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Brief Report

Maintaining Social Distancing during the COVID-19 Outbreak

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Abstract: The analyses of the European Centre for Disease Prevention and Control and an increasing amount of scientific research show that the spread of SARS-CoV-2 may be limited by maintaining social distancing, appropriate hand hygiene, and following the basic principles of prophylaxis. While simulating models applied to social distancing have all been tested and evaluated, the implementation of its guidelines in different traditions and cultures has not been discussed sufficiently. Consequently, applying social distancing guidelines alone may not be enough to contain the spread of the coronavirus. This brief report aims to clarify the role of cultural and behavioral differences in the diverse outcomes of COVID-19 management.

Keywords: social distancing; COVID-19; pandemic

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1. Introduction

The current scientific state of knowledge regarding Coronavirus Disease 2019 (COVID-19) indicates that the death rate for COVID-19 is several times higher than that of seasonal flu, the infection can lead to long-term illnesses in all age categories, including healthy young people, and the passage of SARS-CoV-2 infection does not protect against reinfection (Petersen et al. 2020). The body of evidence does not provide data on how often reinfection occurs and how long immunity lasts after the disease. Airborne droplets do not only transmit the SARS-CoV-2 virus, but most often the virus also spreads through coughing, sneezing, or saliva. The pathogen can also be transmitted indirectly by touch, but moreover by air, especially in closed and poorly ventilated rooms. The virus can emerge from the body of an infected person while singing, exercising, even when exhaling. Based on the results of previous studies, the Centers for Disease Control and Prevention (CDC) stresses that "people are more likely to be infected; the closer and longer individuals with COVID-19 are around" (CDC COVID-19 Response Team 2020).

In the current COVID-19 pandemic, as in any other pandemic with no knowledge about the viral agent, there is initially no specific treatments or vaccine. Since the populations are vulnerable, the best way to prevent and slow down transmission seems to be information and prevention (Cascella et al. 2020). Experts at Emory University, in a study published in the journal of *Proceedings of the National Academy of Sciences (PNAS)*, analyzed nearly 10,000 cases of SARS-CoV-2 coronavirus infection reported between March and early May in five counties in the state of Georgia, United States. The analysis showed that one-fifth of all infections examined came from just 2% of infected patients. The results of this research confirm the importance of maintaining social distance and limiting close contact with other people (Lau et al. 2020). The analyses of the European Centre for Disease Prevention and Control, along with an increasing number of other scientific research show that the spread of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) may be limited by population-based public health (PBP) management. These measures include

maintaining social distancing, appropriate hand hygiene, and following the basic principles of prophylaxis, i.e., covering the nose and mouth and avoiding crowds and poorly ventilated rooms (Eurosurveillance Editorial Team 2020).

Despite all these research results and evidence pointing at PBP management and prevention measures, many people not only question the recommended precautions but also the very existence of a pandemic (Steinmann et al. 2020).

The aim of this report is to look into some of the reasons why the scientific facts are ignored and recommendations are not implemented to avoid the severe outcomes, and mortality associated with the COVID-19 pandemic.

2. What Are the Options?

The focus on prevention concerns two distinct populations: Healthcare workers and the general population. Healthcare workers caring for infected individuals should utilize contact and airborne precautions to include personal protective equipment. The general population should follow public health recommendations and strategies (Hellewell et al. 2020). In the absence of proven therapies and vaccines, non-pharmaceutical interventions (NPIs), such as isolation, quarantine, social distancing, and community containment, broadly referred to here as Social Distancing Strategies (SDS), have shown to be the most successful in controlling outbreaks (Fisher and Wilder-Smith 2020). The idea of social distancing is neither new nor is just created to counter COVID-19. The primary idea of social distancing comes from psychology and primarily concerns the area around a person considered as a social zone. The zone should be free, and no one should violate it, increasing the distance between people, eliminating the potential spread of the pathogen, and providing a psychological comfort zone (Lewnard and Lo 2020).

Isolation is a strategy generally used in hospital settings to separate and prevent the transmission of contagious disease from ill patients to others. However, it also includes self-isolation at the home of the ill or high-risk groups, e.g., vulnerable populations (Prem et al. 2020). Although it was not entirely effective due to the increasing number of infected cases attributed to hospital-based exposures, isolation was practiced extensively during the SARS Pandemic of 2003, wherein countries such as Singapore, China, and Canada eventually designated entire hospitals for isolation of infected cases (Tomlinson and Cockram 2003).

Quarantine is another strategy utilized since the 14th century (Prem et al. 2020). The World Health Organization (WHO) defines quarantine of persons as the "restriction of activities of or the separation of persons who are not ill but may have been exposed to an infectious agent or disease, with the objective of monitoring their symptoms and ensuring the early detection of cases." Quarantine effectiveness was demonstrated during the 2003 SARS epidemic in Canada and in Asia (Dahl 2020). It can take various forms from individuals to larger groups and depending on the severity of the outbreak and political and legal framework of a country, is either voluntary or mandatory (Dahl 2020). The success of quarantine relies on the ability to detect cases quickly, implement contact tracing, and adhere to its enforcement.

Several studies from pandemic influenza support the combined use of pharmaceutical and non-pharmaceutical interventions, emphasizing that, "combination strategies delayed spread, reduced overall number of cases, and delayed and reduced peak attack rate more than individual strategies" (Wilder-Smith et al. 2020). Studies looking at workplace social distancing demonstrate such NPIs may be less effective in atypical pandemics with higher R0 values and are hampered by delayed triggering and lower compliance due to "intervention fatigue" (Fraser et al. 2004).

While simulating models applied to social distancing have all been tested and evaluated in Western countries, the implementation of its guidelines in other nations with different traditions and cultures has not been discussed sufficiently. Recognizing the fact that all nations will be affected by a pandemic and that today's unlimited immigration

and travel customs facilitate the spreading of infectious diseases, such discussion and evaluation seem to be necessary (Khorram-Manesh et al. 2020a).

3. Socio-Cultural Perspectives of Social Distancing

There is confusion in people's minds about the difference between social distancing and physical distancing. While physical distancing means keeping a limited distance from each other, social distancing might be interpreted as social isolation. The latter, often observed during large-scale disasters, influences mental health and the state of well-being, resulting in anxiety, depression, loneliness, domestic violence, etc. (Galea et al. 2020; Venkatesh and Edirappuli 2020).

Previous studies have shown that there are differences in attachment styles across religions and ethnicities, as well as associations between cultural identity and attachment. These differences persist as a function of culture and may have various implications in all socially related engagements, measures and planning (Agishtein and Brumbaugh 2013). Religious and cultural similarity create a common goal, and a possibility to gather and share experiences and knowledge, and receive information. It offers emotional and social support and has a perceived healing. Many believe that the in-person collective experience characterized by these gatherings is necessary for individuals' religiosity, social identity and well-being. However, they limit social distancing policies and act as "superspreading events," such as religious gatherings reported from the United States, Germany, South Korea, and cultural activities practiced in African countries (Baker et al. 2020; Mbunge et al. 2020). The cultural attachment, on the other hand, brings people together and forms the behavior, rituals and norms in each community. Consequently, humans' behaviors depend mainly on what they perceive others in that society are doing or what is approved or disapproved of other community members (Huynh 2020).

Such knowledge is essential in the planning and management of a pandemic in different countries but also within a country with diverse religions and ethnicities. In a recent study from Sweden, large differences by country of birth in excess mortality during a 3-month period in 2020 compared to the same period in 2019 were reported (Khorram-Manesh et al. 2020a).

Data on the number of deaths during February–May 2020 and 2016–2019 per month, county, age category (40–64 years, 65–80 years, >80 years) and country of birth were retrieved from the Swedish Statistics Centre. Country of birth was grouped on the basis of the assumption of degree of establishment in society as a whole (labor market, housing market, language skills). People born in Sweden, the European Union (EU), the Nordic countries and North America were used as a reference category. People born in countries from which a large number of refugees have come to Sweden since the turn of the millennium (Syria, Iraq and Somalia) were included in the weakest established category and born in other countries were in an intermediate category. The total number of deaths per month, country of birth and age group 2020 was related to the average value in the same group during the same month 2016–2019. The probability of the number of deaths in 2020 not deviating highly was calculated by assuming that the number of deaths per group follows a Poisson distribution with a mean value corresponding to the mean value of 2016–2019 (Hansson et al. 2020).

People born in Somalia, Syria and Iraq, who were probably weakly established in Sweden, had a clearly increased excess mortality compared with people born in Sweden, the EU, the Nordic countries or North America in the spring of 2020. In the age group 40–64 years, during March–May 2020, 122 deaths occurred in immigrant groups that were probably weakly established in Sweden, compared with an average of 38.5 in 2016–2019, an excess mortality of 220 percent. In the same age group, 1 percent lower mortality was seen among people born in Sweden, the EU, the Nordic countries or North America. Among those over 65, there was the same excess mortality in the group with probably weak establishment (220 percent), but also a certain excess mortality (19 percent) among those born in Sweden, the EU, the Nordic countries or North America. An increased

mortality rate was already seen in March, mainly for the group with a low probable degree of establishment, but also for the intermediate group. The excess mortality rate was highest in April and then decreased somewhat. An exception was the age group 40–64 years with a low probable degree of establishment, which remained at a high level (Hansson et al. 2020).

The authors criticized the Swedish strategy for not accounting for difficulties of conducting voluntary physical distancing in neighborhoods typically inhabited by a larger proportion of immigrants with household overcrowding, dependence on public transport, and large proportions of service sector workers. These results indicate not only the importance of the socioeconomic and infrastructural requirement for a successful PBP, but also the fact that various cultures may have different lifestyles that may influence the outcome.

In Poland, another country within the EU, the Polish Ministry of Health provides daily data on an increasing number of infected people and those sent to quarantine, as well as patients who have died from COVID-19 or comorbidities. Currently, over 30,000 people have died due to COVID-19 in Poland. COVID-19 infection was confirmed in over 1,300,000 people in early January 2021 (Ministry of Health of the Republic of Poland 2020). These numbers continue to rise and with them come the risk of infection and death. These tragic statistics may be a result of general social laxity in Poland, especially visible during the summer holidays. Crowds of holidaymakers by the sea and in the mountains, crowded cafes, boisterous public events, and weddings all demonstrated the failure to respect social distancing and recommended preventive measures. In the fall, the virus returned with doubled strength. Nearly one in two Poles stated that they had followed the rules related to social distance connected with the COVID-19 pandemic in 2020 somewhat closely. However, for 15 percent of the society, keeping the social distance rules was not something they followed (Ministry of Health of the Republic of Poland 2020).

The international data highlighted the lack of social distancing in Poland and that only 40% of people were correctly wearing masks, while in comparison, a 60% increase in social distancing and 95% intensification in donning masks would be required to minimize COVID-19 transmission (Ministry of Health of the Republic of Poland 2020).

4. Discussion

Epidemiologists believe that the increased number of cases unequivocally results from social relaxation and failure to follow basic, easy-to-understand recommendations. According to researchers from Italy, the proper use of masks and the observance of social distance reduces the coronavirus's strength in the event of contact with it by 1000 times (La Maestra et al. 2020). Obeying the rules explains the lighter course of COVID-19 during the period of the restrictions, something that is confirmed by the results of clinical trials carried out at the Sacro Cuore Don Calabria hospital in Negrar in northern Italy, where 373 cases of COVID-19, found in emergency departments between 1 March and the end of May, were analyzed (Dahl 2020). Each patient's viral load, that is, the amount of virus, was tested. Everyone was then monitored for how severe the course and symptoms of the coronavirus disease were. The research results indicate that along with the decrease in the spread of SARS-CoV-2 due to the protective measures used, the strength of the virus detected in patients decreased by 1000 times. As noted, patients brought to the hospital in May, i.e., in the period of low exposure to infection due to lockdown and restrictions and the order to apply protective measures, were in contact with a lower "dose" of the virus and had less of it in the body compared to the patients hospitalized in March (La Maestra et al. 2020). Therefore, people infected in late spring, when strict restrictions were in place, had a less severe course of COVID-19 and were less likely to develop complications. As a result, the percentage of patients in the intensive care unit dropped. According to the researchers, this clearly demonstrates how important it is for people to comply strictly with wearing masks and social distancing (La Maestra et al. 2020).

However, a single period of social distancing will not be sufficient to prevent critical care capacities from being overwhelmed by the COVID-19 epidemic, because under any scenario considered it leaves enough of the population susceptible that a rebound in

transmission after the end of the period will lead to an epidemic that exceeds this capacity. This resurgence could be especially intense if it coincides with a wintertime rise in R0. Intermittent social distancing can maintain the prevalence of critical COVID-19 illness within current capacities, but this strategy could prolong the overall duration of the epidemic into 2022 (Kissler et al. 2020).

There are some variables associated with maintaining SDS. These variables, however, seem to be inter-related and complex. New publications show that adherence to SDS recommendations may vary depending on the behavior, individual motivation, and some demographic factors (Coroiu et al. 2020; Kaspar 2020; Pedersen and Favero 2020). Behavior, i.e., the response of an individual, group, or species to its environment, was studied by Coroiu et al. however, none of the investigated behaviors studied demonstrated perfect adherence. The desire for self-protection, feeling responsible for the community protection and the possibility of working or studying remotely were prominent facilitators, while the need for running errands to help friends or family and socializing to avoid loneliness were among the strongest barriers (Coroiu et al. 2020). The individual motivation is associated with several cognitive components of threat and coping appraisal. Trust in other people's social distancing behavior and general trust in official providers could also play important roles (Kaspar 2020). Furthermore, while some studies do not provide any association between individual motivation and demographic factors such as age and gender (Kaspar 2020), others show that some demographic factors, such as gender, age, race and political party, may help predict intent to adhere to social distancing (Pedersen and Favero 2020). Adding other important socio-individual factors such as religious beliefs as a language of gathering and fellowship (Helen 2020), the sum of factors facilitating or inhibiting SDS will be more detailed than this brief report can afford reporting.

It should be remembered there are clear differences between various nations' social attachment, culture, and the degree by which recommendations from authorities can be accepted and followed. In some countries, the distrust between the public and politicians, and or the fake news and false recommendations to achieve political gains might be the cause of unsuccessful management of pandemic (Khorram-Manesh et al. 2020b). These differences might be decisive for how the viral infection can spread and how a pandemic can emerge. Consequently, cultural and behavioral factors, along with other factors such as sufficient infrastructure should be taken into account for the planning and management of pandemics (Burkle et al. 2020a).

5. Conclusions

Applying social distancing guidelines alone may not be enough to contain the spread of the coronavirus (Khorram-Manesh et al. 2020b). Other safety measures should accompany those preventive measures (Goniewicz et al. 2020a). So far, controlling the spread of COVID-19 is the best way to protect societies around the world until safe and effective drugs emerge. At least until enough of a population will be vaccinated before herd immunity is acquired.

Social distancing and other social protection rules must be applied to all residents. These are: keeping a 2-meter distance in public space from others; mandatory covering of the nose and mouth in public places; continuing with work-at-home arrangements and distance-learning/education wherever possible; strict compliance with sanitary rules in places where people are gathered (disinfection and maintaining a proper distance); quarantine and isolation for infected or potentially infected persons (Ministry of Health of the Republic of Poland 2020).

In many countries such as Poland, many people still do not follow social distancing rules, which can be seen in virtually every place—shops, offices, on the streets—and masks are worn under the chin instead of on the lips and nose (Ministry of Health of the Republic of Poland 2020). Although the government continues to recommend social distancing, hand sanitizing, and wearing facemasks that cover the mouth and nose, too many people do not follow these guidelines. Consequently, since the pandemic is escalating, the government's

response must be firm, and further restrictions are very much needed (Goniewicz et al. 2020b; Ministry of Health of the Republic of Poland 2020).

Social distancing and other social protection rules will continue to be the only primary measures in a pandemic and apply to all residents. However, the infrastructural, cultural, and economic conditions of a community should also be considered as major obstacles for implementation (Goniewicz et al. 2021c, 2021d; Burkle et al. 2020b). Although SDS might be the only principle that allows us to fight this disease, the current globalization necessitates a more balanced distribution of wealth and health among world nations.

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