Covid-19: A Retrospective Study

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Abstract

Background: COVID-19 is a deadly pandemic, that made everyone worried. A lot of lives have been lost in the past years because of this deadly virus. The virus not only made the government and policymakers take immediate action but also led them to make abrupt decisions that did not yield any good results. The world during the pandemic seemed to be a learning place for public healthcare workers and scientists as it reveals the mistakes and exceptionally significant measures taken by the government and the healthcare department. The outburst of the pandemic and the virus spreading non-stop shocked all the public health departments and government officials.

Objectives: This paper is aimed at determining the retrospective mistakes made in the past regarding the pandemic and how the officials can now learn from that mistakes to develop a healthy nation again.

Methodology: Detailed research on gathering information containing experimental, survey-based, and meta-analysis-based using various platforms containing scientific articles (Google Scholar, ScienceDirect, PubMed) was performed. The research did reveal some interesting points of discussion which are thoroughly researched and are included in the review paper.

Results and Discussions: The sudden lockdowns and closure of institutes along with the immediate conversion of large public places into COVID wards, had a deep impression on the world in the 21st century. To combat COVID-19 and other pandemics, it is necessary to understand past mistakes and then improve them instead of utilizing new resources to develop a new strategy.

Keywords: COVID-19; Pandemic; Retrospective; Coronavirus Outbreak; Mental Predispositions

Abbreviations: WHO: World Health Organization; MERS: Middle East Respiratory Disease

Introduction

COVID-19 is a disease caused by severe acute respiratory syndrome due to Coronavirus 2 (SARS-CoV-2) belonging to the Coronaviridae family [1]. It is known to have high contagion capacity that caused many deaths in the world [2]. Wuhan, a city in the People's Republic of China, was first reported with the infection in December 2019, and the disease became a global, social, and economical health issue [3,4], later declared a pandemic by World Health Organization (WHO) on March 11, 2020, because of the spreading levels and disease severity [4]. Asymptomatic disease development, severe pneumonia, or mild symptoms are manifestations of the disease [5]. Moreover, ulcers, bulla, fissured, vesicles, macules, pigmentation, hemorrhagic crust, erosion, rythema, whitish areas, plaque, petechiae, papule, halitosis, and spontaneous bleeding are the oral manifestations served in the field of dentistry [6].

Flugge droplets (> 5 microns in size) emitted when sneezing, coughing, or speaking [7] and well droplets (<0.1 microns in diameter) with the least probability of microbial transfer are the main transfer route of COVID-19. Similarly, transmission can also be a result of direct contact with the hands with any contamination of fomites, ophthalmic mucosa [8], or feces [9].

Given the compelling evidence that SARS-CoV originated from Chinese horseshoe bats, coronaviruses that are closely related to SARS-CoV can be identified in bats [10]. Like how MERS-CoV is mostly spread by dromedary camels, it has been seen in fourteen different species of bats, and it may even be a bat-borne virus [7]. The analysis based on the evolution showed that bats are considered the primary host of SARS-CoV-2 and the virus was

transmitted to humans by unknown intermediate hosts sold at the Human seafood market [8]. SARS-CoV and SARS-CoV-2 both share angiotensin-converting enzyme 2 (ACE2) as a functional receptor that mediates binding to the host cells and disease transmission [8].
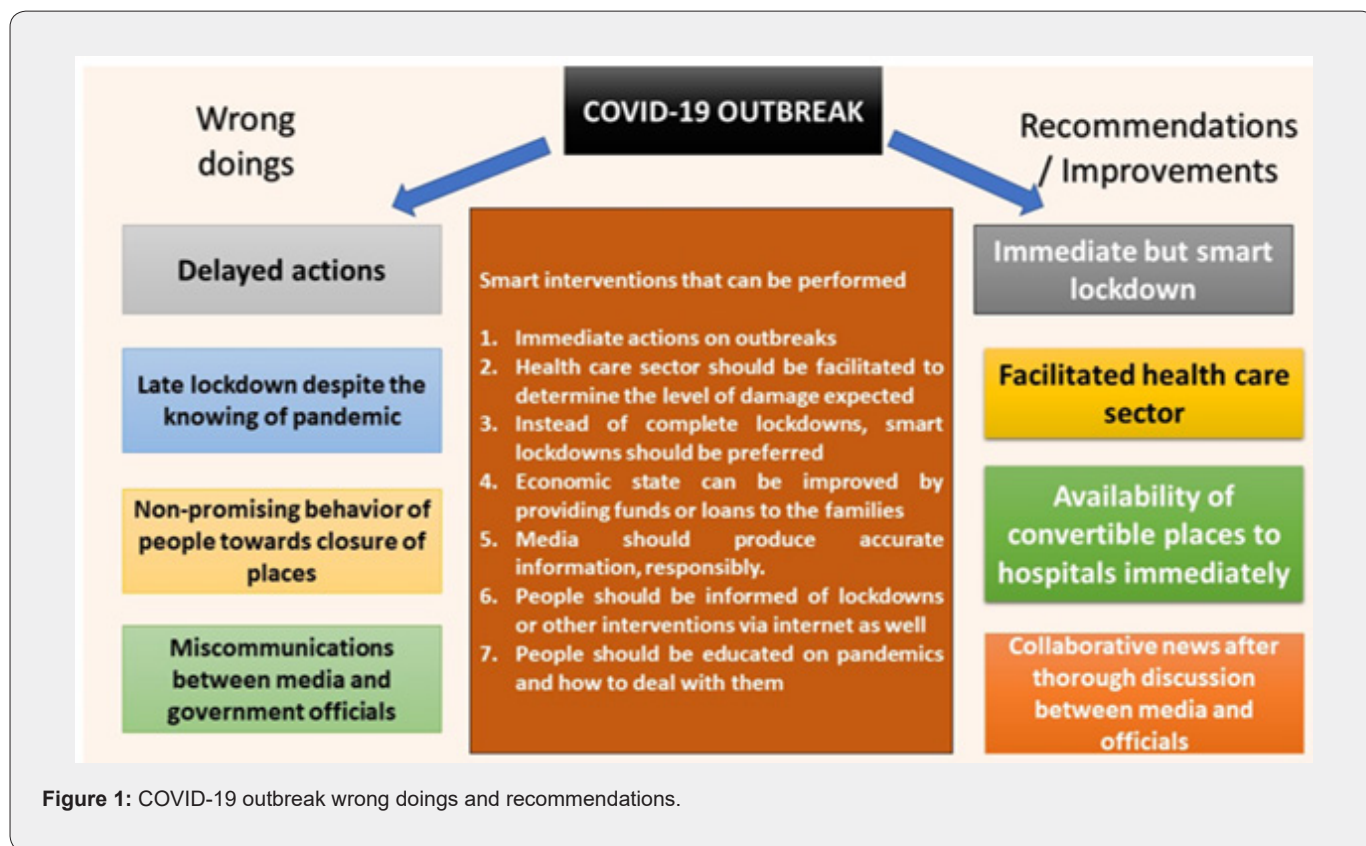

Figure 1: COVID-19 outbreak wrong doings and recommendations.

Different regulation and alleviation methodologies have been carried out in light of the Coronavirus pandemic, determined to concede significant patient floods in emergency clinics and safeguard the weakest individuals (older and individuals with comorbidities) from viral infection [11]. The methodologies embraced to accomplish these objectives are different and are ordinarily founded on risk evaluations that incorporate assessment of the patients' numbers requiring emergency clinic confirmation and accessibility of emergency clinic beds and ventilation support. Figure 1 gives the wrongdoings and recommendations/improvements for COVID-19 and other pandemics. The target of this study was to investigate the Coronavirus pandemic and comprehend its variable articulation to learn from past experiences for a successful and maintainable response to public health.

Methodology

We performed online database research to identify the perspective of already published research articles on COVID-19 and how it has affected various communities in the past few years. The research was performed by using keywords like COVID-19, retrospective studies, outbreak, epidemiology, and public health on Google Scholar, PubMed, and ScienceDirect. The related articles were thoroughly searched and were subjected to perform a review analysis.

Results and Discussions

COVID-19; Epidemiology, Virology, and Perspective

According to whole genome sequencing and phylogenic study, coronaviruses are positive-stranded RNA viruses, and the coronavirus that causes COVID-19 is a beta coronavirus in a distinct clade from the SARS virus but in the same subgenus. The International Committee on Virus Taxonomy's coronavirus study group has suggested calling this virus SARS-CoV-2 [4]. Middle East respiratory disease (MERS), another beta-coronavirus, also seems to be distantly linked [5,6].

The RNA grouping is nearest to that of the two bat Covids and it showed up logically that the bats are the essential wellsprings of Covid whether the Coronavirus infection is sent straightforwardly from the bats or by different systems i.e., through a middle host yet unclear [7]. Starting from the principal case announced in Wuhan, toward the finish of 2019, Coronavirus cases have been accounted for on all landmasses. Universally, 500 million affirmed instances of Coronavirus have been accounted for. In those places

where the transmission through the local area is far and wide, the people's preventive measures are positive to be settled to diminish the possible openness. Extra measures are justified for patients with the thought or affirmed Coronavirus like individual preventive measures, wearing masks, and so on.

Covid-19 Retrospective Analysis on Different Countries

Various techniques for alleviating Coronavirus have been taken on overall keeping in view the populace and medical care framework. In any case, one of the huge issues confronted is the postponement of the execution of the actions. A model by Lai Shegjie and Andrew Tatem showed that 67% of the cases might have been forestalled assuming China had carried out the control estimates one week sooner [12]. Wuhan occasions showed that following 3 weeks of the announcement of the primary case city specialists were educated regarding the infection spreading yet they requested to smother the news. Throughout the spring excursions, a large number of individuals emptied China and making spread the whole world [13]. However, later on in Hubei province, and some major cities like Beijing and Shanghai [14], a three-week lockdown was ordered, outdoor activities were limited, and each citizen was allowed to go out every second day for 30 minutes only [15]. Transport in the city was prohibited and mobile phone data location was used to track the location of people [16].

The people were ordered to measure and report their temperature daily and the mild or even asymptomatic patients were ordered quarantined in hospitals and in public spaces like stadiums and conference centers that were converted for medical purposes [17]. These measures declined the number of cases of infected growth rates. Tian et al. [18] assessed that the Wuhan closure eased back the spread of contamination to different urban communities by 2.91 days. Taiwan, Singapore, and Hong Kong were likewise good to go before the flare-up and made a quick and overwhelming reaction to the principal case. They shut the public places and diminished the going individuals. Specialists called for social separation and disengagement in South Korea. Additionally, the local area was urged to illuminate individuals about the destructive infection [14].

However, in comparison, the countries like Italy, Spain, the United States of America, and the United Kingdom failed to anticipate the impact of the pandemic within their boundaries. Italy was recorded with the highest number of deaths in the world [4]. Indeed, even before the flare-up was distinguished, the infection has proactively been coursing in the country for more than a month. A postponement in the execution of the prohibitive measures was seen at the social local area level. The government of Spain also reacted late to the pandemic. When the Madrid government announced the closure of universities, it provoked a holiday atmosphere, and the public places were filled with people [19]. This led to a surge in cases in Spain. In the United States, a lack of coordination between government officials and the healthcare sector was observed. No consistent policy was observed in the localities leading to a variation in the travel restrictions and quarantining of travelers [20]. Later they put on a lockdown and enforced staying home and maintaining social distancing. Among the developing countries, Iran had the worst hit. The government of Iran was aware of the pandemic, yet they did the least measures to counter it. Iran lost multiple opportunities to respond to its worst public health [19]. Different studies conducted on understanding the response of the nations against COVID-19 have been analyzed by many researchers. Some of the studies are given as examples.

Wang et al. [21] evaluated and analyzed the efficiency of non-pharmaceutical interventions and the government policies that were adopted by South Korea, China, Japan, and India as a response to the COVID-19 in 2020-2021 policies from Our World databases. The authors conducted a retrospective study with the help of government policies, non-pharmaceutical interventions, and case data in the four Asian nations during the pandemic. Both Japan and South Korea experiences three waves of COVID-19 outbreaks however, the newly confirmed cases per million were lower in both countries with South Korea having lesser new confirmed cases per million than Japan. After the outbreak of COVID-19 in Wuhan, China contained the first wave of the pandemic and did not experience a large-scale epidemic at that time. India among all the four representatives of the Asian region faced the terrifying second wave of the epidemic.

A depiction examination of medications utilized in the 1562 patients from Pakistan when the principal Coronavirus flare-up wave was at its top in Pakistan, directed by Akhtar et al. [22] showed that anti-infection agents were the most ordinarily utilized treatment and they were utilized as the absolute first line of treatment for Coronavirus. Additionally, anti-infection agents for the treatment of multidrug-safe contaminations were recommended rather than the seriousness or movement of the disease. The research showed concerning results as it would change into anti-infection obstruction and entanglements in immunocompromised Coronavirus patients.

The variable expression of the COVID-19 pandemic was investigated by Assefa et al. [23] to learn lessons for efficient emergency response in health care. With the help of the mixed method approaches the diversification in the cases and the deaths caused by the COVID-19 pandemic were understood. To analyze the quantitative data, correlation analysis as well as scatter plots were used along with Spearman's correlation analysis to determine the strength of the relationship between the cases and the deaths and the socioeconomic and health systems. The mixed method approach uses both the quantitative data and qualitative data collected from the literature, the authors developed a thematic analysis to determine the patterns of the cases and deaths and to explain the findings obtained from quantitative data. The authors found that Coronavirus cases and deaths per million populaces are

higher in districts and nations with a high human improvement list. This is a direct result of their populace's global network and versatility because of exchange and the travel industry, as well as their weakness because of more seasoned populaces and higher paces of noncommunicable illnesses. They've likewise found that the pandemic's cost contrasts among high-and center-pay nations because of contrasts in pandemic administration, fracture of medical services frameworks, and financial imbalances.

The impact and scope of the global COVID-19 pandemic are unprecedented. Little research has been conducted in low-income or crisis-affected countries about their response to epidemics. Warsame et al. (2022) evaluated the policies and decision-making in response to COVID-19 in Somalia using a priority decision framework. The authors found incomprehension about the magnitude of the epidemic and devising an appropriate strategy in response to COVID-19 among all the officials. The decision-makers did not play an important part in the mitigation of COVID-19 and relied on the rules and regulations of international societies.

Wang and Mao [21] investigated 160 Coronavirus strategy archives on WHO and ten nations' sites on Coronavirus between December 1, 2019, and May 31, 2020. That's what the outcomes showed albeit the underlying reaction to Coronavirus in various nations was variable, a homogenization of General well-being and Social Measures in the long run, and by May 31, 2020, practically every one of the nations that were under study had carried out the PHSMs by the WHO except Sweden which applied on a piece of the WHO suggestions.

Decision Making; Public Health and Human Behavior

Almost certainly that the catastrophes like conflicts and pestilences have demolished the planet for a long time, and the human capacity to fail to remember illustrations they learned through history is exceptional. The explanations behind this happening are a few notwithstanding, one most normal explanation is the 'mental predispositions' that were first portrayed in 1974, that challenge our levelheaded reasoning cycle [24]. Such predispositions are unsurprising and deliberate mistakes of judgment influencing human contemplations in questionable circumstances like the Coronavirus pandemic [25].

In the event of confronting any emergency, our brain alludes to the circumstances we have proactively had to deal with that carry us to follow the conviction predisposition that fluctuates among people from one side of the planet to the other. A few Asian nations like Taiwan and South Korea were seriously hit by SARS-CoV in 2003, showed better readiness against the Covid pandemic, and applied areas of strength exceptionally against the spreading infection. In this manner, the Asia specialists and populace spoke to the conviction predisposition alongside the accessibility predisposition. The experience of the new SARS-CoV infection was at that point accessible in their recollections and they can recover this data to answer the Covid [25]. Then again,

the western nations that have stood up to with flu pandemic and of every 2009 have been blamed for overcompensation though the passing rate has expanded as a result of occasional influenza. Besides, the delegates and media assume an exceptionally pessimistic part in making misguided judgments about the sickness among individuals which influences their ways of behaving and navigation [26].

A fleeting trend impact is an inclination to accomplish something since others are doing it as opposed to understanding one's contemplations and convictions. This prompted the improvement of a misguided judgment to us that catastrophes that happen to others can't occur to us and specialists underrate the calamity that happens at their entryways driving the nations to outperform the viral spread and the passing bends [25]. Thus, a pandemic that happens might be ridden quickly by adopting practices that can help in fighting against the deadly disease.

"Follow The Science" In Mitigating Covid-19

Empirical data on different aspects of the pandemic and its harmful effects have always been in deluge [27-30]. Several stakeholders share and produce information regarding COVID-19 such as non-experts [28]. The scientific journals, funding agencies, journalists, and experts have 'civilized' their activities [31] and have shifted toward the COVID-19 outbreak without considering the harm that the pandemic holds and might even enhance the risk of errors in scientific studies [32,33]. All the stakeholders have the responsibility to communicate the COVID-19 information accurately. The accurate information, of course, includes the truth, evidence-based and timely shared information [34]. But the reality strikes differently as most of the information about the COVID-19 outbreak seems inconsistent, random, and untruthful [35,36].

One reason might be the continuously changing policies of COVID-19 i.e., should masks be worn or not, or the patients with asymptomatic SARS-CoV-2 virus should be quarantined or not, should the borders be closed, and the businesses should be closed or not. A changing policy can be observed in the US Centers for Disease Control and Prevention policies for COVID-19 that they shifted from only symptomatic, or caretakers of patients should wear a mask to everyone should wear a mask in public spaces [37-39].

At the point when Coronavirus administrative arrangements have changed in light of modifying logical proof and perspectives, this course of correspondence between established researchers and strategy producers has not forever been fittingly spoken with any remaining partners [40-42]. Maybe the fluctuating Coronavirus public arrangements could not have possibly felt unpredictable and now and again inconsistent on the off chance that general well-being specialists and strategy producers had imparted precisely by really uncovering what they knew and had close to zero familiarity with the SARS-CoV-2 infection and the Coronavirus affliction.

Individuals could have had the option to comprehend while changing proof prompted a shift in strategy course without getting some unacceptable thought that the progressions were erratic or imperfect, and without losing confidence in establishments and public authorities on the off chance that they had been precise and straightforward in their correspondences. As seen not simply by the facial covering question in the USA yet additionally by the nearby the-bars-and-keep-the-schools-open contention in New York City, this disintegration of trust has arrived at the reason behind heightening social divisions and polarization [41,42].

Furthermore, on the off chance that the media were committed to announcing reality, maybe the current infodemic could not have possibly impacted the world as harshly. In any case, in reality, Coronavirus is the principal pandemic wherein there is "a profound suspicion about the fundamental reason that reality exists" and where disarray and double-dealing are overflowing, expanding the pestilence's effects [43-45].One could be captivated to reason that wise general prosperity choices would have been made during this plague assuming by some fortunate turn of events the tremendous bunch of Covid data that was open had not achieved double-dealing, confusion, and uncertainty in experts' judgment. Be that as it may, this isn't for the most part the circumstance.

Uncertain Decision-Making

Indeed, even in this optimal situation, notwithstanding, there are still layers of intricacy that arrive at it challenging to draw great conclusions about how best to safeguard general well-being. Certain mechanical apparatuses and procedures, such as epidemiological and measurable models, well-being financial matters investigations, and chance examination, can be utilized to address a portion of these issues. Under pretty much severe asset restrictions and reasonable medicines, leaders would ordinarily really like to choose the choice that delivered the greatest generally speaking advantages in well-being results (e.g., fewer passings from Coronavirus and other avoidable sicknesses). Additionally, because there is critical confirmation that Covid has unnecessarily impacted low-pay and ethnic minority peoples, elective or additional methodology targets would no doubt consolidate, for example, extending worth or restricting troublesome shocks to monetary development or close-to-home prosperity. These factors are not completely settled and explicitly incorporated into dynamic models [46,47].

In any case, decisions will continually have a piece of related weakness. First and foremost, decisions will require speculation. These doubts relate, for example, to people's approaches to acting during an eruption of heterogeneities in the general population, contact plans, or resource segment [35,48-51]. Second, powerful models now and again rely upon express or certain decisions of the overall utility of things like age (e.g., valuable age is presumably more accommodating than non-helpful ages), time (eg, today is

more critical than tomorrow), handicap (e.g., presence without powerlessness is more appealing than presence with insufficiency or torture), among others [52,53]. Thirdly, dynamic in prosperity methodology requires critical trade-offs between fighting technique targets and relative utilities, and between evident characteristics and principled reasons, which will not be ensured to achieve convictions but may, going against the standard, add extra layers of multifaceted nature.

Ethical Doings During Pandemic

Good decision-making in public health policy does depend on high-quality, reliable data [53,54]. The great information is important to methodically evaluate general well-being intercessions, describe and figure out progress, reclassify needs, and all the more for the most part assist with illuminating general well-being independent direction [55,56]. However essential, information and science are lacking to completely answer what one should do in general well-being strategy to maintain the benefit of all. There are two primary meanings of "normal great": utilitarian and Aristotelian. For utilitarians, the benefit of everyone involves amplifying government assistance for the best number of individuals. The utilitarian meaning of the benefit of all has been generally utilized, especially during the Coronavirus pandemic [57,58]. This is because it seems to give a direct, logical answer for a moral bind by sanely computing and gauging the expenses and advantages of a specific decision.

The numerical sureness given by the utilitarian methodology is engaging, especially in the midst of vulnerability like the ongoing one. In any case, the weaknesses of the utilitarian way to deal with clinical morals have been generally discussed [59,60]. During the Coronavirus pandemic, for instance, significant common freedoms inquiries regarding uniformity and non-segregation have been raised to move utilitarian answers for clinical morals stalemates. The Aristotelian meaning of the benefit of all offers an elective that keeps away from the normal imperfections of the utilitarian model [59]. Yet the Aristotelian definition isn't by and large so quick and consistent as the utilitarian, we are using it since it is consistent with the fundamental opportunities' principles of reasonableness and non-partition. The advantage of all, according to Aristotle, is the game plan of values and reasons that legitimize joint exertion with others locally in a way that licenses normal thriving (i.e., the good life for each and every person from the neighborhood) [34].

The inquiry then of what one should do in general well-being strategy to maintain the benefit of all (from an Aristotelian perspective) isn't simply a logical inquiry; it is basically an ethical one. What's more, this corresponding connection between the exact and the moral is mind-boggling. While experimental realities alone are inadequate to resolve a moral inquiry completely, moral standards applied to scant information additionally don't give direct responses. The justification for this is twofold. To start with, regardless of quickly extending [61] data

and scientific understanding of COVID-19 are limited. Through models, science ordinarily delivers improved approximations of regular peculiarities, some of which are valuable in illuminating arrangement choices. While science has helped us in finding significant bits of insight into the pandemic and illuminating us about the probability regarding future occasions, it can't give an altogether certain image of observational reality or what's in store [41,62].

Second, regardless of whether the information was indisputable and completely predictable, observational proof can get you up until this point. This is on the grounds that general well-being leaders who are focused on maintaining the benefit of everyone (in the Aristotelian sense) won't consequently track down the most effective way to continue by gauging expenses and advantages in a levelheaded, esteem-free evaluation. General well-being choices are consistently full of layers of intricacy and vulnerability, with compromises unavoidable between vying for strategic objectives and relative utilities from one perspective, and goal values and principled reasons (which are not effectively quantifiable) on the other [63,64].

For instance, the UK authorized the use of a COVID-19 vaccine on December 2 even though it had only been tested on data from 170 infections and had been tested in a big clinical trial with approximately 43 000 participants [61]. It was the first nation to implement widespread immunization. Since then, several additional coronavirus vaccines have been authorized, and while some nations have chosen to move more cautiously and have authorized new vaccinations for restricted or emergency use only, others have decided to authorize universal immunization [65]. There are still a lot of unanswered questions. These unanswered questions include, among other things, whether the vaccination stops the spread of viruses, how it affects certain groups, and the vaccine's long-term safety profile [66,67]. However, these inquiries have not yet been conclusively tended to, the world desperately needs immunization. The pandemic is taking a weighty human cost [68], furthermore, the huge scope of non-drug methodologies to control its spread, for example, school terminations and lockdowns, have forced tremendous social and financial costs on social orders [69,70]. For some people, immunization is the main expect a re-visitation of business as usual where work, instruction, relaxation, family, and companionships can be capable again without critical well-being dangers [68].

The intricacy of general well-being choices is exhibited by UK's and numerous other countries' choice to endorse the Coronavirus 9 immunization without even a trace of outright certainty [67]. Risks, several levels of complexity, and tough trade-offs between competing policy aims, relative utilities, objective values, and ethical considerations are constant components of health policies. Public health officials must precisely decide how these different policy elements connect to the common good-that is, to the good of every single person in the community, whose lives are all equally valuable and who shall not be discriminated against or left behind. And this is not typically a simple, practical choice where factors can be readily quantified, tested, and compared. Despite the fact that utilitarian money-saving advantage assessments give guidance and can assist with directing numerous strategy choices, they might be defective when they include in not effectively quantifiable goal values and principled reasons and most beneficial things in life are not effectively measurable [41,64,71,72]. Take, for example, health, work, education, leisure, family, and friendships. These are all similar and unchangeably essential human products: they are crucial for the easy street of the individual and the benefit of all and can't be diminished as simple means to any of the others [12,41]. With everything considered, they will not be easily assessed against or trump the other. This is the very thing that has been known as 'the incommensurability issue' [73].

Since fundamental human merchandise like well-being, instruction, relaxation, family, and companionships are incommensurable when pressures between them happen as they did during this pandemic while keeping up with our well-being required changing how we experience work, schooling, recreation, family, and fellowships the arrangement isn't generally effectively ascertainable by a direct adjusting test [73]. A general well-being pioneer who is committed to settling on moral decisions that help the benefit of all each and every individual from their general public will battle with a few principal common liberties that are in struggle. In the event that they gave well-being the most noteworthy need conceivable, picking among the other fundamental human requirements would be more straightforward. Be that as it may, on the off chance that they picked this course, they would run the chance of effectively disregarding other similarly essential common liberties for an unanticipated measure of time. There is no speedy computation that offers an unmistakable answer for the ideal game plan. A confounded moral test is raised by the contending dangers, strategy targets, relative advantages, objective qualities, and moral legitimizations, and it requires a far-reaching assessment of the accessible logical data.

For this reason, significant arrangement choices should be imparted to the public precisely and straightforwardly. Albeit moving logical proof might prompt new arrangement headings, great choices ought to mirror the substantially more mind-boggling cycle and communication between the observational and the moral. During the Coronavirus pandemic, state-run administrations and science consultants settled on basic choices without continuously imparting logical proof, compromises, presumptions, or needs to those impacted [53]. This has subverted trust and most likely the viability of general well-being intercessions [74].

Subsequently, great general well-being choices require sound, nuanced, and complex moral thinking, which is basic in allocating

esteem and standardizing judgment to observational realities. Quantifiable observational information and logical proof, while significant, is only from time to time adequate, as a slanted understanding of the 'follow the science' basic might suggest. The contention introduced in this paper isn't actually novel. Great dynamic in general well-being strategy is predicated overall on thorough thinking that conducts moral evaluations of substantial realities. Be that as it may, an excessively oversimplified perspective on 'following science' has disregarded and, surprisingly, darkened the well-established arrangement question of the mind-boggling connection between moral thinking and observational proof. Disarray and doubt in the choices of specialists would be less predominant in the event that society knew about how morals can test a few observational bits of insight and leaders were more straightforward about it.

Future of Covid-19

The Coronavirus pandemic has been met with inconsistent reactions in various nations and prompted inconsistent effects, with populaces in Europe, the USA, and Latin America excessively affected [75,76]. The general consequence of the pandemic will rely upon different conditions. Since no nation can be protected until all nations are protected, a nationalistic as opposed to the worldwide methodology for immunization conveyance isn't just morally off base but will likewise postpone any re-visitation of a degree of "ordinariness" (counting slackened line controls). SARS-CoV-2 might keep on changing in manners that both stimulate infection spread and decrease the viability of immunizations [77]. Hesitance to get vaccinated, misleading data, and double-dealing could endanger the worldwide reaction to Coronavirus [78].

Given the development of novel and troublesome SARS-CoV-2 transformations, credulous presumptions with respect to group insusceptibility represent a serious danger to rehash flare-ups and repeats. Given the pervasiveness of SARS-CoV-2 of very few species, including felines and canines, as well as the lopsided immunization inclusion and immunological insurance levels, it is reasonably difficult to all around the world annihilate SARS-CoV-2 [79-82].

Conclusion

Every aspect of the past is a past. To prepare ourselves for the forthcoming challenges in the world, the only thing we can do right now is to focus on learning the method by which we went through the epidemic. It's important to avoid making the same mistakes again. Furthermore, continuous actions would be needed to deal with CoV-2's endemicity in SARS throughout time. Furthermore, we are uncertain of whether and when revaccination with the present or next Coronavirus immunizations will be required in light of the fact that the length of immunological assurance and the viability against creating SARS-CoV-2 variations are at this point unclear. Given the vulnerability in question, we shouldn't expect that new logical improvements in Coronavirus identification,

vaccinations, and medicines would end the pestilence. There is at present no convenient solution, subsequently, the Coronavirus dynamic interaction will most likely keep going for a considerable length of time.

References

1. Bao L, Deng W, Haung B, Gao H, Liu J, et al. (2020) The pathogenicity of SARS-CoV-2 in hACE2 transgenic mice. Nature 583(7818): 830-833.

2. Deshpande K, PT U, Kaduskar O, Vijay N, Rakhe A, et al. (2021) Performance assessment of seven SARS-CoV-2 IgG enzyme-linked immunosorbent assays. J Med Virology 93(12): 6696-6702.

3. Li Q, Guan X, Wu P, Wang X, Zhou L, et al. (2020) Early transmission dynamics in Wuhan, China, of novel coronavirus–infected pneumonia. N Eng J Med 382(13): 1197-1207.

4. WHO (2020) Timeline of WHO's response to COVID-19.

5. Purohit D, Ahirwar AK, Sakarde A, Asia p, Gopal N, et al. (2021) COVID-19 and lung pathologies. Horm Mol Biol Clin Investig 42(4): 435-443.

6. Iranmanesh B, Khalili M, Amiri R, Zartab H, Aflatoonian M (2021) Oral manifestations of COVID-19 disease: A review article. Dermatol Ther 34(1): 14578.

7. Tonkaboni A, Iranaq MHA, Ziaei H, Ather A (2021) Impact of COVID-19 on Dentistry. Adv, Exp Med Biol 1318: 623-636.

8. Chan JFW, Yuan S, Kok KH, Wang To KK, Chu H, et al. (2020) A familial cluster of pneumonia associated with the 2019 novel coronavirus indicating person-to-person transmission: a study of a family cluster. Lancet 395(10223): 514-523.

9. Wu Y, Guo C, Tang L, Hong Z, Zhou J, et al. (2020) Prolonged presence of SARS-CoV-2 viral RNA in faecal samples. Lancet Gastroenterol Hepatol 5(5): 434-435.

10. Mattos FF, Pordeus IA (2020) COVID-19: a new turning point for dental practice. Brazilian Oral Research 34(9857).

11. Parodi SM, Liu VX (2020) From containment to mitigation of COVID-19 in the US Jama 323(15): 1441-1442.

12. Lai S, Ruktanonchai NW, Zhiu L, Prosper O, Luo W, et al. (2020) Effect of non-pharmaceutical interventions for containing the COVID-19 outbreak: an observational and modelling study medRxiv.

13. Bogoch II, Watts A, Bachli AT, Huber C, Kraemer M, et al. (2020) Potential for global spread of a novel coronavirus from China. Journal of travel medicine 27(2): taaa011.

14. Tanne JH, Hayasaki E, Zastrow M, Pulla P, Smith P, et al. (2020) Covid-19: how doctors and healthcare systems are tackling coronavirus worldwide. Bmj, pp. 368.

15. Lau H, Khosrawipour V, Kocbach P, Mikolajczyk J, Bania J, et al. (2020) The positive impact of lockdown in Wuhan on containing the COVID-19 outbreak in China. J of Travel Med 27(3): taaa037.

16. Cyranoski D (2020) What China's coronavirus response can teach the rest of the world. Nature 579(7800): 479-481.

17. Chen W, Wang Q, Yu L, Xia YY, Zhang ML, et al. (2020) Early containment strategies and core measures for prevention and control of novel coronavirus pneumonia in China. Zhonghua yu fang yi xue za zhi 54(3): 239-244.

18. Tian H, Liu Y, Li Y, Wu CH, Chen B, et al. (2020) An investigation of transmission control measures during the first 50 days of the COVID-19 epidemic in China. Science 368(6491): 638-642.

19. Khanna RC, Cicinnelli MV, Glibert S, Honavar SG, Murthy GS, et al. (2020) COVID-19 pandemic: Lessons learned and future directions. Indian J of ophthalmol 68(5): 703-710.

20. Gustine LO, Wiley LF (2020) Governmental public health powers during the COVID-19 pandemic: stay-at-home orders, business closures, and travel restrictions. Jama 323(21): 2137-2138.

21. Wang D, Mao Z00 (2021) A comparative study of public health and social measures of COVID-19 advocated in different countries. Health Policy 125(8): 957-971.

22. Akhtar H, Akthar A, Rahman AU, Afridi M, Khalid S, et al. (2021) An overview of the treatment options used for the management of COVID-19 in Pakistan: retrospective observational study. JMIR Public Health and Surveillance 7(5): e28594.

23. Assefa Y, Gilks CF, Reid S, Pas RV, Gete DG, et al. (2022) Analysis of the COVID-19 pandemic: lessons towards a more effective response to public health emergencies. Global Health 18(1): 1-13.

24. Brewer NT, Chapman GB, Schwartz JA, Bergus GR (2007) The influence of irrelevant anchors on the judgments and choices of doctors and patients. Med Decis Making 27(2): 203-211.

25. Lechanoine F, Gangi K (2020) COVID-19: Pandemic of cognitive biases impacting human behaviors and decision-making of public health policies. Front Public Health 8: 613290.

25. Gaissmaier W (2019) A cognitive-ecological perspective on risk perception and medical decision making. Med Decis Making 39(7): 723-726.

26. Li Y, Campbell H, Kulkarni D, Harpur A, Nundy M, et al. (2021) The temporal association of introducing and lifting non-pharmaceutical interventions with the time-varying reproduction number (R) of SARS-CoV-2: a modelling study across 131 countries. The Lancet Infectious Diseases 21(2): 193-202.

27. Scheirer W (2020) A pandemic of bad science. Bulletin of the Atomic Scientists 76(4): 175-184.

28. Wiersinga WJ, Rhodes A, Cheng AC, Peacock SJ, Prescott HC, et al. (2020) Pathophysiology, transmission, diagnosis, and treatment of coronavirus disease 2019 (COVID-19): a review. JAMA 324(8): 782-793.

29. Williamson EJ, Walker AJ, Bhaskaran K, Bacon S, Bates C, et al. (2020) Open SAFELY: factors associated with COVID-19 death in 17 million patients. Nature 584(7821): 430-436.

30. Pai M (2020). Covidization of research: what are the risks? Nat Med 26(8): 1159-1159.

31. Bramstedt KA (2020) The carnage of substandard research during the COVID-19 pandemic: a call for quality. J Med Ethics 46(12): 803-807.

32. Rzymski P, Nowicki M, Mullin GE, Abraham A, Roman ER, et al. (2020) Quantity does not equal quality: scientific principles cannot be sacrificed. Int immunopharmacol 86: 106711.

33. De Campos TC (2020) Guiding principles of global health governance in times of pandemics: solidarity, subsidiarity, and stewardship in COVID-19. The American Journal of Bioethics 20(7): 212-214.

34. Bavel JJV, Baicker K, Boggio PS, Capro V, Cichocka A, et al. (2020) Using social and behavioral science to support COVID-19 pandemic response. Nat Hum Behav 4(5): 460-471.

35. Lancet T (2020) COVID-19: fighting panic with information. Lancet 395(10224): 537.

37. He X, Lau EH, Wu P, Deng X, Wang J, et al. (2020) Temporal dynamics in viral shedding and transmissibility of COVID-19 Nature Medicine 26: 672-675.

38. Liu Y, Funk S, Falsche S (2020) The contribution of pre-symptomatic infection to the transmission dynamics of COVID-2019. Wellcome Open Res 5: 58.

39. Rothe C, Schunk M, Sothmann P, Bretzel G, Froeschl G, et al. (2020) Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. N Engl J Med 382(10): 970-971.

40. Kaplan S (2020) The White House blocked CDC from requiring masks on public transportation. New York Times.

41. Veit W, Brown R, Earp BD (2021) In science we trust? being honest about the limits of medical research during COVID-19. The American Journal of Bioethics 21(1): 22-24.

42. Weber L, Houghton K (2020) The Mask Hypocrisy: How COVID Memos Contradict the White House's Public Face In.

43. Islam MS, Sarkar T, Khan SH, Kamal AHM, Hasan AM, et al. (2020) COVID-19–related infodemic and its impact on public health: A global social media analysis. Am J Trop Med Hyg 103(4): 1621-1629.

44. Parmet WE, Paul J (2020) COVID-19: the first posttruth pandemic. Am J Public Health 110(7): 945-946.

45. Reihani H, Ghassemi M, Amirshahi MM, Aljohani B, Pourmand A (2021) Non-evidenced based treatment: an unintended cause of morbidity and mortality related to COVID-19. The American journal of emergency medicine 39: 221-222.

46. Kirby T (2020) Evidence mounts on the disproportionate effect of COVID-19 on ethnic minorities. Lancet Respir Med 8(6): 547-548.

47. Mena GE, Martinez PP, Mahmud AS, Marquet PA, Buckee CO, et al. (2021) Socioeconomic status determines COVID-19 incidence and related mortality in Santiago. Science 372(6545): eabg5298.

48. Brown E, Gray R, Monaco SL, Donoghue BO, Nelson B, Thompson A, et al. (2020) The potential impact of COVID-19 on psychosis: a rapid review of contemporary epidemic and pandemic research. Schizophr Res 222: 79-87.

49. Funk S, Salathe M, Jansen VA, et al. (2010) Modelling the influence of human behaviour on the spread of infectious diseases: a review. Journal of the Royal Society Interface 7(50): 1247-1256.

50. Hogan AB, Jewell B, Smith ES, Vesga JF, Watson OJ, et al. (2020) Potential impact of the COVID-19 pandemic on HIV, tuberculosis, and malaria in low-income and middle-income countries: a modelling study. Lancet Glob Health 8(9): e1132-e1141.

51. Verelst F, Willem L, Beutels P (2016) Behavioral change models for infectious disease transmission: a systematic review (2010–2015). J R Soc Interface 13(125): 20160820.

52. Murray CJ, Ezzati M, Flaxman AD, Lim S, Lozano R, et al. (2012) GBD 2010: design, definitions, and metrics. Lancet 380(9859): 2063-2066.

53. Torrance GW (1986) Measurement of health state utilities for economic appraisal. J Health Econ 5(1): 1-30.

54. De Campos-Rudinsky TC, Undurraga E (2021) Public health decisions in the COVID-19 pandemic require more than 'follow the science'. J Med Ethics 47(5): 296-299.

55. Chan M, Kazatchkine M, Levyt JL, Obaid T, Schweizer J, et al. (2010) Meeting the demand for results and accountability: a call for action on health data from eight global health agencies. PLoS Medicine 7(1): e1000223.

56. Frieden TR (2015). The future of public health. N Eng J Med 373(18): 1748-1754.

57. Emanuel EJ, Persad G, Upshur R, Thome B, Parker M, et al. (2020) Fair allocation of scarce medical resources in the time of Covid-19 N Eng J Med 382(21): 2049-2055.

58. Savulescu J, Cameron J, Wilkinson D (2020) Equality or utility? Ethics and law of rationing ventilators. Br J Anaesth 125(1): 10-15.

59. Bellazzi F, Boyneburgk KV (2020) COVID-19 calls for virtue ethics. J Law Biosci 7(1): lsaa056.

60. Sulmasy D (2020) Respirators, our rights, right and wrong: medical ethics in an age of coronavirus. New York Daily News pp. 72-876.

61. Ledford H, Cyranoski D, Noorden RV (2020) The UK has approved a COVID vaccine-here's what scientists now want to know. Nature 588(7837): 205-206.

62. Finnis J (1983) Fundamental of Ethics. Georgetown University Press In: DC Washington pp. 176.

63. Savulescu J, Persson I, Wilkinson D (2020) Utilitarianism and the pandemic. Bioethics 34(6): 620-632.

64. Veit W, Savulescu J, Hunter D, Earp BD, Wilkinson D (2020) Are generational welfare trades always unjust. The American Journal of Bioethics 20(9): 70-72.

65. Corum J (2020) Coronavirus vaccine tracker. The New York Times 5.

66. Cohen J, Moutinho S (2021) Third time's the charm? Brazil scales back efficacy claims for COVID-19 vaccine from China. Science pp. 1126.

67. Cyranoski D (2020b). Why emergency COVID vaccine approvals could pose a dilemma. Nature 588(7836): 18-19.

68. Dong E, Du H, Gardner L (2020) An interactive web-based dashboard to track COVID-19 in real time. Lancet Infect Dis 20(5): 533-534.

69. Asahi K, Undurraga EA, Valdes R, Wagner R (2021) The effect of COVID-19 on the economy: Evidence from an early adopter of localized lockdowns. J Glob Health 11: 05002.

70. Baek C, McCrory PB, Messer T, Mui P (2021) Unemployment effects of stay-at-home orders: Evidence from high-frequency claims data. The Review of Economics and Statistics 103(5): 979-993.

71. Ali S, Asaria M, Stranges S (2020) COVID-19 and inequality: are we all in this together? Can J Public health 111(3): 415-416.

72. Giubilini A, Savulescu J, Wilkinson D (2020) COVID-19 vaccine: vaccinate the young to protect the old? J Law Biosci 7(1): lsaa050.

73. Urbina FJ (2017) A critique of proportionality and balancing. Cambridge University Press, UK, pp.267.

74. Seytre B (2020) Erroneous communication messages on COVID-19 in Africa. Am J Trop Med Hyg 103(2): 587-589.

75. Brawner JM, Mindermann S, Sharma M, Johnston D, Salvatier J, et al. (2021) Inferring the effectiveness of government interventions against COVID-19. Science 371(6531): eabd9338.

76. Ritchie H, Mathieu E, Guirao R, Appel C, Giattino C, et al. (2020) Coronavirus pandemic (COVID-19). Our world in data.

77. Fontanet A, Autran B, Lina B, Kieny MP, Karim SSA, et al. (2021) SARS-CoV-2 variants and ending the COVID-19 pandemic. Lancet 397(10278): 952-954.

78. De Figueiredo A, Simas C, Karafillakis E, Paterson P, Larson HJ (2020) Mapping global trends in vaccine confidence and investigating barriers to vaccine uptake: a large-scale retrospective temporal modelling study. Lancet 396(10255): 898-908.

79. Mahdy MA, Younis W, Ewaida Z (2020) An overview of SARS-CoV-2 and animal infection. Front Vet Sci 7: 596391.

80. Sridhar D, Gurdasani D (2021) Herd immunity by infection is not an option. Science 371(6526): 230-231.

81. Wang X, Shi L, Zhang Y, Chen H, Jiao J, et al. (2021) A Comparative Retrospective Study of COVID-19 Responses in Four Countries. Risk Manag Healthc Policy 15:13-25.

82. Warsame A, Fuje M, Checchi F, Blanchet K, Palmer J (2022) Evaluating COVID-19 decision-making in a humanitarian setting: The case study of Somalia. PLOS Glob Public Health 2(3): e0000192.