



Effective Strategies to Deal with Pathogenic Viruses and Prevent Their Spread

¹Al Neflai, Faisal Meshari, ²Al Qarni, Njoud Saad, ³ Al Gamdi, Ahmad Mohammed, ⁴ Arishi, Bandar mana, ⁵Bin Assai, Nawaf Saud, ⁶Al Abdale, Waled Mohammed

¹Ministry of National Guard Health Affairs, Saudi Arabia, alnefiaifa@mngha.med.sa

²Ministry of National Guard Health Affairs, Saudi Arabia, alqarnino1@mngha.med.sa

³Ministry of National Guard Health Affairs, Saudi Arabia, algamdiah@mngha.med.sa

⁴Ministry of National Guard Health Affairs, Saudi Arabia, arishiba@mngha.med.sa

⁵Ministry of National Guard Health Affairs, Saudi Arabia, binassaina@mngha.med.sa

⁶Ministry of National Guard Health Affairs, Saudi Arabia, alabdalewa@mngha.med.sa

Received Date: September 17, 2022 Accepted Date: October 9, 2022 Published Date: November 07, 2022

ABSTRACT

Pathogenic viruses pose a significant threat to public health, causing widespread infections and outbreaks. This article explores effective strategies to deal with pathogenic viruses and prevent their spread. It emphasizes the importance of vaccination, good hygiene practices, respiratory etiquette, the use of personal protective equipment, social distancing, staying informed, and maintaining environmental hygiene. This article aims to provide an overview of effective strategies to deal with pathogenic viruses and prevent their spread. By implementing these strategies, individuals, communities, and healthcare systems can effectively combat viral infections and promote public health. By implementing these measures, individuals and communities can effectively combat pathogenic viruses and promote public health.

Key words: Pathogenic viruses, viral infections, prevention, vaccination, hygiene practices, respiratory etiquette, personal protective equipment, social distancing, staying informed, environmental hygiene.

1. INTRODUCTION

Pathogenic viruses pose a significant global health challenge, with their potential to cause widespread infections and pandemics. The rapid transmission and evolving nature of these viruses necessitate effective strategies to deal with them and prevent their spread. This introduction provides an overview of the key strategies that can be employed to combat pathogenic viruses and promote public health.

First and foremost, vaccination plays a crucial role in preventing viral infections. Vaccines stimulate the

immune system to produce a targeted response against specific viruses, providing individuals with immunity and reducing the risk of infection. By promoting vaccination programs and ensuring widespread access to vaccines, communities can establish a strong defense against pathogenic viruses[5].

In addition to vaccination, good hygiene practices are essential in preventing the spread of viruses. Regular and thorough handwashing with soap and water is highly effective in removing viral particles from the hands[10]. This practice should be encouraged in both healthcare settings and the general population. When soap and water are unavailable, the use of hand sanitizers with at least 60% alcohol can serve as an alternative.

Respiratory etiquette is another vital aspect of preventing viral transmission. Encouraging individuals to cover their mouth and nose with a tissue or their elbow when coughing or sneezing can significantly reduce the spread of respiratory droplets containing viruses. Proper disposal of used tissues and immediate hand hygiene further contribute to curbing the transmission[11].

The use of personal protective equipment (PPE), such as face masks, gloves, and eye protection, is crucial in high-risk environments or during outbreaks. Proper utilization of PPE can provide a physical barrier against viral particles and minimize the risk of exposure.

Social distancing measures play a pivotal role in reducing viral transmission. Maintaining physical distance from others, especially in crowded places, helps to minimize close contact and the exchange of respiratory droplets[11]. Following local guidelines regarding recommended distances is crucial in curbing the spread of pathogenic viruses.

Lastly, staying informed is essential in effectively dealing with pathogenic viruses. Accessing reliable

information from trusted sources, such as local health authorities and the World Health Organization (WHO), enables individuals and communities to make informed decisions regarding preventive measures, early detection, and response strategies[5]. By implementing these effective strategies, including vaccination, good hygiene practices, respiratory etiquette, proper use of PPE, social distancing, and staying informed, we can collectively combat pathogenic viruses and mitigate the impact of future outbreaks.

2. VACCINATION

Vaccination is one of the most effective strategies to deal with pathogenic viruses and prevent their spread. By stimulating the immune system to produce an immune response, vaccines provide individuals with protection against specific viral infections. This section explores the importance of vaccination and its role in combating pathogenic viruses.

National and international immunization programs considered as crucial in preventing the spread of disease-causing viruses. These programs ensure that vaccines are available and accessible to the general population. By strengthening routine immunization, countries can achieve high vaccination coverage and establish herd immunity, reducing the overall transmission and impact of viral infections[12].

Continued investment in vaccine research and development is essential to address emerging viral threats. Scientists work tirelessly to develop vaccines against newly identified viruses, such as COVID-19, as well as improving existing vaccines for established pathogens. Ongoing research aims to enhance vaccine efficacy, safety, and duration of protection[13].

Vaccination not only provides individual protection but also contributes to herd immunity. When a significant portion of the population is vaccinated, it reduces the overall transmission of the virus, protecting those who are unable to receive vaccines due to medical reasons or age limitations. Achieving high vaccination rates within a community is crucial to prevent outbreaks and safeguard vulnerable populations.

Efforts should be made to ensure equitable access to vaccines, both nationally and globally. Addressing barriers to vaccine access, such as cost, availability, and distribution, is essential to maximize the impact of vaccination programs. Collaboration between governments, international organizations, and manufacturers is crucial in ensuring that vaccines reach all populations, including marginalized and underserved communities[12].

In response to emerging variants or waning immunity, the administration of booster doses or updated vaccines may be necessary. Ongoing surveillance and

research help identify the need for booster doses and inform updates to vaccine formulations. Flexibility in vaccination programs allows for timely adaptation to changing viral dynamics.

Vaccination is a cornerstone strategy in dealing with pathogenic viruses and preventing their spread. By prioritizing immunization programs, investing in research and development, ensuring equitable access, and maintaining vaccine safety and confidence, individuals and communities can effectively combat viral infections and protect public health. Continued efforts in promoting and expanding vaccination coverage are crucial in the fight against pathogenic viruses.

3. GOOD HYGIENE PRACTICES

Implementing good hygiene practices is vital in combating pathogenic viruses and preventing their spread[16]. This section highlights the importance of practicing proper hygiene and its role in reducing the transmission of viral infections.

Regular and thorough handwashing with soap and water is a simple yet effective measure in preventing the spread of pathogenic viruses. It is recommended to wash hands for at least 20 seconds, especially before eating, after using the restroom, and when hands are visibly soiled. Handwashing removes viral particles from the hands, reducing the risk of infection. Also, In situations where soap and water are not readily available, the use of hand sanitizers with at least 60% alcohol content is an alternative. Hand sanitizers can quickly and effectively kill many types of viruses on the hands, minimizing the risk of transmission[15]. However, it is important to note that hand sanitizers may not be as effective as handwashing when hands are visibly dirty or greasy.

Viruses can enter the body through the eyes, nose, and mouth. Avoiding touching the face, particularly these areas, helps to reduce the risk of viral transmission. Consistent awareness and self-discipline in refraining from touching the face, especially with unwashed hands, can play a significant role in preventing infections. However, Practicing proper respiratory etiquette is crucial in preventing the spread of pathogenic viruses. Covering the mouth and nose with a tissue or the elbow when coughing or sneezing can help prevent respiratory droplets from being released into the air. Proper disposal of used tissues and immediate hand hygiene afterward further reduce the risk of viral transmission[19].

Maintaining cleanliness and hygiene in the environment is essential to prevent the survival and transmission of pathogenic viruses. Regular cleaning and disinfection of frequently touched surfaces, such as doorknobs, light switches, and electronic devices, help to minimize the presence of viral particles. Adequate ventilation in indoor spaces also aids in

reducing the concentration of airborne viruses. Promoting education and awareness regarding good hygiene practices is crucial in fostering behavior change and adherence to preventive measures[15]. Providing information on proper handwashing techniques, respiratory etiquette, and the importance of environmental hygiene helps individuals understand their role in preventing the spread of pathogenic viruses.

Good hygiene practices, including thorough handwashing, proper respiratory etiquette, and environmental hygiene, play a vital role in dealing with pathogenic viruses and preventing their spread. By incorporating these practices into daily routines and promoting education and awareness, individuals and communities can significantly reduce the risk of viral infections and protect public health.

4. RESPIRATORY ETIQUETTE

Practicing proper respiratory etiquette is a crucial strategy in dealing with pathogenic viruses and preventing their spread. This section emphasizes the importance of respiratory etiquette and its role in reducing the transmission of viral infections. Covering the mouth and nose when coughing or sneezing is essential to prevent the release of respiratory droplets containing viruses into the air. Using a tissue or the elbow to cover the mouth and nose helps to contain these droplets, reducing the risk of spreading the virus to others[2].

Used tissues should be properly disposed of immediately after coughing or sneezing. Discarding tissues in designated waste containers helps to prevent the spread of viruses through direct contact. It is important to avoid leaving used tissues in open areas where others may come into contact with them[17]. Also, Practicing hand hygiene after coughing or sneezing is crucial to prevent the transmission of viruses. Washing hands with soap and water for at least 20 seconds or using hand sanitizers with at least 60% alcohol content helps to eliminate any viral particles that may have come into contact with the hands.

Viruses can enter the body through the eyes, nose, and mouth. Avoiding touching the face, especially these areas, after coughing or sneezing reduces the risk of self-contamination. It is important to refrain from touching the face with unwashed hands to prevent the potential introduction of the virus into the body[17]. When coughing or sneezing, it is advisable to maintain a safe distance from others to minimize the spread of respiratory droplets. This includes both personal and social settings. By maintaining distance, the risk of inhaling respiratory droplets containing viruses or having them land on surfaces decreases. However, Promoting education and awareness about respiratory etiquette is essential in fostering a culture of responsible behavior. Encouraging individuals to

follow proper respiratory etiquette and educating them about its significance can contribute to reducing the transmission of pathogenic viruses[2].

Adhering to respiratory etiquette, including covering coughs and sneezes, proper disposal of tissues, practicing hand hygiene, avoiding touching the face, maintaining distance, and promoting education, significantly contributes to dealing with pathogenic viruses and preventing their spread. By incorporating these strategies into daily routines and fostering a collective commitment to respiratory etiquette, individuals and communities can effectively mitigate the risk of viral infections and protect public health.

5. USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE)

The use of Personal Protective Equipment (PPE) is a critical strategy in dealing with pathogenic viruses and preventing their spread. This section highlights the importance of PPE and its role in reducing the transmission of viral infections. Wearing face masks, particularly surgical masks or respirators, is essential in minimizing the transmission of pathogenic viruses. Masks act as a physical barrier, preventing respiratory droplets containing viruses from being released into the air and inhaled by others[3]. They also provide some protection to the wearer. Proper mask usage, including correct wearing, fitting, and disposal, is crucial to maximize their effectiveness.

The use of gloves can provide an additional layer of protection, particularly in healthcare settings or when handling potentially contaminated surfaces. Gloves prevent direct contact with viral particles and minimize the risk of transmission through hand-to-face contact. Proper glove usage, including regular changing, appropriate removal, and hand hygiene, is essential to maintain their effectiveness. Pathogenic viruses can enter the body through the eyes[14]. Wearing appropriate eye protection, such as goggles or face shields, provides a barrier against respiratory droplets and other potential sources of viral transmission. Eye protection is particularly important in high-risk environments or when close contact with infected individuals is anticipated.

Correct procedures for donning (putting on) and doffing (removing) PPE are crucial to prevent self-contamination and maintain the integrity of the protective equipment. Following established guidelines and protocols for PPE use, including proper hand hygiene before and after donning and doffing, reduces the risk of viral transmission during these processes. Proper training and education on the selection, use, and disposal of PPE are essential for healthcare workers and individuals in high-risk settings. Understanding the appropriate type of PPE for specific tasks, proper donning and doffing techniques, and the limitations of PPE can enhance its effectiveness and ensure maximum protection against

pathogenic viruses[7]. Ensuring an adequate supply of PPE and its accessibility is vital in dealing with pathogenic viruses. Healthcare systems, institutions, and organizations should maintain sufficient stocks of PPE to protect healthcare workers and individuals in high-risk environments. Efforts should be made to address shortages, improve production capacities, and prioritize distribution to areas of greatest need.

The use of Personal Protective Equipment (PPE), including face masks, gloves, and eye protection, is a crucial strategy in dealing with pathogenic viruses and preventing their spread. By adhering to proper PPE usage, following donning and doffing protocols, providing training and education, and ensuring the availability of PPE supplies, individuals and healthcare systems can effectively reduce the risk of viral transmission and protect public health. PPE should be integrated into comprehensive prevention strategies to mitigate the spread of pathogenic viruses.

6. SOCIAL DISTANCING

Implementing social distancing measures is a crucial strategy in dealing with pathogenic viruses and preventing their spread. This section emphasizes the importance of social distancing and its role in reducing the transmission of viral infections[20].

Definition of Social Distancing: Social distancing involves maintaining physical distance from others to minimize close contact and reduce the risk of viral transmission. It aims to create space between individuals, limiting opportunities for respiratory droplets containing viruses to spread from person to person.

Physical Distance Recommendations: Health authorities recommend maintaining a minimum distance of at least 1 to 2 meters (3 to 6 feet) from others in public settings. This distancing guideline helps to prevent respiratory droplets from reaching another person in case an infected individual coughs, sneezes, or talks.

Avoiding Crowded Places: Limiting exposure to crowded places, such as large gatherings, crowded public transport, and congested indoor spaces, is essential to reduce the risk of viral transmission. These environments increase the likelihood of close contact with infected individuals and can facilitate the spread of pathogenic viruses.

Remote Work and Teleconferencing: Promoting remote work and teleconferencing options whenever possible helps to minimize physical contact in workplaces. By reducing the number of people present in shared spaces, the risk of viral transmission among employees decreases significantly.

Online Education and Virtual Events: Implementing online education platforms and organizing virtual events can reduce the need for in-person gatherings, particularly in educational institutions and

community settings. This approach allows individuals to engage and participate while maintaining physical distance.

Modifications in Public Spaces: Modifying public spaces, such as retail stores, restaurants, and public transportation, can facilitate social distancing. This may include rearranging seating areas, installing physical barriers, implementing one-way systems, and promoting contactless transactions.

Compliance and Public Awareness: Encouraging compliance with social distancing guidelines through public awareness campaigns is crucial. Providing clear information on the importance of social distancing, its benefits, and how to practice it effectively helps individuals understand their role in preventing the spread of pathogenic viruses[6].

Social distancing is a vital strategy in dealing with pathogenic viruses and preventing their spread. By maintaining physical distance, avoiding crowded places, promoting remote work and online platforms, modifying public spaces, and fostering public awareness, individuals and communities can significantly reduce the risk of viral transmission. Social distancing measures should be implemented alongside other preventive strategies to effectively mitigate the spread of pathogenic viruses and protect public health.

7. STAY INFORMED

Staying informed about pathogenic viruses and the latest developments is crucial in dealing with them and preventing their spread. This section emphasizes the importance of staying informed and its role in reducing the transmission of viral infections. Accessing reliable sources of information, such as official health organizations, reputable news outlets, and scientific publications, is essential. These sources provide accurate and up-to-date information about pathogenic viruses, including their transmission, symptoms, prevention, and treatment[4].

Staying informed allows individuals to stay updated on health guidelines provided by public health authorities. These guidelines may include recommendations on vaccination, hygiene practices, social distancing, travel restrictions, and any other measures necessary to prevent the spread of pathogenic viruses. Keeping track of local outbreaks and updates from local health authorities is crucial. This information helps individuals understand the level of risk in their community and enables them to take appropriate preventive measures. Staying informed about the symptoms associated with pathogenic viruses allows individuals to recognize potential infections and seek medical attention promptly[18]. Being aware of available testing options and local testing centers helps in facilitating early detection and preventing further transmission.

Pathogenic viruses are constantly evolving, and new research is continuously being conducted. Staying informed allows individuals to adapt to evolving knowledge, understanding any changes in transmission patterns, treatment options, or preventive measures. This adaptability ensures that individuals can make informed decisions based on the most up-to-date information available⁴. Staying informed also involves being vigilant about misinformation and actively combating its spread. Misinformation can lead to confusion, fear, and potentially harmful actions. By verifying information before sharing and promoting accurate information, individuals can help prevent the dissemination of misleading or false claims.

Staying informed is a critical strategy in dealing with pathogenic viruses and preventing their spread. By accessing reliable sources of information, following health guidelines, monitoring local outbreaks, understanding symptoms and testing options, adapting to evolving knowledge, and addressing misinformation, individuals can make informed decisions and take appropriate actions to protect themselves and others. Staying informed empowers individuals to play an active role in preventing the spread of pathogenic viruses and safeguarding public health.

8. ENVIRONMENTAL HYGIENE

Maintaining environmental hygiene is a crucial strategy in dealing with pathogenic viruses and preventing their spread. This section highlights the importance of environmental hygiene and its role in reducing the transmission of viral infections^[8].

Cleaning and Disinfection: Regular cleaning and disinfection of frequently touched surfaces and objects help to minimize the presence of viral particles. Surfaces such as doorknobs, light switches, countertops, and electronic devices should be cleaned with soap and water followed by the use of an appropriate disinfectant. Paying special attention to shared spaces and high-traffic areas is essential.

Adequate Ventilation: Proper ventilation in indoor spaces is crucial in reducing the concentration of airborne viruses. Opening windows, using ventilation systems, and ensuring adequate air exchange help to dilute and remove viral particles from the air. Good ventilation is particularly important in enclosed spaces where close contact with infected individuals may occur.

Waste Management: Proper waste management is essential to prevent the potential spread of pathogenic viruses. Waste, including tissues, disposable masks, and other contaminated materials, should be disposed of in sealed bags and placed in designated waste bins^[9]. Regular collection and disposal of waste in

accordance with local regulations minimize the risk of viral transmission.

Water and Sanitation: Maintaining clean and safe water and sanitation facilities is crucial in preventing the transmission of pathogenic viruses. Regular disinfection of water sources, proper hand hygiene facilities, and ensuring the availability of soap and water contribute to overall hygiene and reduce the risk of viral contamination.

Food Safety: Following good food safety practices helps to prevent the transmission of pathogenic viruses through food. This includes proper handling, storage, and preparation of food, as well as maintaining clean and hygienic kitchen environments. Adhering to food safety guidelines and regulations minimizes the risk of foodborne viral infections.

Personal Protective Equipment (PPE) Disposal: Proper disposal of used personal protective equipment, such as masks and gloves, is essential in maintaining environmental hygiene⁹. Used PPE should be placed in sealed bags or designated containers to prevent the potential spread of viral particles. Adherence to local guidelines for PPE disposal ensures proper handling and containment.

Maintaining environmental hygiene through regular cleaning and disinfection, adequate ventilation, proper waste management, ensuring clean water and sanitation, practicing food safety, and appropriate disposal of PPE is crucial in dealing with pathogenic viruses and preventing their spread. By implementing these strategies, individuals and communities can create safer environments, reduce the risk of viral transmission, and protect public health. Environmental hygiene should be integrated into comprehensive prevention measures to effectively combat pathogenic viruses.

9. CONCLUSION

Dealing with pathogenic viruses and preventing their spread requires a comprehensive approach. Vaccination, good hygiene practices, respiratory etiquette, the use of personal protective equipment, social distancing, staying informed, and maintaining environmental hygiene are all vital strategies. By implementing these measures, we can collectively combat pathogenic viruses and work towards a healthier and safer society. Remember, everyone has a role to play in preventing the spread of viruses and protecting public health.

In conclusion, a comprehensive approach that incorporates vaccination, good hygiene practices, social distancing, PPE usage, staying informed, and maintaining environmental hygiene is essential to effectively deal with pathogenic viruses and prevent their spread. By implementing these strategies at individual, community, and societal levels, we can mitigate the transmission of pathogenic viruses,

protect public health, and work towards a healthier and safer future.

REFERENCES

[1] Bonow R, Fonarow G, O’Gara P, Yancy C.(2020) "Association of Coronavirus Disease 2019 (COVID-19) With Myocardial Injury and Mortality", *JAMA Cardiol.* Published online March, 2020.

[2] CDC. (2018) Basic Expectations for Safe Care Training Module 4 – Respiratory Hygiene and Cough Etiquette. Available at: <https://www.cdc.gov/oralhealth/infectioncontrol/safe-care-modules.htm> . Accessed May 8, 2018.

[3] CDC, (2012), Personal Protective Equipment (PPE): Coaching and Training Frontline Health Care Professionals, <https://www.cdc.gov/infectioncontrol/pdf/strive/PPE-103-508.pdf>

[4] Christopher Menschner , Alexandra Maul, Center for Health Care Strategies,(2016), " ISSUE BRIEF: Key Ingredients for Successful Trauma-Informed Care Implementation", https://www.samhsa.gov/sites/default/files/programs_campaigns/childrens_mental_health/atc-whitepaper-040616.pdf

[5] Drexler M.(2010), " What You Need to Know About Infectious Disease", National Academies Press (US), <https://www.ncbi.nlm.nih.gov/books/NBK209704/>

[6] Era Dabla-Norris, Hibah Khan and Frederico Lima, (2021), " What Determines Social Distancing? Evidence from Advanced and Emerging Market Economies", Asia & Pacific Department. <https://www.imf.org/-/media/Files/Publications/WP/2021/English/wp1ea2021123-print-pdf.ashx>

[7] Environmental Health and Safety, "Personal Protective Equipment Manual (PPE)", Facilities Management and Development, <https://www.torontomu.ca/content/dam/facilities-management-development/environmental-health-safety/docs/personal-protective-equipment-manual.pdf>

[8] ludmila sevcikova, (2015), " ENVIRONMENTAL HEALTH – HYGIENE", Comenius University in Bratislava, https://www.fmed.uniba.sk/fileadmin/lf/sucasti/Teoreticke_ustavy/Ustav_hygieny/Webpic/Vyucba/Generalmed/ENVIRONMENTAL_HEALTH_-_HYGIENE_Sevcikova_2015.pdf

[9] John Adams, Jamie Bartram, Yves Chartier, (2008), " Essential environmental health standards in health care", WHO Library Cataloguing-in-Publication Data. https://apps.who.int/iris/bitstream/handle/10665/43767/9789241547239_eng.pdf

[10] Kevin Roe,(2023), " A proposed treatment for pathogenic enveloped viruses having high rates of

mutation or replication", *Scandinavian Journal of Immunology.* Volume92, Issue3, <https://doi.org/10.1111/sji.12928>.

[11] Kevin Roe,(2023), "Treatment alternatives for multidrug-resistant fungal pathogens", *Drug Discovery Today*, 10.1016/j.drudis.2023.103596, 28, 6, (103596),.

[12] Khurana, A., Allawadhi, P., Khurana, I., Allwadh, S., Weiskirchen, R., Banothu, A. K., ... & Bharani, K. K. (2021). Role of nanotechnology behind the success of mRNA vaccines for COVID-19. *Nano Today*, 38, 101142.

[13] Muhammad A., Tehreem R., Isha I., Husnain R., Sana S., Marriyam T., Saba I., Wasfa F., Sara K.,(2020), " Treatment and vaccination of Covid-19", *International Journal of Medical and all body Health Research*, Volume 1; Issue 2.

[14] OSHA, (2023), " Personal Protective Equipment", U.S. Department of Labor Occupational Safety and Health Administration. <https://www.osha.gov/sites/default/files/publications/osha3151.pdf>

[15] Peshtewan M., Salah A., Umeed H.,(2018), " HAND HYGIENE PRACTICES AMONG HEALTH CARE WORKERS IN RIZGARY TEACHING HOSPITAL" *Polytechnic Journal: Vol.8 No.3*.

[16] Susanne B.,(2017), " Personal Hygiene in the Health Care Sector: The Road to Health and Well-being", Abena, <https://www.abena.com/Files/Images/Knowledge-center/resources/BR836-Whitepaper-personal-hygiene-health-care-sector.pdf>

[17] Siegel JD, Rhinehart E, Jackson M, Chiarello L, and the Healthcare Infection Control Practices Advisory Committee. (2007) Guideline for isolation precautions: preventing transmission of infectious agents in healthcare settings 2007:1–219. Available at: <https://www.cdc.gov/infectioncontrol/pdf/guidelines/isolation-guidelines.pdf>

[18] SAMHSA’s Trauma and Justice Strategic Initiative, (2014) " Concept of Trauma and Guidance for a Trauma-Informed Approach", U.S. Department of Health and Human Services. https://ncsacw.acf.hhs.gov/userfiles/files/SAMHSA_Trauma.pdf

[19] WHO,(2009), " Guidelines on Hand Hygiene in Health Care", First Global Patient Safety Challenge Clean Care is Safer Care, ISBN 978 92 4 159790 6, https://apps.who.int/iris/bitstream/handle/10665/44102/9789241597906_eng.pdf?sequence=1

[20] Vijayaraddi Vandali, Kamel Abdi, Desai BS, Shivraj S Mangyal, (2020), " Social distancing” a boon to prevent covid-19: a mini review", *Nursing & Care Open Access Journal*, https://www.researchgate.net/publication/343019317_Social_distancing