A Public Safety Compliance Model of Safety Behaviors in the Age of the COVID-19 Pandemic

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Abstract

The outbreak of COVID-19 has placed a heavy burden on society, threatening the future of the entire world as the pandemic has hit health systems and economic sectors hard. Where time moves fast, continuing curfews and lockdown is impossible. This paper assembles three main safety behaviors, social distancing, wearing a facemask, and hygiene in one model (PSC Triangle) to be practiced by the public. Integrating public safety compliance with these behaviors is the main recommendation to slow the spread of COVID-19. Although some concerns and challenges face these practices, the shifting of public behaviors to be more safety-centered is appropriate and available as an urgent desire exists to return to normal life on the one hand and the medical effort to find effective cure or vaccine that has not yet succeeded on the other hand. Recommendations to enhance public safety compliance are provided.

Keywords

COVID-19, public safety compliance, pandemic, safety behaviors, model

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What do we already know about this topic?
The individual elements of the public safety compliance triangle are known, but the public needs to believe in the effectiveness of these elements in the age of COVID-19.

How does your research contribute to the field?
This paper presents three practices (ie, social distancing, wearing a facemask, and hygiene) in a safety compliance model to mitigate the spread of COVID-19. This model could enrich the safety literature concerning the advantages and challenges of public safety compliance behaviors.

What are your research's implications toward theory, practice, or policy?
This research will help develop strategies to guide the public to strictly adhere to three main safety behaviors, social distancing, wearing a facemask, and hygiene. Health authorities should devote logistics, technical, and financial support to achieve further safety compliance by the public.

Introduction

Nearly a year after the spread of COVID-19 that began in Wuhan, China, in December 2019, concern about healthcare systems remains, and confusion has continued as health systems have become overwhelmed.[1] According to the Johns Hopkins University Corona Virus Resource Center, as of 10 August 2020, COVID-19 had infected more than 20 000 000 people across the globe, and more than 700 000 have lost their lives. Given the many unknowns and very high spread of respiratory diseases associated with COVID-19, The

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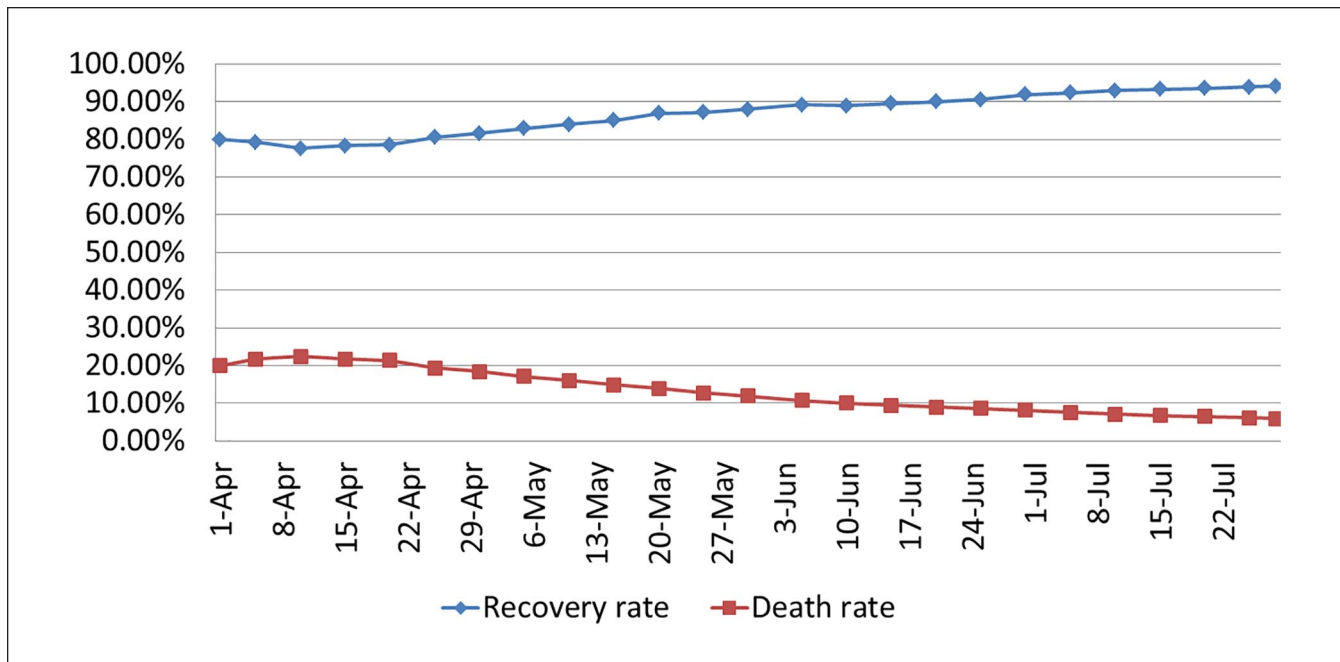Emails: mohammed.ghandour@bmc.edu.sa; gandour1984@yahoo.com

Figure 1. Recovery rate versus death rate of COVID-19 of closed cases.
Source. Worldometer—www.worldometers.info.

People's Republic of China, which was at the epicenter of the outbreak, opted for a quarantine approach, which the largest quarantine in modern history, impacting at least 60 million people.[2] As other countries began responding to the World Health Organization (WHO) recommendations, they applied curfews and lockdown policies to limit the movement of those who might become infected or those for whom the disease was still in the incubation period.[2] As a result, the international movement of people and goods has been paralyzed, education transferred to distance learning, and public spaces like cafes and stadiums have been closed as well.[3] This stage, which was mainly aimed at stopping the massive global spread of the virus, has been extended time and time again.

Such curfews and lockdowns provide a chance for many people to survive due to strict procedures and complete closure.[4] However, as long as the lockdown policy exists, economic losses will balloon. According to Nicola et al[5] more than 100 hundred million jobs have been lost in the travel and tourism industry alone due to lockdown policy. The continuation of the lockdown policy will have serious consequences, especially in developing countries, and, as a result of poverty and joblessness, more may die due to starvation than as a result of the pandemic.[6]

Objectively speaking, significant breaches of the curfew and closure of both public and private sectors carried out by many countries have led to undesirable consequences regarding the spread of the pandemic. For instance, Jordan did not record any internal cases for eight consecutive days, from 16 to 22 April 2020. However, according to a spokesperson for the Epidemiology Committee in Jordan, Dr. Nathir Obeidat,

"non-compliance to the 14 days home - lockdown policy by a truck driver coming from abroad. . . led up to the spread COVID-19 among more than 100 people who had contact with him."[7]

In this context, policymakers must carefully balance the need to stop the spread of the disease with the need to make a living. The massive economic pressure and elevated costs related to lockdown are certainly an issue,[6] but so too were the psychological and mental problems related to isolation.[8] Thus, policymakers must develop a coexistence approach with the COVID-19 pandemic. The shift to change of safety behaviors has a fundamental role in developing this coexistence,[9] especially in the absence of effective medical solutions.

Some promising signs are present in this fight. Indeed, diminishing mortality rates and increasing recovery rates of COVID-19 cases offer promise (See Figure 1). Additionally, health systems are becoming better equipped and more prepared to receive patients who need intensive care units except for some hot spots in Latin America.[1]

As a consequence, WHO has supported the gradual reopening of economies with the adoption of preventive health measures.[10] The desire to change previous methods used to deal with the COVID-19 has increased, and countries have sought to return to normal life activities while adhering to health precautions. Accordingly, most countries plan to return to normal life and have begun reopening facilities that were closed earlier. Based on the existing data, the first stage in the fight against the COVID-19 is on the way to completion, and the second stage is unfolding. This second stage

requires changing strategy and tactics. The success of the second phase is highly reliant on the public, as contrasted to the first stage, which was dependent on the strict measures (ie, curfews and lockdown) of the governments represented by health authorities. The second stage is characterized as coexistence with the pandemic until the emergence of a treatment or vaccine brings this pandemic to an end. Thus, safety compliance by the mass population (ie, public) is the best available option today and represents a compromise between health and economics. This model presents three practices by public (i.e., social distancing, wearing a facemask, and hygiene) in a safety compliance model to mitigate the COVID-19 and considering possible challenges and related recommendations.

Public Safety Compliance

To survive against COVID-19, Public Safety Compliance (PSC) is a new approach used to replace quarantine and curfew policies. The conceptualization of PSC originates from safety compliance, which is common in occupational health and safety management literature.[11-14] Safety compliance comprises core activities that workers must perform to maintain workplace safety.[15] The integrative model of workplace safety of Christian et al[16] proposed that following procedures, using protective equipment, and practicing risk reduction were negatively correlated with workplace injuries. This is an essential behavioral approach in different workplaces to minimize undesirable safety outcomes prophylactically.[17,18] Hence, safety compliance behaviors among workers are beneficial in achieving workplace safety.

In the context of COVID-19, public safety is a great concern, and the activities that the mass population must carry out to protect the public from potentially harmful health and harmful impacts of risk threatening public may be termed PSC behaviors. Such PSC behaviors are broader than traditional safety compliance in terms of target groups because PSC is concerned with public-related safety tasks regardless of someone's safety knowledge. The proposed PSC model highlights what governments or organizations can do to guide citizen's safety behaviors and practices. While the PSC is emerging and public health needs, the traditional form of safety compliance per se is related to safety tasks of professions like doctors, nurses, miners, or construction workers, among others. Amongst professional groups, safety knowledge is well-established by legislation and practice, but these have not yet been established for the public at large. Regardless of legislation or common practices, new policies must be developed and promulgated as the exit begins from the closures and curfew policies applied to confront the pandemic. In addressing policies and information programs, governments and organizations must keep in mind the need for public education programs providing in-group models for norms, normative information, and cultural contexts. Messages that work best on populations must be identified, and appropriate voices must be used to amplify these messages and help build the trust needed to induce behavioral change.[19]

A Triangle of PSC

PSC behaviors comprise a triangle of three main elements, which include social distancing, personal protective equipment, and hygiene techniques. Social distancing is useful in instances in which the carriers of infection are anonymous. Following social distance guidelines will minimize the intermixing of anonymous COVID-19 infected persons with non-infected public members.[2] Social distancing includes avoiding any kind of physical contact such as handshaking, and thus, it is a form of risk reduction that requires the mass of the population to understand the risks associated with COVID-19 and engage in pertinent practices.[20,21] However, maintaining social distance in some places in trains, planes, and public transportation and school is problematic. Some specialists believe that social distancing requires the closure of schools or office buildings, suspension of public markets, and the cancellation of gatherings.[2] Such closures would disrupt the return to the desired normal life. However, achieving social distancing using creative engineering and designing solutions is imaginable without the need to prohibit gatherings so far. For instance, several airplane companies are looking to redesign aircraft seating by removing the middle seat. A similar approach could be useful in other places.

Besides social distancing, using protective equipment is the second element of the CSC triangle. Personal protective equipment is wide-ranging and may be used according to probable risk. The main equipment addressing the spread of droplets carrying communicable respiratory disease is a facemask. Although some debate exists concerning the efficacy of wearing a facemask,[22] some believe that doing so is helpful. In countries like the People's Republic China and Japan, and South Korea,[23] the belief is that wearing masks will dramatically mitigate the number of new COVID-19 cases. Recently, in the Arabian Gulf, Saudi Arabia enforced wearing a facemask in public and imposed high fines for non-compliance with wearing a facemask and other social distancing practices (1000 SAR). Although a shortage of masks for the mass community has been a problem,[24] cloth masks are now becoming a replacement for medical ones and are cheaper for pubic[22] because cloth masks can be reused after washing.[25]

The last element of the CSC triangle is practicing good hygiene, which can reduce contact transmission resulting from contaminated droplets on surfaces.[26] Handwashing after surface contact, cough, sneezing, and visiting pubic areas are essential techniques to break the chain of infection. Using alcohol-based sanitizers or soap and water is recommended to prevent COVID-19 transmission.[27] Although hand washing is not a complicated procedure and is cost-effective, the percentage of those who practice handwashing remains low in some places. As Galiani et al[28] noted, "Only 3% to 34% of the
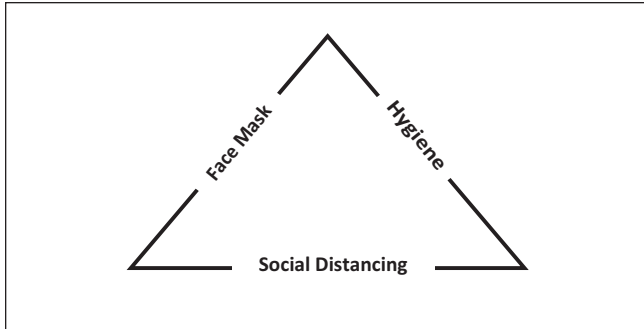
Figure 2. PSC Triangle.

population in developing countries routinely washes their hands with soap at critical junctures during the day." Non-compliance with body hygiene and frequent hand washing are expected to increase the COVID-19 toll. Recently, Lin et al[29] revealed that *Google search* results regarding "wash hands" and COVID-19 among 21 countries had increased from 19 January to 18 February 2020. As a result, they stressed that awareness of the importance of hand washing to prevent COVID-19 was spreading among the public.

Accordingly, the adjustment to coexistence with COVID-19 suggests three requirements to achieve it, which may be labeled as the PSC triangle, as Figure 2 shows. The PSC Triangle proposes that compliance with (1) social distancing, (2) wearing a facemask, and (3) personal hygiene like hand-washing simultaneously will be a "magic bullet" to deal with COVID-19. Although the individual elements of the PSC triangle are not new,[27,30,31] the various socioeconomic, affective, and cognitive factors of the individuals could play a role in voluntary compliance behaviors.[32-34] This holistic view and utilization by governments and organizations of the PSC triangle that collects these elements in one framework is a new perspective. Moreover, the PSC triangle is an easily understood framework that could help change safety behaviors among the public that needs to develop coping strategies to meet the challenges of coexisting with COVID-19 with minimal losses.

Challenges of PSC Triangle

Despite the expected advantages of PSC Triangle, as mentioned above, previous evidence has shown that each of the three elements of the triangle poses challenges that will require adjustment and consideration (See Table 1).

Recommendation to Enhance PSC Behaviors

Adaptation to the fierce attack of COVID-19 is vital. However, it is not an easy matter because it includes broad spectrums of communities (public). Solidarity in the effort to establish PSC behaviors among the public is the duty of all

Table 1. Challenges of PSC Triangle Behaviors.

PSC triangle behaviors	Expected challenges of public
Social distancing	The application of social distancing between families members is not guaranteed
	The application of social distancing in gathering areas such as workplaces, schools, universities, places of worship, labor accommodations, and public transport is not an easy matter
	The application of social distancing faces rejection in some cultures and social norms
	Time wasted related to applying social distancing policy policies in some narrow spaces such as supermarkets and restaurants
Face mask	Challenges in terms of inconvenience include face warmth, skin irritation, sticking to the skin moisture build-up, etc.
	Irrational use of a facemask could be one reason for respiratory infectious diseases
	Information related to the prevention efficiency and capacity of each type is not sufficient
	Shortage issue
	Risk of respiratory distress of prolonging the use of facemasks, especially among school-age children and public transportation users
Hygiene	Frequent hand washing also could be a source of discomfort and skin irritation in some cases due to some detergents in soap
	Elevated cost of disinfectants and other sterile materials
	Knowledge deficit concerning body care and hand washing techniques

parties. Here are some recommendations that could enhance PSC behaviors:

- ➢ Conducting public campaigns regarding the importance of PSC behaviors to survive that account for norms, normative behaviors, and culture;
- ➢ Providing the appropriate infrastructure for social distancing and making it easy to practice;
- ➢ Ensuring the availability of appropriate places for handwashing and providing sterile materials and facemasks in all places visited by the public;
- ➢ Providing a guide for PSC behaviors in the different workplaces;
- ➢ Linking PSC behaviors to assertive legislation and laws to ensure compliance by all;
- ➢ Emphasizing medical education and training for correct techniques to practice PSC behaviors and updating these techniques continuously as needed
- ➢ Expanding the use of health applications supporting PSC behaviors; and
- ➢ Studying the individual factors affecting the voluntary PSC model.

Conclusion

In light of the present status quo in which the effectiveness and efficiency of vaccines seems distant, COVID-19 will remain an issue. Nonetheless, the PSC triangle can help with public education and the promotion of safe practices, particularly because it is succinct and direct. The triangle is easily understood and communicated in all language and cultural contexts, and public health care campaigns could be built around it. Proper utilization of the elements of the PSC triangle would dramatically reduce the need for curfews and lockdowns and permit people to lead more normal lives and reopen the economies of countries without the collapse of healthcare systems. Many aspects of our lives may change over the short term, but adherence to the PSC triangle will help to reduce the likelihood of severe outbreaks of the disease and reduce the likelihood of curfews and lockdown and lead to a semblance of normality, which we all desire.

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