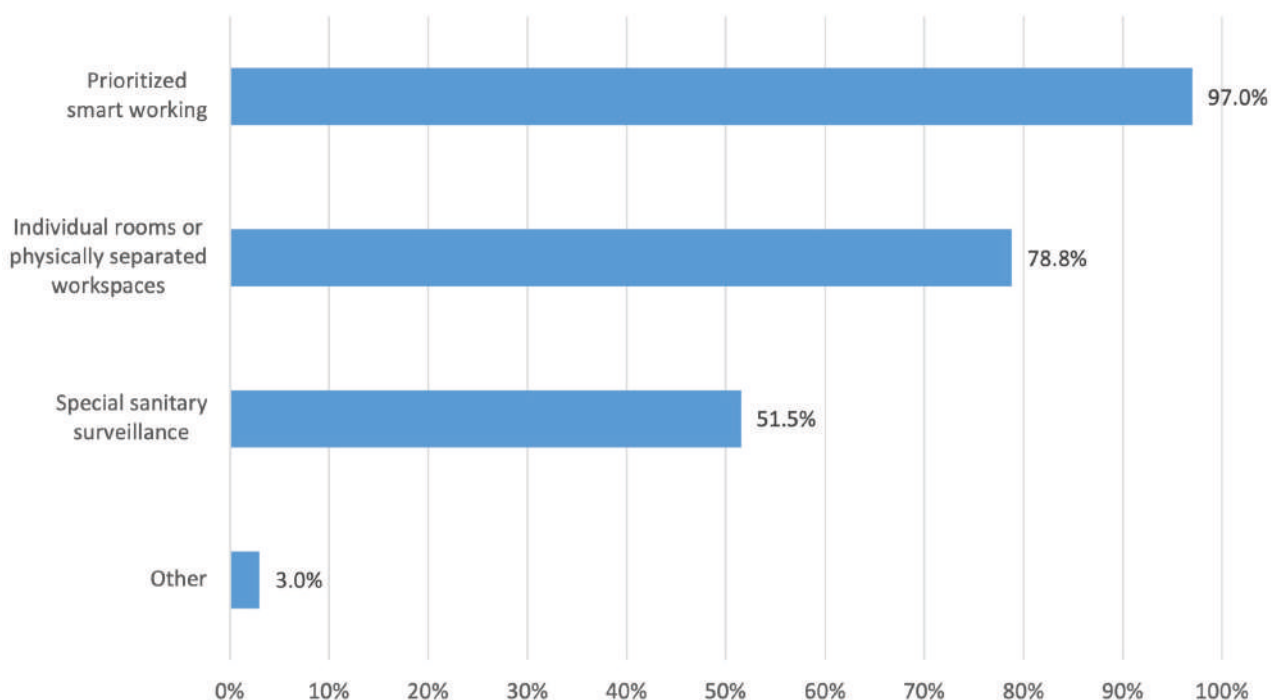

Respondents were also asked to indicate who can issue a "fit for work" certificate for employees that have recovered from COVID-19. About 41% indicated general practitioner, 33.3% occupational physician, and 25.8% chose the answer other.

Around 81% of the respondents stated that there was a plan for managing COVID-19 cases at the workplace. This percentage varies between 73.9% in low-income countries, 86.4% middle-income countries, and 83.3% of high-income countries.
With regard to the figures entrusted with the management of COVID-19 cases at the workplace, it emerges that the prevalent figure is the employer (71.4% of cases), followed by the occupational physician (64.3%), human resources departments (48.2%) and H&S managers (35.7%) (Fig. 30).

Fig. 30 – People in charge of managing COVID-19 cases in the workplace. Multiple-choice questions. Percentages of cases (n=33)
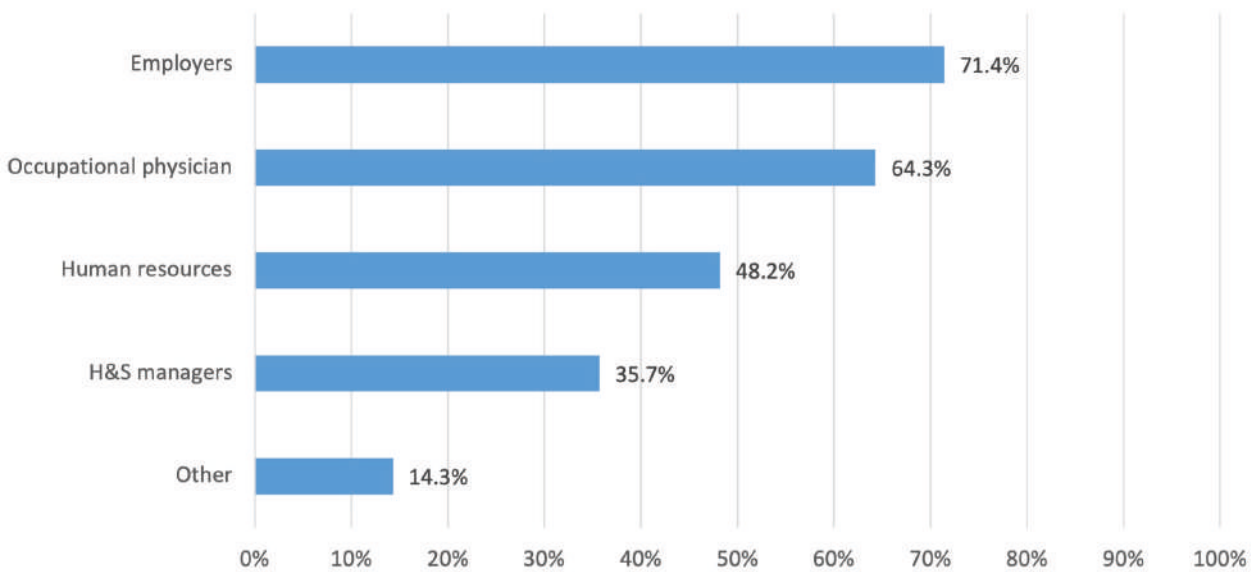
The measures adopted for the use of public transport after the lockdown include the compulsory use of face masks (91.3% of cases), social distancing (87.0%), reduction of seats (75.4%), physical barriers for the driver (53.6%), re-organization of entrance and exit (47.8%), and reservation trough apps (18.8%) (Fig. 31).

Fig. 31 – Measures adopted in public transports after the lockdown. Multiple-choice questions. Percentages of cases (n=69)
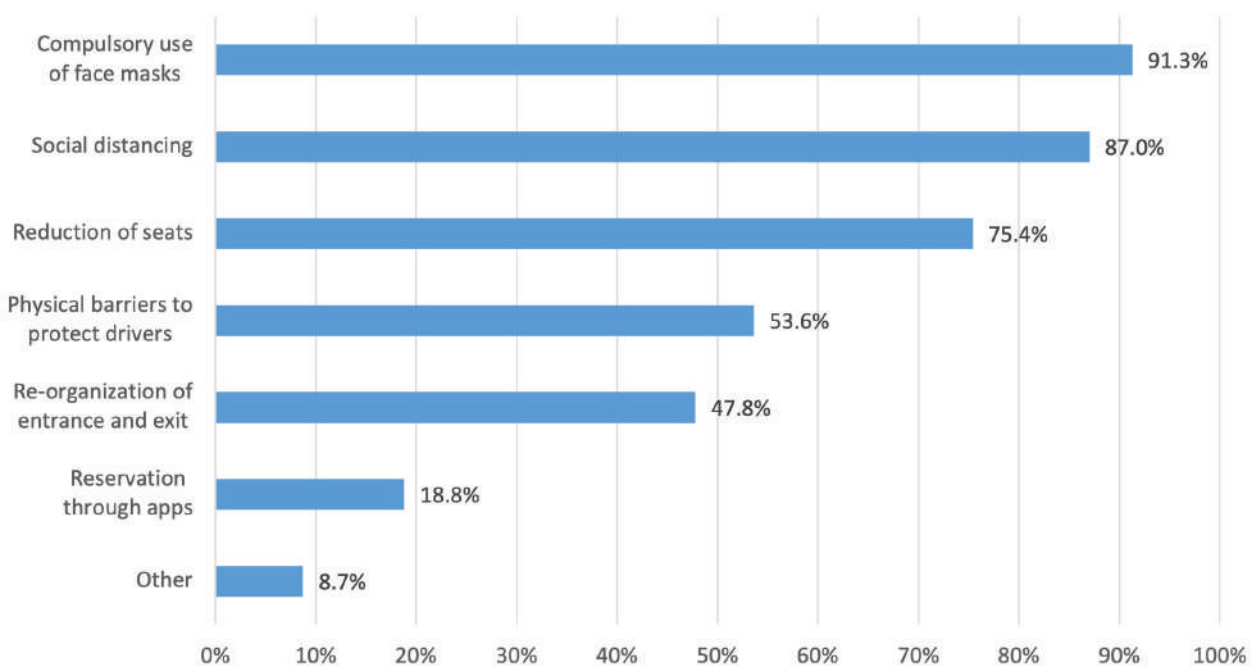
Section 6 – ICOH against COVID-19

With regard to the work of ICOH against COVID-19, almost all the sample (95.7%) considers that documents related to the management of the pandemic and drafted by the ICOH Scientific Committees may be useful. Among them, it is asked on which aspects they consider the contribution of the Scientific Committees of the ICOH to be useful. From the frequency analysis, it results that the topics of greatest interest are health worker protection (93.9%), vulnerable workers protection (83.3%), and emergency preparedness and response (74.2%) (Fig. 32).

Finally, respondents are asked to indicate the contribution they expect from ICOH to manage the pandemic. Around 41% of the respondents choose the answer related to information sharing by ICOH, 39.1% state that the development of guidelines is useful, 13.0% choose e-learning, and 7.2% answer with other.

Fig. 32 – Aspects to be considered in documents related to the management of the pandemic by the ICOH Scientific Committees. Multiple-choice questions. Percentages of cases (n=66)
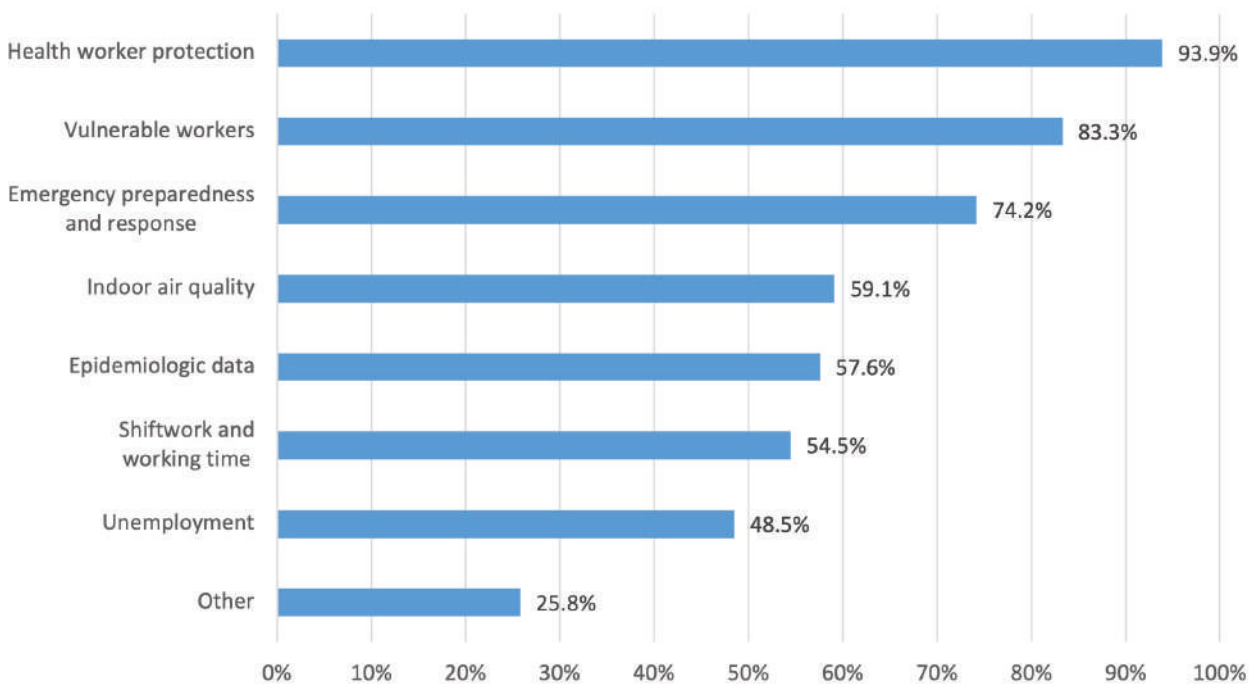
REFERENCES

1. WHO. COVID-19 Weekly epidemiological update. Edition 67 published 23 November 2021. Available at https://www.who.int/publications/m/item/weekly-epidemiological-update-on-covid-19---23-november-2021
2. Policy Brief: The World of Work and COVID-19. New York: United Nations; June 2020. 29 p.
3. United Nations. UN framework for the immediate socio-economic response to COVID-19. New York: United Nations; April 2020. 51 p.
4. Boccuni V, Gagliardi D, Petyx C, Dionisi P, Cannone E, Iavicoli S. A forum for collaboration and knowledge development among OSH experts. International Newsletter on Occupational Health and Safety 2018; Special Issue: 26-27
5. ICOH. Global survey on health and safety of health workers in COVID-19. http://www.icohweb.org/site/news-detail.asp?id=183
6. Rantanen J, Lehtinen S, Iavicoli S. Occupational health services in selected International Commission on Occupational Health (ICOH) member countries. Scand J Work Environ Health 2013;39(2):212-6
7. Rantanen J, Lehtinen S, Valenti A, Iavicoli S. A global survey on occupational health services in selected International Commission on Occupational Health (ICOH) member countries. BMC Public Health 2017;17:787
8. Rondinone BM, Valenti A, Boccuni V, Cannone E, Dionisi P, Gagliardi D, Boccuni F, Iavicoli S. Contribution of ICOH to address the different OSH needs among countries: results of a survey. Int. J. Environ. Res. Public Health 2021, 18, 4665. https://doi.org/10.3390/ijerph18094665