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WHAT HAS THE COVID-19 PANDEMIC TAUGHT US ABOUT ADOPTING PREVENTIVE MEASURES?

Adriana Cristina de Oliveira[1]
Thabata Coaglio Lucas[2]
Robert Aldo Iquiapaza[3]

[1]Universidade Federal de Minas Gerais, Escola de Enfermagem, Programa de Pós-graduação em Enfermagem. Belo Horizonte, Minas Gerais, Brasil.
[2]Universidade Federal dos Vales do Jequitinhonha e Mucuri, Departamento de Enfermagem, Programa de Pós-graduação em Ensino em Saúde. Diamantina, Minas Gerais, Brasil.
[3]Universidade Federal de Minas Gerais, Faculdade de Ciências Econômicas, Departamento de Ciências Administrativas. Belo Horizonte, Minas Gerais, Brasil.

ABSTRACT

Objective: to analyze the COVID-19 pandemic and what we have (re)learned from the world experience of adopting prevention measures recommended by the World Health Organization as well as the epidemiological overview in the world, in Latin America and in Brazil.
Results: the World Health Organization has pointed out that the path to reduce the speed of circulation of the virus, control and decrease in the number of cases and deaths resulting from this pandemic can only be accomplished with mass adoption of fundamental measures that include hand hygiene, alcohol gel use, cough etiquette, cleaning surfaces, avoiding agglomerations and social distancing. The epidemiological curve of the disease clearly shows the devastating proportions in Italy, Spain and the United States, surpassing China in death records, due to the delay in adopting the aforementioned measures. In Brazil, the rapid progression in relation to the world and Latin America points to an important increase in the number of cases.
Conclusion: this is possibly the most serious pandemic in recent human history, and its course can be influenced by the rigor in adopting individual and collective behavioral measures.

DESCRIPTORS: Coronavirus infections. Precaution. Personal protective equipment. Patient isolation. Pandemics. SARS Virus.

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O QUE A PANDEMIA DA COVID-19 TEM NOS ENSINADO SOBRE ADOÇÃO DE MEDIDAS DE PRECAUÇÃO?

RESUMO

Objetivo: analisar a pandemia da Covid-19 e o que temos (re)aprendido com a experiência mundial para adoção das medidas de prevenção preconizadas pela Organização Mundial de Saúde bem como o panorama epidemiológico no mundo, na América Latina e no Brasil.
Resultados: a Organização Mundial de Saúde tem apontado que o caminho para a redução da velocidade de circulação do vírus, o controle e queda do número de casos e óbitos decorrentes dessa pandemia só poderá ser alcançado com adoção em massa de medidas fundamentais que incluem higienização das mãos, uso do álcool em gel, etiqueta respiratória, limpeza de superfícies, evitar aglomerações e distanciamento social. A curva epidemiológica da doença mostra claramente as proporções devastadoras na Itália, Espanha e nos Estados Unidos, superando a China em registros de óbitos, devido ao atraso na adoção dessas medidas. No Brasil, a progressão rápida em relação ao mundo e à América Latina aponta um importante aumento do número de casos.
Conclusão: essa pandemia possivelmente é a mais grave da história recente da humanidade e seu curso pode ser influenciado pelo rigor na adoção de medidas comportamentais individuais e coletivas.

DESCRITORES: Infecções por coronavírus. Precaução. Equipamento de proteção individual. Isolamento de pacientes. Pandemias. Vírus da SARS.

¿LO QUE LA PANDEMIA COVID-19 NOS ENSEÑÓ SOBRE LA ADOPCIÓN DE LAS MEDIDAS PREVENTIVAS?

RESUMEN

Objetivo: analizar la pandemia de COVID-19 y lo que hemos (re)aprendido de la experiencia mundial para la adopción de las medidas de prevención recomendadas por la Organización Mundial de la Salud, así como el panorama epidemiológico en el mundo, en América Latina y en Brasil.
Resultados: la Organización Mundial de la Salud ha señalado que el camino hacia la reducción de la velocidad de circulación del virus, el control y la reducción del número de casos y muertes resultantes de esta pandemia solo se puede lograr con la adopción masiva de medidas fundamentales que incluyan la higiene de las manos, uso de alcohol en gel, etiqueta respiratoria, limpieza de superficies, evitando hacinamiento y distancia social. La curva epidemiológica de la enfermedad muestra claramente las proporciones devastadoras en Italia, España y Estados Unidos, superando a China en los registros de defunciones, debido a la demora en la adopción de estas medidas. En Brasil, la rápida progresión en relación con el mundo y América Latina apunta a un aumento importante en el número de casos.
Conclusión: esta pandemia es posiblemente la más grave en la historia humana reciente y su curso puede verse influenciado por el rigor en la adopción de medidas de comportamiento individuales y colectivas.

DESCRIPTORES: Infecciones por coronavírus. Precaución. Equipo de protección personal. Aislamiento de pacientes. Pandemias. Virus del SRAS.

INTRODUCTION

On the world stage, although distant from our daily lives, the beginning of 2020 was characterized by an outbreak of a mysterious pneumonia caused by a variation of coronavirus, whose first case was reported in December 2019 in the city of Wuhan, China.[1] The increase in the number of cases quickly characterized the infection as an outbreak, so that, at the end of January 2020, the World Health Organization (WHO) declared the situation as a public health emergency of international interest.[1] This is a virus isolated for the first time in 1937, and in 1965 was described as coronavirus, due to its profile under microscopy, similar to a crown.[2] Between 2002 and 2003, the WHO reported 774 deaths due to Severe Acute Respiratory Syndrome (SARS-CoV). In 2012, 858 deaths from Middle East Respiratory Syndrome (Mers-CoV) were confirmed in Saudi Arabia, both complications caused by members of the coronavirus family.[2] Eight years later, 2019-2020, the world found the mutating RNA virus expanding, especially asymptomatically, as an emerging infection, with milder symptoms than SARS-CoV and Mers-CoV, but with greater transmissibility, thus generating considerable impacts on health systems.[1] Most people are infected with coronavirus throughout their lives, especially children, in which case α-coronavirus 229E and NL63, β-coronavirus OC43 and HKU1 are recognized.[2] However, they can occasionally cause serious respiratory diseases in the elderly and the immunocompromised.[2–3]

From virus isolation in initial cases, researchers identified genetic mutation in a spike surface protein, which the virus uses to attack the human organism and multiply.[3] Little by little, information about its incubation period, between two and ten days, and of propagation through contaminated droplets, hands and surfaces were described in the literature.[4–5] Immediately, the news reports recorded increase in infected people, deaths, and high rate of contamination in Wuhan, where the first control measures included suspension of public transport, closure of entertainment venues, prohibition of public meetings, cleaning of buildings, streets and compulsory home restrictions on all citizens.[6] Spread of cases to other geographic areas has been greatly accelerated due to globalization and lack of knowledge to adopt restrictive measures for travelers. There were many questions and few answers at first, a direct and active mobilization by WHO to monitor cases and virus spread to all continents. Then, by the results of the first researches, the picture was outlined with human-human transmission of n-COVID-19.[7]

In this setting, WHO declared COVID-19 a pandemic on March 11, 2020, and instituted essential measures for prevention and confrontation. They included hand washing with soap and water whenever possible and alcohol gel use in situations where access to water and soap is not possible. They also recommended avoiding touching the eyes, nose and mouth, and protecting people around them when sneezing or coughing, with the adoption of a cough etiquette, by using a flexed elbow or disposable handkerchief.[8] Moreover, the WHO indicated maintaining social distancing (minimum of one meter), avoiding crowding and using a mask in case of flu or infection by COVID-19, or if a health professional in caring for suspected/infected patients.[8]

In Brazil, on February 3, 2020, it was declared, through Ordinance 188 from the Ministry of Health, a public health emergency of national importance, corresponding to a risk classification at level 3, due to human infection with the new coronavirus (SARS-CoV-2). This action aimed to favor that administrative measures were taken with greater agility so that the country began to prepare itself to face the pandemic, although at the time there was still no record of a confirmed case.[9] The first case of infection in Brazil was notified by the Ministry of Health on February 26, in the city of São Paulo, and the entire country from that moment on went on alert. Hand hygiene measures and cough etiquette were reinforced.[10] However, the advance of the disease has been rapid, evolving in less than thirty days of cases imported for community or sustainable transmission. Imported cases are those in which it is possible to identify the origin of the virus, in general, when a person acquires it on trips

abroad, at first, coming from countries like China and Italy.[10] In community transmission, the origin of the disease can no longer be identified, in addition to asymptomatic cases that come to represent a greater risk, considering that they spread the virus effectively.[10] In this new context of transmission at the national level, we witnessed, in parallel, estimates based on mathematical models proposed by researchers, and progression of COVID-19 cases in countries whose entry of the virus occurred in the period prior to notification in Brazil.

In this perspective, this paper set out to analyze the COVID-19 pandemic, what we have (re) learned from the world experience of adopting prevention measures recommended by the WHO, as well as the epidemiological overview in the world, in Latin America and in Brazil.

TRANSMISSION OF COVID-19 AND MEASURES TO PREVENT ITS SPREAD

The term “virus” comes from Latin, understood as “poison” or “toxin”. They are mostly 20-300 nm in diameter, have a genome consisting of one or more nucleic acid molecules (DNA or RNA), covered by a protein wrapper formed by one or more proteins, and by a complex envelope in a lipid bilayer.[2] Coronaviruses are enveloped positive-RNA viruses, and have a unique replication strategy, which makes it possible to vary their pathogenicity and ease of adaptation in different environments.[2] SARS-CoV-2 comes from a new strain identified in 2019 and, because it has not yet been isolated in humans, the measures to be implemented to face the pandemic are aimed at destroying the virus, preventing rapid transmission from person to person.[1–3]

SARS-CoV-2 transmission from person to person occurs through autoinoculation in mucous membranes (nose, eyes or mouth) and contact with contaminated inanimate surfaces, which has increasingly called attention to the need for rapid and preventive adoption of human protection measures to prevent contamination of persons.[5]

For this reason, one of the most important measures for preventing transmission refers to hand hygiene, considered a low-cost and high-effectiveness measure, since hands are the main vehicle of cross-contamination. Countless studies point to inadequate adoption of this practice among professionals during care for patients in health services.[5,11–13] Admittedly, the practice of hand hygiene by rubbing with water and soap reduces the occurrence of preventable infections, reducing morbidity and mortality in health services.[14–18] However, the complexity involved in complying with this measure is great, and can often be related to factors such as human behavior, including false perceptions of an invisible risk, underestimation of individual responsibility and lack of knowledge, behaviors that can interfere with compliance with preventive measures.[16–18] People have emphasized compliance with this measure and its importance, but, in addition to the difficulties mentioned, some barriers that should not exist are still part of institutional realities, such as lack of sinks and supplies such as soap and water or even paper in public places that are characterized by high handling and contact of people, transit of escalators, toilets, buses, subways etc., as well as in communities without regular water and sewage supply.

Due to the potential of the virus to survive in the environment for several days, facilities and areas potentially contaminated with SARS-CoV-2 must be cleaned before being reused, with products containing antimicrobial agents known to be effective against coronaviruses.[13,17] Although there is a lack of specific evidence of its effectiveness against SARS-CoV-2, cleaning with water and household detergents and common disinfectant product use are considered sufficient for general household cleaning.[19–20]

In hospital, several antimicrobial agents have been tested against different coronaviruses such as isopropanolol, povidone-iodine, ethanol, and sodium hypochlorite.[5,14] Some of the active ingredients, for instance, sodium hypochlorite and ethanol, are widely available in non-medical and non-laboratory environments, which contributes to population access.[5,14] Evidence points out that surfaces that were cleaned with 70% alcohol had an expected disinfecting effect for two types of coronaviruses (mouse hepatitis virus and transmissible gastroenteritis virus) after one minute of contact, compared to 0.06% of sodium hypochlorite.[19] Tests carried out with SARS-CoV showed that sodium hypochlorite is effective at a concentration of 0.05% to 0.1% after five minutes when it is mixed with a solution containing SARS-CoV.[5,14] A study analyzed surface stability of SARS-CoV-2, compared to SARS-CoV-1, the closest related human coronavirus.[5] The result of the experimental study is illustrated in Chart 1.

Chart 1 – Persistence of coronaviruses on inanimate surfaces. Belo Horizonte, Minas Gerais, Brazil, 2020.

Type of surface	Persistence
Steel	48 hours
Metal	5 days
Paper	4-5 days
Glass	4 days
Plastic	< 5 days
Silicone rubber	5 days
Latex Glove	< 8 hours

Source: Adapted from Kampf et al.5

The results indicated that the virus can remain viable and infectious on surfaces from hours to days (depending on the inoculum), reinforcing the importance of hand hygiene after contact with inanimate environments and surfaces. This is most likely because the droplets of viruses that cause respiratory infections are expelled by coughing and sneezing, and a single droplet can easily contain an infectious dose.

Furthermore, social distancing is also among the priorities of institutions to decrease transmission of SARS-CoV-2. Separation minimizes contact between potentially infected and healthy individuals, or between groups with high rates of transmission and or those with no or low levels, in order to delay the peak of the epidemic and lessen the magnitude of its effects, to protect assistance capacity clinic.[8] Isolation effectiveness depends on some epidemiological parameters, such as the number of secondary infections generated by each new infection and the proportion of transmissions that occur before the onset of symptoms.[14–15] These measures are justified due to the risk that asymptomatic people who remain in the community may infect others until their isolation, which makes it a challenge to control the pandemic. Based on this premise, Figure 1 shows the main public health measures to be adopted early to reduce the impact of the pandemic.

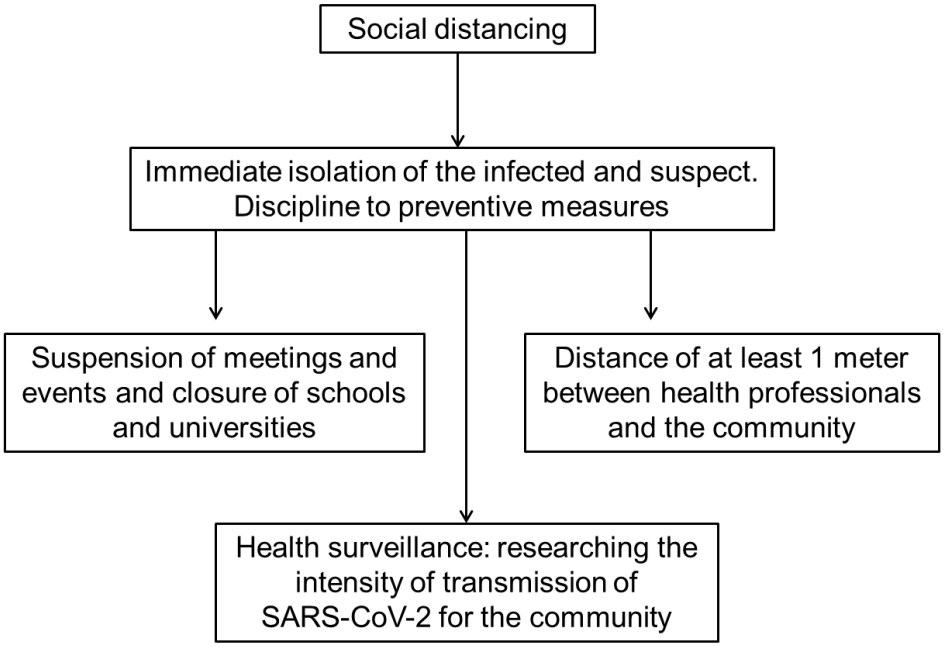

Figure 1 - Flowchart of measures to contain the circulation of the new coronavirus aiming at reducing the impact of the pandemic by COVID-19.[13] Belo Horizonte, Minas Gerais, Brazil, 2020.

A study that evaluated the case isolation effectiveness concerning COVID-19 control showed that isolation may be sufficient for its control over a period of three months, having been more effective when there was low transmission, before the onset of symptoms.[21] However, isolation, without adequate preventive measures, may be considered insufficient to control the outbreak. Thus, society/community, at this moment, is alerted to the importance of correct hand hygiene technique, mask use and surface hygiene measures that jointly prevent spread of the virus.[8,22]

Surgical mask use by patients reduces aerosol transmission, when in contact with suspected people of COVID-19 and with mild respiratory symptoms, since arrival at the health service, at the isolation site and during circulation within the service (transport from one area/sector to another), avoiding touching the mask, eyes, mouth and face as much as possible.[22–23]

This measure can limit the spread of respiratory diseases, including the new coronavirus. However, only mask use is insufficient to provide safe level of protection in isolation, and should always be associated with those already referred to as hand hygiene, especially before and after using masks. It should also be remembered that wearing masks when not indicated can generate unnecessary costs and create a false sense of security, inducing negligence to other measures, such as hand hygiene and cleaning of inanimate surfaces potentially contaminated with SARS-CoV -2.[22–23]

For performing procedures in patients with suspected or confirmed infection with the new coronavirus (SARS-CoV-2), which can generate aerosols (such as procedures that induce cough, intubation or tracheal aspiration, invasive and non-invasive ventilation, cardiopulmonary resuscitation, manual ventilation before intubation, sputum induction, nasotracheal sample collections), healthcare professionals must use respiratory protection masks (particulate respirator), with minimum efficiency in the filtration of 95% of particles up to 0.3 μ (type N95, N99, N100, PFF2 or PFF3).[8,23] Procedures that can generate aerosols should preferably be performed in a respiratory isolation unit with negative pressure and a Hepa filter (high efficiency particulate arrestance). In the absence of this type of unit, patients should be placed in a room with closed doors (and open windows) and restrict the number of professionals during these procedures.[23]

To use respirators or mask N95 or PFF2, it must be considered that the equipment must be properly adjusted to the face. How they are uses, handled and stored must follow the manufacturer's recommendations, also the accessory must never be shared among professionals. The following checks of the components must be made before use, including strips and material of the nasal bridge, to ensure its fit and sealing: visually inspect the N95 mask to determine if its integrity has been compromised (damp, dirty, torn, dented or creased masks cannot be used). It is also important to note that the surgical mask should not be superimposed on the N95 mask or equivalent, as, in addition to not guaranteeing protection from filtration or contamination, it can also lead to the waste of another Personal Protective Equipment (PPE), which can be very damaging in this pandemic setting.[23] Another relevant aspect is that exceptionally, in situations of lack of supplies and to meet the demand of the COVID-19 epidemic, the N95 mask or equivalent can be reused by the same professional, provided that mandatory steps are taken to remove the mask without contamination. inside. To minimize the contamination of the N95 mask or equivalent, if available, a face shield can be used. Also, if the mask is intact, clean and dry, it can be used several times during the same shift by the same professional (up to 12 hours or as defined by the Hospital Infection Control Commission - HICC - of the health service).[23]

To remove the mask, the side elastics must first be removed, and the inner surface must not be touched. After removal, the mask must be packed in a paper bag or envelope with the elastics out, to facilitate the removal of the mask for new use. Plastic bag use, however, may contribute to the mask remaining moist and potentially contaminated. Another aspect to be highlighted is about its cleaning, after use, these cannot be cleaned or disinfected for later use and when wet they lose their filtration capacity.[23]

On the other hand, with the indication of mask use for health professionals, there was a rush to pharmacies to acquire these by the general population, which has generated a shortage for health services, in the care of patients with COVID-19. On April 2, 2020, the Ministry of Health of Brazil began to recommend the use of masks made of cotton, non-woven-textiles, among others, for the population in contact with suspects at home and that needs to go out to perform activities that may require contact with other people, so that masks act as a mechanical barrier.[24] However, attention must be paid to the other preventive measures already recommended, such as social distancing and keeping hands away from the eyes, nose and mouth, in addition to proper hand hygiene. This indication is justified by the fact that the tissue mask can reduce the spread of the virus by asymptomatic or pre-symptomatic people who may be transmitting the virus without knowing it, but it does not protect the individual who is using it, as it has no filtering capacity of microorganisms. It should be noted that its use must be individual, and cannot be shared, and that, in health services, fabric masks should not be used under any circumstances, considering the provisions of Technical Note 4/2020, of the Brazilian National Surveillance Sanitary Agency (ANVISA – correspondent to US' FDA).[24]

This measure favors the potential for contagion of people to happen, gradually, without the occurrence of a peak in the curve. Therefore, it contributes for the health system to be able to effectively care for those who are contaminated, with availability of equipment and personnel, without the overload found in the experience of other countries, due to the high number of infected in a short period of time.[4,11]

The other preventive and professional protection components must be aligned to the type of contact and procedure to be performed and to the vestment for assistance to the suspected patient/carrier of COVID-19 and include the use of gloves, cloak/apron, goggles or protection facial, hat and apron.

The cloak or apron (minimum weight of 30 g/m^2) must be used to avoid contamination of the skin and clothing of professionals, who, after removal, needs to wash their hands.[23] Waterproof apron should be used to care for people suspected or infected by SARS-Cov-2.[23] Professionals should assess the need for the use of a waterproof coat or apron (minimum weight 50 g/m^2) depending on the patient's clinical condition (vomiting, diarrhea, orotracheal hypersecretion, bleeding, etc.). The cloak or apron must have long sleeves, a mesh or elastic cuff and a rear opening. In addition, it must be made of good quality material, non-toxic.[23] It is recommended that the impermeable cloak or apron, after use, be considered contaminated, and should be removed and discarded as an infectious residue after performing the patient's procedure with COVID-19 before leaving the isolation room.[8,23]

However, in a considerable part of places far from large centers in Brazil, the aprons available at the institutions are made of fabric, not disposable. In these cases, however, at this time of the pandemic, it is necessary that after use, it is sent immediately to the laundry, and its reuse is not recommended during new appointments. Contamination risk and spread may increase in the case of apron reuse, increasing the demand for beds destined to more serious cases and even removal of health professionals due to their contamination. As for the use of procedure gloves, they must also be discarded before professionals leave the isolation room of patients. In addition, long-barreled rubber glove use should be implemented for support personnel, such as cleaning professionals.[23] Care and attention of all professionals is essential for the premise that glove use does not replace hand hygiene and that the areas around patients, infected or not, such as tables and bedside rails, are considered contaminated. The areas should not be touched with gloves, in order not to favor spread of the virus in the environment. Thus, glove use inappropriately, especially in isolation sites with more than one patient with COVID-19, may cause cross-contamination among patients, favoring increased morbidity.

SPREAD OF COVID-19 WORLDWIDE

Experiences of affected countries, as well as evolution of the disease and the number of deaths in the world show an association between preventive measures that were implemented by the State and Government through health authorities and rigor with which they were incorporated by the population, as well as their impact on coping and progressing cases of the disease (Figure 2).

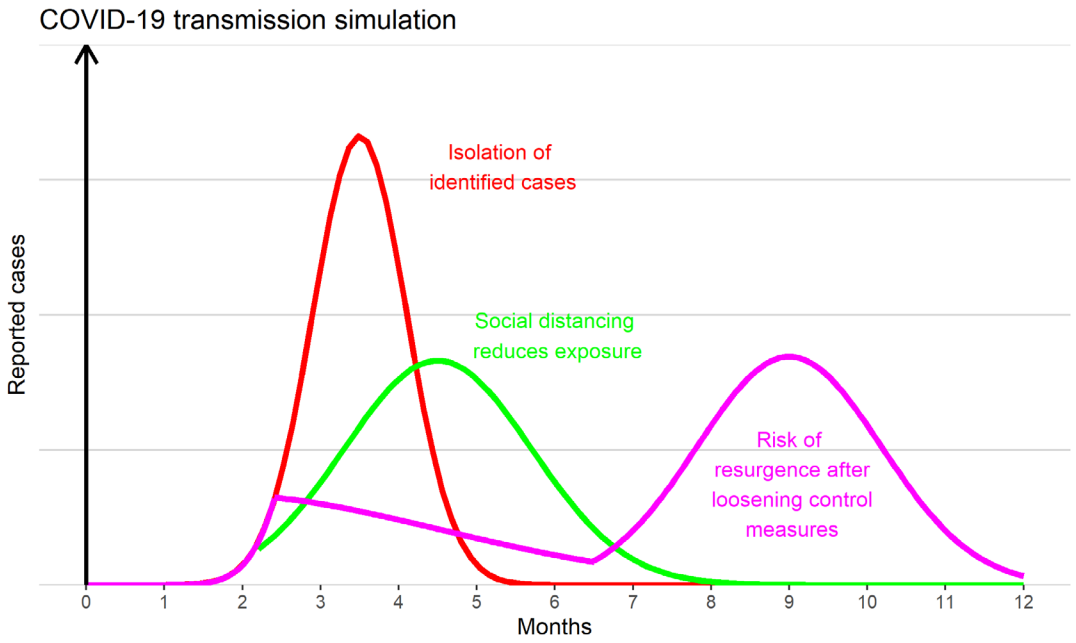

Figure 2 – Illustration of the COVID-19 transmission curve and its relationship with the population's adoption of hygiene, social restriction and non-agglomeration measures.[25] Belo Horizonte, Minas Gerais, Brazil, 2020.

What we have observed, however, is that even though the Ministry of Health reinforces the relevance of adopting such measures on a daily basis, its compliance at first showed a new learning for the population, above all, regarding the restriction or social distancing, threatened in part by the risk of increased unemployment, drop in income and/or often by minimizing the potential risk of the pandemic. These behaviors could decrease effectiveness of measures and increase the risk of resurgence of cases,[25] as shown in Figure 2. Efforts by health and political authorities in the states to encourage the population to stay at home to achieve a flattening of the curve and less circulation of the virus have been verified, as well as review of some recommendations.

In this setting of daily learning and monitoring of each case in the states and in the country, until April 18, 2020, by following the growth curve of cases in Brazil compared to other countries, it is possible to verify that the growth line shows itself differently from the devastating situation recorded in Italy, Spain, and the United States (Figure 3, left panel).[11–12] However, in the initial phase, a similar evolution can be seen in such countries, but which over time has distanced, possibly due to the impact of greater population compliance and strengthening of state policies for social restriction.

The evolution of COVID-19 cases in Brazil in relation to some countries in Latin America (Figure 3, right panel) shows a prominent progression curve, followed by Peru, Chile and Ecuador. This figure shows the daily evolution of the infection, after each country has notified at least ten cases.[26]

From the rapid evolution, world statistics consolidated by John Hopkins University, in the United States, until April 18, 2020, point out that after 39 days of recognition by WHO of the outbreak as a pandemic. The world registered 2,317,758 cases and 159,509 deaths, affecting 185 countries and regions worldwide.[26] The total number of confirmed cases increased from 100 thousand to 200 thousand, with an interval of twelve days. Six days later, it exceeded 400 thousand cases, reaching more than 800 thousand seven days later; and, went from 500 thousand to 1 million in seven days, and passed the 2 million infected people 13 days later, showing a high speed in the doubling of the number of cases worldwide.[26]

On the other hand, it is necessary to consider a certain difference in spread of infections in each country in a particular way, worldwide. The evolution of the doubling time of cases of the new coronavirus is shown in Figure 4, prepared considering information dated April 18, 2020.[27]

Therefore, it appears that, for instance, the estimated speed of duplication of cases, until March 24, for Canada and the United States (US), should occur every two and a half days. However, on April 7, this time increased to around seven days, showing a reduction in the speed of the spread, although it keeps these countries on alert for the total number of cases.[27] Colombia and Brazil, in the same interval, behaved differently, increasing the doubling time, that is, decreasing the speed of spread of the infection, until March 29 and 30, respectively. However, until April 3, this speed was higher for Brazil, reaching a doubling interval slightly higher than four days, showing the need to reinforce measures to contain the epidemic, seeking effective arrest of its advance. Until the end of the interval, on April 18, in general the times for doubling cases increased, showing a reduction in the speed of infections dissemination; in Mexico, Bolivia, Peru and Brazil the cases would be duplicated in up to 8 days, and the other countries in figure 4 showed duplication intervals of more than eleven days, up to eighteen days in the case of Colombia.

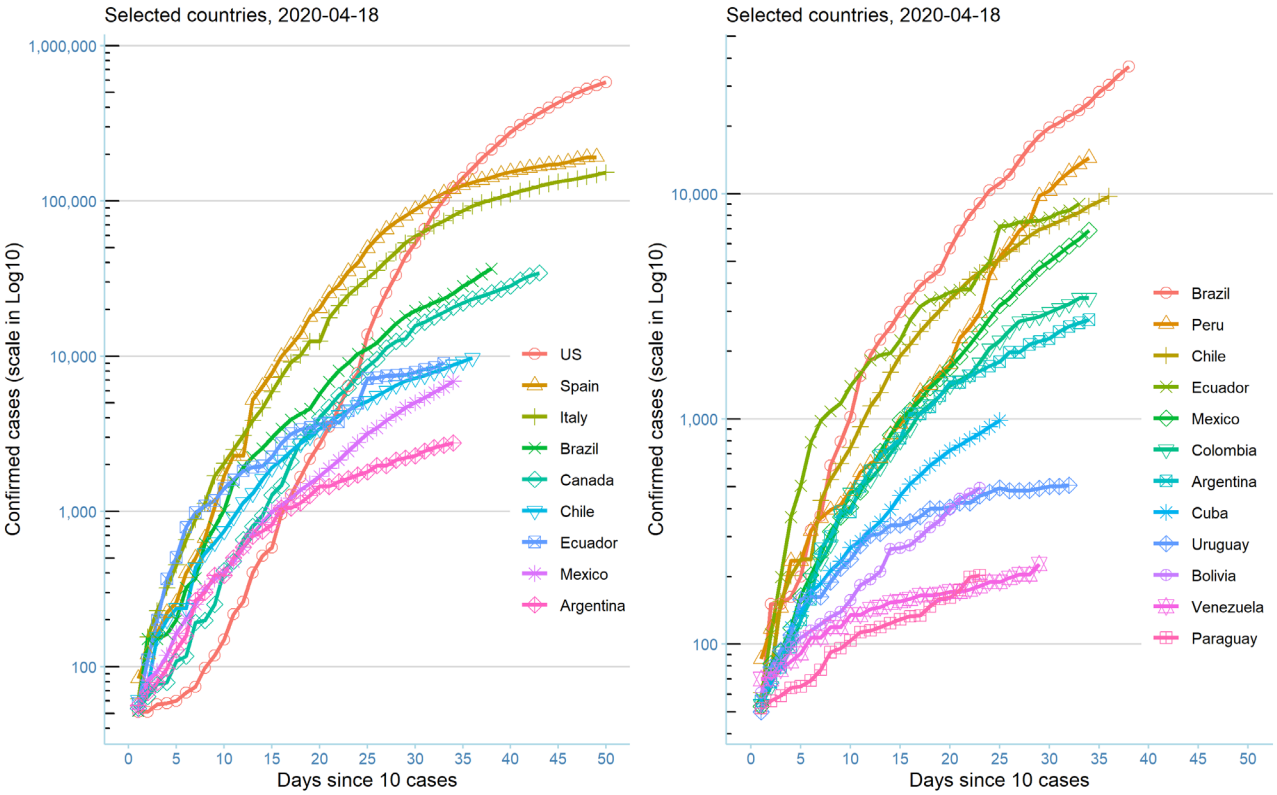

Figure 3 – Daily evolution curve for notified COVID-19 cases in Brazil, compared to other countries, from ten confirmed cases.[26] Belo Horizonte, Minas Gerais, Brazil, 2020.

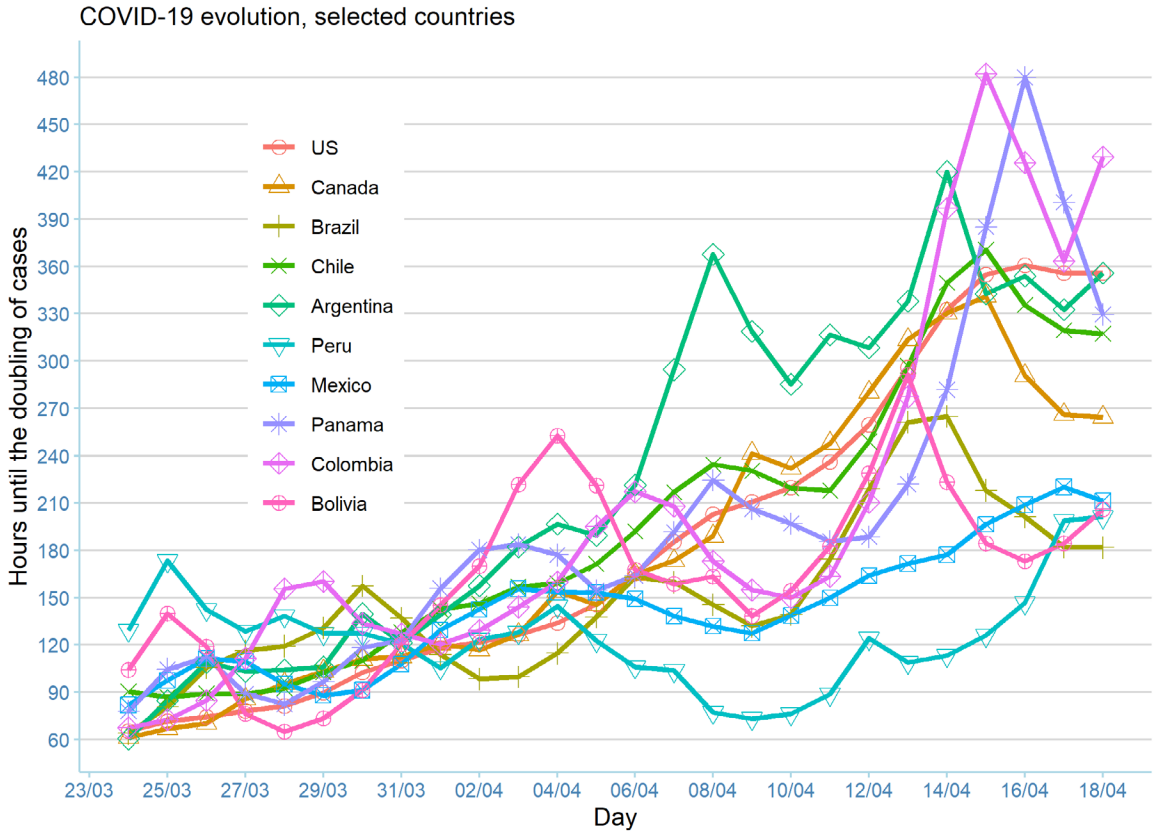

Figure 4 – Time distribution of doubling the number of COVID-19 cases in Brazil, compared to other countries.[27] Belo Horizonte, Minas Gerais, Brazil, 2020.

EPIDEMIC CONTROL

The COVID-19 outbreak is still new and its duration uncertain. Thus, reducing exposure to the virus is necessary to control/delay spread of the disease and negative impacts, such as increased mortality and degradation of the economic and social situation. Experiences from countries that adopted measures such as social distancing and early suspension of classes, Singapore, South Korea and Japan, point out that immediate implementation of these measures as well as rigorous management of cases and mass diagnoses influenced the course of transmissibility, resulting in a lower number of deaths. Singapore, for instance, on February 17, 2020, recorded the largest number of confirmed cases outside mainland China. However, it immediately implemented control measures such as isolating all suspected or confirmed cases in rooms with negative pressure; training and re-education of health professionals to use personal protective equipment; use of respirators and air purifiers; monitoring of isolation teams for COVID-19 symptoms with thermal scanners to track fever; and investment in single-use equipment such as disposable bronchoscopes for bronchoscopy and percutaneous tracheostomy.[28] And even though there was an increase in cases in the last week, until April 18, Singapore recorded eleven deaths and 5,992 confirmed infections.[26]

South Korea, which had its first case registered on January 20, 2020, adopted contact management between suspects and infected people for epidemiological investigation. It also implemented a system for assessing the risk of exposure among people in all places where there were confirmed cases (after the onset of symptoms) and classified the contact persons based on that risk. In addition, to eliminate the possibility of exposure to infection in the places visited by the confirmed patient, it performed appropriate disinfection of areas that could harbor environmental contamination.[29] Thus, systematic investigations were successful due to a rigorous control process based on scientific principles and continuous feedback assessment cycles to contain the outbreak. Although there were more than 10,600 patients as of April 18, new infections have been abruptly reduced in recent weeks.[26]

Japan carried out a rigorous surveillance between the time from the onset of the disease in a primary (suspected) case to its manifestation in a secondary (infected) case to understand the transmissibility of the disease.[30–31] With the mapping of suspect/infected data, it was initially possible to control spread and transmissibility from substantial pre-symptomatic transmissions and early isolation of people with COVID-19 in a population of 120 million. As a result, as of April 18, 2020, cases reached 10,300, with a total of 222 deaths.[26]

The Chinese special administrative region of Hong Kong, where 7.5 million people live, which shares a land border with the rest of China, recorded 1,024 cases and four deaths on April 18, 2020.[26] In this setting, WHO and experts agree that early detection of cases is a fundamental factor to contain the spread of a virus.

CONCLUSION

The involvement of the whole society in the conscious adoption of preventive measures against COVID-19 requires a change in individual and collective behavior at that moment, immediately and rigorously. In this pandemic setting, it is possible to learn that its course and impacts in Brazil depend on the collaborative effort of all, government, families, and citizens.

The world reality still points to a situation of great attention and can support choices of the path to be followed to face this critical moment, in order to allow interference in the rapid evolution of COVID-19.

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NOTES

CONTRIBUTION OF AUTHORITY

Study design: Oliveira AC, Iquiapaza RA, Lucas TC.
Data collection: Oliveira AC, Iquiapaza, RA, Lucas TC.
Analysis and interpretation of data: Oliveira AC, Iquiapaza RA, Lucas TC.
Discussion of results: Oliveira AC, Iquiapaza, RA., and Lucas TC.
Critical writing and content review: Oliveira AC, Iquiapaza RA, Lucas TC.
Final review and approval of the final version: Oliveira AC, Iquiapaza, RA, Lucas TC.

CONFLICT OF INTEREST

There is no conflict of interest.

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CORRESPONDING AUTHOR

Adriana Cristina Oliveira.
adrianacoliviera@gmail.com