

# Parity of esteem: A global COVID-19 vaccination approach for people with mental illnesses, based on facts from 34 countries; recommendations and solutions

## ABSTRACT

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**Background:** The coronavirus disease (COVID-19) pandemic, caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has detrimental effects on physical and mental health. Patients with severe mental illness are at higher risk of contracting the virus due to social determinants of health. Vulnerable populations include the elderly, people with pre-existing conditions, and those exposed to SARS-CoV-2. Unfortunately, only a few countries have updated vaccination strategies to prioritize patients with mental illnesses. Therefore, we aimed to explore whether individuals with mental disorders are prioritized in vaccine allocation strategies in different world regions. They are often neglected in policymaking but are highly vulnerable to the threatening complications of COVID-19. **Methods:** A questionnaire was developed to record details regarding COVID-19 vaccination and prioritizations for groups of persons with non-communicable diseases (NCDs), mental disorders, and substance use disorders (SUDs). *NCDs* were defined according to the WHO as chronic diseases that are the result of a combination of genetic, physiological, environmental, and behavioral factors such as cardiovascular diseases, cancer, respiratory diseases, and diabetes. **Results:** Most countries surveyed (80%) reported healthcare delivery via a nationalized health service. It was found that 82% of the countries had set up advisory groups, but only 26% included a mental health professional. Most frequently, malignancy (68%) was prioritized followed by diabetes type 2 (62%) and type 1 (59%). Only nine countries (26%) prioritized mental health conditions. **Conclusion:** The spread of the coronavirus has exposed both the strengths and flaws of our healthcare systems. The most vulnerable groups suffered the most and were hit first and faced most challenges. These findings raise awareness that patients with mental illnesses have been overlooked in immunization campaigns. The range of their mortality, morbidity, and quality of life could have widened due to this delay.

**Keywords:** COVID-19, health policy, mental health, primary prevention, vaccination

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The world has witnessed unprecedented events triggered by the coronavirus disease (COVID-19) pandemic, caused by the pathogen known as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The pandemic has had detrimental effects on individual and collective physical and mental health worldwide and on the global economy.<sup>[1]</sup> On March 11, 2020, COVID-19 was labeled a pandemic by the World Health Organization (WHO).<sup>[2]</sup> This was the sixth time in history that such a public health emergency of international importance was declared.<sup>[3]</sup> COVID-19 has paralyzed life in many countries, to a greater or lesser extent, causing considerable mortality and morbidity.<sup>[4]</sup> Moreover, its ability to spread through asymptomatic patients has posed a significant challenge in containment measures. Extensive measures such as widespread testing and strict physical isolation of infected individuals or lockdown measures were necessary to impede further spreading; however, implementing these containment procedures poses a significant challenge.<sup>[5]</sup> Needless to state, COVID-19 has become the most significant public health crisis of the last decades and has propagated psychosocial consequences around the globe.<sup>[5]</sup>

Mental disorders are estimated to affect 20–25% of the adult population globally.<sup>[6]</sup> Concerns have been expressed that a person with a pre-existing mental illness may be at an increased risk for COVID-19 infection and the outcomes of the disease are worse.<sup>[6,7]</sup> Researchers point to a higher risk for worse COVID-19-related effects for people with severe mental disorders (SMDs).<sup>[8–11]</sup> In addition, patients

with SMDs are at higher risk of contracting the virus due to social determinants of health, such as living in homeless shelters, group homes, correctional institutions, and are at greater risk of not being vaccinated.<sup>[12,13]</sup> Although SMDs are most commonly used to describe schizophrenia, bipolar disorder, and major depressive disorder, it can be more broadly applied to any mental illness that causes severe functional impairment.<sup>[11,14,15]</sup> SMDs is associated with altered immune function, with research showing a pro-inflammatory state and maladaptive T-cell functioning.<sup>[16,17]</sup> Furthermore, social exclusion and loneliness are associated with increased inflammation and dysregulated anti-viral immunity, suggesting further link between severe mental illness and the immune system.<sup>[11,18]</sup>

Sleep problems, common in many psychiatric disorders and often severe in SMDs, are frequently associated with a dysregulated immune system and increased risk of acute infection.<sup>[19,20]</sup> These dysfunctional immunological alterations can predispose people with mental disorders to a more severe SARS-CoV-2 infection and clinical trajectory.<sup>[21–23]</sup> Additionally, people with major psychiatric disorders may often live in overcrowded settings, where safety and physical distance could be challenging. Long term residential patients and confined facilities pose an increased risk of SARS-CoV-2 circulation and transmission.<sup>[11]</sup> Compared to the general population, people with chronic psychiatric disorders are more likely to be obese or have physical diseases, such as cardiovascular diseases, type 2

diabetes, and respiratory tract diseases, all being risk factors for worse COVID-19-related outcomes.<sup>[20,24]</sup>

Multiple preventive efforts have been undertaken in response to this global health predicament; vaccine development is at the forefront. Vaccines typically require years of research and testing before reaching the client, but in 2020, scientists embarked on a race to produce safe and effective coronavirus vaccines in record time. Researchers are currently testing 89 vaccines in clinical trials on humans, and 23 have reached the final stages of testing. The vaccines that are considered to be front-runners include the following: Moderna's mRNA1273,<sup>[25]</sup> Pfizer's BNT162b2,<sup>[26]</sup> the University of Oxford's candidate ChAdOx1 nCoV-19 (AZD1222),<sup>[27]</sup> CanSino's Ad5-nCoV,<sup>[28]</sup> Sino Biotech's CoronaVac,<sup>[29,30]</sup> Johnson & Johnson's JNJ-78436735, Sinovac's SARS-CoV-2 vaccine, Russian Gamaleya Institute's Sputnik V,<sup>[31]</sup> and Inovio's INO4800.<sup>[5]</sup> However, in the initial stages of vaccine distribution, supply is likely to be scarce, raising the question of who should be prioritized for vaccination.

The direct way to protect populations from COVID-19 and reduce morbidity and mortality is to prioritize vulnerable populations for vaccination, including the elderly, people with pre-existing conditions, socioeconomic status, and those particularly exposed to SARS-CoV-2 healthcare workers.<sup>[11]</sup> Furthermore, there is a concern that psychiatric co-morbidity might increase COVID-19-related mortality, as suggested by preliminary studies.<sup>[32,33]</sup> Importantly, individuals with severe psychiatric disorders have a two to three times higher mortality rate than the general population.<sup>[11,34]</sup>

As evidence mounts that people with severe mental illnesses are at increased risk of severe COVID-19, some countries have reassessed their vaccine priority strategies. Up to December 2021, however, only four countries have updated their vaccination strategies to prioritize patients with severe mental illnesses. These include Denmark, United Kingdom, the Netherlands, and Germany.<sup>[35]</sup> Therefore, we aimed to explore whether individuals with mental disorders are prioritized in vaccine allocation strategies in different world regions. They are often neglected in policymaking but are highly vulnerable to the threatening complications of COVID-19.

## METHODS

A cross-sectional survey was done using Google Forms that is a survey administration software offered by Google. The survey was disseminated by emails and social media platforms, mainly targeting early and middle career researchers (EMCRs) who were included in the Global Research Academic Support Group on public and Mental

Health [GRASp (M)] based on knowledge on vaccination policy, disaster management, emergency response, public health, health system strengthening, and mental health. After inclusion into the GRASP (M) study group, all the collaborators were connected on a common social media platform i.e. WhatsApp. This helped exchange ideas and knowledge and regularly updated guidelines among the EMCRs. Responses from EMCRs were recorded as representation from their countries. We attempted to connect with EMCRs in all six WHO regions, Africa, Southeast Asia, Europe, Western Pacific, Americas, and Eastern Mediterranean. The survey questionnaire was developed to record details regarding COVID-19 vaccination and prioritizations for groups of persons with non-communicable diseases (NCDs), mental disorders, and substance use disorders (SUDs). For SUDs, the definition provided by the Substance Abuse and Mental Health Services Administration was used. SUDs involve a recurring use pattern with clinically significant impairments in multiple contexts. We did not include behavioral addictions such as pathological gambling and internet gaming disorder. A *mental illness* was defined as a health condition involving changes in emotion, thinking, or behavior (or a combination of these) and associated with distress and/or problems in socio-occupational functioning. *NCDs* were defined according to the WHO as chronic diseases that are the result of a combination of genetic, physiological, environmental, and behavioral factors such as cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes.

The survey link accepted responses between October 30 and December 30, 2021. The respondents were requested to provide data sources for vaccination strategies of respective countries.

*Checking for quality and archiving:* Oversight was provided by two co-authors. The co-authors curated the repository by deleting duplicate papers and triangulating validity from different sources, including government documents and websites. In addition, the data was organized chronologically by date and labeled for easy retrieval.

No ethics committee approval was deemed necessary as the study did not involve human subjects. This study collated and compiled information available in the public domain. The survey authors adhered to the checklist for reporting results of internet e-surveys (CHERRIES), and the details of such compliance are provided in Appendix.

## RESULTS

### Participants

We received a total of 40 responses from 32 countries (Australia, Azerbaijan, Bangladesh, Brazil, China, Ecuador, Egypt,

Ethiopia, Hong Kong SAR, Hungary, India, Indonesia, Iran, Iraq, Ireland, Italy, Kenya, Libya, Morocco, Myanmar, Nepal, New Zealand, Nigeria, Palestine, Qatar, Russia, South Africa, Sri Lanka, Tajikistan, Thailand, Turkey, United Arab Emirates, United Kingdom, and Zambia) and two semi-autonomous regions and the participants were early and middle career psychiatrists. Most countries surveyed (80%) reported healthcare delivery via a nationalized health service. Nineteen (56%) countries also reported completing a survey sponsored by the government that studied the associations of COVID-19 with other health conditions in the country. In addition, 73% (11 of 15) completed a non-government survey on vaccination from the remaining countries. It was found that 82%<sup>[28]</sup> of the countries had set up advisory groups, but only 26%<sup>[9]</sup> included a mental health professional (MHP) in this group. In the assessed countries, 73%<sup>[25]</sup> countries adhered to an international advisory regarding prioritizations for vaccines, and 47%<sup>[16]</sup> countries had conducted surveys of vaccination coverage for various health conditions [Table 1].

### Vaccine prioritization

Most frequently, malignancy (68%) was prioritized followed by diabetes type 2 (62%) and type 1 (59%). Only nine countries (26%) prioritized mental health conditions. Twelve countries prioritized people with developmental disabilities, such as persons with intellectual disability and autism spectrum (35%) and 10 countries, respectively (29%). Additionally, nine (26%) countries prioritized persons with locomotor disabilities, and eight (23%) prioritized persons with sensory disabilities. Only one (3%) country prioritized people with alcohol and tobacco use disorders [Table 2].

### Supporting information

Of 34 countries/semi-autonomous regions, 30 had conducted a national-level mental health morbidity survey. Of 34 countries, 27 had conducted a national level disability survey, between 2001 and 2021, with the median being in 2015. Twenty-seven (79%) countries had conducted surveys to identify the prevalence of diabetes 1 and 2 and hypertension, 22 (65%) countries for malignancy, and 15 (45%) for immunocompromised persons. Twenty-two (64%) countries reported no revisions to the vaccination strategy after the launch. Nine countries include mental health conditions in vaccine prioritization strategies. Among participating countries, 24 (70%) had enrolled as The Covid-19 Vaccines Global Access recipients, and only 8 countries (23%) reported that WHO-approved vaccines were being manufactured in their countries [Table 3].

## DISCUSSION

Due to the COVID-19 pandemic, people worldwide are plagued by fear and anxiety over personal safety, a lack of

access to treatments, and adverse economic consequences.<sup>[9,10]</sup> These have a multimodal influence on mental health across communities, requiring global health researchers and practitioners to pay attention. For example, during the COVID-19 epidemic, several psychological issues such as stress, worry, despair, frustration, and uncertainty surfaced.<sup>[11]</sup> COVID-19 has been reported to have a harmful influence on mental health in two recent studies, with 16–18% of subjects displaying anxiety and depression symptoms.<sup>[36,37]</sup>

Another worldwide health worry is COVID-19's psychological impact on people who have tested positive.<sup>[38]</sup> Coronavirus infections can also cause delirium, anxiety, depression, manic symptoms, poor memory, and insomnia, according to a meta-analysis of pooled data from studies that estimated the incidence of psychiatric disorders after severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome outbreaks.<sup>[39]</sup> Several surveys have suggested that patients with COVID-19 have symptoms of depression, insomnia, anxiety,<sup>[40,41]</sup> and post-traumatic stress disorder.<sup>[42,43]</sup> Coronaviruses may also affect the central nervous system leading to a significant psychiatric and neuro-psychiatric burden among infected individuals in the acute or post-illness stage. This may include neuro-psychiatric conditions such as confusion, impaired memory, insomnia, depression, and anxiety in individuals who have survived the severe illness.<sup>[38,44]</sup> Vaccinations were made available in a phased manner in most countries, and approaches were amended as the conditions changed.<sup>[33]</sup> More affluent countries with a relative surplus of vaccines did not prioritize vaccinations initially but revised the strategy based on apparent low coverage rates.<sup>[34]</sup> Countries have sought priority according to occupational groups. These included emergency personnel, healthcare staff, law enforcement officers, and other categories at a higher risk of contracting the virus.<sup>[35]</sup> These priorities were shifted to other groups as more vaccine stocks were received and distributed, but the rationale for selecting priority groups was unclear at times.<sup>[45]</sup> These priority groups could have had relatively low uptake or coverage rates or higher morbidity and mortality risks. For example, the elderly and those with immunocompromised conditions were given the vaccine early in many countries, which led to the prevention of significant mortality.<sup>[46]</sup>

WHO outlined three ethical principles of vaccination: benefits exceeding the risk, equal concern for all marginalized groups, and inequity mitigation.<sup>[47]</sup> It is likely to be beneficial when prioritization is based on multiple considerations such as health, occupation status, and demographic reviews.<sup>[48]</sup> A downside to creating priority groups is that coverage rates are lowered as more resources are spent on the identified category. Regional implications need to consider geographical access, and sufficient



**Table 1: COVID-19 vaccination strategies**

Country	Mode of healthcare delivery	Government-run studies of health conditions and associated COVID-19 risk	Studies of health conditions associated with COVID-19	Advisory groups for directing the vaccinations strategy and link	Inclusion of an MHP in this committee	Any international consensus advisory followed	Surveys of the coverage of vaccinations in the population
Australia	Nationalized health service	Yes	Yes	Yes	No	Yes	No
Azerbaijan	Nationalized health service	Yes	Yes	Yes	Yes	Yes	Yes
Bangladesh	Nationalized health service	Yes	Yes	Yes	No	Yes	Yes
Brazil	Nationalized health service	Yes	Yes	Yes	No	Yes	No
China	Private insurance	No	Yes	Yes	Yes	No	Yes
Ecuador	Nationalized health service	No	Yes	Yes	No	Yes	Yes
Egypt	Nationalized health service	No	Yes	Yes	No	Yes	Yes
Ethiopia	National Health Services	Yes	Yes	No	No	Yes	Yes
Hong Kong SAR	Nationalized health service	Yes	Yes	Yes	No	Yes	No
Hungary	Nationalized health service	No	Yes	Yes	Yes	No	No
India	Nationalized health service	No	Yes	Yes	Yes	Yes	Yes
Indonesia	Nationalized health service	Yes	Yes	Yes	Yes	Yes	No
Iran	Nationalized health service	Yes	Yes	Yes	Yes	Yes	Yes
Iraq	Nationalized health service	No	No	Yes	No	Yes	Yes
Ireland	Nationalized health service	Yes	Yes	Yes	Unknown	Yes	Yes
Italy	Nationalized health service	Yes	Yes	Yes	No	Yes	Yes
Kenya	Nationalized health service	No	Yes	Yes	No	Yes	No
Libya	Nationalized health service	Yes	No	No	No	No	No
Morocco	Nationalized health service	Yes	Yes	Yes	Yes	Yes	Yes
Myanmar	Out of pocket	No	Yes	Yes	No	No	No
Nepal	Nationalized health service	No	Yes	No	No	Yes	No
New Zealand	Nationalized health service	Yes	Yes	Yes	No	Yes	Yes
Nigeria	Out of pocket	Yes	Yes	Yes	No	No	No
Palestine	Co-operative insurance	No	Yes	Yes	No	Yes	No
Qatar	Nationalized health service	Yes	Yes	Yes	Yes	Yes	No
Russia	Nationalized health service	Yes	Yes	Yes	No	No	Yes
South Africa	Private insurance	Yes	Yes	Yes	No	Yes	Yes
Sri Lanka	Nationalized health service	Yes	Yes	Yes	No	Yes	Yes
Tajikistan	Nationalized health service	No	No	No	No	Yes	No
Thailand	Nationalized health service	Yes	Yes	Yes	Yes	No	No
Turkey	Nationalized health service	No	No	Yes	No	No	No
United Arab Emirates	Nationalized health service	Yes	Yes	Yes	No	Yes	Yes
United Kingdom	Nationalized health service	Yes	Yes	Yes	Yes	Yes	Yes
Zambia	Nationalized health service	No	No	No	No	Yes	No

numbers to receive the vaccines should be estimated for priority groups. Despite the wide availability of COVID-19 vaccines in specific settings, the coverage may be low due to vaccine hesitancy, depriving other world regions.<sup>[49]</sup>

In some countries, a referral from a healthcare practitioner was required to be included in priority groups. For example, Denmark and the Netherlands reviewed vaccines uptake data among populations and modified their strategies.<sup>[50]</sup> Furthermore, Germany had prioritized persons with severe mental health conditions, and others, including Romania, Latvia, Spain, and Sweden, had prioritized those with disabilities.<sup>[51]</sup>

The United Kingdom utilized a combination of epidemiological data from their QCovid® (It is an evidence-based model to predict the risk of hospitalization and death due to catching coronavirus) algorithm to calculate the number of vaccinations needed to prevent one death, to identify priority groups, and to enhance coverage.<sup>[52]</sup> It is a positive sign that certain countries have included an MHP in the advisory committees of the COVID-19 vaccine strategy. Those countries appear to have prioritized persons with mental disorders for vaccination. The advisory groups must comprise experts from multiple specialities to understand the vaccine deployment better, and the decisions must be transparent and open to criticism.<sup>[53]</sup> Studies have

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**Table 2: COVID-19 vaccination prioritization according to medical disorders**

Country	Diabetes Mellitus I	Diabetes Mellitus II	Essential hypertension	Thyroid illnesses	Malignant conditions	Cardiovascular disease	Cerebral vascular accidents	Pulmonary conditions	Intellectual disability	Autism spectrum disorder
Australia	Yes	Yes	-	-	Yes	Yes	Yes	-	Yes	Yes
Azerbaijan	-	-	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes
Bangladesh	-	-	-	-	-	-	-	-	-	-
Brazil	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	-
China	Yes	Yes	-	-	Yes	Yes	Yes	Yes	-	Yes
Ecuador	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	-
Egypt	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	-	-
Ethiopia	Yes	Yes	Yes	-	Yes	-	-	-	-	Yes
Hong Kong SAR	-	-	-	-	Yes	-	-	-	-	-
Hungary	Yes	Yes	-	-	Yes	Yes	-	Yes	-	-
India	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Indonesia	No	-	-	-	-	-	-	-	-	-
Iran	Yes	Yes	-	-	Yes	-	-	-	-	Yes
Iraq	Yes*	Yes*	-	-	Yes	Yes	-	-	-	-
Ireland	Yes	Yes	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes
Italy	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Kenya	No	-	-	-	-	-	-	-	-	-
Libya	Yes	Yes	Yes	-	Yes	Yes	-	Yes	-	-
Morocco	Yes	Yes	-	-	Yes	-	-	Yes	-	-
Myanmar	-	-	-	-	-	-	-	-	-	-
Nepal	-	-	-	-	-	-	-	-	-	-
New Zealand	Yes	Yes	Yes	-	Yes	-	-	Yes	-	-
Nigeria	-	Yes	Yes	-	-	-	-	Yes	-	-
Palestine	Yes	Yes	-	-	Yes	-	-	Yes	-	-
Qatar	Yes	Yes	Yes	-	Yes	Yes	-	Yes	-	-
Russia	No	-	-	-	-	-	-	-	-	-
South Africa	No	-	-	-	-	-	-	-	-	-
Sri Lanka	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tajikistan	-	-	-	-	-	Yes	-	-	Yes	-
Thailand	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	-	-
Turkey	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
United Arab Emirates	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-
United Kingdom	No	-	-	-	-	-	-	-	-	-
Zambia	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-

**Table 2: Contd...**

Country	Severe mental illnesses	Neuro-degenerative disorders	Obesity	Tobacco use disorders	Alcohol use disorders	Opioid use disorders	Any other substance use disorders	Persons with locomotor disability	Persons with sensory disabilities
Australia	Yes	Yes	Yes	-	-	-	-	Yes	Yes
Azerbaijan	Yes	-	-	Yes	Yes	Yes	-	-	-
Bangladesh	-	-	-	-	-	-	-	Yes	-
Brazil	Yes	Yes	-	-	-	-	-	-	-
China	Yes	-	-	-	-	-	-	Yes	-
Ecuador	-	-	-	-	-	-	-	-	Yes
Egypt	-	-	-	-	-	-	-	-	-
Ethiopia	Yes	Yes	-	-	-	-	-	-	-
Hong Kong SAR	-	-	-	-	-	-	-	-	-
Hungary	-	-	-	-	-	-	-	-	-
India	No	Yes	No	No	No	No	No	Yes	Yes
Indonesia	-	-	-	-	-	-	-	-	-
Iran	-	Yes	-	-	-	-	-	Yes	-
Iraq	-	-	-	-	-	-	-	-	-
Ireland	Yes	Yes	-	-	-	-	-	-	-
Italy	Yes	Yes	Yes	No	No	No	No	Yes	Yes
Kenya	-	-	-	-	-	-	-	-	-
Libya	-	-	-	-	-	-	-	-	-
Morocco	-	-	-	-	-	-	-	-	-
Myanmar	-	-	-	-	-	-	-	-	Yes
Nepal	-	Yes	-	-	-	-	-	-	-
New Zealand	-	-	-	-	-	-	-	-	-
Nigeria	-	-	-	-	-	-	-	-	-
Palestine	-	-	-	-	-	-	-	-	-
Qatar	-	-	-	Yes	-	-	-	Yes	-
Russia	-	-	-	-	-	-	-	-	-
South Africa	-	-	-	-	-	-	-	-	-
Sri Lanka	-	-	-	-	-	-	-	Yes	Yes
Tajikistan	Yes	-	-	-	-	-	-	-	-
Thailand	-	-	Yes	-	-	-	-	-	-
Turkey	Yes	Yes	Yes	-	-	-	-	Yes	Yes
United Arab Emirates	-	-	-	-	-	-	-	Yes	Yes
United Kingdom	-	-	-	-	-	-	-	-	-
Zambia	-	-	Yes	-	-	-	-	-	-

\* In Iraq No but in Kurdistan region of Iraq Yes

**Table 3: Countries engaged in COVID-19 vaccine global access facility**

Engagement	Country	
The candidate vaccines that are currently being evaluated for inclusion in the COVAX facility include the following:	China	
	United States of America	
	Republic of Korea	
	United Kingdom of Great Britain	
	Northern Ireland	
	Global, multi-manufacture partnership	
	Among the 80 countries that have submitted expressions of interest to the Gavi-coordinated COVAX facility include 8 among the studied countries that have agreed to be publicly named:	Brazil
		Iraq
		Ireland
		New Zealand
The Gavi Board agreed on the 92 economies that will support the COVAX Advance Market Commitment (AMC). The following countries among the studied countries make it to the list:	Qatar	
	South Africa	
	United Arab Emirates	
	United Kingdom of Great Britain	
	Low income: Afghanistan, Ethiopia, Nepal, Tajikistan, and Yemen.	
	Lower-middle income: Bangladesh, Egypt, India, Indonesia, Kenya, Kyrgyzstan, Morocco, Nigeria, Sri Lanka, Zambia.	
	The following countries had a revision of vaccination strategy after roll-out:	Azerbaijan
		Bangladesh
		Brazil
		Egypt
Italy		
Vaccines against COVID-19 are manufactured in the following countries:	India	
	Sri Lanka	
	Thailand	
	Turkey	
	Brazil	
	Iran	
	India	
	Morocco	
United Kingdom of Great Britain		
Russia		
South Africa		

shown that people with SMDs by and large have not been equal in receiving medical care. It is in line with our finding that SMDs are not a vaccine priority.<sup>[54]</sup> However, the recognition of mental disorders worldwide when considering vaccines for COVID-19 could be understood from the data available and can be used to influence future vaccine priority decisions. Finally, we would like to recommend that an MHP be included in the COVID-19 vaccine advisory committees to recognize the requirements of persons with mental disorders. This is an essential step in achieving parity of esteem for mental health in the context of the global pandemic.<sup>[55]</sup> There is substantial evidence that individuals with major psychiatric disorders are more likely to suffer detrimental effects of COVID-19

compared to others. Therefore, when vaccine prioritization is done, mental disorders should always be considered equal to recognized physical ailments.

**Strengths and limitations**

This is the first worldwide research to look at how people with mental illnesses are prioritized for COVID 19 immunization and parity for diverse mental health diseases, drug use disorders, and developmental disabilities. Countries from all WHO global regions were well represented, with details on their COVID 19 vaccine prioritizing approaches shared.

A strength of the current study is that the opinions, supported by evidence where available, of medical specialists in all regions of the world have been represented. COVID-19 spreads fast, and new variants emerge rapidly, leading to changing management and vaccinations strategies, and data presented may have been updated and revised.

The study had several major flaws, including poor quality secondary data derived from surveys and scientific evidence only when it was available; significant heterogeneity of the data evaluated; and the difficulty of keeping up with the updates, rendering even data from a week ago obsolete.

**Recommendations**

To ensure prioritised delivery of vaccines, various measures must be taken at different levels. People with mental health illnesses should be explicitly included in the priority list of vaccine recipients through policy changes.

1. As part of the decision-making process for vaccines targeted at this particular group of people, MHPs, user groups, caregivers, and representatives from non-governmental organizations working in this field should be included.
2. MHPs should also play the role of “vaccine advocates” by making this population aware of the benefits of vaccination and the safety and efficacy of the various vaccines available.
3. Governments must partner with and support community organizations to conduct extensive and well-managed community engagement in a successful vaccination campaign.
4. We need to understand the health concerns of different populations, past vaccination experiences, and the health system; more generally, political affiliations and socioeconomic status give vaccinations the best chance of success.
5. Public institutions should engage with the population and government actions should be open for public scrutiny by disaggregating, user-friendly, and open-source vaccine strategies, modalities, and accomplishments promptly; increasing transparency and coherence of

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public communication in response to misinformation and the “infodemic”; and including the public in the process of developing vaccination strategies and distributing essential communications.

6. Considering the global scenario, caregivers should also be vaccinated on a priority basis. The professional staff at various establishments and institutions and non-paid caregivers, most of whom are family members, can be considered caregivers.

## CONCLUSION

The spread of the coronavirus has shown the flaws and strengths of our healthcare systems and the interconnectedness of our healthcare and economic systems around the world. Unfortunately, the most vulnerable groups suffered the most and were hit first and most challenging in this circumstance.

After a period in which physical separation and lockdown measures were the sole options for containing the pandemic, the vaccination proved to be an adequate but not universally available tool against the virus. Nonetheless, individuals with mental illnesses are among the most stigmatized, and in many parts of the world, they are not prioritized in immunization campaigns. This delay has increased their mortality, morbidity, and quality of life compared to other physical disorders. Moreover, it should raise concerns about future funding destinations in both clinical and research domains.

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## Ethical statement

No ethical approval was required.

## Disclaimer

This paper’s expressed views and opinions are of the authors and do not necessarily express the views or policies of their organizations and affiliations.

## Patient consent for publication

Not required.

## Data availability statement

All data is reported in this manuscript.

## Collaborators

Global research Academic Support Group on Public and Mental Health [GRASP (M)].

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Nil.

## Conflicts of interest

There are no conflicts of interest.

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## Appendix: Checklist for reporting results of internet e-surveys (CHERRIES)

Checklist Item	Explanation	Response
Describe survey design	Describe the target population and sample frame. Is the sample a convenience sample? (In "open" surveys this is most likely.)	Convenience sample, closed survey, early career psychiatrists.
IRB approval	Mention whether the study has been approved by an IRB.	No approval deemed necessary.
Informed consent	Describe the informed consent process. Where were the participants told the length of time of the survey, which data were stored and where and for how long, who the investigator was, and the purpose of the study?	Information about the researchers and the aim of this study, the informed consent process, data collection and storage are provide in the methods.
Data protection	If any personal information was collected or stored, describe what mechanisms were used to protect against unauthorized access.	Data protection was ensured; survey administrators kept results in a password-protected format.
Development and testing	State how the survey was developed, including whether the usability and technical functionality of the electronic questionnaire had been tested before fielding the questionnaire.	Yes, survey administrators developed these questions and sent the form for online pretesting before launch.
Open survey versus closed survey	An "open survey" is a survey open for each visitor of a site, while a closed survey is only open to a sample that the investigator knows (password-protected survey).	A closed survey was conducted.
Contact mode	Indicate whether or not the initial contact with the potential participants was made on the Internet. (Investigators may also send out questionnaires by mail and allow for web-based data entry.)	The contact with other early career psychiatrists across nations was established via internet messaging platforms.
Advertising the survey	How/where was the survey announced or advertised? Some examples are offline media (newspapers), or online (mailing lists – If yes, which ones?) or banner ads (Where were these banner ads posted and what did they look like?). It is important to know the wording of the announcement as it will heavily influence who chooses to participate. Ideally, the survey announcement should be published as an appendix.	The survey was not advertised.
Web/Email	State the type of e-survey (e.g., one posted on a website, or one sent out through email). If it is an email survey, were the responses entered manually into a database, or was there an automatic method for capturing responses?	Sent out through Google form.
Context	Describe the website (for mailing list/newsgroup) on which the survey was posted. What is the website about, who is visiting it, and what are visitors normally looking for? Discuss to what degree the content of the website could pre-select the sample or influence the results. For example, a survey about vaccination on an anti-immunization website will have different results from a Web survey conducted on a government website.	The survey was not posted.
Mandatory/voluntary	Was it a mandatory survey to be filled in by every visitor who wanted to enter the website, or was it a voluntary survey?	Voluntary.
Incentives	Were any incentives offered (e.g., monetary, prizes, or non-monetary incentives such as an offer to provide the survey results)?	Monetary incentives were not offered. If consented, the participants were invited to be co-authors of the manuscript.
Time/Date	In what timeframe were the data collected?	The survey recorded responses from October 30, 2021, to November 20, 2021, i.e., 21 days.
Randomization of items or questionnaires	To prevent biases, items can be randomized or alternated.	No.
Adaptive questioning	Use adaptive questioning (certain items, or only conditionally displayed based on responses to other items) to reduce the number and complexity of the questions.	Yes.
Number of items	What was the number of questionnaire items per page? The number of items is an important factor in the completion rate.	32 items on one page.
Number of screens (pages)	Over how many pages was the questionnaire distributed? The number of items is an important factor in the completion rate.	3–4 items per screen over 11 screens.
Completeness check	It is technically possible to do consistency or completeness checks before the questionnaire is submitted. Was this done, and if "yes," how (usually JavaScript)? An alternative is to check for completeness after the questionnaire has been submitted (and highlight mandatory items). If this has been done, it should be reported. All items should provide a non-response option such as "not applicable" or "rather not say," and the selection of one response option should be enforced.	The "not applicable" or "rather not say" option was not included.
Review step	State whether respondents were able to review and change their answers (e.g., through a Back button or a Review step which displays a summary of the responses and asks the respondents if they are correct).	Not applicable as the entire survey was on one page and screens could be scrolled back and forth.

*Contd...*

## Appendix: Contd...

Checklist Item	Explanation	Response
Unique site visitor	If you provide view rates or participation rates, you need to define how you determined a unique visitor. There are different techniques available, based on IP addresses or cookies or both.	Not applicable.
View rate (Ratio of unique survey visitors/ unique site visitors)	Requires counting unique visitors to the first page of the survey, divided by the number of unique site visitors (not page views!). It is not unusual to have view rates of less than 0.1% if the survey is voluntary.	Not applicable.
Participation rate (Ratio of unique visitors who agreed to participate/ unique first survey page visitors)	Count the unique number of people who filled in the first survey page (or agreed to participate, for example, by checking a checkbox), divided by visitors who visit the first page of the survey (or the informed consents page, if present). This can also be called the "recruitment" rate.	All who have been sent the survey had completed it.
Completion rate (Ratio of users who finished the survey/users who agreed to participate)	The number of people submitting the last questionnaire page is divided by the number of people who agreed to participate (or submitted the first survey page). This is only relevant if there is a separate "informed consent" page or if the survey goes over several pages. This is a measure of attrition. Note that "completion" can involve leaving questionnaire items blank. This is not a measure for how completely questionnaires were filled in. (If you need a measure for this, use the word "completeness rate.")	All who commenced the survey had completed it.
Cookies used	Indicate whether cookies were used to assign a unique user identifier to each client computer. If so, mention the page on which the cookie was set and read, and how long the cookie was valid. Were duplicate entries avoided by preventing users' access to the survey twice; or were duplicate database entries having the same user ID eliminated before analysis? In the latter case, which entries were kept for analysis (e.g., the first entry or the most recent)?	No.
IP check	Indicate whether the IP address of the client computer was used to identify potential duplicate entries from the same user. If so, mention the period for which no two entries from the same IP address were allowed (e.g., 24 h). Were duplicate entries avoided by preventing users with the same IP address access to the survey twice; or were duplicate database entries having the same IP address within a given period eliminated before analysis? If the latter, which entries were kept for analysis (e.g., the first entry or the most recent)?	No.
Log file analysis	Indicate whether other techniques to analyze the log file for identification of multiple entries were used. If so, please describe.	No.
Registration	In "closed" (non-open) surveys, users need to log in first and it is easier to prevent duplicate entries from the same user. Describe how this was done. For example, was the survey never displayed a second time once the user had filled it in, or was the username stored together with the survey results and later eliminated? If the latter, which entries were kept for analysis (e.g., the first entry or the most recent)?	The Google Forms platform was used which required respondents to enter a valid email address.
Handling of incomplete questionnaires	Were only completed questionnaires analyzed? Were questionnaires that terminated early (where, for example, users did not go through all questionnaire pages) also analyzed?	Only complete questionnaires were analyzed.
Questionnaires submitted with an atypical timestamp	Some investigators may measure the time people needed to fill in a questionnaire and exclude questionnaires that were submitted too soon. Specify the timeframe that was used as a cut-off point and describe how this point was determined.	Not applicable.
Statistical correction	Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for the non-representative sample; if so, please describe the methods.	Not required.