Effectiveness of global social distancing policy responses to COVID-19 and their effect on the well-being of populations

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Introduction

At the height of the COVID-19 pandemic, governments around the globe implemented a multitude of social distancing measures to reduce transmission rates. These measures were highly controversial throughout the pandemic and even after the pandemic. There has been much division between people's perceptions of these social distancing measures. With growing fatigue during the pandemic, more and more people stopped following the lockdown measures and social distancing policies, sometimes even leading to protests. Their effectiveness at reducing transmissions through reducing mobility is also not really known to the wider public. However, the measures have been one of the most controversial types of policies undertaken, and the population's opinions regarding these measures are substantially different. During the height of the pandemic, with stricter social distancing policies, there were large-scale protests against the implementation of these policies.

Whilst the policies undertaken by different governments are clear and known, their impacts, however, are not as clear to the wider public. Compliance, i.e. the willingness of people to follow the social distancing measures, reduces over time due to fatigue. Fatigue is most commonly caused by the negative impacts of social distancing measures on the well-being of people. This well-being can be both economic and psychological and physiological. This article seeks to assess the effectiveness of social distancing policies by measuring compliance and the decrease in transmission and death rate around the globe, and their effect on the health-related quality of life (HRQoL) and economic well-being of affected populations. In particular, the effectiveness of social distancing policies will be studied based on their effects on mobility, whilst their effects on well-being will be analysed from both health and economic perspectives, which are criteria few researchers have used together.

Social distancing policies

Governments around the globe implemented various similar and different social distancing measures using varying modes and degrees of enforcement. That is most likely why these measures had different names in different nations to reflect the varying degrees of severity. In Germany, social distancing policies decreased the mobility of individuals by 30.7%. Without these policies, mobility would only have been lowered by 3.9% (Glogowsky et al., 2021). In the United States, on average, the declaration of a state emergency across all states led to an average of 9.9% decrease in time spent away from the place of residence. Furthermore, the implementation of one or more social distancing policies led to a further 24.5% time spent away from the place of residence (Wellenius et al., 2021).

These results would indicate that compliance with regulations and social distancing policies was high during the early stages of their implementation and was effective in reducing movement. The most common social distancing policies implemented were distancing recommendations, school closures, contact bans, and international travel bans.

While there were negative aspects, it is undeniable that social distancing measures did help lower the transmission and death rate of COVID-19 infections. Studies have shown that social distancing measures are the second most effective policy measure apart from face coverings (Agyapon-Ntra and McSharry, 2023). Containment of the spread of the disease was most visible in nations that undertook swift and decisive action to implement physical distancing and lockdowns, such as Australia, France, Italy, and Korea. Countries that decided not to impose lockdowns, such as Sweden and Brazil, still retained an upward trend of new cases, and in the US and UK, a horizontal trend could be seen where cases grown on a steady state over time still upholding a high number of reported cases, hence these nations cannot declare the pandemic to be effectively under control (Moosa et al., 2020).

It is also notable that social distancing measures led to a significant decrease in physical activity. This was most often caused by limited spaces for such activity during confinement or lack of exercise equipment (Dai et al., 2021). Social distancing also reduced people's ability for social interaction, which led to significant effects on mental health; in particular, rates of depression, stress, and anxiety grew greatly as shown my empirical data.

Compliance, mortality rate and transmission

Since the WHO declared COVID-19 a pandemic, and between the first vaccination periods, governments around the world enacted varying social distancing measures to contain the spread of the disease and reduce the mortality rate. In their study, Agyapon-Ntra & McSharry focus in particular on the effectiveness of social-distancing policies recommended by WHO on reducing transmission and mortality rate. The highest mortality ratio of 6.35% was recorded on the 24th of April 2020, and the normalised case count grew by 157.85% within the first period of global lockdown and social distancing measures implementations. These measures led to an 8.21% reduction in normalised case count and reduced mortality rate by 2.65%.

At the early stages of the pandemic, the compliance rate across the globe was still consistently above 80%, showing that people were highly willing to follow social distancing regulations. During October 2020, the mortality ratio was further halved from 1.99% to 0.92%. However, during this period, compliance dropped from 77.94% to 31.52%, leading to a 314% increase in the number of

new cases. The growing rate of new cases and the mortality ratio increasing to 1.76% from 0.92% made compliance grow 18.82%, suggesting that public perception regarding the virus played a vital role in people's behaviour and risk aversion. Global compliance was highest in early 2020, when the pandemic was first declared. In a three-month window leading to the middle of 2020, the global compliance rate was above 65%. Compliance rates were constantly troubled by dips during days of warmer weather and periods of socialisation. The largest dip in compliance reduced the compliance level to below 30% in early October 2020, which unavoidably led to an increasing mortality rate.

Initially, the disparity in compliance rates in different nations was about the same, indicating a global effort to control the disease. As the pandemic progressed, fatigue began to show in different continents. Europe saw the highest peaks of compliance, whilst Africa's compliance was generally low in October 2020. The socioeconomic environment was largely different between different continents, with some nations having governmental support mechanisms making it more comfortable for people to stay home, and some nations already had a population working remotely before the pandemic. Hence, it is not surprising that wealthier continents and nations can afford to have higher compliance levels and longer lockdown periods, e.g. Europe and Oceania, which were the most compliant during this time.

Behavioural changes affecting health

Lockdown policies forced a more sedentary lifestyle and conformed their daily behaviour and norms to a new rhythm. In their study of the effect of social distancing policies on the Moroccan population, Azizi et al (2020) collected data via questionnaires. People's eating habits shifted from 3-4 meals per day before confinement to 1-2 or 5-6 meals per day during confinement, whilst snacking decreased slightly, going from 31.1% not snacking before confinement to 39.5% after confinement. Quality of sleep shifted significantly; the usual bedtime changed from 10 p.m. - 12 a.m. before the confinement, to 12 a.m. - 2 a.m. and even after 2 a.m. during confinement. This led to wake-up time shifting later from 6 a.m. - 8 a.m. to during confinement at 8 a.m. - 10 a.m. and 10 a.m. - 12 p.m. The percentage of sedentary people shifted from 34.6% before the confinement to 58.7% after confinement, which was a major factor for decreased physical well-being, and overall, people had less physical activity during home confinement.

Restrictions on movement and methods of entertainment led to an increased sedentary lifestyle, and lack of dietary restraint induced by stress led to weight gain and weakening of physical health, whilst changes in sleep cycle and reductions in quality of sleep worsened mental health (Violant-Holz et al., 2020). Online and electronic methods were developed to combat the temporary restrictions imposed by distancing measures, such as during school closures, distance learning using

different conferencing software, making these once close moments have a human connection again. Physical distancing also gave rise to new forms of entertainment, whilst others increased in popularity. These new methods of entertainment aided in preserving and improving the public's psychological health during confinement.

Impact of social distancing on mental and physical health

Humans are social animals, and complete restrictions on human interactions have proven to have massive negative effects on the human psyche. So much so that such tactics are utilised as a torture method. Of course, it is not to say that people were completely barred from physical contact. Yet, restrictions on gatherings and meeting others outside of your immediate circle were imposed to varying degrees, and restrictions on movement all contributed to an accumulating sense of fatigue, which led to a decrease in compliance.

Multiple studies have reported loneliness, anxiety, anger, denial, depression, insomnia, harmful substance use, self-harm, post-traumatic stress, and suicide in quarantined populations. These emotions have countless triggers, the most common of which are wrongful self-diagnosis and side effects of medications. The duration of quarantine has a negative impact on emotions, worsening people's psychological well-being (Dai et al., 2021). Empirical data indicate that the pandemic and the lockdown policies were greatly negatively correlated with physical and mental health. The longer one had to spend in confinement, the more and more one would be unable to spend all the energy they would normally have used whilst not in confinement, e.g. on physical activities, leading to depression and stress. The lockdown measures led to increasing sedentary lifestyles, and the closure of public spaces has negatively impacted physical activity and the psychological and physiological well-being of affected populations.

Different demographics were also affected to varying degrees by the lockdown measures, as some were more used to a sedentary lifestyle, e.g. the elderly, whilst the younger population had much more excess energy that had nowhere to be spent. Studies showed that females were more prone to stress, anxiety, and depression compared to males (Azizi et al., 2020). This is most likely due to females of all demographics being more outgoing and requiring more social interaction than males. Youths showed an enhanced level of well-being during the confinement, albeit more changes occurred in their daily routine, and they faced other behavioural health issues such as excessive alcohol consumption (Dai et al., 2021). In their study, Violant-Holz et al. noticed that individuals living alone reported higher levels of depression, feelings of isolation, and psychoticism, again proving that lack of social interaction can have significant impacts on a person's psychological health. Surprisingly, individuals living in households with multiple members also reported partial or even total isolation.

This is most likely due to daily interactions being limited to a select few within the same household and lacking wider social interaction amongst people. General lack of dietary restraint, eating whilst stressed, and low physical activity were causes for weight gain (Violant-Holz et al., 2020). During the pandemic, 59% of the questioned population retained a stable weight, while 22% had gained more and 19% had lost weight (Violant-Holz et al., 2020), showing a general decrease in physical health, especially from lack of physical activity.

Other variables that were considered to affect well-being during the pandemic were age, sex, education level, income level, socioeconomic status, and educational background. The level of education and socioeconomic status also proved to be key in the well-being of affected populations, in particular with increasing levels of education decreasing the depression rate; however, the level of education did not ease anxiety and distress (Violant-Holz et al., 2020).

Social distancing measures' effect on economic well-being

Social distancing policies also had major effects on the labour market, particularly in the production and service sectors that required human contact, saw the greatest unemployment rates, while other professions that allowed remote work were less affected. In the US, the unemployment rate rose from 4.5 to 14.7 per cent by April 2020 (Gupta et al., 2020). Most who found reemployment returned to their previous employment. Others who had become unemployed during the pandemic found it increasingly difficult to find reemployment after it. Certain societal groups faced much worse reemployment rates, notably women, the youngest and the oldest employees, worsening pre-existing disparities that existed before the COVID-19 pandemic.

Conclusion

This article has analysed the effect of social or physical distancing measures on HRQoL, compliance, mortality rate, and transmission rate. After the declaration of COVID-19 as a pandemic by the WHO, many non-pharmaceutical interventions, such as lockdowns, were implemented to combat the increasing number of deaths and new cases. Growing fatigue accumulated as gathering and mobility restrictions led to lower death rates and transmission rates. However, as death rates and new cases climb up, public perception and danger aversion rise, causing compliance to increase. The conclusion drawn from this study is that social distancing measures are a cost-effective method for disease prevention and control before the development of vaccines. Major weaknesses facing this study are the accuracy of the data and the abstractness of the questions given to participants.

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